PUBLIC NOTICE

Notice of Availability

Draft Environmental Assessment and Proposed Finding of No Significant Impact/Finding of No Practicable Alternative for Habitat Restoration for the Tricolored Blackbird – Phase I Beale Air Force Base, Yuba County, California

Habitat Restoration for the Tricolored Blackbird – Phase I Beale Air Force Base – A Draft Environmental Assessment (EA) has been prepared for the creation and/or enhancement of nesting habitat with adjacent suitable foraging habitat for the tricolored blackbird (*Agelaius tricolor*) on Beale Air Force Base (Beale AFB), California, while avoiding conflicts with Beale AFB operations. The Project includes two potential design enhancement options to provide habitat restoration/creation and enhancement opportunities, including (1) expansion/creation of wetland foraging habitat at Blackbird Basins (formerly named Upstream Frisky Weirs), and (2) expansion of nesting habitat at Blackbird Marsh (formerly named Clinic Pond). The EA assesses known, potential, and reasonably foreseeable environmental consequences related to these activities. The analysis considers potential effects of the Preferred Alternative, Reduced Action Alternative and the No Action Alternative on noise; air quality and greenhouse gases; land use, agriculture, recreation, and aesthetics; geologic, mineral, and soil resources; water resources; biological resources; human health and safety; utilities and infrastructure; transportation and traffic; hazardous materials and wastes; socioeconomic resources, population, public services; environmental justice; cultural and tribal cultural resources; energy resources; and wildfires.

Copies of the Draft EA and the proposed Finding of No Significant Impact (FONSI) and Finding of No Practicable Alternative (FONPA) are available for review on the Beale AFB web site: https://www.beale.af.mil/Library/Units/Environmental-Information/ or by calling Mr. Chantz Risse, NEPA/EIAP Program Manager, at (530) 634-9568 or emailing chantz.risse.1@us.af.mil.

Public comments on the Draft FONSI/FONPA and Draft EA must be received no later than August 12, 2022 and directed to Mr. Chantz Risse, NEPA/EIAP Program Manager, at (530) 634-9568, 9 CES/CEIE, 6425 B Street Bldg. 25390, Beale AFB, CA 95903-1708.

DRAFT FINDING OF NO SIGNIFICANT IMPACT (FONSI)
and
FINDING OF NO PRACTICABLE ALTERNATIVE (FONPA)
Habitat Restoration for the Tricolored Blackbird, Phase I
Beale Air Force Base, Yuba County, California

Pursuant to provisions of the National Environmental Policy Act (NEPA), Title 42 United States Code (USC) §§4321 to 4347, implemented by the Council on Environmental Quality (CEQ) Regulations, Title 40, Code of Federal Regulations (CFR) Parts 1500-1508 (The September 14, 2020 version of CEQ NEPA rules is being used, 85 FR 43304-43376), and 32 CFR Part 989, *Environmental Impact Analysis Process*, the U.S. Air Force (Air Force) assessed the potential environmental consequences associated with Phase I of habitat restoration efforts for the tricolored blackbird at Beale Air Force Base (AFB), Yuba County, California. Pursuant to the California Code of Regulations (Title 14, §15220 and following) the Central Valley Regional Water Quality Control Board intends to rely on the EA and FONSI/FONPA in the place of a mitigated negative declaration and believes that the federal documents meet regulatory requirements. This Environmental Assessment (EA) is incorporated by reference into this finding per 40 CFR 1508.13 and 40 CFR 1502.21.

PURPOSE AND NEED FOR THE PROPOSED ACTION

The tricolored blackbird is currently listed as threatened under the California Endangered Species Act and is subject to regulations under the Migratory Bird Treaty Act (MBTA), as well as the Sikes Act, an act to promote effectual planning, development, maintenance, and coordination of wildlife, fish, and game conservation and rehabilitation in military reservations, approved September 15, 1960. Breeding colonies in California historically attracted tens or hundreds of thousands of adults, but the species has been in decline in recent years due to crop-harvesting activities, insufficient insect resources, and habitat loss resulting from conversion of rangeland to vineyards, nut orchards, other agricultural crops, and urban development.

The purpose of the Proposed Action is to create and/or enhance potential nesting habitat and adjacent suitable foraging habitat to benefit tricolored blackbird at Beale AFB, to be achieved at a distance of at least two miles from the Beale AFB runway. The created and/or enhanced nesting and foraging habitat would partially replace habitat removed near the flight line and prevent unsafe flying operations resulting from bird collisions.

The need of the action includes:

1. The tricolored blackbird is protected under the federal MBTA and is a Department of Defense (DoD) mission-sensitive Species.
2. In June 2015, there was a flight safety issue because tricolored blackbird were crossing the runway in large numbers; tricolored blackbird nesting habitat (12 acres) was removed near the runway, and in partnering meetings between the U.S. Air Force (USAF) and United States Fish and Wildlife Service (USFWS), the USAF agreed to establish new habitat elsewhere away from the runway for the safety of aircraft and the tricolored blackbird.

3. Subsequently, Beale AFB documented the regulatory agreement for tricolored blackbird habitat restoration in the Beale AFB Integrated Natural Resources Management Plan (INRMP), making it a federal Sikes Act requirement, once it was signed by the Beale AFB Wing Commander, USFWS and California Department of Fish and Wildlife (CDFW).

The EA, incorporated by reference into this finding, analyzes the potential environmental consequences of phase I habitat restoration efforts for the tricolored blackbird on Beale AFB and provides environmental protection measures to avoid or reduce adverse environmental impacts from those actions.

The EA considers all potential impacts of Alternative 1 (Preferred Alternative), Alternative 2 (Reduced Action Alternative) and the No-Action Alternative. The EA also considers cumulative environmental impacts with other projects within the Region of Influence.

DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

Alternative 1 – Preferred Alternative

The Preferred Alternative (Proposed Action) would identify alternative opportunities to create and/or enhance nesting habitat with adjacent suitable foraging habitat for tricolored blackbirds on AFB, while avoiding conflicts with AFB operations.

The Preferred Alternative aims to maximize integration of required habitat components into a diverse matrix that will ultimately be successfully occupied by large tricolored blackbird colonies. The Preferred Alternative includes two design enhancement opportunities to provide habitat restoration/creation and enhancement opportunities, including (1) expansion/creation of wetland foraging habitat at Blackbird Basins, and (2) expansion of nesting habitat at Blackbird Marsh.

Tricolored blackbirds require the following habitat components to produce successful nesting colonies:

1. Open, accessible water
2. Protected nesting substrate, including either flooded or thorny/spiny vegetation
3. Suitable foraging space that provides adequate insect prey within a few kilometers of the nesting colony.

Several methods may be used to create or enhance nesting and foraging habitats at Blackbird Marsh and Blackbird Basins. Grading, dam improvements, and augmented water supply will be used to increase the area of shallow inundation at Blackbird Marsh to promote growth of cattails (*Typha* spp.) that can provide necessary nesting substrate. In addition, planting of desirable vegetation and installation of experimental artificial nesting structures will be used to provide attractive nesting substrates. Grading and repair of impoundments may be used in the upstream tributaries of the Hutchinson Creek system, southwest of PAVE PAWS to enlarge adjacent seasonal wetlands to provide more foraging habitat (Blackbird Basins). Grazing will be maintained and managed in the adjacent uplands at both sites to enhance upland foraging habitat; however, nesting areas will be fenced to avoid destruction by cattle. Unavoidable adverse effects would result from implementation of the Preferred Alternative. These effects are anticipated to be minor.

Alternative 2 – Reduced Action Alternative

Similar to the Proposed Action (Preferred Alternative), the Reduced Action Alternative would result in the creation and/or enhancement of nesting habitat with adjacent suitable foraging habitat for tricolored blackbirds at Blackbird Basins and Blackbird Marsh. However, as compared to the Proposed Action, the four existing impoundments will not be raised and/or repaired. In addition, under this alternative, instead of major alterations to the existing dam, smaller impoundments (multiple "terraced" impoundments) will be created upstream of the existing dam to expand the nesting habitat at Blackbird Marsh within the same footprint as the Proposed Action. Dam improvements would be limited to those deemed necessary by engineers to maintain the safety and structural integrity of the existing dam and spillway.

No-Action Alternative

Under the No Action Alternative, tricolored blackbird habitat would continue to be limited or reduced due to prior loss of habitat, as there would be no creation or enhancement of additional potential nesting habitat and adjacent suitable foraging habitat. In addition, there would be continued erosion, dam degradation and the potential impairments to water quality due to impoundment degradation.

SUMMARY OF FINDINGS

Comparison of Environmental Consequences

Resource Area	Alternative 1 Preferred Alternative (Proposed Action)	Alternative 2 Reduced Action Alternative	No Action Alternative
Noise	Short-term, minor adverse	Short-term, minor adverse	None – No change
Air Quality and Greenhouse Gases	Short-term, negligible	Short-term, negligible	None – No change
Land Use, Agriculture, Recreation, and Aesthetics	***Land Use*:** None – No change ***Agriculture:*** None – No change ***Recreation:*** Short-term, minor, adverse ***Aesthetics:*** Short-term, minor, adverse; long-term, beneficial	***Land Use*:** None – No change ***Agriculture:*** None – No change ***Recreation:*** Short-term, minor, adverse ***Aesthetics:*** Short-term, minor, adverse; long-term, beneficial	***Land Use:*** None – No change ***Agriculture:*** None – No change ***Recreation:*** None – No change ***Aesthetics:*** Long-term, minor, adverse
Geologic, Mineral, and Soil Resources	***Soils:*** Short-term, minor, adverse; long-term, moderate, beneficial ***Minerals:*** None – No change ***Geology:*** None – No change ***Topography:*** Long-term, moderate, beneficial	***Soils:*** Short-term, minor, adverse; long-term, moderate, beneficial ***Minerals:*** None – No change ***Geology:*** None – No change ***Topography:*** Long-term, moderate, beneficial	***Soils:*** Long-term, minor, adverse ***Minerals:*** None – No change ***Geology:*** None – No change ***Topography:*** Long-term, minor, adverse
Water Resources	***Surface Water:*** Short-term, minor, adverse Long-term, beneficial ***Groundwater:*** Long-term, negligible ***Wetlands:*** Short-term, adverse Long-term, major, beneficial ***Floodplains:*** None – No change	***Surface Water:*** Short-term, minor, adverse Long-term, beneficial ***Groundwater:*** Long-term, negligible ***Wetlands:*** Short term, adverse Long-term, major, beneficial ***Floodplains:*** None – No change	***Surface Water:*** Long-term, minor, adverse ***Groundwater:*** None – No change ***Wetlands:*** Long-term, minor, adverse ***Floodplain:*** None – No change
Coastal Zone Management	None – No change	None – No change	None – No change

Resource Area	Alternative 1 Preferred Alternative (Proposed Action)	Alternative 2 Reduced Action Alternative	No Action Alternative
Biological Resources	***Vegetation:*** Short-term, minor, adverse; Long-term, moderate, adverse; Long-term, beneficial ***Wildlife:*** Short-term, minor, adverse; Long-term, moderate, adverse; Long-term, moderate, beneficial ***Threatened and Endangered Species:*** Short-term, minor, adverse; Long-term, minor, adverse; Long-term, major, beneficial	***Vegetation:*** Short-term, minor, adverse; Long-term, moderate, adverse; Long-term, beneficial ***Wildlife:*** Short-term, minor, adverse; Long-term, moderate, adverse; Long-term, moderate, beneficial ***Threatened and Endangered Species:*** Short-term, minor, adverse; Long-term, minor, adverse; Long-term, major, beneficial	***Vegetation:*** None – No change ***Wildlife:*** Long-term, moderate, adverse ***Threatened and Endangered Species:*** Long-term, moderate, adverse
Human Health and Safety	***Human Health and Safety:*** Short-term, minor, adverse ***Flight Safety:*** Long-term, beneficial	***Human Health and Safety:*** Short-term, minor, adverse ***Flight Safety:*** Long-term, beneficial	None – No change
Utilities and Infrastructure	Short-term, minor, adverse; Long-term, minor, beneficial	Short-term, minor, adverse; Long-term, minor, beneficial	Long-term, minor, adverse
Transportation and Traffic	Short-term, minor, adverse	Short-term, minor, adverse	None – No change
Hazardous Materials and Wastes	Short-term, negligible	Short-term, negligible	None – No change
Socioeconomic Resources, Population, and Public Services	***Socioeconomics:*** None – No change ***Population:*** None – No change ***Public Service:*** None – No change	***Socioeconomics:*** None – No change ***Population:*** None – No change ***Public Service:*** None – No change	None – No change
Cultural and Tribal Cultural Resources	None – No change	None – No change	None – No change
Energy Resources	Short-term, minor, adverse Long-term, minor, adverse	Short-term, minor, adverse Long-term, minor, adverse	None – No change
Wildfires	None – No change	None – No change	None – No change
Environmental Justice	No impact	No impact	None – No change

Finding of No Practicable Alternative

Executive Order (EO) 11990, *Protection of Wetlands*, (24 May 1977) directs agencies to avoid to the extent possible the long- and short-term adverse impacts associated with the destruction or modification of wetlands and to avoid direct or indirect support of new construction in wetlands wherever there is a practicable alternative. Federal agencies are to avoid new construction in wetlands, unless the agency finds there is no practicable alternative to work within wetlands and the proposed projects incorporate all possible measures to limit harm associated with work done in wetlands. Agencies should use economic and environmental data, agency mission statements, and any other pertinent information when deciding whether or not to build in wetlands. EO 11990 directs each agency to provide for early public review of plans for construction in wetlands. In accordance with EO 11990 and 32 CFR Part 989, a Finding of No Practicable Alternative (FONPA) must accompany the Finding of No Significant Impact (FONSI) stating why there are no practicable alternatives to development within or affecting wetland areas.

Similarly, EO 11988, *Floodplain Management* (May 24, 1977), requires Federal agencies to avoid to the extent possible the long and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative. If it is found that there is no practicable alternative, the agency must minimize potential harm to the floodplain and circulate a notice explaining why the action is to be located in the floodplain prior to taking action. Finally, new construction in a floodplain must apply accepted flood proofing and flood protection to include elevating structures above the base flood level rather than filling in land. In accordance with EO 11988, a FONPA must accompany the FONSI stating why there are no practicable alternatives to development within or affecting floodplains.

Wetlands: The Proposed Action would include all practicable measures to minimize harm to wetlands. Wetland impacts would be reduced to the maximum extent possible through project design and implementation of environmental protection measures. Pursuant to §404(b)(1) of the CWA, wetland impacts must be avoided to the greatest extent practicable. Beale AFB received concurrence on a preliminary jurisdictional determination (PJD) for a LiDAR-based aquatic resources delineation in accordance with USACE Regulatory Guidance Letter 08-02, for the Beale AFB Planning Area in a letter dated October 23, 2012 (USACE 2012). For this project, a Delineation Area of 132.113 acres was reviewed within the area of the 2012 PJD: 70.835 acres near Blackbird Basins and 61.278 acres near Blackbird Marsh. Sites for enhancement activities were verified and reviewed during field visits on September 26, 2019 and July 22, 2020, and aerial photography in 2021. Additional field verifications were conducted by the Center for Environmental Management of Military Lands on April 21, 2021 and April 1, 2022. This review served to fine-tune the nature of aquatic features from the 2012 PJD: streams were classified into "ephemeral", "intermittent", or "manmade (ephemeral)" channels; some wetlands were reclassified as vernal pools from Beale AFB "vernal pool" mapping; and some unvegetated "deep water" features were re-classified as wetlands if they appeared to maintain greater than 5 percent vegetative cover of hydrophytic species. Location and acreage of aquatic features remained essentially the same.

The Proposed Action includes the improvement of the existing dam and spillway at Blackbird Marsh, and the expansion and enhancement of jurisdictional areas at Blackbird Basins and Blackbird Marsh. There may be temporary impacts to jurisdictional areas where grading of the jurisdictional expansion areas meets with existing wetlands and waters. Project activities would result in an estimated 10.172 acres and 11,936 linear feet of temporary impacts to waters of the U.S., as the result of impoundment and dam repair, and grading and channel repair for wetland augmentation. These temporary impacts would be restored onsite. Project activities may cause 0.596 acres and 1,623 linear feet of permanent impacts to waters of the U.S. as the result of impoundment and dam repair, and rocked channel outlets for water augmentation. In addition, an estimated total of 14.450 acres of new wetlands would be created as the result of the project. Measures to minimize wetland impacts may include installation of buffer areas along the perimeter of wetlands or erosion controls to prevent sedimentation in adjacent wetlands. Activities associated with these projects would be conducted in accordance with the California General National Pollutant Discharge Elimination System permit and its associated procedures as detailed in the Section 7 Informal Consultation.

As noted in the attached EA, there are no practicable alternatives to the Proposed Action that would avoid all impacts or further minimize impacts to wetlands. Alternatives that were reviewed include two on-base alternatives, which include the Reduced Action Alternative, as well as the Broskey Lake Alternative. Due to the low-quality foraging habitat and additional water and power needs to support seasonal fluctuations, the Broskey Lake Alternative was eliminated from further consideration. One off-site alternative was reviewed. However, due to the uncertainly and processes involved in establishing conservation easements and protecting vast acreage of surrounding land that would be capable of ensuring both successful breeding and foraging habitat, this alternative is not carried forward for analysis in this EA. Taking all the environmental, economic, and other pertinent factors into account, pursuant to EO 11990, the authority delegated by Secretary of the Air Force Order 791.1, and taking into consideration the submitted information, I find that there is no practicable alternative to this action and the Proposed Action includes all practical measures to minimize harm to the environment.
Floodplains: The Blackbird Basins and the Blackbird Marsh sites are not located with the 100-year floodplain. However, both sites are located in the 500-year floodplain as shown in Figure 2.3.e of the 2019 Integrated Natural Resources Management Plan (Beale AFB 2019). However, none of the activities associated with the Proposed Action would negatively affect floodplains. The improvements of the dam at Blackbird Marsh would not alter the hydrology and fluvial processes within the project area; overall impacts to surface water would be beneficial. The Proposed Action would not lead to loss of, or long-term impacts to floodplains and would be largely beneficial. Taking all the environmental, economic, and other pertinent factors into account, pursuant to EO 11988, the authority delegated by Secretary of the Air Force Order 791.1, and taking into consideration the submitted information, I find that the Proposed Action includes all practical measures to minimize harm to the environment.

Finding of No Significant Impact

After careful review of the EA, which is incorporated by reference, I have concluded that the Proposed Action would not have a significant impact either by itself or cumulatively on the quality of the natural or human environment. Therefore, issuance of a FONSI is warranted, and

an Environmental Impact Statement/Environmental Impact Report is not required. This analysis fulfills the requirements of NEPA and implementing regulations promulgated by the Council on Environmental Quality (CEQ). Accordingly, the requirements of the National Environmental Policy Act of 1969 and the CEQ, and CFR Title 32, Part 989, Environmental Impact Assessment Process, have been fulfilled, and an Environmental Impact Statement is not necessary and will not be prepared. This analysis also fulfills the requirements of CEQA and an Environmental Impact Report is not necessary and will not be prepared.

[SIGNATURE] **[Date]**

Dee Jay Katzer, Col, USAF
Chief, Civil Engineer Division (ACC/A4C)

Draft
Environmental Assessment for Habitat Restoration for the Tricolored Blackbird – Phase I Beale Air Force Base, California

JULY 2022

Beale Air Force Base
Environmental Element
6425 B Street
Beale Air Force Base, California 95903-1712

Privacy Advisory

This Environmental Assessment (EA) is provided for public comment in accordance with the National Environmental Policy Act (NEPA); the President's Council on Environmental Quality (CEQ) NEPA Regulations (40 Code of Federal Regulations [CFR] FR Parts 1500 to 1508); and 32 CFR Part 989, Environmental Impact Analysis Process (EIAP). The Environmental Impact Analysis Process provides an opportunity for public input on Air Force decision-making, allows the public to offer inputs on alternative ways for the Air Force to accomplish what it is proposing, and solicits comments on the Air Force's analysis of environmental effects.

Public commenting allows the Air Force to make better, informed decisions. Letters or other written or oral comments provided may be published in the EA. As required by law, comments provided will be addressed in the EA and made available to the public. Providing personal information is voluntary. Any personal information provided will be used only to identify your desire to make a statement during the public comment portion of any public meetings or hearings or to fulfill requests for copies of the EA or associated documents. Private addresses will be compiled to develop a mailing list for those requesting copies of EA; however, only the names of the individuals making comments and specific comments will be disclosed. Personal home addresses and phone numbers will not be published in the EA.

Compliance with Section 508 of the Rehabilitation Act

This document is compliant with Section 508 of the Rehabilitation Act. This allows assistive technology to be used to obtain the available information from the document. Due to the nature of graphics, figures, tables, and images occurring in the document, accessibility is limited to a descriptive title for each item.

Compliance with Revised CEQ Regulations

This document has been verified that it does not exceed the 75 pages, not including appendices, as defined in 40 CFR § 1501.5(f). As defined in 40 CFR § 1508.1(v) a "page" means 500 words and does not include maps, diagrams, graphs, tables, and other means of graphically displaying quantitation or geospatial information.

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LIST OF ACRONYMS AND ABBREVIATIONS

ºF	Degrees Fahrenheit
µg/m^3	Microgram(s) per cubic meter
%	Percent
9 RW	9th Reconnaissance Wing
ACAM	Air Conformity Applicability Model
AFB	Air Force Base
AFI	Air Force Instruction
AFMAN	Air Force Manual
AFOSH	Air Force Occupational and Environmental Safety, Fire Protection, and Health
AMM	Avoidance and Minimization Measure
AMSL	Above Mean Sea Level
APE	Area of Potential Effect
AQCR	Air Quality Control Region
BASH	Bird/wildlife Aircraft Strike Hazard
BMP	Best Management Practice
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CATM	Combat Arms Training and Maintenance
CDFW	California Department of Fish and Wildlife
CESA	California Endangered Species Act
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CO2e	Carbon dioxide equivalent
CRPR	California Rare Plant Rank
CWA	Clean Water Act
CZMA	Coastal Zone Management Act
dBA	Decibels A
DMM	Discarded Military Munitions
DNL	Day-Night Average Sound Level
DoD	Department of Defense
DPR	Department of Parks and Recreation
DWR	Department of Water Resources
EA	Environmental Assessment
EIAP	Environmental Impact Analysis Process
EIS	Environmental Impact Statement

EO	Executive Order
EPA	U.S. Environmental Protection Agency
ERP	Environmental Restoration Program
ESA	Endangered Species Act
FEMA	Emergency Management Agency
FONPA	Finding of No Practicable Alternative
FONSI	Finding of No Significant Impact
FRAQMD	Feather River Air Quality Management District
GPD	Gallons per day
GHG	Greenhouse gas
GIS	Geographic Information System
INRMP	Integrated Natural Resources Management Plan
IPaC	Information for Planning and Consultation
IPMG	Invasive Plant Management Guidelines
L_{eq}	Equivalent Sound Level
MBTA	Migratory Bird Treaty Act
MC	Munitions Constituents
MEC	Munitions or Explosives of Concern
mgd	Million gallon(s) per day
MMRP	Military Munitions Response Program
MPPEH	Munitions Presenting a Potential Explosive Hazard
MRS	Munitions Response Site
NA	Data not available
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act of 1966
NLAA	Not likely to adversely affect
NMFS	National Marine Fisheries Service
NRHP	National Register of Historic Places
OHWM	Ordinary high-water mark
OPLAN	BASH Reduction Operational Plan
PJD	Preliminary Jurisdictional Determination
$PM_{2.5}$	Particulate matter equal to or less than 2.5 microns in diameter
PM_{10}	Particulate matter equal to or less than 10 microns in diameter
ppb	Part(s) per billion
ppm	Part(s) per million

PSD	Prevention of Significant Deterioration
RCRA	Resource Conservation and Recovery Act
ROI	Region of Influence
RWQCB	Regional Water Quality Control Board
SAC	Strategic Air Command
SAGE	Semi-Automatic Ground Environment
SHPO	State Historic Preservation Officer
SR	State Route
SSR	Shingle Springs Rancheria
SSPP	Strategic Sustainability Performance Plan
SWPPP	Stormwater Pollution Prevention Plan
TBWG	Tricolored Blackbird Working Group
TRBL	Tricolored blackbird
UAIC	United Auburn Indian Community
USACE	U.S. Army Corps of Engineers
USAF	U.S. Air Force
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
UXO	Unexploded ordinance
WYBC	Western yellow-billed cuckoo

EXECUTIVE SUMMARY

INTRODUCTION

This Environmental Assessment (EA) has been prepared to analyze impacts from the creation and/or enhancement of nesting habitat with adjacent suitable foraging habitat for the tricolored blackbird (*Agelaius tricolor*) on Beale Air Force Base (Beale AFB), California (Figures 1 and 2), while avoiding conflicts with Beale AFB operations. The Preferred Alternative includes two potential design enhancement options to provide habitat restoration/creation and enhancement opportunities, including (1) expansion/creation of wetland foraging habitat at Blackbird Basins (formerly named Upstream Frisky Weirs), and (2) expansion of nesting habitat at Clinic Pond now referred to as Blackbird Marsh for the EA.

This document has been prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, as amended (42 U.S. Code 4321 et seq.); the Council on Environmental Quality (CEQ) regulations implementing the procedural provisions of NEPA, 40 Code of Federal Regulations (CFR) Parts 1500–1508 (The September 14, 2020 version of CEQ NEPA rules is being used, 85 FR 43304-43376); and U.S. Air Force (USAF) policy and procedures (32 CFR Part 989). In addition, this document is also intended to comply with the requirements of the California Environmental Quality Act (CEQA) (California Public Resources Code 21000-21177) and the Guidelines for CEQA (Sections 15000–15387, California Code of Regulations, Title 14, Chapter 3) for the purposes of fulfilling state permitting requirements.

PURPOSE AND NEED FOR THE PROPOSED ACTION

The tricolored blackbird is currently listed as threatened under the California Endangered Species Act (California Department of Fish and Wildlife [CDFW] 2018) and is subject to regulations under the Migratory Bird Treaty Act (MBTA) as well as the Sikes Act, an act to promote effectual planning, development, maintenance, and coordination of wildlife, fish, and game conservation and rehabilitation in military reservations, approved September 15, 1960. Breeding colonies in California historically attracted tens or hundreds of thousands of adults, but the species has been in decline in recent years due to crop-harvesting activities, insufficient insect resources, and habitat loss resulting from conversion of rangeland to vineyards, nut orchards, other agricultural crops, and urban development (Beedy et al. 2018).

In June 2015, there was a flight safety issue because tricolored blackbird were crossing the runway in large numbers; tricolored blackbird nesting habitat (12 acres) was removed near the runway, and in subsequent partnering meetings between the U.S. Air Force (USAF) and United States Fish and Wildlife Service (USFWS), the USAF agreed to establish new habitat elsewhere away from the runway for the safety of aircraft and the tricolored blackbird. This action then became a federal Sikes Act requirement when it was added to the Beale AFB Integrated Natural Resources Management Plan (INRMP) and signed by the Beale AFB Wing Commander, USFWS and CDFW.

The purpose of the Proposed Action is to create and/or enhance potential nesting habitat and adjacent suitable foraging habitat to benefit tricolored blackbird at Beale AFB, to be achieved at

a distance of at least two miles from the Beale AFB runway. The created and/or enhanced nesting and foraging habitat would partially replace habitat removed near the flight line and prevent unsafe flying operations resulting from bird collisions.

DESCRIPTION OF THE ALTERNATIVES

ALTERNATIVE 1 – PREFERRED ALTERNATIVE

The Proposed Action is the preferred alternative and would identify alternative opportunities to create and/or enhance nesting habitat with adjacent suitable foraging habitat for tricolored blackbirds on Beale AFB, while avoiding conflicts with Beale AFB missions.

The Proposed Action aims to maximize integration of required habitat components into a diverse matrix that would be successfully occupied by large tricolored blackbird colonies. The Proposed Alternative includes two potential design enhancement options to provide habitat restoration/creation and enhancement opportunities, including (1) expansion/creation of wetland foraging habitat at Blackbird Basins and (2) expansion of nesting habitat at Blackbird Marsh.

Tricolored blackbirds require the following habitat components to produce successful nesting colonies (Beedy 2008):

1. Open, accessible water[1]
2. Protected nesting substrate, including either flooded or thorny/spiny vegetation
3. Suitable foraging space[2] that provides adequate insect prey within a few kilometers of the nesting colony.

Several methods may be used to create or enhance nesting and foraging habitats at Blackbird Marsh and Blackbird Basins. Grading, dam improvements, and augmented water supply would be used to increase the area of shallow inundation at Blackbird Marsh to promote growth of cattails (*Typha* spp.) which can provide necessary nesting habitat. In addition, planting of desirable vegetation and installation of experimental artificial nesting structures would be used to provide attractive nesting habitats. Grading and repair of impoundments may be used in the upstream tributaries of the Hutchinson Creek system, southwest of PAVE PAWS to enlarge adjacent seasonal wetlands to provide more foraging habitat (Blackbird Basins). Grazing would be maintained and managed in the adjacent uplands at both sites to enhance upland foraging habitat; however, nesting areas would be fenced to avoid destruction by cattle.

1 Open water areas are required for drinking and bathing, and could include a stock pond, open canal, or marsh with open water at least at the edges. Examples of unsuitable water sources include dense, overgrown freshwater marshes with no exposed water, shaded riparian areas, and stagnant puddles with no source of freshwater input (Beedy, pers. comm. 2018).

2 Suitable foraging space would include a relatively flat or gently sloping open pasture or grassland with moderate grazing and moist soil and low vegetation (i.e., less than 10 inches) of at least ~2,000 acres within 5 miles of the colony site (the closer the better). Examples of unsuitable foraging habitats include steep areas where water does not accumulate, ungrazed grasslands with tall vegetation, row crops, vineyards, orchards, and riparian habitats (Beedy, pers. comm. 2018).

ALTERNATIVE 2 – REDUCED ACTION ALTERNATIVE

Similar to the Preferred Alternative, the Reduced Action Alternative would result in the creation and/or enhancement of nesting habitat with adjacent suitable foraging habitat for tricolored blackbirds at Blackbird Basins and Blackbird Marsh. However, as compared to the Proposed Action, the four existing impoundments would not be raised and/or repaired. In addition, under this alternative, instead of major alterations to the existing dam, smaller impoundments (multiple "terraced" impoundments) would be created upstream of the existing dam to expand the nesting habitat at Blackbird Marsh within the same footprint as the Proposed Action. Dam improvements would be limited to those deemed necessary by engineers to maintain the safety and structural integrity of the existing dam and spillway.

NO-ACTION ALERNATIVE

Under the No Action Alternative, tricolored blackbird habitat would not be created, and enhancement of additional potential nesting habitat and adjacent suitable foraging habitat would not occur. In addition, there would be continued erosion, dam degradation and the potential impairments to water quality due to impoundment degradation (continued or increased dam seepage and spillway erosion).

In addition, under the No Action Alternative, Beale AFB would not fulfill the agreement with the U.S. Fish and Wildlife Service (USFWS) to create and/or enhance potential nesting habitat to benefit tricolored blackbird at a location at least two miles from the runway, as to not impact safe flying and airfield operations.

SUMMARY OF ENVIRONMENTAL IMPACTS

Table ES-1 provides a brief summary and comparison of potential impacts under each alternative.

Unavoidable adverse effects would result from implementation of the Proposed Action. These effects are anticipated to be minor.

Table ES-1 Comparison of Environmental Consequences

Resource Area	Alternative 1 Preferred Alternative (Proposed Action)	Alternative 2 Reduced Action Alternative	No Action Alternative
Noise	Short-term, minor adverse	Short-term, minor adverse	None – No change
Air Quality and Greenhouse Gases	Short-term, negligible	Short-term, negligible	None – No change
Land Use, Agriculture, Recreation, and Aesthetics	***Land Use*:** None – No change ***Agriculture:*** None – No change ***Recreation:*** Short-term, minor, adverse ***Aesthetics:*** Short-term, minor, adverse; long-term, beneficial	***Land Use*:** None – No change ***Agriculture:*** None – No change ***Recreation:*** Short-term, minor, adverse ***Aesthetics:*** Short-term, minor, adverse; long-term, beneficial	***Land Use:*** None – No change ***Agriculture:*** None – No change ***Recreation:*** None – No change ***Aesthetics:*** Long-term, minor, adverse
Geologic, Mineral, and Soil Resources	***Soils:*** Short-term, minor, adverse; long-term, moderate, beneficial ***Minerals:*** None – No change ***Geology:*** None – No change ***Topography:*** Long-term, moderate, beneficial	***Soils:*** Short-term, minor, adverse; long-term, moderate, beneficial ***Minerals:*** None – No change ***Geology:*** None – No change ***Topography:*** Long-term, moderate, beneficial	***Soils:*** Long-term, minor, adverse ***Minerals:*** None – No change ***Geology:*** None – No change ***Topography:*** Long-term, minor, adverse
Water Resources	***Surface Water:*** Short-term, minor, adverse Long-term, beneficial ***Groundwater:*** Long-term, negligible ***Wetlands:*** Short-term, adverse Long-term, major, beneficial ***Floodplains:*** None – No change	***Surface Water:*** Short-term, minor, adverse Long-term, beneficial ***Groundwater:*** Long-term, negligible ***Wetlands:*** Short term, adverse Long-term, major, beneficial ***Floodplains:*** None – No change	***Surface Water:*** Long-term, minor, adverse ***Groundwater:*** None – No change ***Wetlands:*** Long-term, minor, adverse ***Floodplain:*** None – No change
Coastal Zone Management	None – No change	None – No change	None – No change
Biological Resources	***Vegetation:*** Short-term, minor, adverse; Long-term, moderate, adverse; Long-term, beneficial ***Wildlife:*** Short-term, minor, adverse; Long-term, moderate, adverse; Long-term, moderate, beneficial ***Threatened and Endangered Species:*** Short-term, minor, adverse; Long-term, minor, adverse; Long-term, major, beneficial	***Vegetation:*** Short-term, minor, adverse; Long-term, moderate, adverse; Long-term, beneficial ***Wildlife:*** Short-term, minor, adverse; Long-term, moderate, adverse; Long-term, moderate, beneficial ***Threatened and Endangered Species:*** Short-term, minor, adverse; Long-term, minor, adverse; Long-term, major, beneficial	***Vegetation:*** None – No change ***Wildlife:*** Long-term, moderate, adverse ***Threatened and Endangered Species:*** Long-term, moderate, adverse
Human Health and Safety	***Human Health and Safety:*** Short-term, minor, adverse ***Flight Safety:*** Long-term, beneficial	***Human Health and Safety:*** Short-term, minor, adverse ***Flight Safety:*** Long-term, beneficial	None – No change

Table ES-1 Comparison of Environmental Consequences

Resource Area	Alternative 1 Preferred Alternative (Proposed Action)	Alternative 2 Reduced Action Alternative	No Action Alternative
Utilities and Infrastructure	Short-term, minor, adverse; Long-term, minor, beneficial	Short-term, minor, adverse; Long-term, minor, beneficial	Long-term, minor, adverse
Transportation and Traffic	Short-term, minor, adverse	Short-term, minor, adverse	None – No change
Hazardous Materials and Wastes	Short-term, negligible	Short-term, negligible	None – No change
Socioeconomic Resources, Population, and Public Services	***Socioeconomics:*** None – No change ***Population:*** None – No change ***Public Service:*** None – No change	***Socioeconomics:*** None – No change ***Population:*** None – No change ***Public Service:*** None – No change	None – No change
Cultural and Tribal Cultural Resources	None – No change	None – No change	None – No change
Energy Resources	Short-term, minor, adverse Long-term, minor, adverse	Short-term, minor, adverse Long-term, minor, adverse	None – No change
Wildfires	None – No change	None – No change	None – No change
Environmental Justice	No impact	No impact	None – No change

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1. PURPOSE AND NEED FOR THE PROPOSED ACTION

1.1 INTRODUCTION

This Environmental Assessment (EA) defines the scope of the Proposed Action as well as viable or reasonable alternatives to the creation and/or enhancement of nesting habitat with adjacent suitable foraging habitat for tricolored blackbird (*Agelaius tricolor*) on Beale Air Force Base (Beale AFB), California (Figures 1 and 2), while avoiding conflicts with Beale AFB missions. The Proposed Action includes two potential design enhancement options to provide habitat restoration/creation and enhancement opportunities, including (1) expansion/creation of wetland foraging habitat at Blackbird Basins, and (2) expansion of nesting habitat at Blackbird Marsh.

This document has been prepared in accordance with the with the National Environmental Policy Act (NEPA) of 1969 (Public Law [P.L.)] 91-190); the President's Council on Environmental Quality (CEQ) Regulations (40 Code of Federal Regulations [CFR] 1500-1508); 32 CFR 989, the Environmental Impact Analysis Process (EIAP); Planning Requirements in EIAP Guidance; and the Air Force EIAP Desk Reference.

This document is also intended to comply with the requirements of the California Environmental Quality Act (CEQA) (California Public Resources Code 21000–21177) and the Guidelines for CEQA (Sections 15000–15387, California Code of Regulations, Title 14, Chapter 3) for the purposes of fulfilling state permitting requirements.

1.2 PURPOSE AND NEED FOR THE PROPOSED ACTION

The purpose of the action is to create high quality tricolored blackbird nesting and foraging habitat.

The need of the action includes:

1. The tricolored blackbird (TRBL) is protected under the federal Migratory Bird Treaty Act (MBTA) and is a Department of Defense (DoD) mission-sensitive Species.
2. In June 2015, there was a flight safety issue because TRBL were crossing the runway in large numbers; TRBL nesting habitat (12 acres) was removed near the runway, and in partnering meetings between the U.S. Air Force (USAF) and United States Fish and Wildlife Service (USFWS), the USAF agreed to establish new habitat elsewhere away from the runway for the safety of aircraft and the TRBL.
3. Subsequently, Beale AFB documented the regulatory agreement for TRBL habitat restoration in the Beale AFB Integrated Natural Resources Management Plan (INRMP), making it a federal Sikes Act requirement, once it was signed by the Beale AFB Wing Commander, USFWS and California Department of Fish and Wildlife (CDFW).

1.3 SUMMARY OF KEY ENVIRONMENTAL QUALITY COMPLIANCE REQUIREMENTS

1.3.1 National Environmental Policy Act

NEPA (Public Law 91-190, 42 US Code § 4321 et seq.) requires a systematic, interdisciplinary approach to evaluate all potential effects of a proposed federal action and alternatives. Under 32 CFR Part 989, the Air Force provides environmental impact analysis procedures for compliance with NEPA regulations. This analysis is documented in an EA and, if supported, with a Finding of No Significant Impact (FONSI). The EA is used in the Air Force's decision-making process for implementing a Proposed Action. The information presented in this document will serve as the basis for deciding whether the Proposed Action would result in a significant impact to the human or natural environment, or whether no significant impacts would occur, in which case a FONSI would be issued. If a FONSI cannot be supported, then the Air Force would decide whether to conduct mitigation to reduce impacts below the level of significance, prepare an Environmental Impact Statement (EIS), or choose the No Action Alternative. The NEPA process includes a study of other relevant environmental laws, regulations, and Executive Orders (EOs) and addresses these collectively in a concurrent analysis, which enables decision makers to have a comprehensive view of major environmental issues and requirements associated with a Proposed Action. Coordination with other environmental agencies may occur for the Proposed Action. This document is also intended to comply with the requirements of the CEQA.

Pursuant to the requirements of Executive Order (EO) 11990, *Protection of Wetlands*, and EO 11988, *Floodplain Management*, if the execution of any of the Proposed Actions or alternatives would unavoidably occur in a wetland or floodplain, a Finding of No Practicable Alternative (FONPA) would be prepared in conjunction with the FONSI.

1.3.2 Applicable Environmental and Regulatory Compliance

Regulatory requirements relevant to the Proposed Action have been identified for the improved habitat. Regulatory requirements under the following laws, among others, are assessed:

- Noise Control Act of 1972
- Clean Air Act (CAA) of 1970
- Clean Water Act (CWA) of 1972
- National Historic Preservation Act of 1966
- Archaeological Resources Protection Act of 1979
- American Indian Religious Freedom Act of 1978
- Native American Graves Protection and Repatriation Act of 1990
- Endangered Species Act (ESA) of 1973
- Fish and Wildlife Conservation Act
- Migratory Bird Treaty Act of 1918
- Bald and Golden Eagle Protection Act of 1940, as amended
- Resource Conservation and Recovery Act (RCRA) of 1989
- Comprehensive Environmental Response, Compensation, and Liability Act of 1980

- Toxic Substances Control Act of 1970
- Occupational Safety and Health Act of 1970
- Intergovernmental Coordination Act of 1976
- Federal Environmental Pesticide Act of 1972
- Federal Land Use Policy and Management Act
- Federal Noxious Weed Act of 1974
- Rivers and Harbors Act of 1899
- Soil and Water Conservation Act
- Sikes Act, as amended

The selected alternative must also comply with the following:

- EO 11593, *Protection and Enhancement of the Cultural Environment*
- EO 11988, *Floodplain Management*
- EO 11990, *Protection of Wetlands*
- EO 12372, *Intergovernmental Review of Federal Programs*
- EO 12898, *Federal Actions to Address Environmental Justice in Minority and Low-Income Populations*
- EO 13007, *Indian Sacred Sites*
- EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*
- EO 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds*
- EO 13287, *Preserve America*

NEPA requirements help to ensure that environmental information is made available to the public during the decision-making process and prior to actions being taken. A premise of NEPA is that the quality of federal decisions will be enhanced if proponents provide information to the public and involve the public in the planning process. CEQ regulations implementing NEPA specifically state, "There shall be an early and open process for determining the scope of issues to be addressed and for identifying the significant issues related to a proposed action. This process shall be termed scoping." The Intergovernmental Coordination Act and EO 12372, *Intergovernmental Review of Federal Programs*, require federal agencies to cooperate with and consider state and local views when implementing a federal proposal. 40 CFR 1501.5–1501.6, *Cooperating Agencies*, and 32 CFR 989.9, *Cooperation and Adoption*, support interagency and intergovernmental coordination. Beale AFB would comply with the spirit and intent of this guidance and would implement a coordination process to facilitate evaluation of the Proposed Action.

EO 13175, *Consultation and Coordination with Indian Tribal Governments* (6 November 2000), directs federal agencies to coordinate and consult with Native American tribal governments whose interests might be directly and substantially affected by activities on federally administered lands. To comply with legal mandates, federally recognized tribes that are affiliated historically with the Beale AFB geographic region will be invited to consult on all proposed undertakings that have a potential to affect properties of cultural, historical, or religious significance to the tribes. The tribal coordination process is distinct from NEPA consultation or

the Interagency/Intergovernmental Coordination for Environmental Planning processes and requires separate notification of all relevant tribes. The timelines for tribal consultation are also distinct from those of intergovernmental consultations. The Beale AFB point-of-contact for Native American tribes is the Installation Commander. The Beale AFB point-of-contact for consultation with the Tribal Historic Preservation Officer and the Advisory Council on Historic Preservation is the Cultural Resources Manager.

The Native American tribal governments that are being coordinated regarding this action are listed in Appendix B.

1.4 COORDINATION FOR ENVIRONMENTAL PLANNING AND PUBLIC INVOLVEMENT

For the purpose of the EA and overall NEPA process, USAF is the lead federal agency and will serve as signatory for all NEPA documents. The USFWS will serve as a cooperating agency and will review all documents but will not provide a signatory on the NEPA documents.

1.4.1 Coordination for Environmental Planning and Public Involvement

Beale AFB notified relevant federal, state, and local agencies about the Proposed Action and alternatives. The coordination process provided Beale AFB the opportunity to cooperate with and consider state and local views in implementing the Proposed Action or alternatives. Coordination letters were sent to federal, state, and local agencies containing a description of the Proposed Action and alternatives and provided the means to comment on the Proposed Action and alternatives. The comment period lasted 30 days. Agency responses have been incorporated into the analysis of potential environmental impacts as part of the development of the EA.

Because the Proposed Action area coincides with wetlands, it is subject to the requirements and objectives of EO 11990, *Protection of Wetlands,* and EO 11988, *Floodplain Management*. USAF published an early notice in the Appeal-Democrat on April 6, 2020, and again on April 13, 2021, indicating that the Proposed Action would occur in a wetland. The notice identified the state and federal regulatory agencies with special expertise that would be contacted and solicited public comment on the proposed action and any practicable alternatives.

Following development of the EA and prior to signature of a FONSI/FONPA, a Notice of Availability will be published in the Appeal-Democrat. The Notice of Availability will initiate a 30-day public review period. As public comments are received, they will be incorporated into the analysis, as appropriate, and included as an appendix to the Final EA.

1.5 ORGANIZATION OF THIS DOCUMENT

This EA is organized into six chapters and includes ten appendices as follows:

- ***Chapter 1*** provides the background information, project location, and purpose and need for the Proposed Action.

- ***Chapter 2*** contains a description of the Proposed Action and alternatives, including the No Action Alternative.

- ***Chapter 3*** contains a description of the environmental resources and baseline conditions that could potentially be affected by the Proposed Action and alternatives and presents an analysis of the potential environmental consequences of implementing the Proposed Action and the No Action Alternative.

- ***Chapter 4*** includes an analysis of the potential cumulative impacts to the Dry Creek watershed and the surrounding area.

- ***Chapter 5*** lists the preparers of this EA.

- ***Chapter 6*** lists the references used in the preparation of this document.

- ***Appendix A*** provides the Habitat Restoration Plan for the tricolored blackbird.

- ***Appendix B*** provides the list of agencies included in the initial coordination, the coordination letter, and the responses received.

- ***Appendix C*** provides the analysis of off-site alternatives.

- ***Appendix D*** provides details of the Air Quality Conformity Analysis.

- ***Appendix E*** provides a list of special-status wildlife species with potential to occur.

- ***Appendix F*** provides a list of special-status plant species with potential to occur.

- ***Appendix G*** provides the USFWS Informal Consultation.

- ***Appendix H*** provides the National Marine Fisheries Service (NMFS) Essential Fish Habitat and Endangered Species Act Abbreviated Consultation.

- ***Appendix I*** provides the Native American Consultation.

- ***Appendix J*** provides the State Historic Preservation Officer (SHPO) Concurrence.

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2. DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

The following selection criteria were used to evaluate the Proposed Action and alternatives. Any alternative considered must:

1. Avoid all non-mitigable adverse effects, including those to the environment, cultural resources; and
2. Be located so that it does cannot interfere with or place undue safety risks upon the 9th Reconnaissance Wing (9 RW) mission.

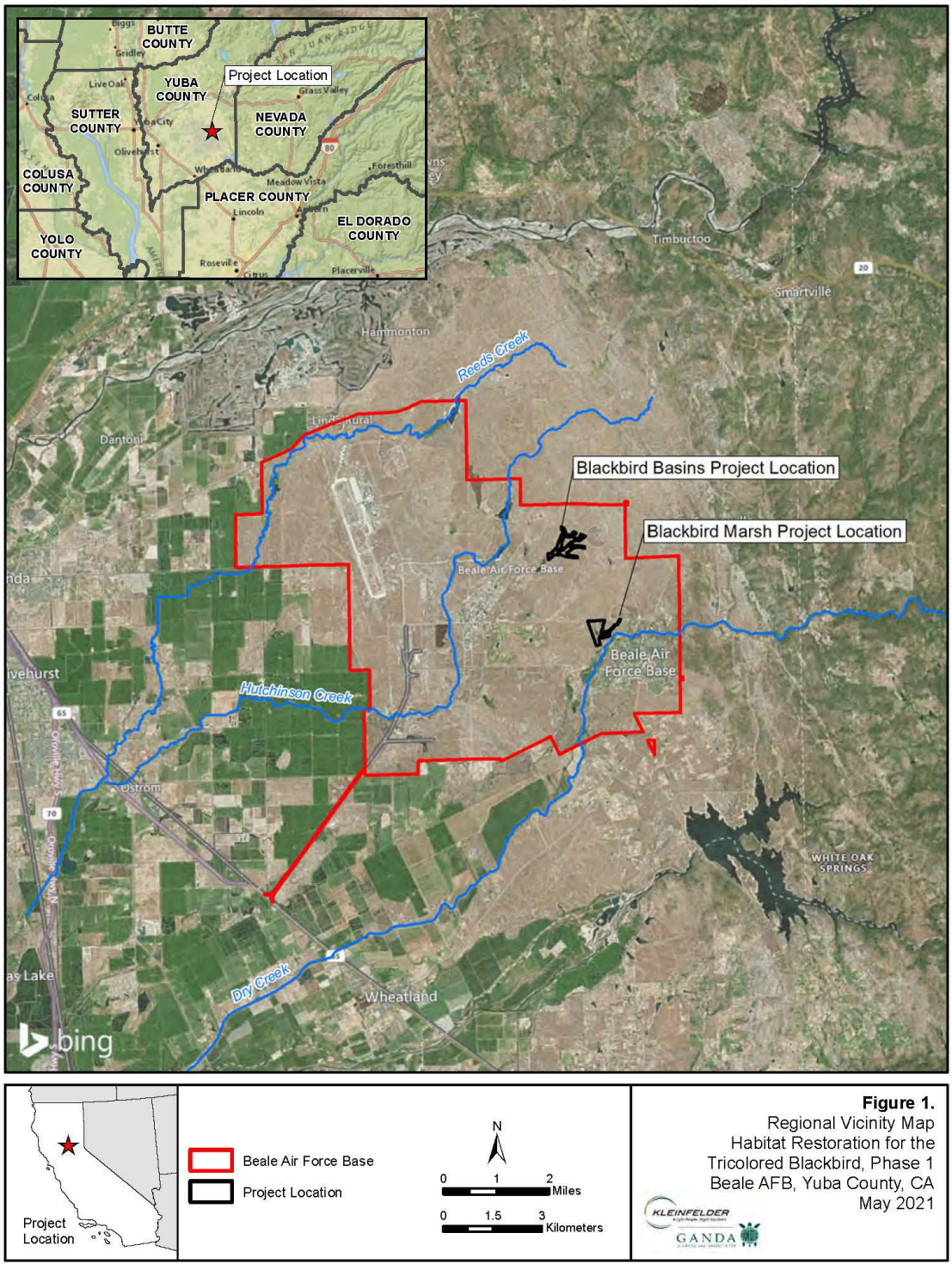
2.1 SITE DESCRIPTION AND BACKGROUND

In 2015, approximately 12 acres of occupied tricolored blackbird nesting habitat (Himalayan blackberry [*Rubus armeniacus*] shrubs) on the western side of Beale AFB were removed in association with operation and maintenance activities. The nesting habitat was located along Reeds Creek approximately one mile from the main runway, and the proximity posed a hazard to normal flight operations because of increased risk of bird collisions. Subsequently, Beale AFB met with the USFWS and agreed to create and/or enhance 12 acres of potential nesting habitat to benefit tricolored blackbird at a location at least two miles from the runway so as to not impact safe flying and airfield operations. Beale AFB commissioned the preparation of the Habitat Restoration Plan for Tricolored Blackbird to identify initial Phase I potential creation/enhancement locations (Kleinfelder 2021; Appendix A).

Phase I of the habitat restoration/creation and enhancement resulted in the identification of two proposed sites: (1) Blackbird Basins and, (2) Blackbird Marsh (Figure 1). The two locations together would meet the project goals of providing the partial fulfillment of the required creation of 12 acres of high-quality tricolored blackbird nesting and foraging habitat, including: (1) seasonal wetland and drainage enhancements at Blackbird Basins, and (2) nesting habitat expansion at Blackbird Marsh. Both locations would rely on a combination of habitat enhancement methods with the majority of improvements applicable to the Blackbird Marsh site. Improvements at Blackbird Basins would focus on repairing existing impoundments and augmenting the hydroperiod of the upstream drainages.

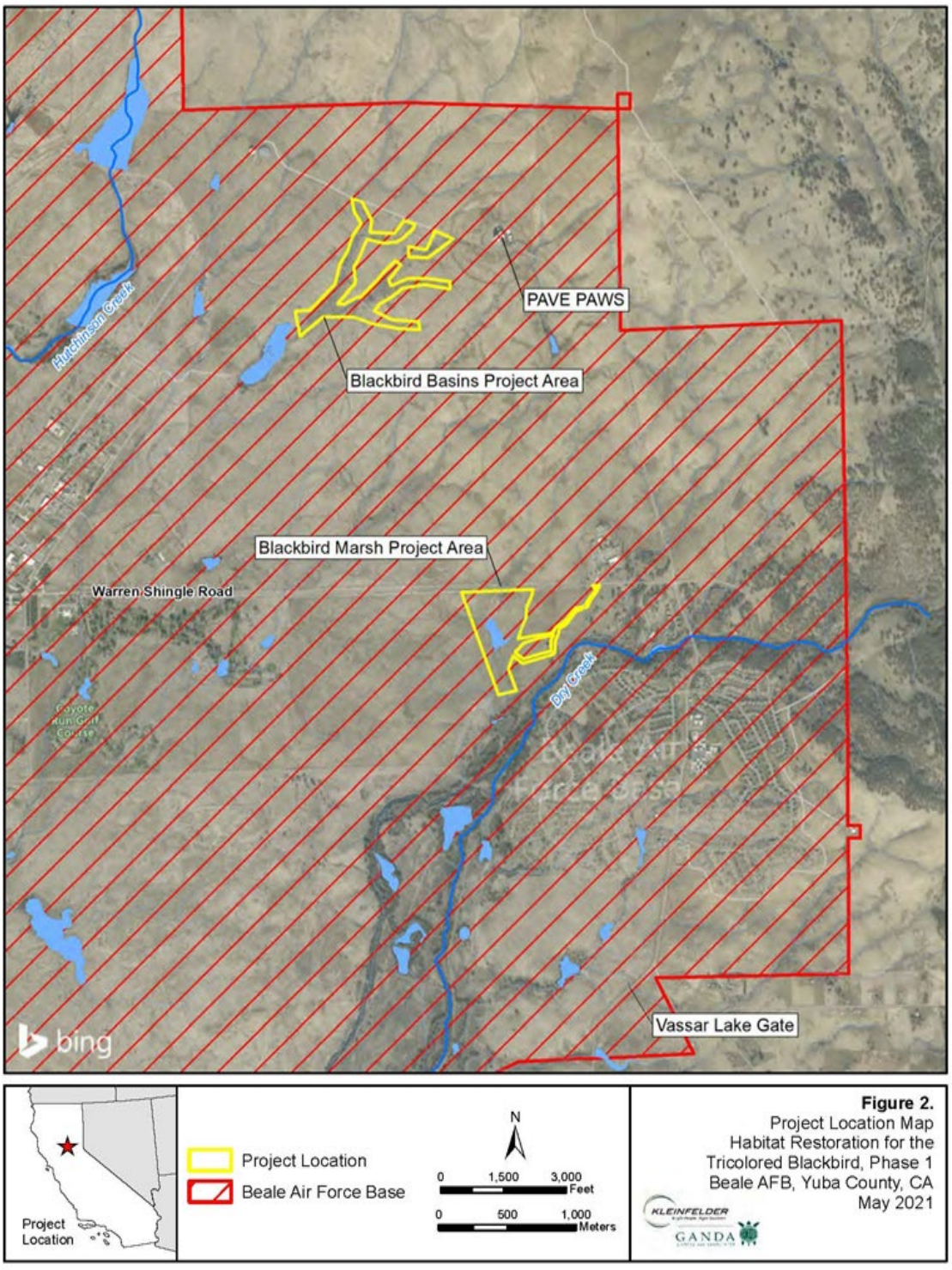
The Blackbird Basins is located within the northeastern portion of Beale AFB, approximately one mile southwest of the PAVE PAWS facility (Figure 2). The area is characterized by two main intermittent or ephemeral drainages with four small existing impoundments supporting small ponds with herbaceous seasonal wetlands. The upland habitats around the Blackbird Basins are characterized by lightly grazed, non-native annual grasses. Approximately 40 adult tricolored blackbirds were observed south of the area, at Frisky Lake in 2015, but the nesting status there was not confirmed (Tricolored Blackbird Portal 2018). However, the seasonal wetlands in the tributaries and grazed upland areas adjacent to the Blackbird Basins appear to provide suitable foraging habitat.

1 Figure 1 Regional Vicinity Map



2

1 Figure 2 Project Location Map



Blackbird Marsh is located within the eastern portion of Beale AFB in the Dry Creek watershed, approximately 0.7 mile southwest of the Beale AFB hospital (Figure 2). There is an existing dam with a crest height of 175 feet (10 to 12 feet above the downstream toe) that supports a maximum of 19 acre-feet storage (United States Army Corps of Engineers [USACE] 2019) (approximately 4.7 acres of surface water at maximum capacity). The dam has been rated in poor condition but low hazard (USACE 2019). There is an open channel spillway at the left abutment with the entrance approximately two feet below the top of the dam (elevation 173 feet). There is no outlet control system, and the spillway is eroding at the invert and downstream where concrete blocks and slabs have been placed (USACE 2016). Average summer low water surface area from aerial images appears to be approximately one acre. Two main intermittent or ephemeral drainages flow into the lake, with some downcutting evident in the main (northern) tributary. The upland habitats around Blackbird Marsh are characterized by lightly grazed, non-native annual grasses. Willows have established along the length of the dam and in patches in and around the lake. Small stands of cattails are present on the lake margins.

Approximately 900 female and juvenile tricolored blackbirds were observed nesting at Blackbird Marsh in 2020 (Lipschutz, pers. comm. 2020). The birds were utilizing all available native and nonnative habitats for nesting including Himalayan blackberry and the large willows.

2.2 DETAILED DESCRIPTION OF THE PROPOSED ACTION

The Proposed Action at Blackbird Basins and Blackbird Marsh would result in the creation and/or enhancement of nesting habitat with adjacent suitable foraging habitat for tricolored blackbirds (Figures 3 and 4).

2.2.1 Blackbird Basins

Enhancement of suitable foraging habitat and installation of potentially suitable experimental nesting structures is proposed at Blackbird Basins through grading, repair or resizing of impoundments, augmentation of water supply, planting, installation of artificial nesting structures, and modification of the current grazing areas.

Proposed Restoration Activities

Proposed restoration efforts at Blackbird Basins would focus on enhancement of the foraging habitats within the upstream drainages of the lake.

Grading

The wetlands associated with the small impoundments at the Blackbird Basins may be expanded by superficial grading (estimated excavation of one to three feet) to increase the extent of high-quality foraging habitat. Grading would increase the flooded areas and soil saturation in the areas behind the impoundments to increase the amount of high-quality foraging habitat. Soils in the drainages are shallow and bedrock is often exposed or near the surface which would limit the opportunities for grading. If grading cannot be used to achieve expansion of the impounded areas behind the impoundments, the impoundments may be raised by one to three feet to achieve larger areas of saturation/inundation.

Impoundments

The four existing impoundments may be raised and/or repaired. The intent of the impoundment raising and/or repairs is to increase the size of small seasonal wetlands adjacent to grazed annual grassland habitat, which would improve highly productive tricolored blackbird foraging areas that are suitable to support populations of large insect prey adjacent to the constructed nesting habitat. The repair of damaged impoundments and upgrades to others would provide greater seasonal longevity of highly productive wetlands habitats.

Planting

Containerized plants may be installed in association with experimental nesting structures. Container sizes would vary by species. Smaller herbaceous species, such as mugwort, may be sourced in supercell four-inch pots or d-pots. Larger or woody species may be sourced in gallon pots or treepots. Number of plants would vary based on specific planting location and species palette; however, dense planting (spacing of three to six foot on-center spacing) would be utilized to facilitate thorough coverage of nesting structures. Additional detail is included in Appendix A.

Supplemental irrigation may be provided in the upland areas on a temporary basis. Temporary irrigation lines would be installed above grade with a connection to a water line fed by the groundwater well or to a gravity fed tank system. Irrigation would be utilized during the first one to three years while plants are becoming established. Plants would be irrigated one to four times per month as needed during the hotter months (May through September) and as needed under drought conditions.

Augmented Water Supply

In order to buffer the effects of seasonal fluctuations in precipitation, water would be pumped into Blackbird Basins to augment the natural hydroperiod and to control hydrology during and after nesting. Groundwater would be pumped into the tributary channel(s) at Blackbird Basins, or a connection would be developed from a main water line at this location. A supply line may be installed on grade or trenched from the well pad approximately 500 feet to a proposed rocked outfall tie-in with a tributary channel. Necessity for and depth of trenching would depend on the size of the line and would be determined after the groundwater well has been drilled and testing indicates the output potential of the well. Water supply augmentation in concert with repair or expansion of existing impoundments would increase areas of low-growing herbaceous seasonal wetland habitat and provide additional high-quality foraging habitat.

There is one existing well (BWL003PZ) in the Blackbird Basins area, located at the southwest portion of the Blackbird Basins (Figure 3). Depth to groundwater in the area has been recently (2017) documented at 7.99 feet below ground surface (Christopherson, pers. comm. 2018). This existing well or a new well may be utilized to pump groundwater into tributary channels. An additional solar powered well may be installed at one of the upstream tributaries. Water from the well or a main line connection would also be used for temporary irrigation of containerized plants and to fill troughs or provide another suitable water source for cattle outside of the riparian pasture. Temporary irrigation lines would be installed on grade (no trenching). If a connection to the main water line is the selected water source, a de-chlorination method would be developed prior to water use at the restoration site.

Nesting Structures

Tricolored blackbirds require secure nesting areas. In the foothills of the Sierra Nevada and adjacent portions of the Central Valley, Himalayan blackberry is frequently used as a nesting substrate for the species (Airola et al. 2018; Beedy et al. 2018). However, fabricated nesting structures may be utilized experimentally to provide artificial nesting areas or structural support for less-robust native vegetation (such as native California blackberry [*Rubus ursinus*] or California wild rose [*Rosa californica*], which do not grow as densely as Himalayan blackberry, and have smaller spines/prickles and stems).

These experimental artificial nesting structures would be placed strategically in the restoration area, but likely concentrated near the upstream end of Blackbird Basins. The number and materials to be used in each structure may vary for this experimental component. Conceptual locations of the nesting structures are shown on Figure 3; however, the exact size and locations of the structures would be determined once final grades have been planned to ensure suitable soil moisture to aid plant establishment and ease of access for tricolored blackbirds to open water. Six to 12 structures would be installed at the Blackbird Basins site. Structures may be placed directly adjacent to other suitable nesting vegetation to encourage their use and to provide additional protection to previously used nesting substrate. Figures 5 and 6 depict the conceptual nesting cube and nesting trellis designs, respectively.

As noted above, these conceptual designs are intended to mimic the structural function of the commonly used nesting substrate Himalayan blackberry. Because Himalayan blackberry is an invasive, exotic species, planting of this species is not proposed. Instead, these experimental artificial nesting structures would be placed throughout the habitat restoration area. These structures would provide nesting habitat by allowing native plant species to grow up around the structures, and barbed wire would be incorporated for protection against predation. The barbed wire is intended to function similarly to the spines of the Himalayan blackberry. The details of the structures shown in Figures 5 and 6 would vary based on actual installation and maintenance requirements. Gates or breaks in wire would be needed for larger blocks so that irrigation lines can be repaired, dead plants can be replaced, and weeds can be removed as needed from under/within the structures.

Grazing Management

The areas around Blackbird Basins are currently grazed (Figure 7; Pasture Unit C-1, Hopkinson 2017). Cattle grazing would continue on 2,553 acres of adjacent upland habitat within approximately 2.5 miles of Blackbird Basins. Approximately 16,000 linear feet of wire fencing would be installed to exclude livestock from the wetland areas (Figure 3). The decrease in thatch and increased cattle manure would improve foraging habitat by supporting a higher density and diversity of insect prey. New fencing would be installed in accordance with existing best management practices (BMP) for grazing infrastructure on Beale AFB including installation of t-posts outside of all wetland features and a minimum of 12.5 feet from potential branchiopod habitat. Fence design would match existing fencing (5-strand barbed wire with steel t-posts installed 12 to 30 feet apart [500–1,300 posts] to a depth of 1.5 feet deep).

Figure 3 Blackbird Basins Restoration Areas

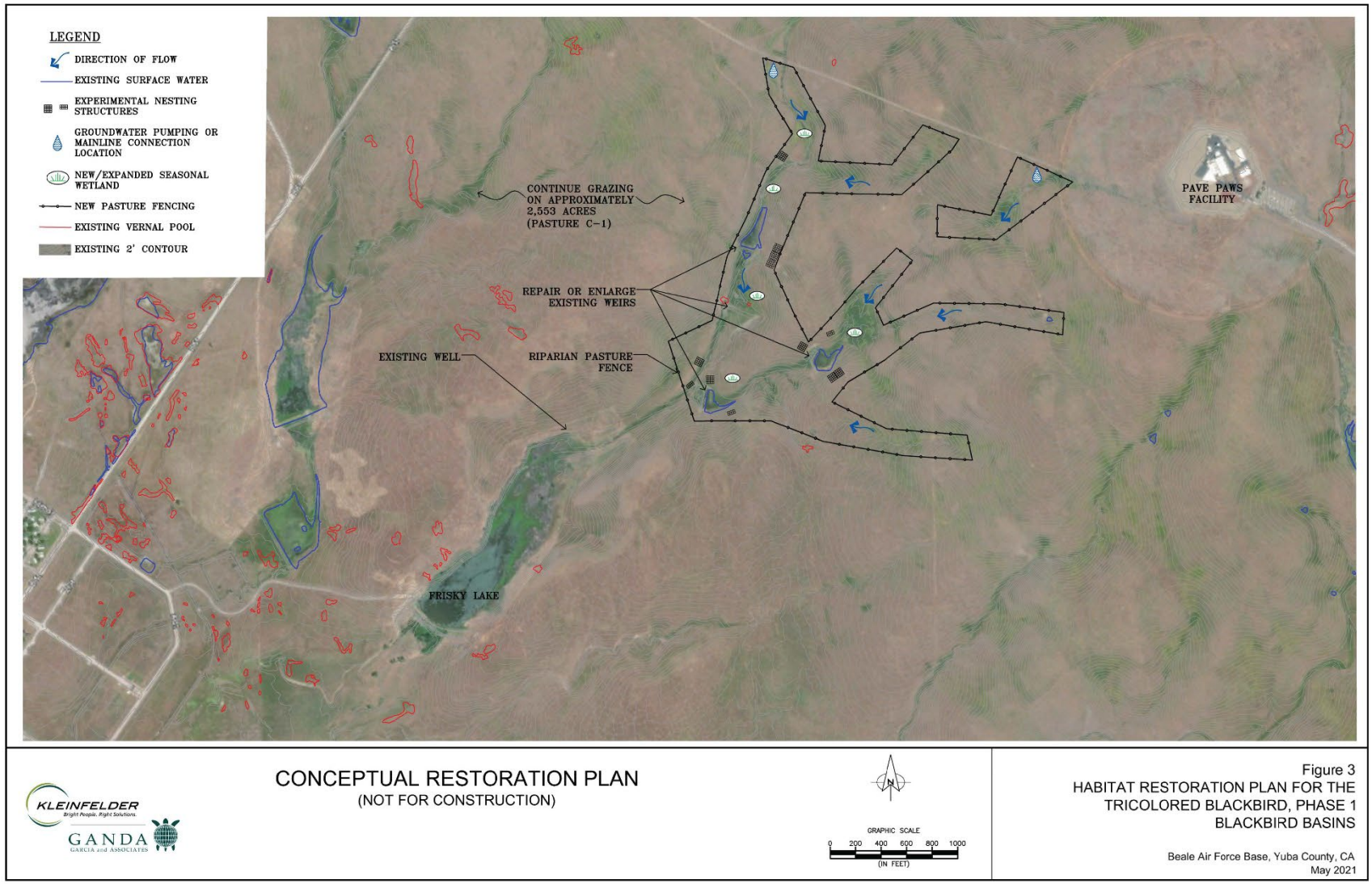


Figure 4 Blackbird Marsh Restoration Areas

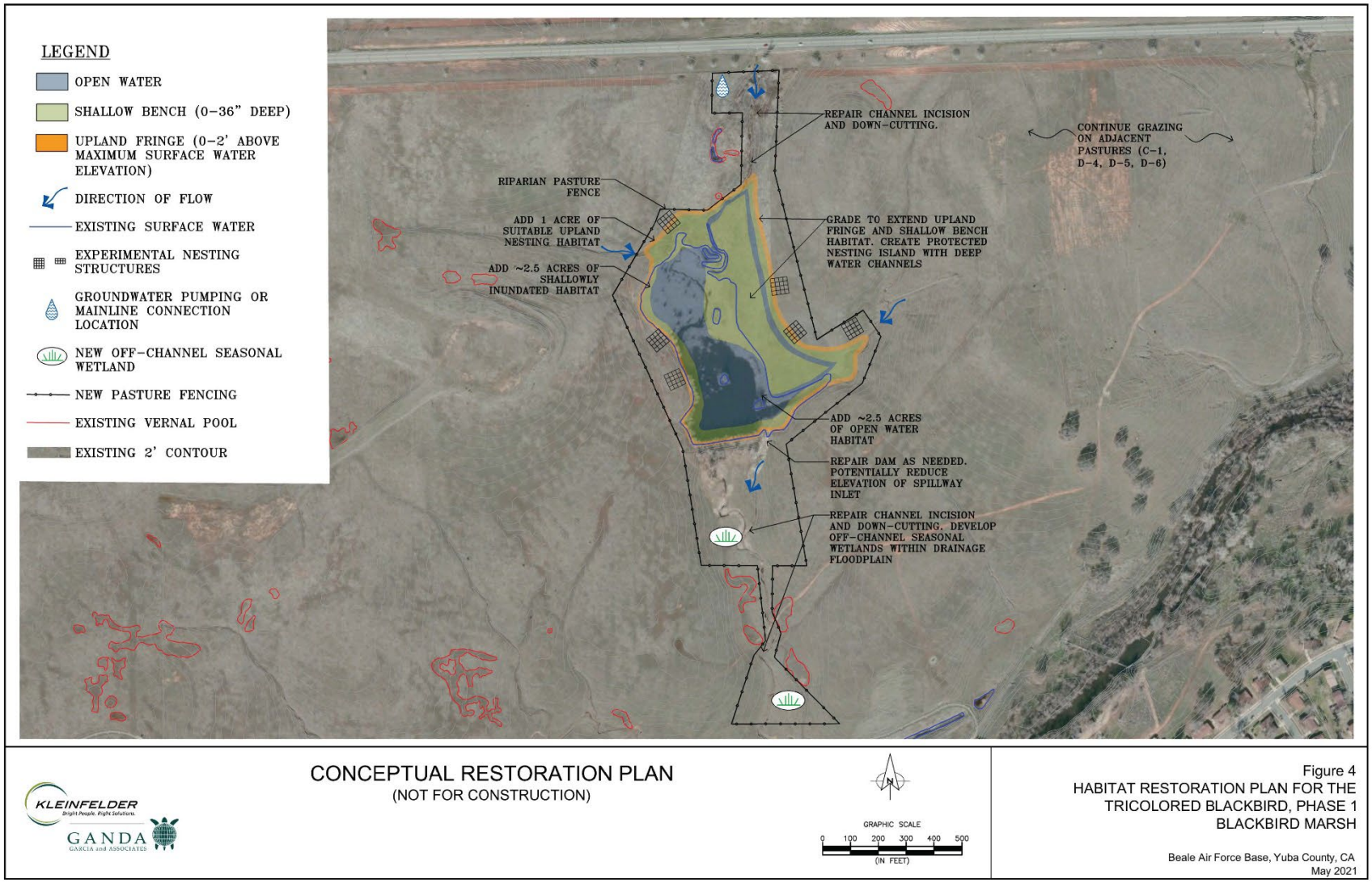


Figure 5 Experimental Nesting Structure Design A

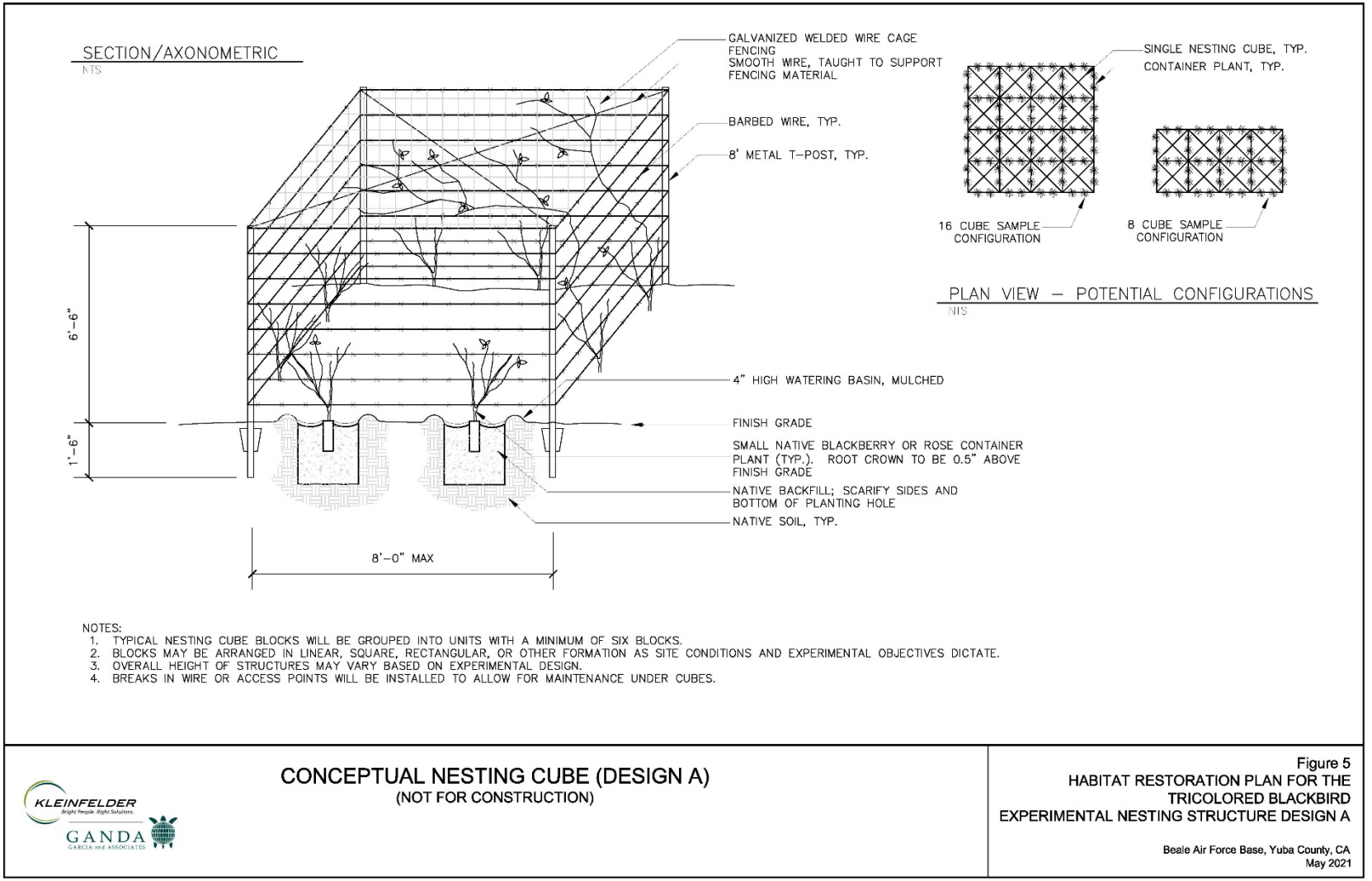
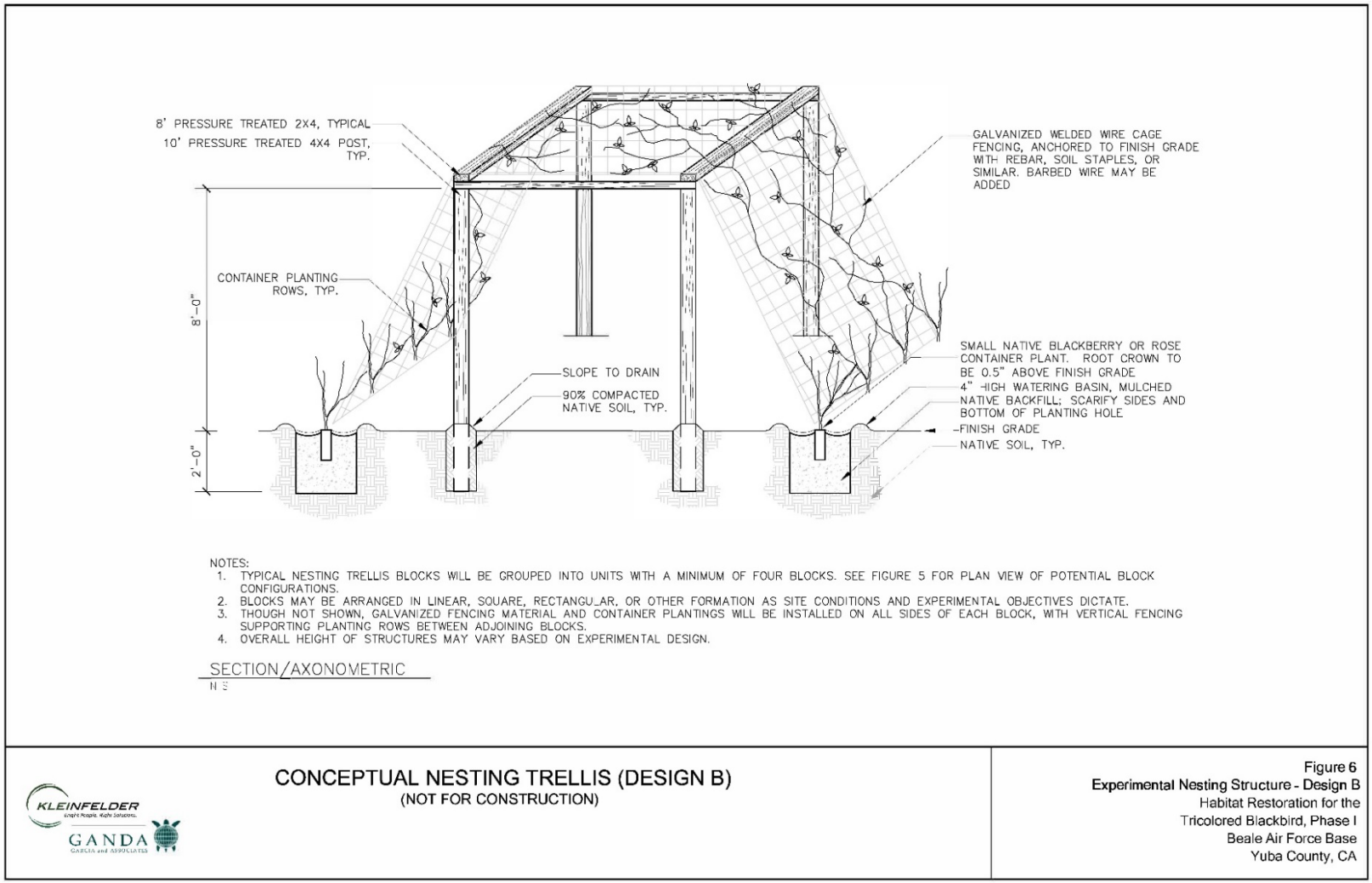


Figure 6 Experimental Nesting Structure Design B



1 Figure 7 Grazing Areas on Beale AFB

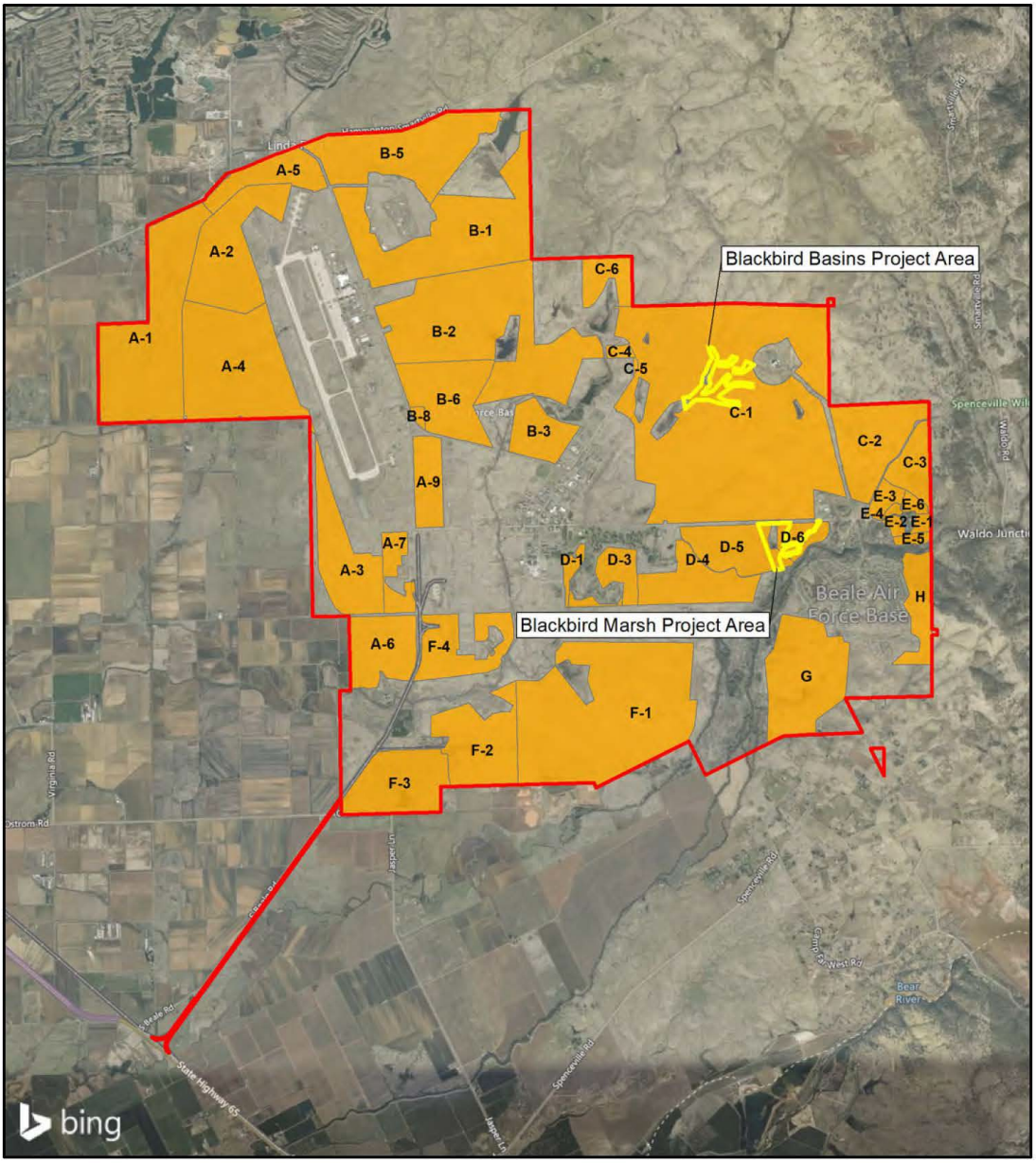


Figure 7.
Grazing Areas
Habitat Restoration for the
Tricolored Blackbird, Phase 1
Beale AFB, Yuba County, CA
May 2021

KLEINFELDER
GANDA

2.2.2 Blackbird Marsh

Enhancement of suitable foraging habitat and installation of potentially suitable experimental nesting structures is proposed at Blackbird Marsh through grading, repair or resizing of impoundments, augmentation of water supply, planting, installation of artificial nesting structures, and modification of current grazing areas.

Proposed Restoration Activities

Proposed restoration efforts at Blackbird Marsh would focus on expansion of potential nesting habitats in and around the pond, repair of the dam and spillway, rehabilitation of downcutting and other erosional issues in the drainage channels above and below the pond, and expansion of high-quality seasonal wetland foraging habitat. Ideally, portions of the existing habitats at the south end of the pond would not be significantly altered during construction (i.e., little to no vegetation removal or grading if possible) to ensure there is not a temporal loss of suitable nesting habitat during expansion of the pond.

The intent is to expand the nesting habitats at the lake by 2.5 acres, primarily on the eastern side, while preserving the known previously occupied nesting substrates along the dam and current Blackbird Marsh margins to the greatest extent feasible. Vegetation removal along the dam and other suitable nesting habitats would be limited to necessary disturbances only and avoided and minimized as much as possible. Construction would be timed to occur after nesting has occurred.

Dam Improvements

Blackbird Marsh (also referred to in reference documents as Clinic Pond and Hospital Pond) was created by the installation of a man-made earth and rock dam in the 1990's. The dam at Blackbird Marsh presents a low risk of flood hazard but has been rated in poor/fair condition due to root intrusion, seepage, and erosion of the spillway.

The dam crest is at an elevation of 175 feet above mean seas level (amsl) and is approximately 250 feet in length and 10 feet wide. The height is 10 to 12 feet above the downstream toe, and the spillway entrance is approximately two feet below the dam crest (USACE 2016). Concrete blocks and slabs have been placed in the spillway and are contributing to erosion (USACE 2016). Willows are rooted within the entire length of the dam, which is generally an undesirable condition, as root channels can create seepage paths that could lead to internal erosion. However, tricolored blackbird utilized the willows along the dam for nesting in 2020 (Lipschutz, pers. comm. 2020). One objective of the dam improvements would be to avoid temporal loss of nesting habitat while maintaining dam safety.

Per section 1.6 of the Engineering and Design Safety of Dams Policy and Procedures (USACE 2014), a USACE-recognized dam is an artificial barrier that is either 25-feet high or has an impounding capacity at maximum water storage elevation (dam crest, not spillway elevation) of 50 acre-feet or more. Any such barrier under six feet regardless of storage capacity, or that has a storage capacity at maximum water elevation not in excess of 15 acre-feet regardless of height is not considered a dam.

The Federal Emergency Management Agency (FEMA) categorizes dams solely by downstream hazard potential, regardless of condition. The Department of Water Resources (DWR) maintains a list of dams within the State of California (DWR 2017). The dam at Blackbird Marsh (referred to as "Clinic Pond" or "Hospital Pond" dam in other references) is not listed in the State dam inventory (DWR 2017).

The dam currently supports an approximate storage volume of 19 acre-feet and is classified as a low hazard, in poor to fair condition (USACE 2016). To avoid reclassification of the dam as a USACE-recognized impoundment, the dam would not be significantly raised, and the maximum water storage capacity would be kept below 50 acre-feet. During the detailed design phase, engineering alternatives would be reviewed to determine the best approach to maintain safety of the dam while allowing for the continued expansion of tricolored blackbird nesting habitat.

In order to improve the safety of the dam and eliminate the need for vegetation removal, the spillway may be rebuilt at a lower elevation and/or an outlet control structure may be installed to allow for management of lake levels during winter storms. The bathymetry of the lake is unknown. A detailed topographic/bathymetric survey would need to be produced and the condition of the dam would need to be assessed by geotechnical and civil engineers during the detailed design phase of the project to determine the specific options for repairing the dam. For the purpose of this EA, the assumption has been made that the dam would be removed and replaced with a similarly sized earthen dam. Further analysis will be completed if determined necessary based on findings during the design phase.

Grading

Grading would be used to expand the shallowly inundated habitats associated with Blackbird Marsh. Shallow bench habitats would be increased by 2.5 acres (from approximately two acres existing to 4.5 acres; Figure 4). The total maximum storage volume of the lake would be maintained below 50 acre-feet (built condition may increase storage volume to 30 to 40 acre-feet).

The downcutting in the northern tributary to Blackbird Marsh would be repaired using bioengineering methods including adding woody debris, willow fascines, or natural fiber erosion controls (coir/jute). Approximately 1.5 acres of additional off-channel wetlands would be installed/enhanced along the drainage.

Planting

Containerized plants may be installed in association with experimental nesting structures, along the lake margin at Blackbird Marsh, and within the new or expanded seasonal wetland areas. Container sizes would vary by species. Smaller herbaceous species, such as mugwort, may be sourced in supercell four-inch pots or d-pots. Larger or woody species may be sourced in gallon pots or treepots. Number of plants would vary based on specific planting location and species palette; however, dense planting (spacing of three to six foot on-center spacing) would be utilized to facilitate thorough coverage of nesting structures. Additional detail is included in Appendix A.

Temporary irrigation lines would be installed above grade with a connection to a water line fed by the groundwater well or to a gravity fed tank system. Irrigation would be utilized during the first one to three years while plants are becoming established. Plants would be irrigated one to four times per month as needed during the hotter months (May through September) and as needed under drought conditions.

Augmented Water Supply

In order to buffer the effects of seasonal fluctuations in precipitation, water would be pumped into the Blackbird Marsh north tributary to augment the natural hydroperiod and to control hydrology during and after nesting. Groundwater would be pumped into the tributary channel upstream of Blackbird Marsh. A groundwater well would be drilled to an anticipated depth of 200 feet adjacent to Warren Shingle Road in the upland area in the northwest corner of the project area. Water from the well would also be used for temporary irrigation of containerized plants and to fill troughs or provide another suitable water source for cattle outside of the riparian pasture.

Nesting Structures

Artificial nesting structures would be placed strategically in the restoration area. The number and materials to be used may vary for this experimental component. Conceptual locations of the nesting structures are shown on Figure 4; however, the exact size and locations of the structures would be determined once final grades have been planned to ensure suitable soil moisture to aid plant establishment and ease of access for tricolored blackbirds to open water. Six to 12 structures would be installed at the Blackbird Marsh site. Structures may be placed directly adjacent to other suitable nesting vegetation to encourage their use and to provide additional protection to previously used nesting substrate. Figures 5 and 6 depict the conceptual nesting cube and nesting trellis designs, respectively.

Grazing Management

The areas around Blackbird Marsh are currently grazed (Figure 7, Hopkinson 2017). Cattle grazing would continue on 5,800 acres of adjacent upland habitat within approximately 2.5 miles of Blackbird Marsh. No more than approximately 7,000 linear feet of new or replacement fencing would be installed to exclude livestock from the wetland areas (Figure 4). The decrease in thatch and increased cattle manure would improve foraging habitat by supporting a higher density and diversity of prey insects. New fencing would be installed in accordance with existing BMPs for grazing infrastructure on Beale AFB including installation of t-posts outside of all wetland features and a minimum of 12.5 feet from potential branchiopod habitat. Fence design would match the existing fencing (5-strand barbed wire with steel t-posts installed 12 to 30 feet apart [200-600 posts] to a depth of 1.5 feet deep).

2.2.3 Maintenance

Management of each site would be required to maintain suitable habitat conditions (open water, protected nesting substrate, and suitable foraging areas). The primary maintenance activities anticipated to maintain these conditions include removal of vegetation, removal of sediment, manipulation of hydrologic conditions, maintaining stable soils, and control of invasive species.

Riparian Vegetation Removal

Woody riparian vegetation may provide suitable nesting and perch habitat for tricolored blackbird predators and may encroach on desired nesting substrates. However, tricolored blackbirds were observed in 2020 at Blackbird Marsh on Beale AFB utilizing large willows for nesting (Lipschutz, pers. comm. 2020). If deemed appropriate, the restoration site would be managed to discourage establishment of woody riparian vegetation. Woody riparian vegetation may be periodically removed through mechanical treatment if it is believed to be encouraging the presence of avian predators, encroaching upon more suitable nesting substrates, or otherwise proving detrimental to the nesting success of tricolored blackbirds.

Removal of Sediment

Sediment is expected to accumulate over time within the open water channels and shallowly inundated areas. If a significant loss of open water and shallow bench habitat or protected nesting island occurs due to sedimentation of the deep-water moats and subsequent encroachment of vegetation, affected areas would be dredged to maintain design depths.

At the end of the tricolored blackbird nesting season (as determined by a qualified biologist) but prior to October 15, water level in Blackbird Marsh or Blackbird Basins would be drawn down by natural means (groundwater pumping would cease), or active dewatering through a low-level release valve (if installed in the dam at Blackbird Marsh during dam upgrade) or pumping through the spillway. A backhoe or similar piece of heavy equipment would be used to remove accumulated sediment, which would be removed and disposed of at a landfill located off Beale AFB. If the sediment is contaminated, then Beale AFB Environmental Office would coordinate with the Army Corps of Engineers and/or Sacramento Water Regional Control Board, as appropriate prior to disposal.

If there are areas of Blackbird Marsh that cannot be reached by a bucket arm of equipment staged outside the lakebed, or if the dewatered lakebed is not suitable to accommodate access of a tracked vehicle for sediment removal, the lake level may be raised to facilitate use of a suction or cutter-suction type floating dredge. Spillway or low-level releases would not occur during or immediately after dredging operations to ensure turbid water settles prior to release. Excavated soils would be tested for contamination before they are moved from a site. Once determined to be clean, the soil would be used on the Base as fill for other projects or removed from the Base to an approved landfill. If the soil is contaminated, then Beale AFB Environmental Office would coordinate with the Army Corps of Engineers and/or Sacramento Water Regional Control Board, as appropriate prior to disposal.

Cattail Management

Cattail rhizomes store carbohydrates and allow the plant to reproduce asexually. Rhizomes begin to elongate in early summer and start to form the next year's stems during midsummer with subsequent shoot growth in the late winter or early spring (Sojda and Solberg 1993). Cattails can produce seeds and contribute to the seed bank at all stages of hydrology, but recruitment from seed occurs only during the dry stage. Cattails do not germinate under more than 0.5-inch-deep water but can germinate under a wide range of soil-surface temperatures if the soil is saturated generally from early to midsummer (Sojda and Solberg 1993). For initial establishment of

cattails, water levels would be raised in midsummer to saturate soils, then drawn down after seeding has occurred. Once established, cattails would be managed to be a minimum of four feet high by May 1st annually, and they would remain flooded throughout site occupation by tricolored blackbird. For maintenance of established cattails, summer drawdowns (after nesting) would be used to stimulate additional germination. If cattails begin to encroach on open water habitats, they may be manually removed or controlled by increasing water depth. Because tricolored blackbirds prefer new, dense growth, old dead stems would need to be removed regularly through burning in late fall (preferred method), cutting, grazing, disking, or masticating (Meese and Beedy 2015).

The Tricolored Blackbird Working Group (TBWG) produced habitat management recommendations that include rotation of vegetation management to maintain available habitat while regenerating new growth (TBWG 2016). Some vegetation maintenance and management recommendations include:

- Keeping a minimum of 20–30 percent (%) of vegetation in two-year-old stage to support annual nesting
- Burning over water every three to five years (January to early March) to promote new growth (alternative options include disking, cutting, grazing, or masticating)
- Burning in late fall or early winter or burning with two to three inches of standing water in mid-winter, avoiding hot fires that may destroy tubers or seedbank
- Flooding wetlands mid-February through June or July; early flooding (January to February) with fluctuating water levels (2 to 12 inches) encourages vegetation growth

Erosion Control

Areas disturbed during construction would be monitored for erosion in accordance with the Stormwater Pollution Prevention Plan (SWPPP) for the project or erosion control plan. Any erosion issues observed during the plant establishment period, prior to site stabilization, would be brought to the attention of Beale AFB biologists. If erosion issues occur after the SWPPP has been closed out, then the restoration contractor would be responsible for stabilizing restoration sites. Site stabilization may involve recontouring, installation of biodegradable fiber rolls and/or blanket materials, and potentially reseeding.

Invasive Species

Invasive plant species of management concern already known within the vicinity of Blackbird Basins and Blackbird Marsh include barbed goatgrass (*Aegilops triuncialis*), black mustard (*Brassica nigra*), Italian thistle (*Carduus pycnocephalus*), yellow star thistle (*Centaurea solstitialis*), rush skeletonweed (*Chondrilla juncea*), medusahead (*Elymus caput-medusae*), common fig (*Ficus carica*), St. John's wort (*Hypericum perforatum*), Himalayan blackberry, blessed milk thistle (*Silybum marianum*), and seashore vervain (*Verbena litoralis*), in addition to potential aquatic weeds (H.T. Harvey & Associates 2015, as cited in Hopkinson et al. 2017). The strategy for and principal methods of weed control are discussed in the *Updated Invasive Plant Species Management Guidelines, Beale Air Force Base, California (IPMG)* (Hopkinson et al. 2017). Currently, methods used at Beale AFB and potentially proposed for this project include prevention, physical weed removal (hand pulling or mowing), grazing, prescribed burning, and

herbicide application. For the purpose of habitat restoration and maintenance, weed prevalence would be evaluated prior to construction, during construction, and during site stabilization.

Following site stabilization, sites would be surveyed and maintained in accordance with the IPMG. Physical removal of weeds would be the preferred means of maintaining restoration and revegetation of sites. Herbicide application would be reserved for the more difficult and aggressive invasive species not readily removed by physical methods, or for areas where repeated mechanical treatment fails to produce the desired reduction of invasive species. Since Himalayan blackberry is a desired species for tricolored blackbird nesting substrate, this species would be exempt from treatment at the restoration site and would be allowed to expand in some areas.

2.2.4 Monitoring

As described herein, monitoring would be used to assess habitat structure and occupation status.

Success Criteria

The restoration activities would be considered successful according to the Tier levels below. Success shall be measured/monitored within the pond/wetland area restored at Blackbird Marsh as well as the surrounding uplands/foraging habitats. Tier II and Tier III would be targeted; however, should none of the tiers be met, additional restoration/preservation is not required.

- Tier I Minimal Success: Additional area becomes suitable habitat for tricolored blackbird use.
- Tier II Progress: Supports tricolored blackbird roosting and foraging activities across expanded wetland and upland habitat.
- Tier III Successful: Supports tricolored blackbird nesting once/occasionally.
- Tier IV Fully Successful Off-Set of 12-Acre Beale Impact: Reliable nesting habitat across multiple years for tricolored blackbirds.

Monitoring Methods

Monitoring would begin on the first spring/summer after restoration and continue annually to assess whether the success criteria have been achieved and whether corrective measures need to be employed. To ensure successful establishment of the site, monitoring may be conducted more frequently as deemed appropriate by Beale AFB biologists and during the initial establishment period. Restoration sites would be monitored for no fewer than five years, or until suitable tricolored nesting habitat has become established (whichever is greater). Monitoring would include an assessment of the progress and identification of potential problems with the restoration sites. If necessary, remedial action, such as additional planting, weeding, supplemental watering, or erosion control, would be taken during the initial establishment period.

Data collection and analysis would include assessment of the physical development of habitat parameters. Aerial photography and field observations would be used to estimate the size and condition of open water, nesting, and terrestrial foraging habitats. Standardized data sheets

would be developed to record qualitative and quantitative attributes of site hydrology, plant community conditions, erosion, invasive species, and occupation status throughout the breeding season (March through July/early August). Permanent photo stations would be established to monitor site development over time. A minimum of four monitoring visits would be completed each year in April, May, June, and July/early August (Table 1).

Table 1 Annual Monitoring Schedule and Parameters to be Evaluated

Parameter for Evaluation	April	May	June	July / early August
Evaluate hydrology	X	X	X	X
Assess site stability (erosion)	X			
Assess ratio of open water to nesting substrate/development of site			X	X
Monitor containerized plant growth and mortality; assess need for replanting, irrigation, or invasive species management (during plant establishment period, approximately one to three years post-installation)			X	
Conduct photo monitoring (with Geographic Information System [GIS] locations): one photo at each nesting structure (12–24); representative photos of shallow bench and blackberry fringe planting areas (number will vary); series of photos (to create panorama) from each side of restoration site (eight to 12: north, south, east, west with two to three photos each); photos of each existing impoundment and associated wetland (three to six); photos of any occupied nesting area (number will vary)			X	
Assess presence/absence of tricolored blackbirds at each nesting structure and all other suitable nesting areas (cattail marsh, willow stands, Himalayan blackberry patches)	X	X	X	X
Assess average height of vegetation in at least 20 predetermined sampling (1-meter quadrant) locations within grazed areas one mile from nesting areas		X		
Source: Kleinfelder 2021				

Reporting

Annual reports would be prepared within 90 days after completion of monitoring. Each report would include results of quantitative and qualitative monitoring efforts, and address success standards and measures to correct issues, as needed.

The monitoring reports would include, but may not be limited to, the following information:

- Total acreage by community;
- Identification of maintenance issues or necessary adaptive management measures;
- Dates and descriptions of maintenance and monitoring activities conducted during the reporting period, including the timing and frequency of data collection, weed control, and maintenance activities;
- Description of the general health and vigor of the target plant species;
- Presentation of monitoring data and discussion of whether success criteria were met or if the site is progressing as desired;
- Photo documentation; and
- If it is determined that the restoration has not been successful, then the suspected causes of failure and identification of any adaptive management measures necessary for the

success of the restoration effort would be noted and remedial, corrective actions would be identified, analyzed, and implemented.

2.3 PROCESS FOR SELECTING ALTERNATIVES

The following selection standards were used to evaluate the Proposed Action and alternatives. Any alternative considered must:

- Create and/or enhance high-quality tricolored blackbird nesting and foraging habitat; and
- Minimize impacts to wetlands, floodplains, and cultural resources.

2.3.1 Site Selection Standards

NEPA and CEQ regulations mandate the consideration of reasonable alternatives for the Proposed Action. "Reasonable alternatives" are those that also could be utilized to meet the purpose of and need for the Proposed Action. Per the requirements of Title 32 of the CFR, Section 989, the USAF Environmental Impact Analysis Process regulations, selection standards are used to identify alternatives for meeting the purpose and need for the USAF action.

Alternatives are evaluated in this EA to identify if they fulfill the action's purpose and need while meeting Beale AFB's mission development standards. The purpose and need of the Proposed Action is to create and/or enhance tricolored blackbird habitat to provide open water, protected nesting substrate, and high-quality foraging areas. Selection standards are based on the purpose and need statement and are used to develop and narrow the range of alternatives.

Regulatory Guidance—Basic design standards must be followed during implementation of the selected alternative, including the following:

- AFI 91-212, Bird/wildlife Aircraft Strike Hazard (BASH) Management Program (Headquarters Air Force Safety Center 2021)
- Air Force Manual (AFMAN) 32-7003*, Environmental Conservation* (Secretary of the Air Force 2020)
- AFI 32-1021, *Planning and Programming Military Construction Projects* (Secretary of the Air Force 2019)
- AFI 32-7042, *Waste Management* (Secretary of the Air Force 2014b)

2.4 OTHER ALTERNATIVES

2.4.1 ALTERNATIVE 2 – REDUCED ACTION ALTERNATIVE

Similar to the Preferred Alternative, the Reduced Action Alternative would result in the creation and/or enhancement of nesting habitat with adjacent suitable foraging habitat for tricolored blackbirds at Blackbird Basins and Blackbird Marsh. However, as compared to the Proposed Action, the four existing impoundments would not be raised and/or repaired. In addition, under this alternative, instead of major alterations to the existing dam, smaller impoundments (multiple "terraced" impoundments) would be created upstream of the existing dam to expand the nesting

habitat at Blackbird Marsh within the same footprint as the Proposed Action. Dam improvements would be limited to those deemed necessary by engineers to maintain the safety and structural integrity of the existing dam and spillway.

2.4.2 NO-ACTION ALTERNATIVE

CEQ regulations require consideration of the No Action Alternative for all Proposed Actions. The No Action Alternative serves as a baseline against which the impacts of the Proposed Action and other potential alternatives can be compared. The No Action Alternative will be evaluated in this report as an alternative considered.

Under the No Action Alternative, tricolored blackbird habitat would continue to be limited or reduced due to prior loss of habitat, as there would be no creation or enhancement of additional potential nesting habitat and adjacent suitable foraging habitat. There would be continued erosion, dam degradation, and the potential for impairments to water quality due to impoundment degradation.

In addition, under the No Action Alternative, Beale AFB would not fulfill the agreement with the USFWS to create and/or enhance potential nesting habitat to benefit tricolored blackbird at a location at least two miles from the runway, as to not impact safe flying and airfield operations.

2.5 ALTERNATIVES ELIMINATED FROM FURTHER CONSIDERATION

As none of the other alternatives that were considered would meet the purpose and need, the following alternatives have been eliminated from further consideration:

2.5.1 Off-site Alternatives

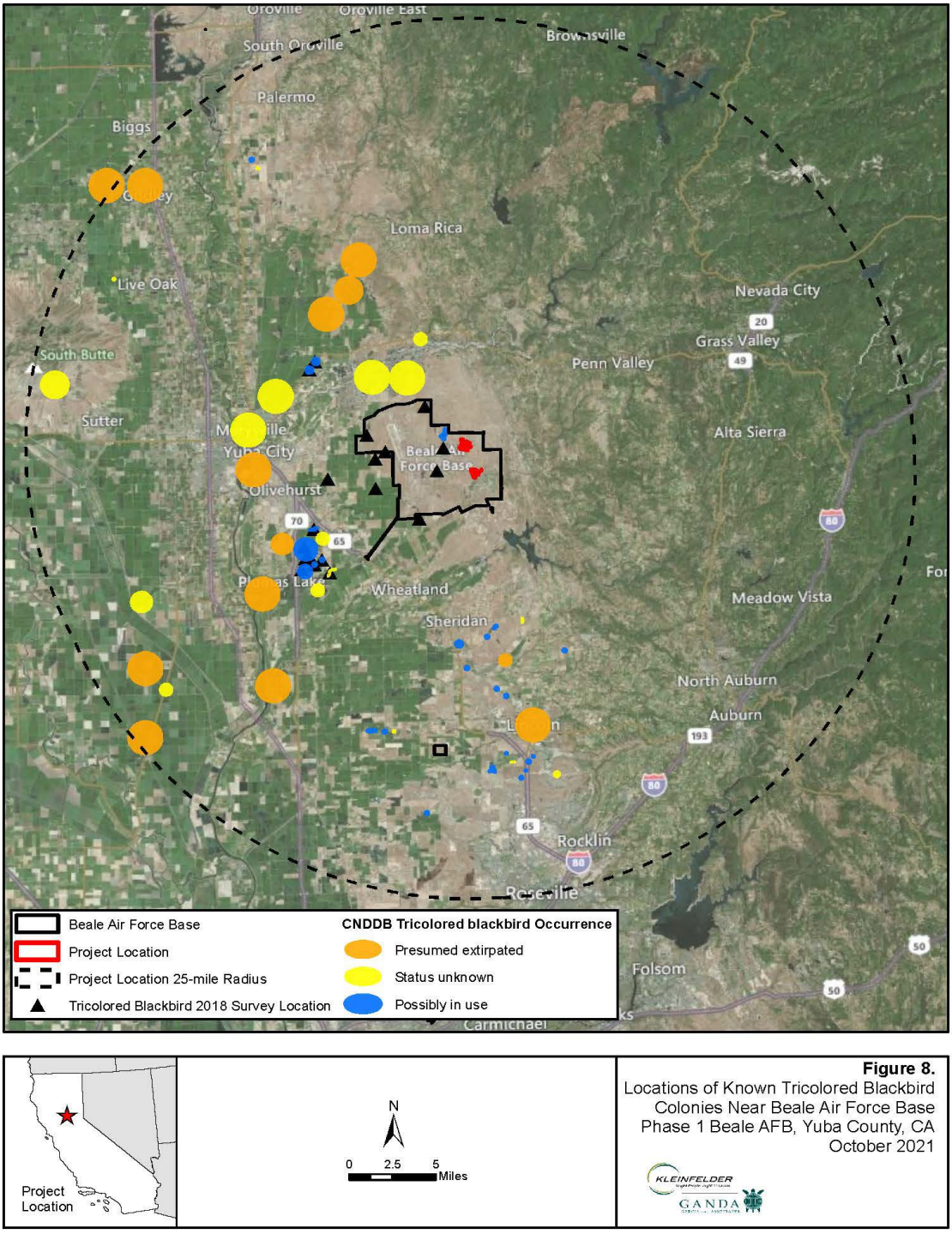
On October 29, 2015, Beale AFB met with the USFWS to discuss tricolored blackbird habitat restoration efforts on the Base (Beale AFB 2015a). During the meeting, the USFWS provided feedback regarding the necessity to keep restoration efforts on Beale AFB. The USFWS representatives expressed their desire to either keep the efforts on the Base or within 25 miles of the Base. Therefore, in 2018, Beale AFB initiated a review of possible restoration/enhancement or conversion opportunities within 25 miles and a more detailed analysis of these areas within 10 miles was conducted (Appendix C, Analysis of Off-Site Opportunities). Reconnaissance-level surveys of possible off-site restoration opportunities within 10 miles of Beale AFB were conducted by the project tricolored blackbird biologist, Dr. Edward C. Beedy (Figure 8). Dr. Beedy reviewed all Yuba County records of breeding colonies documented in the Tricolored Blackbird Portal that is managed by the University of California, Davis prior to performing these surveys. On July 31, 2018, Dr. Beedy identified and visited the seven (7) previously occupied tricolored blackbird colony sites within approximately 10 miles of Beale AFB that were identified. Photographs of each site are provided in Appendix C, along with brief descriptions of their existing habitat conditions and future potential to support nesting colonies with appropriate land management and restoration plans. Four (4) of the seven (7) sites that were surveyed were considered to have a high potential for future management of tricolored blackbird, which could be implemented through establishment of conservation easement(s) and/or habitat restoration

projects on selected lands with the primary maintenance activities anticipated to include control of invasive species.

In 2021, Beale AFB reviewed the California Natural Diversity Database (CNDDB) and determined that there are 55 occurrences for nesting colonies of tricolored blackbird within 25 miles of the Project. Twenty-five occurrences have had documented nesting since 2000 and may still present suitable and/or occupied habitat, with one of these recorded as being converted to a mitigation bank in 2017. Thirteen occurrences are presumed extirpated. The remaining seventeen occurrences were categorized as status unknown due to no confirmed nesting since 2000 (Figure 8).

The feasibility of obtaining a conservation easement(s) on 12 acres of nesting habitat are unknown. In addition, a primary factor in successful breeding habitat is the quality of the surrounding foraging habitat in terms of producing abundant large-bodied insects (e.g., grasshoppers, dragonflies, damselflies, etc.), and without those, even a high-quality nesting habitat would not be successful. As such, conservation easements would have to be placed over several thousand acres of nearby agricultural lands to ensure that those fields are farmed without pesticides and are maintained in crops conducive to foraging habitat (e.g., rice, oats, wheat, silage, etc.). Therefore, due to the uncertainly and processes involved in establishing conservation easements and protecting vast acreage of surrounding land that would be capable of ensuring both successful breeding and foraging habitat, this alternative is not carried forward for analysis in this EA.

Figure 8 Locations of Known Tricolored Blackbird Colonies Near Beale Air Force Base, Yuba County, California



2.5.2 Broskey Lake Alternative

The restoration and creation of suitable breeding and foraging habitat for tricolored blackbird was analyzed at Broskey Lake through a combination of methods including dam improvements, grading, installation of weirs, groundwater pumping, planting, installation of artificial nesting structures, and introduction/management of grazing. Broskey Lake is located within the southeastern portion of Beale AFB, approximately 0.25 mile west of Camp Beale Highway and the Vassar Lake entrance gate.

The proposed restoration efforts that were analyzed at Broskey Lake would produce approximately 10 acres of new aquatic habitat (2.4 acres of additional open water areas and 7.6 acres of shallowly inundated areas), 6.4 acres of habitat suitable for upland nesting (able to support blackberry species), and up to 300 acres of potentially suitable upland foraging habitats with scattered seasonal wetlands. The dam at Broskey Lake would be raised to produce a spillway invert of approximately 180 feet (i.e., increase the dam height by approximately six feet), which would increase the zone of inundation by approximately 10 acres. Approximately 2.5 acres would be excavated two feet deep to extend the zone of inundation at the upstream end of Broskey Lake. Additionally, one to two acres of superficial grading would occur in and around the tributary channels to broaden the channels and provide seasonal wetlands suitable for foraging. In addition to the superficial grading, weirs would be installed in the tributary channels to increase residence time of naturally occurring flow, and to slow the passage of pumped groundwater in the channel system. Groundwater would be pumped into the Broskey Lake area to augment the natural hydroperiod and to control hydrology during and after nesting (for protection from predators and to facilitate establishment and persistence of nesting substrate vegetation). Approximately 7.6 acres of shallow terrace areas would be planted or seeded with cattails and the update areas immediately adjacent to Broskey Lake at elevations from 180 to 182 feet would provide approximately 6.4 acres of habitat suitable to support blackberries. Supplemental irrigation would be provided in the upland areas on a temporary basis until the plantings become established. Artificial nesting structures would be placed strategically throughout the planting zones. The number and materials may vary for this experimental component. Cattle grazing would be introduced on approximately 300 acres of adjacent upland habitat within one mile of the breeding habitat. The primary maintenance activities associated with this alternative would include removal of vegetation, manipulation of hydrologic conditions, maintaining stable soils, and control of invasive species.

The upland habitats around Broskey Lake are characterized by a dense thatch of exotic annual grasses that have not been grazed in recent years. However, grazing would begin in other areas in the future. Under existing conditions, the hilly grasslands surrounding Broskey Lake do not provide suitable foraging habitat for tricolored blackbirds since they are mostly dry during the nesting season and do not attract or support large populations of large insects prey species such as grasshoppers, dragonflies, and damselflies. Further, there are no recent or historical records of tricolored blackbirds nesting at Broskey Lake in the Tricolored Blackbird Portal (maintained by U.C. Davis), likely due to the low-quality foraging habitat surrounding it. Additionally, in order to support the increased acreage of inundation and to buffer the effects of seasonal fluctuations in precipitation, ground water would be pumped into the Broskey Lake area to augment the natural

hydroperiod and to control hydrology during and after nesting (for protection from predators and to facilitate establishment and persistence of nesting substrate vegetation). This would involve the need to bring a PG&E service drop to the site for both the wellhead and the recirculating pump station and would likely require approximately 1,000 feet of gravel maintenance road for routine service calls on both the pump station and the water storage tank. Due to the low-quality foraging habitat and additional water and power needs to support seasonal fluctuations, this alternative was eliminated from further consideration. This alternative is not carried forward for analysis in this EA.

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3. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This EA provides a detailed analysis of the potential direct, indirect, and cumulative impacts that would result from implementation of the Proposed Actions. Direct impacts would be those effects that are caused by the action and occur at the same time and place (40 CFR §1508.8[a]). Indirect impacts are those effects that would be caused by the Proposed Action and would occur later in time or further removed in distance but would still be reasonably foreseeable (40 CFR §1508.8[b]). Cumulative impacts would be those that would result from the incremental impacts of the Proposed Action when added to other past, present, and reasonably foreseeable future actions. As appropriate, potential impacts are further discussed as being temporary, short-term, or long-term. Permanent impacts indicate an irretrievable loss or alteration.

In an EA, the magnitude of the impact is considered regardless of whether the impact is adverse or beneficial. Environmental consequences are weighed by their significance. Under NEPA, significance is based on context and intensity (40 CFR. § 1508.27), while under in the state process, significance is contextualized as a significant effect on the environment resulting from the entire action. Context considers the geographic extent of the potential impact (local, regional, or greater extent) while intensity considers the severity of the impact. The Region of Influence (ROI) for the Proposed Action is within the immediate watershed of Blackbird Basins and Blackbird Marsh within Beale AFB, unless otherwise specified below for a particular resource area where a resource would have a different ROI.

The following terms are used to describe the magnitude of impacts in this EA:

- No Effect: The action would not cause a detectable change.
- Negligible: The impact would be at the lowest level of detection; the impact would not be significant.
- Minor: The impact would be slight but detectable; the impact would not be significant.
- Moderate: The impact would be readily apparent; the impact would not be significant.
- Major: The impact would be clearly adverse or beneficial; the impact has the potential to be significant. The significance of adverse and beneficial impacts is subject to interpretation and should be determined based on the final proposal. In cases of adverse impacts, the impact may be reduced to less than significant by mitigation, design features, and/or other measures that may be taken.

3.1 NOISE

3.1.1 Definition of the Resource

Sound is defined as a particular auditory effect produced by a given source. Noise and sound share the same physical aspects; however, noise is considered a disturbance while sound is defined as an auditory effect. Noise is typically defined as any sound that is undesirable because it interferes with communication, is intense enough to damage hearing, or is otherwise bothersome. Noise can be intermittent or continuous, steady, or impulsive, and can involve any number of sources and frequencies. Human response to increased sound levels varies according to the source type, characteristics of the sound source, distance between source and receptor,

receptor sensitivity, and time of day. Sensitive receptors can be specific, such as schools or hospitals, or broad, such as green space or wildlife reserves, in which occasional or persistent sensitivity to noise above ambient levels exists.

Sound levels, resulting from multiple single events, are used to characterize noise effects from aircraft or vehicle activity and are measured in Day–Night Average Sound Level (DNL), which is the energy-averaged sound level measured over a 24-hour period. According to USAF, the Federal Aviation Administration, and the U.S. Department of Housing and Urban Development criteria, residential units and other noise-sensitive land uses are "clearly unacceptable" in areas where the noise exposure exceeds 75 decibels A (dBA) DNL, "normally unacceptable" in regions exposed to noise between 65 and 75 dBA DNL, and "normally acceptable" in areas exposed to noise of 65 dBA DNL or under.

Construction noise uses Equivalent Sound Level (L_{eq}), which is an average sound level similar to DNL except there are nighttime penalties. It also applies to only those hours the equipment is being used during the workday.

3.1.2 Existing Conditions

Beale AFB is a typical airfield. The ambient noise environment includes military aircraft and automobile traffic. Beale AFB has a fleet of U-2, RQ-4 Global Hawk, and associated support equipment. Automobile use associated with military operations at Beale AFB consists of passenger and military vehicles and delivery and fuel trucks. Noise associated with military operations can include weapons training and aircraft maintenance activities.

Blackbird Basins is located approximately 3.5 miles from the Beale AFB airfield, and one mile from the nearest firing range. Blackbird Marsh is located within a ½ mile of both Warren Shingle Road and Ridge Drive. Military-related noise is variable within the project area, depending on flight schedules and patterns, and depending on use of the firing range. The area surrounding Blackbird Basins and Blackbird Marsh is mostly undeveloped land. Noise in this environment is generally associated with vehicles, airplanes, and munitions.

Aircraft and surface traffic are the major sources of noise within Beale AFB boundaries as well as adjacent property off base. Ambient noise associated with the Blackbird Basins and Blackbird Marsh project sites are natural sources of noise, including water flowing over the spillways and noise associated with animals such as birds, frogs, and insects.

3.1.3 Environmental Consequences

Proposed Action

Earthwork, including excavating and grading, can cause an increase in sound that is well above the ambient level. A variety of sounds are emitted from loaders, trucks, and other work equipment. Table 2 includes a list of construction equipment and the representative noise level during operation. Implementation of the Proposed Action would be expected to result in short-

term, minor, adverse effects on the noise environment from equipment that would be used during restoration activities.

Table 2 Noise Levels of Representative Construction Equipment

Equipment	Noise Level (dBA)
Backhoe	80
Flat Bed Truck	84
Dozer	85
Jackhammer	85
Generator	70
Excavator	85
Excavator-mounted Hoe Ram	90
Front-End Loader	80
Grader	85
Air Compressor	80
Pickup Truck	45
Street Sweeper	80
Vibratory Roller	85

Note: Noise levels are given at a distance of 50 feet from the source.
Source: Construction Noise Handbook (Federal Highway Administration 2006).

Noise generated from construction activities at Blackbird Basins would be isolated. Blackbird Marsh has sensitive receptors within a mile, including residential areas, a school, playgrounds, nature trails, a chapel, and a clinic; however, all are located greater than 1,000 feet from the project area. Noise generated at Blackbird Marsh would decrease with distance, and at 1,000 feet or greater would be expected to be within federal guidelines for "normally acceptable" areas exposed to noise 65 dBA DNL and under. However, to reduce any potential impacts related to construction noise, all construction activities would be conducted during normal business hours (from approximately 7 a.m. to 5 p.m.) and all equipment would be outfitted with all factory-equipped sound attenuation features, such as shrouds, covers, and mufflers that would be in good working condition.

Construction activities would last only for the duration of the dam improvement and habitat creation activities. It is not anticipated that the short-term increase in noise levels resulting from the Proposed Action would cause significant adverse effects on the surrounding populations. Following the dam improvements and initial habitat creation efforts, there would be no increase in noise over the ambient levels currently at the site.

Avoidance and Minimization Measure (AMM)-NOS-1*:* Construction noise can often be described as loud, impulsive, or annoying. To reduce impacts related to construction noise, all construction activities would be conducted during normal business hours (from approximately 7 a.m. to 5 p.m.), and all equipment would be outfitted with all factory-equipped sound attenuation features, such as shrouds, covers, and mufflers that would be in good working condition.

Reduced Action Alternative

The Reduced Action Alternative is comprised of similar activities but would not include the dam improvements and repairs or modifications to the four existing impoundments. Therefore, short-term noise impacts from implementation of the Reduced Action Alternative would be slightly less than those compared to the Proposed Action.

No Action Alternative

Under the No Action Alternative, the tricolored blackbird habitat would not be created, and Blackbird Marsh dam improvements would not take place; therefore, there would be no change in the noise levels at Blackbird Basins or Blackbird Marsh.

3.2 AIR QUALITY AND GREENHOUSE GASSES

3.2.1 Definition of the Resource

In accordance with the CAA (42 U.S. Code 7409), air quality in a given region is determined by the atmospheric concentration of specific pollutants (termed "criteria" pollutants because scientific studies have specified the harm they cause in relation to their airborne concentrations over specific exposure times). Regional air quality is affected not only by the types and amounts of pollutants emitted and the locations of their sources, but also by the region's topography and meteorology.

Ambient Air Quality Standards—Under the CAA (40 CFR Part 50), the U.S. Environmental Protection Agency (EPA) has developed National Ambient Air Quality Standards (NAAQS) for ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, respirable particulate matter (including particulate matter equal to or less than 10 microns in diameter [PM_{10}], and particulate matter equal to or less than 2.5 microns in diameter [$PM_{2.5}$]), and lead (Table 3).

Table 3 National Ambient Air Quality Standards

Pollutant	Average Period	Federal Air Quality Standards			
		Primary Standard		Secondary Standard	
		Level	Statistic	Level	Statistic
Carbon Dioxide	8-hour	9 ppm	Maximum	None	
	1-hour	35 ppm	Maximum		
Lead	Rolling 3-month average	0.15 µg/m^3	Maximum	Same as Primary	
Nitrogen Dioxide	Annual	0.053 ppm	Arithmetic mean	Same as Primary	
	1-hour	0.100 ppm	3-year average	None	
PM $_{10}$	24-hour	150 µg/m^3	Maximum	Same as Primary	
PM $_{2.5}$	Annual	12 µg/m^3	Annual mean averaged over 3 years	15 µg/m^3	Annual mean over three years
	24- hour	35 µg/m^3	3-year average	Same as Primary	
Ozone	8-hour	0.070 µg/m^3	3-year average	Same as Primary	
Sulfur Dioxide	3-hour	None		0.5 ppm	Maximum

	1-hour	0.075 ppm	3-year average	None
NOTES: $\mu g/m^3$ = Micrograms per cubic meter. ppm = Part(s) per million.				
Source: CAA (40 CFR Part 50).				

California Ambient Air Quality Standards—The California Air Resources Board regulates air quality for the State of California and has set California Ambient Air Quality Standards (CAAQS) for the same pollutants that have NAAQS, and in addition for sulfates, hydrogen sulfide, and vinyl chloride (Table 4). Attainment of the NAAQS has precedence over attainment of the CAAQS due to federal penalties for failure to meet federal attainment deadlines. California law requires incremental progress toward attainment of CAAQS (California Air Resources Board 2021).

Table 4 California Ambient Air Quality Standards

Criteria Pollutant	Average Period	Level	Method
Ozone	1-hour	0.09 ppm	Ultraviolet Photometry
	8-hour	0.070 ppm	
Carbon Monoxide	1-hour	20 ppm	Non-Dispersive Infrared Photometry
	8-hour	9 ppm	
Nitrogen Dioxide	1-hour	0.18 ppm	Gas Phase Chemiluminescence
	Annual	0.030 ppm	
PM_{10}	24-hour	50 $\mu g/m^3$	Ultraviolet or Beta Attenuation
	Annual	20 $\mu g/m^3$	
$PM_{2.5}$	Annual	12.0 $\mu g/m^3$	--
Lead	30-day Average	1.5 $\mu g/m^3$	Atomic Absorption
Hydrogen Sulfide	1-hour	0.03 ppm / 42 $\mu g/m^3$	Ultraviolet Fluorescence
Sulfate	24-hour	25 $\mu g/m^3$	Ion Chromatography
Vinyl Chloride	24-hour	0.01 ppm / 26 $\mu g/m^3$	Gas Chromatography
NOTES: $\mu g/m^3$ = Micrograms per cubic meter. ppm = Part(s) per million.			
Source: California Air Resources Board 2021			

Attainment/Non-Attainment of NAAQS and General Conformity—EPA classifies the air quality in an air quality control region (AQCR), or in subareas of an AQCR, as "attainment," "non-attainment," "maintenance," or "unclassified" for each of the six federal criteria pollutants. Attainment means that for a given pollutant, its monitored ambient levels do not exceed its NAAQS. Non-attainment means that a monitored criteria pollutant level exceeds its NAAQS. Maintenance indicates that an area was previously designated non-attainment but is now in compliance with a State Implementation Plan to maintain the NAAQS. Lastly, Unclassified means that there is not enough monitoring data to appropriately classify an AQCR.

Federal Prevention of Significant Deterioration (PSD) – PSD limits to criteria pollutant emissions apply to new major stationary sources (e.g., source with the potential to emit 250 tons per year of any criteria pollutant) and to significant modifications to existing major stationary sources (e.g., changes that add 15-40 tons per year to the facility's potential to emit depending on the pollutant) in attainment areas. PSD regulations can also apply to stationary sources if they are within 10 kilometers of certain national parks or wilderness areas (e.g., Class I Areas), or if stationary source criteria pollutant emissions would cause an increase in the 24-hour average concentration of any criteria pollutant by one microgram per cubic meter or more (40 CFR 52.21[b][23][iii]) in a Class I area. Class I areas includes national parks larger than 6,000 acres, national wilderness areas and national memorial parks larger than 5,000 acres, and international parks. PSD regulations also define limits to criteria pollutant ambient concentration increments to any area's baseline concentrations, based on the area's Class designation (40 CFR 52.21[c]). PSD thresholds have also been set for greenhouse gas (GHG) emissions from new major sources and significant modifications to existing sources.

Greenhouse Gas Emissions—GHGs are gaseous compounds that trap heat in the atmosphere. GHG emissions are produced from natural processes and human activities. The most common GHGs emitted from natural processes and human activities include carbon dioxide, methane, and nitrous oxide. GHGs are primarily produced by the burning of fossil fuels and through industrial and biological processes. The CEQ issued a new *Draft NEPA Guidance on Consideration of GHG Emissions* (CEQ 2019). This guidance, if finalized, would replace *Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews* (CEQ 2016), which was withdrawn pursuant to *Promoting Energy Independence and Economic Growth* (EO 13783, March 2017).

EO 13514 (October 2009) requires agencies to set goals for reducing GHG emissions. One of its requirements is the development and implementation of a Strategic Sustainability Performance Plan (SSPP) that prioritizes agency actions based on lifecycle return on investment. Each SSPP is required to identify, among other things, *"agency activities, policies, plans, procedures, and practices"* and *"specific agency goals; a schedule, milestones, and approaches for achieving results; and quantifiable metrics."* In August 2010, the DoD released its SSPP to the public. This implementation plan describes specific actions DoD would take to achieve its individual GHG reduction targets, reduce long-term costs, and meet the full range of goals of the Executive Order.

All SSPPs segregate GHG emissions into three categories: Scope 1 emissions are those directly occurring from sources that are owned or controlled by the agency; Scope 2 emissions are indirect emissions generated in the production of electricity, heat, or steam purchased by the agency; and Scope 3 emissions are other indirect GHG emissions that result from agency activities, but from sources that are not owned or directly controlled by the agency. The GHG goals in the DoD SSPP specify the reduction of Scope 1 and Scope 2 GHG emissions by 34% by 2020, relative to Fiscal Year 2008 emissions; and reduction of Scope 3 GHG emissions by 13.5% by 2020, relative to Fiscal Year 2008 emissions.

3.2.2 Existing Air Quality

The following sections describe the general climate in the area surrounding Beale AFB and its status with regard to NAAQS attainment.

3.2.2.1 Climate

Beale AFB is located in California's Central Valley, which has a regional climate described as Mediterranean subtropical. Because Beale AFB is located inland of the Pacific Ocean, the Valley experiences hot, dry summers, and cool, wet winters. May through October is considered the "dry" season and is characterized by low precipitation and warm temperatures. November through April is considered the "wet" season and is characterized by moderate precipitation, cool temperatures, and high northerly and southerly winds.

In 2019, Beale AFB received an annual precipitation of 26.45 inches, with 85% of all rainfall occurring from November through April (Table 5). High summer temperatures average in the 80s and 90s, sometimes reaching above 100 degrees Fahrenheit (°F). July and August are typically the hottest and driest months of the year (Table 5). Winters at Beale AFB are mild with average low temperatures in the 40s (Table 5).

Table 5 2019 Weather Data at Beale AFB

Month	Average Mean Temperature (°F)	Average Maximum Temperature (°F)	Average Minimum Temperature (°F)	Total Precipitation (inches)
January	49	59	40	5.43
February	47	54	40	7.20
March	53	62	43	3.71
April	62	74	51	0.90
May	63	76	51	3.61
June	72	87	53	0.00
July	79	94	60	0.00
August	79	94	63	0.00
September	71	86	57	0.30
October	61	78	46	0.00
November	54	68	41	0.46
December	49	57	42	4.84
Source: Weather Underground 2020				

3.2.2.2 Air Quality Conditions

Beale AFB, located in Yuba County, is regulated by the Feather River Air Quality Management District (FRAQMD). FRAQMD is responsible for implementing and enforcing state and federal air quality regulations in Yuba County, Sutter County, and portions of the Northern Sacramento Valley Air Basin.

Air quality in Yuba County has been assessed by FRAQMD for compliance with the CAAQS and NAAQS. Three air quality designations can be given to an area for a particular pollutant:

- **Nonattainment:** Applies when air quality standards have not been consistently achieved.
- **Maintenance:** Applies when an area was previously designated non-attainment but is now in compliance with a State Implementation Plan to maintain the NAAQS.
- **Attainment:** Applies when air quality standards have been achieved.
- **Unclassified:** Applies when there is not enough monitoring data to determine whether the area is in nonattainment or attainment.

Relevant ambient air quality standards and their attainment status for Yuba County are listed in Table 6.

Various sources on the installation emit criteria pollutants and hazardous air pollutants including generators, boilers, water heaters, fuel storage tanks, gasoline service stations, surface coating/paint booths, and miscellaneous chemical usage. The air quality in Yuba County is characterized by the EPA as maintenance for $PM_{2.5}$ and as unclassified/attainment for all other criteria pollutants (EPA 2019). Beale AFB is not within 10 kilometers of a Class I area.

Table 6 Area Designations for Yuba County 2018

Criteria Pollutant	Averaging Time	CAAQS		NAAQS	
		Standard	Yuba Attainment Status	Standard	Yuba Attainment Status
Ozone	1-hour	0.09 ppm	Attainment	--	--
	8-hour	0.070 ppm		0.070 ppm	Attainment
Carbon Monoxide	1-hour	20 ppm	Attainment	35 ppm	Attainment
	8-hour	9 ppm		9 ppm	
Nitrogen Dioxide	1-hour	0.18 ppm	Attainment	100 ppb	Attainment
	Annual	0.030 ppm		0.053 ppm	
PM_{10}	24-hour	50 µg/m^3	Nonattainment	150 µg/m^3	Unclassified
	Annual	20 µg/m^3		--	--
$PM_{2.5}$	24-hour	--	--	35 µg/m^3	Maintenance
	Annual	12.0 µg/m^3	Attainment	12.0 µg/m^3	Attainment
Lead	30-day average	1.5 µg/m^3	Attainment	--	--
	Calendar Quarter	--	--	1.5 µg/m^3	Attainment
	Rolling 3-month average	--	--	0.15 µg/m^3	Unclassified
Hydrogen Sulfide	1-hour	0.03 ppm/ 42 µg/m^3	Unclassified	No National Standard	
Sulfate	24-hour	25 µg/m^3	Attainment	No National Standard	
Sulfur Dioxide	1-hour	0.25 ppm	Attainment	75 ppb	Attainment
	24-hour	0.04 ppm	Attainment	0.14 ppm	Attainment
	Annual	--	Attainment	0.030 ppm	Attainment
Vinyl Chloride	24-hour	0.01 ppm/ 26 µg/m^3	Unclassified	No National Standard	

NOTES: µg/m^3 = Micrograms per cubic meter.
ppm = Part(s) per million.
ppb = Part(s) per billion.

Source: California Air Resources Board 2018

3.2.3 Environmental Consequences

Proposed Action

The USAF's Air Conformity Applicability Model (ACAM) was used to estimate criteria pollutant and GHG emissions associated with the construction of the Proposed Action in accordance with AFI 32-7040, Air Quality Compliance and Resource Management; the Environmental Impact Analysis Process (32 CFR 989); and the General Conformity Rule (40 CFR 93 Subpart B).

Construction activities would involve modifications to soil, vegetation and water structures using heavy equipment. Total equipment and motor vehicle emissions associated with the construction activities were estimated using ACAM for the calendar-year of project completion (2022). General Conformity under CAA Section 1.76 has been evaluated for the Proposed Action according to the requirements of 40 CFR 93, Subpart B. Table 7 provides the general conformity summary for Yuba County where all the project components would be constructed. Detailed results of the general conformity analysis are included as Appendix D. None of the estimated emissions associated with this action are above the conformity threshold values established at 40 CFR 93.153 (b); therefore, the requirements of the General Conformity Rule are not applicable.

Overall, impacts to air quality during construction would be negligible. The operation of construction equipment and use of vehicles along the paved and unpaved access roads would generate criteria pollutant emissions and greenhouse gases; however, none of criteria pollutant emissions would exceed the general conformity thresholds. The calculated emissions for GHGs as carbon dioxide equivalent (CO2e) were well below 25,000 metric tons, which is the reference point provided in CEQ Guidance (CEQ 2016); hence, the impact is considered insignificant. To reduce particulate matter, a water tank truck would be used for dust suppression.

Table 7 General Conformity Summary (Year 2022)

Pollutant	Action Emissions (ton/yr.)	GENERAL CONFORMITY	
		Threshold (ton/yr.)	Exceedance (Yes or No)
Volatile organic compounds	1.089	100	No
Nitrogen oxides	6.866	100	No
Carbon monoxide	6.554		
Sulfur oxides	0.019	100	No
PM_{10}	13.234		
$PM_{2.5}$	0.289	100	No
Lead	0.000		
Ammonia	0.006	100	No
CO2e	1912.9		

AMM-Air-1: Fugitive dust from construction activities should be minimized by watering and soil stockpiling, thereby reducing to negligible levels the total amount of soil exposed.

Reduced Action Alternative

The Reduced Action Alternative is comprised of similar activities but would not include the dam improvements and omitting repairs or modifications to the four existing impoundments. Therefore, short-term air quality impacts from construction from the Reduced Action Alternative would be slightly less when compared to the Proposed Action.

No Action Alternative

Under the No Action Alternative, the tricolored blackbird habitat would not be created at Blackbird Basins or Blackbird Marsh. In addition, dam improvements at the dam at Blackbird Marsh would not occur. There would be no impacts to air quality or GHG emissions as no criteria air pollutants would be emitted.

3.3 LAND USE, AGRICULTURE, RECREATION, AND AESTHETICS

3.3.1 Definition of the Resource

Land use generally refers to real property classifications that indicate either natural conditions or the types of human activity occurring on a parcel. Natural conditions of property can be described or categorized as unimproved, undeveloped, conservation or preservation area, and natural or scenic area. Descriptive terms often used include residential, commercial, industrial, agricultural, institutional, and recreational. Aesthetics are important amenities in outdoor environments because people have preferences for certain environmental qualities over others. While often viewed as subjective, these preferences have direct impacts on tourism, recreation, and stakeholder satisfaction (Brady 2006).

3.3.2 Existing Conditions

Land Use. Beale AFB includes a variety of land uses that are typical of military installations, and contains improved, semi-improved, and unimproved land areas based on land classifications defined in AFMAN 32-7003. Approximately 96% of the land use total for the installation includes open space, airfield, industrial, and housing (Beale AFB 2019). The largest land use category is Open Space at 19,562 acres. The next largest land use category is Airfield at 1,285 acres. The remaining land use categories are all less than a thousand acres and include Administration, Communities, Housing, Industrial, Medical/Dental, Operations and Maintenance, and Outdoor Recreation. Blackbird Basins and Blackbird Marsh are located within and surrounded by the land use category Open Space. The Blackbird Marsh is also located adjacent to a Habitat Conservation Area on Beale AFB (Beale AFB 2019).

Agricultural Resources. Within California, prime locations of agricultural land are determined primarily by soil quality and irrigation opportunities. The feasibility of agricultural operations is dependent on economic infrastructure, climate, and soil quality. At Beale AFB, the topography, land use constraints, and soils are not conducive to agricultural production. Beale AFB does not support prime or unique farmland or farmland of statewide importance. However, approximately

12,789 acres are currently used for grazing. Figure 7 shows the grazing areas on Beale AFB and near the project areas.

Recreation. Recreation resources at Beale AFB include a recreation facility (the Harris Fitness center), walking trails, designated hunting and fishing areas, and other open spaces. Blackbird Marsh represents a small percentage of area open to hunting and fishing at Beale AFB. The Proposed Action does not involve construction or expansion of recreational areas or facilities.

Aesthetics. Aesthetic qualities at and around Blackbird Basins and Blackbird Marsh are desirable. Both Proposed Action locations are surrounded by gently rolling hills, covered in grassland with occasional trees and shrubs. Blackbird Basins and Blackbird Marsh both support open water and emergent herbaceous vegetation, as well as shrubs and trees along the margins. Blackbird Basins is not visible from surrounding land uses, while Blackbird Marsh can be seen from Warren Shingle Road.

3.3.3 Environmental Consequences

Proposed Action

The Proposed Action would not adversely affect land use. All activities associated with the Proposed Action would be consistent with present and foreseeable land use patterns at Beale AFB. All land use planning activities at Beale AFB are designed in accordance with the Beale AFB Installation Development Plan (Beale AFB 2015b) that designates where allowable development shall occur. This plan ensures that the current base guidelines are followed with respect to maintaining separate areas of Beale AFB for flight line, administrative activities, and housing.

The Proposed Action would not adversely affect agricultural resources. Grazing would continue on upland habitat at Blackbird Basins and Blackbird Marsh and would be used to support habitat restoration goals. The existing fencing at Blackbird Marsh would have minor re-alignment but no significant change to the available grazing habitat. New pasture fencing would exclude grazing from approximately 60 acres at Blackbird Basins to protect wetlands within Grazing Management Area C. This represents a reduction of less than two percent of the available grazing area in this pasture. This is not expected to adversely impact grazing due to alternate sources of water in the area.

The Proposed Action would have a minor short-term adverse effect on recreation during construction. Hunting and fishing opportunities at Blackbird Marsh would be temporarily disrupted by construction activities associated with the project but would resume once construction is finished. Blackbird Marsh represents a small percentage of area open to hunting and fishing at Beale AFB, and there would be other sources of hunting and fishing nearby. The Proposed Action would not be expected to result in significant impacts to recreation at Beale AFB.

The Proposed Action would not adversely affect scenic visual components of Beale AFB. Under this alternative, tricolored blackbird nesting habitat would be created and/or enhanced, resulting

in an improved appearance at Blackbird Basins and Blackbird Marsh. The enhancement of the main tributary above Blackbird Marsh would improve visual character of the stream by reducing erosion and downcutting. In addition, Beale AFB has a Facilities Board that evaluates and ensures visual compatibility of all proposed facility construction. The Proposed Alternative would be expected to result in moderate beneficial impacts to aesthetics at both Blackbird Basins and Blackbird Marsh. This action would not significantly alter the scenic natural resources because the areas would remain an overall stream/lake environment.

Reduced Action Alternative

The Reduced Action Alternative is comprised of similar activities but would not include the dam improvements and omitting repairs or modifications to the four existing impoundments. Therefore, short-term impacts from construction related to land use, agriculture, recreation and aesthetics from implementation of the Reduced Action Alternative would be similar to the Proposed Action.

No Action Alternative

Under the No Action Alternative, the tricolored blackbird habitat would not be created at Blackbird Basins or Blackbird Marsh. The dam at Blackbird Marsh would not be improved, and erosion contributing to the downcutting of the main tributary above the pond would continue.

The No Action Alternative would not adversely affect land use. Even though the dam and spillway would continue to be eroded at Blackbird Marsh, it is considered low risk for flooding and the deterioration would not impact land use in the immediate vicinity.

The No Action Alternative would not adversely affect agricultural resources. Although the dam and spillway would continue to be eroded, this would not affect agricultural resources in the area. Grazing would continue as it occurs at both locations.

The No Action Alternative would not adversely affect recreation. Although the dam and spillway would continue to be eroded at Blackbird Marsh, this would not affect recreational uses in the area.

The No Action Alternative would have a minor adverse impact on aesthetics at Blackbird Marsh from continued erosion at the dam spillway and the downcutting of the tributary above the pond.

3.4 GEOLOGICAL, MINERAL, AND SOIL RESOURCES

3.4.1 Definition of the Resource

Geological resources consist of all bedrock and soil materials within the project area. Geologic factors such as soil stability and seismic properties influence the stability of structures. Soil, in general, refers to unconsolidated earthen materials overlying bedrock and other parent material. Soil structure, elasticity, strength, shrink-swell potential, and erodibility all determine the ability for the ground to support structures and facilities. Soils typically are described in terms of their

type, slope, physical characteristics, and relative compatibility or limitations with regard to particular construction activities and types of land use.

Topography consists of the physiographic, or surface, features of an area and is usually described with respect to elevation, slope, aspect, and landforms. Long-term geological, erosional, and depositional processes typically influence topographic relief.

3.4.2 Existing Conditions

Geology

Beale AFB is located on the boundary of the Great Valley and Sierra Nevada geologic provinces. The Great Valley Province consists of a deep, northwest-trending sedimentary basin that borders the eastern side of the Coast Ranges. It formed as a basin between the Coast Range Province on the west and the Sierra Nevada Province on the east. The basin has filled with alluvial deposits from the erosion of the Sierra Nevada and the Coast Ranges (Beale AFB 2014).

Surficial geologic features surrounding Beale AFB primarily consist of unconsolidated sedimentary, metasedimentary, and igneous (volcanic) materials that have eroded off nearby mountains or have been deposited by streams and storm events. Four geomorphic units (i.e., surface features) associated with the Great Valley Province cover most of Beale AFB: river floodplains and channels of the Modesto Formation, low alluvial plains and fans of the Riverbank Formation, and dissected uplands of the Mehrten and Laguna formations. A fifth geomorphic unit, Metavolcanic Rock, occurs in the eastern portion of Beale AFB and is characteristic of the Sierra Nevada foothills (Beale AFB 2019). The proposed Blackbird Basins area is in the Metavolcanic Rock geomorphic unit, and the Blackbird Marsh area is in the Laguna geomorphic unit.

Seismic Activity

Beale AFB is located in Yuba County, an area of relatively low seismic activity, and is not located within a highly active fault zone. No Alquist-Priolo Earthquake Fault Zones are located in the County. Faults include primarily inactive faults of the Foothills Fault System, running south-southeastward near Loma Rica, Browns Valley, and Smartville. Faults include the Prairie Creek Fault Zone, Spenceville Fault, and Swain Ravine Fault (Yuba County 2011).

Topography

The western and central portions of Beale AFB (flight line and Main Base) consist of relatively flat grasslands, characteristic of the topography of the Central Valley. The elevation of Beale AFB is approximately 80–90 feet amsl (North American Vertical Datum of 1988) along the western and southern border. The eastern portion of Beale AFB, including the family housing area and the Proposed Action area, contains low, rolling hills that gradually merge with the foothills of the Sierra Nevada Mountains. The topography becomes progressively steeper towards the east. The dissected uplands of the Laguna Formations have elevations of 100–300 feet above mean sea level. Further towards the Metavolcanic Rock Formation, elevations exceed 500 feet amsl in some locations (Beale AFB 2019).

Minerals and Soil Resources

There are 14 soil map units of soil series or soil complexes on Beale AFB that can be grouped into two main categories: Central Valley Terraces and Sierra Nevada Foothill. The Main Base and flight line are on the valley soils. The Proposed Action area and family housing area are on the foothill soils. Soils at Beale AFB contain a high amount of clay and have an underlying hardpan; therefore, the construction period at Beale AFB is limited to the dry season (May through October). The exclusion period for earth-disturbing activities on Beale AFB is from November 1 through June 1 to avoid problems arising from saturated soils in work areas (Beale AFB 2019). Foothill soils are suitable for wildlife habitat and livestock grazing. They favor native oaks, shrubs, forbs, and annual grasses. Restrictions are soil depth (highly variable), slope (3%–75%), and water erosion.

Blackbird Basins is underlain by Pardee-Rancho Seco Complex, Perkins Loam, and Argonaut-Auburn Loams (Beale AFB 2019; USDA 2021). The Blackbird Marsh is underlain by the Redding-Corning Complex. Figures 9 and 10 include soil maps of the project areas. Table 8 includes the soils located within the project area and their characteristics.

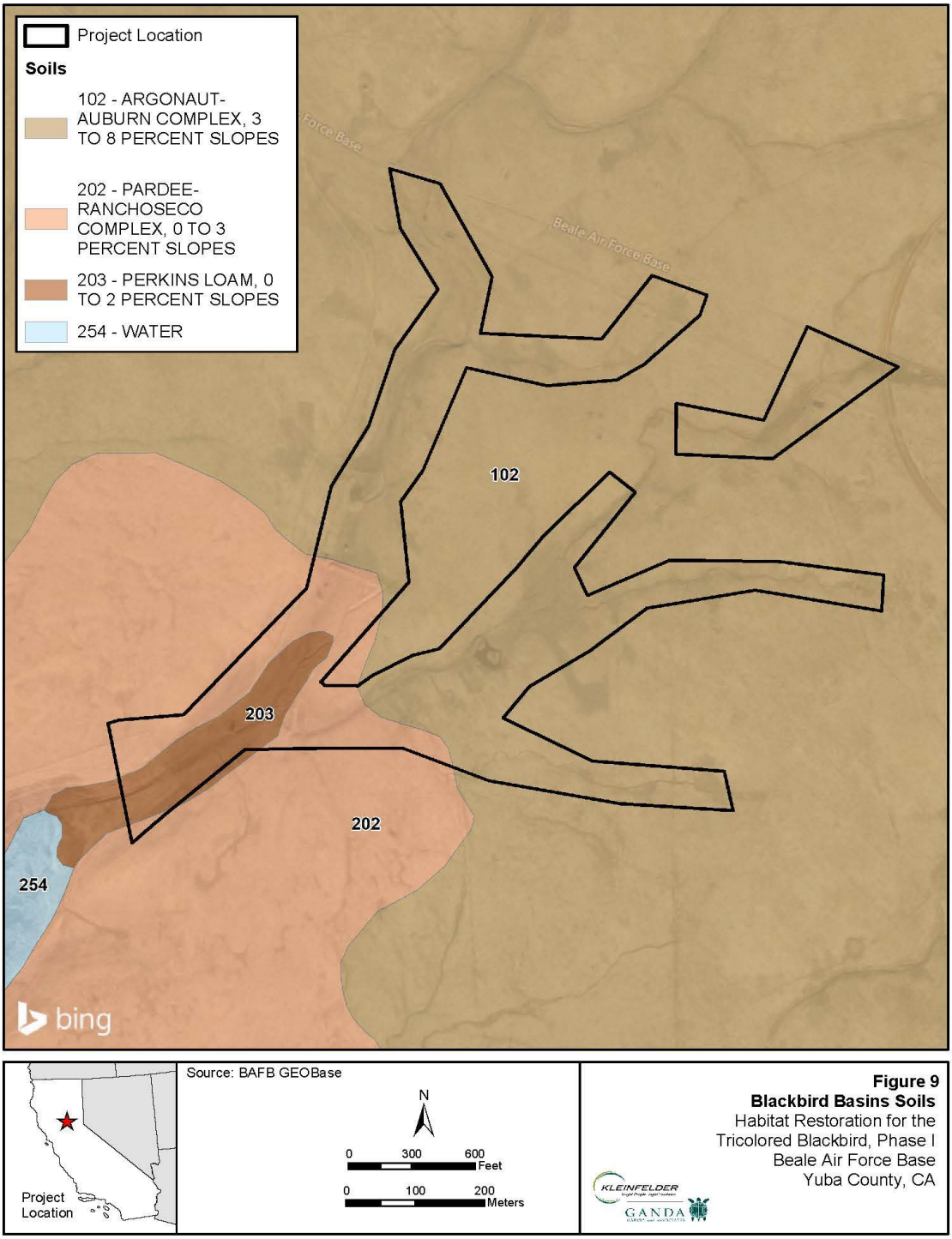
Pardee-Rancho Seco Complex are well-drained soils that are formed in mixed gravelly alluvium and/or mixed residuum and are found on terrace remnants and eroded fan remnants on hills (USDA 2021). Perkins Loam is a well-drained alluvium derived from igneous, metamorphic, and sedimentary rock found on the toe slopes of stream terraces. Argonaut-Auburn Loams are well-drained soils consisting of colluvium and/or residuum derived from igneous and metamorphic rock and residuum weathered from schist and are found on slopes and the base of hillsides. Redding-Corning Complex are moderately well-drained soils formed in alluvium derived from mixed rock sources and are found on the toe slopes of fan terraces. Of these four soil series that occur within the Proposed Action area, three are considered hydric by the NRCS: Argonaut-Auburn Complex, Redding-Corning Complex and Pardee-Rancho Seco Complex. These soil series are designated as hydric soils because they support areas that are frequently inundated or saturated for a long duration during the growing season.

Table 8 Soils Located within the Proposed Action Area

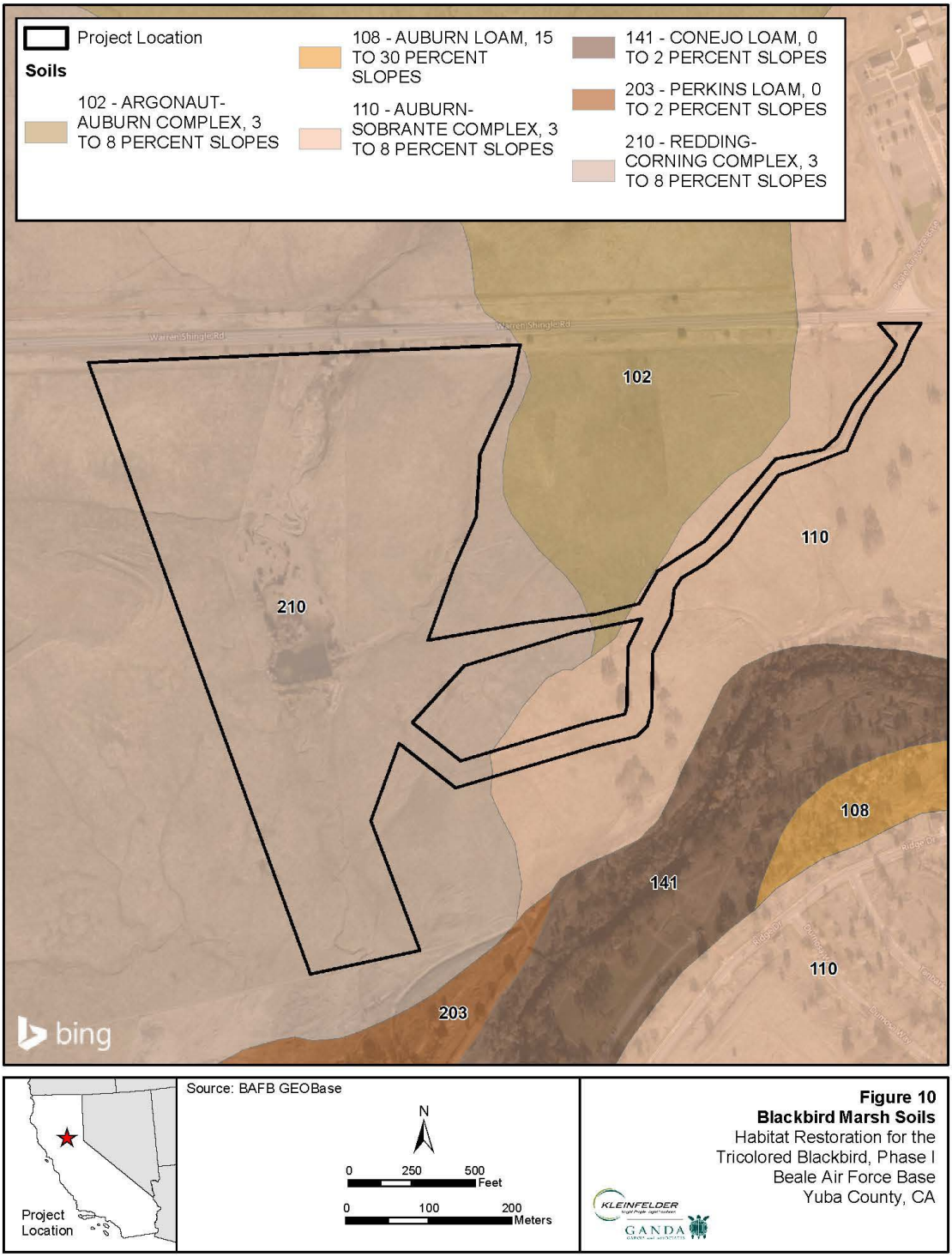
Soil Type	Project Area	Description	Hydric Rating3
Argonaut-Auburn Loams	Blackbird Basins (majority of project area, upper impoundments, nesting structures, water augmentation sites)	Shallow to moderately deep, well-drained soils formed in material weathered from basic metavolcanics rock and schist. Moderately slow permeability. These soils are not prime farmland.	3
Pardee-Rancho Seco Complex	Blackbird Basins (lower impoundments and nesting structures)	Very shallow to shallow, moderately well to well-drained soils formed in mixed gravelly alluvium. Moderately high saturated hydraulic conductivity throughout, with moderate permeability. These soils are not prime farmland.	5
Perkins Loam	Blackbird Basins (small portion of project area in main channel and lower nesting structures)	Very deep, well drained soils that formed in alluvium derived from mixed rock sources found on terraces. Moderately slow permeability. Some areas are subject to rare or occasional flooding. These soils are considered prime farmland if irrigated.	0
Redding-Corning Complex	All of Blackbird Marsh project area	Moderately deep to very deep to duripan, well drained soils formed in mixed alluvium. Very low to high runoff, except for local ponding in intermound areas. Very slow to slow permeability. These soils are not prime farmland.	10
Source: USDA 2021			

3 Hydric Rating indicates the percentage of a map unit that meets the criteria for hydric soils.

Figure 9 Soils at Blackbird Basins Site



1 Figure 10 Soils at Blackbird Marsh Site



3.4.3 Environmental Consequences

Beale AFB is located in Yuba County, an area of relatively low seismic activity, and is not located within a highly active fault zone. All projects designed at Beale AFB are required to meet current California seismic standards and shall evaluate specific soil conditions on a per-project basis. Impacts on geology and soils could be adverse if they changed the composition, structure, or function of these resources within the environment. Generally, adverse impacts can be avoided or minimized with proper construction techniques and erosion-control measures incorporated into project development.

Proposed Action

The Proposed Action would not impact the overall geology and mineral resources of the region.

Under the Proposed Action, there would be minor excavation and grading, which would result in direct effects on soil and topography. Short-term, minor to moderate adverse impacts on soils would be anticipated from the Proposed Action as a result of excavation and grading of soils. Clearing of vegetation would increase erosion and sedimentation potential. Most of these impacts would occur at Blackbird Marsh, as there would be limited grading occurring at Blackbird Basins due to shallow soils and exposed bedrock.

Grading would occur at Blackbird Marsh to increase shallow bench habitats by 2.5 acres, and approximately 1.5 acres of additional off-channel wetlands would be installed/enhanced along the drainage. Dam improvements at Blackbird Marsh would be assessed by a civil engineer during the detailed design phase of the project to determine the specific options for repairing the dam but would include measures to minimize impacts to geology and soils.

Long-term, the Proposed Action would have a moderate beneficial effect on soils and topography. The improvements made on the dam at Blackbird Marsh spillway would prevent future erosion from the concrete block and slabs that are currently in place. In addition, the grazing exclusion fencing would limit livestock impacts to soils in the sensitive wetland and riparian areas.

A SWPPP and BMPs would be developed and implemented prior to and during project construction and would reduce potential for adverse effects associated with erosion and sedimentation and transport of sediments in runoff. Because these areas would be stabilized and revegetated following construction, no significant impacts to geology and soils are expected from the Proposed Action.

AMM-GEO-1*:* Standard erosion control means (silt fencing, sediment traps, application of water sprays, and revegetation at disturbed areas) would be used.

AMM-GEO-2: To minimize compaction, no equipment would be allowed to travel over or park on the salvaged soil stockpiles. Subsoil would be used for dam improvements or buried in the uplands adjacent to the site and/or hauled to an appropriate location on Beale AFB. If excess

subsoils are deposited on site, the topsoil at the deposition location would be salvaged and placed over the subsoil to promote rapid recolonization of vegetation.

Reduced Action Alternative

The Reduced Action Alternative is comprised of similar activities but would not include the dam improvements and omitting repairs or modifications to the four existing impoundments. Therefore, grading would be less than when compared to the Proposed Action, and impacts related to geology and soils from implementation of the Reduced Action Alternative would be slightly less when compared to the Proposed Action.

No Action Alternative

Under the No Action Alternative, the tricolored blackbird habitat would not be created at Blackbird Basins or Blackbird Marsh. The dam at Blackbird Marsh would not be improved, and the concrete blocks and slabs that have been placed in the spillway would continue to contribute to erosion at the outlet. Vertical erosion of the main tributary at Blackbird Marsh would continue. The No Action Alternative would have a minor adverse impact on soil resources from continued erosion.

3.5 WATER RESOURCES

3.5.1 Surface Water

3.5.1.1 Definition of the Resource

Surface water resources generally consist of permanently or seasonally flooded water features including lakes, ponds, rivers, streams, and oceans.

3.5.1.2 Existing Conditions

Surface Water

There are several lakes and small impoundments on Beale AFB. Three major drainages (Dry, Hutchinson, and Reeds Creeks) serve as the principal surface drainage system on Beale AFB. These creeks cross the installation generally in a northeast-to-southwest direction. Runoff in all three creeks ultimately flows south and west into the Bear River (Beale AFB 2019). Frisky Lake connects to Hutchinson Creek that flows southwest across South Beale Road, eventually converging with the Bear River and ultimately joining the Feather River. Blackbird Marsh is in the Dry Creek watershed and sits just north of Dry Creek on a small tributary that connects a short distance downstream of Beale Lake Dam.

Surface water quality on Beale AFB has low mineral content (i.e., total dissolved solids) and is unimpaired by any significant sources of pollution (Beale AFB 2019).

Frisky Lake Dam

Frisky Lake Dam has a crest height of 166 feet that previously supported approximately 15 acres of surface water at maximum capacity; however, in recent years the dam has been breached and is eroding, resulting in a significant reduction in maximum surface water (Monroe, pers. Comm. 2019). Normal open water surface area evident on aerial imagery was approximately five acres. Prior to breaching, the existing dam spillway invert was at an elevation of approximately 164 feet amsl. Two main intermittent or ephemeral drainages flow into the lake, with four small existing impoundments supporting small ponds with herbaceous seasonal wetlands.

Blackbird Marsh Dam

Blackbird Marsh (also referred to in reference documents as Clinic Pond and Hospital Pond) was created by the installation of a man-made earth and rock dam in the 1990's. The dam crest is at an elevation of 175 feet amsl and is approximately 250 feet in length and 10 feet wide. The height is 10 to 12 feet above the downstream toe, and the spillway entrance is approximately two feet below the dam crest (USACE 2016). Concrete blocks and slabs have been placed in the spillway and are contributing to erosion (USACE 2016).

Willows are rooted within the entire length of the dam, which is generally an undesirable condition, as root channels can create seepage paths that could lead to internal erosion. The dam currently supports an approximate storage volume of 19 acre-feet and is classified as a low hazard, but in fair condition (USACE 2019). Blackbird Marsh has a surface area of approximately 4.7 acres at maximum capacity and is fed by two main intermittent and ephemeral drainages.

Annual rainfall also likely contributes to the inundation of Frisky Lake and Blackbird Marsh. Hydraulic modeling and dam safety hazard analyses were conducted for impoundments across Beale AFB (USACE 2019). Flood releases from Blackbird Marsh, whether in a breached or non-breached condition flow south a short distance where it joins up with Dry Creek. The analysis showed some increase in depths for the short reach upstream of Dry Creek for the breached condition compared to the non-breached condition, but this increase is not noticeable downstream of the confluence area with Dry Creek due to flows coming from Beale Lake. The area of greater flood depths has no impact on any structures. The analysis suggests a breach of the dam at Blackbird Marsh does not pose a significant flood hazard downstream.

3.5.1.3 Environmental Consequences

Proposed Action

Implementation of the Proposed Action is expected to have short-term, minor direct and indirect adverse effects on water quality. With adherence to BMPs, adverse effects from erosion would be minimized. However, following the habitat restoration, when water is allowed to flow through the restoration site, low levels of sediment and debris could temporarily increase water turbidity at Frisky Lake and Blackbird Marsh. With adherence to BMPs, sedimentation and subsequent impacts to water quality would be minimized to the extent possible.

The following measures would be implemented to compensate for this effect.

AMM-WTR-1: Prior to initiation of the proposed project, boundaries of access routes, work and staging areas, and sensitive areas would be clearly demarcated with orange construction barrier fencing (or an appropriate alternative method). Coordinate with the approved biologist would stake and flag the boundaries of all access routes, work and staging areas in portions that are within 50 feet of a drainage or vernal pool/seasonal wetland habitat for the proposed project to install appropriate boundary and containment materials. Off-road travel outside the demarcated construction boundaries is strictly prohibited. The contractor would remove fencing, stakes, and flagging within 60 calendar days of project completion.

AMM-WTR-2: The contractor would install and maintain site-specific erosion control measures (i.e., gravel/sandbags, silt fence, straw bale barriers, erosion control/stabilization blankets, straw wattles, etc.). Erosion control systems would be kept in place and in effective operating condition at all times during construction. All drainages/wetlands/ vernal pools would have erosion control measures installed when work is within 50 feet or where hydrological continuity exists between the construction activities and the drainage/wetland/ vernal pool. Soil erosion and sediment controls would be used and maintained in effective operating condition during construction, and all exposed soil and other fills would be permanently stabilized at the earliest practicable date. Erosion control devices would not contain plastic netting and would be "certified weed free" to prevent the spread of invasive species.

AMM-WTR-3: Once grading is complete, the diverted water flow, if any, would be gradually restored to avoid a strong flush of water that could erode exposed soil and cause sedimentation and/or increased turbidity.

AMM-WTR-4: All road areas would be watered, or alternative dust control measures would be used, during project construction to prevent excessive dust from silting nearby drainages/wetlands/vernal pools.

AMM-WTR-5: All excess soil excavated during construction would be removed and disposed of at a landfill located off Beale AFB. If soil is contaminated, then Beale AFB Environmental Office would coordinate with the Army Corps of Engineers and/or Sacramento Water Regional Control Board, as appropriate prior to disposal of excavated soil.

AMM-WTR-6: Temporary fills would be removed in their entirety, and the affected areas returned to preconstruction elevations. The affected areas would be revegetated as appropriate.

AMM-WTR-7: Excess soil temporarily stored on-site during construction would be covered with geotextile stabilization blankets/tarp and wattles to prevent exposure to the elements and to lessen chances of sedimentation due to storm water run-off and wind erosion. All remaining fill material would be removed in entirety according to disposal requirements and the affected areas would be revegetated as appropriate.

AMM-WTR-8: All materials, vehicle parking, and staging areas would be designated by the Beale Environmental Office and located at least 50 feet away from drainages and other wetlands or on hardscape surface. Storage of all construction material/debris would be kept to the designated storage/staging area. The number and size of staging areas and the total area of the activity would be limited to the minimum area necessary to achieve the project goal.

AMM-WTR-9: If the project site is within 50 feet of a drainage/wetland not proposed for expansion, the preconstruction clearing of vegetation would be done with hand equipment to ensure no subsurface disturbance below six inches occurs in or near the drainage/wetland.

AMM-WTR-10: Upland vegetated buffers would be established and maintained, to the maximum extent practicable, next to all preserved open waters, streams, and wetlands, including created, restored, enhanced, or preserved Waters of the U.S. Except in unusual circumstances, vegetated buffers would be at least 50 feet in width.

AMM-WTR-11: Off-road access routes would be established in upland areas as much as possible, and the length of the road would minimize any adverse effects on wetlands and drainages. Where it is necessary for access routes to go through a wetland or drainage feature, weight-dispersing mats would be placed to minimize soil disturbance. Off-pavement access routes can only be used if the soil is dry. Any ruts or furrows caused by operations shall be raked by hand back to match existing surrounding ground surface. Access routes would be restored as closely as possible to preconstruction contours and elevations. This would be done prior to leaving current area of operation.

AMM-WTR-12: Motor vehicles and equipment would only be fueled and serviced in designated service areas. All fueling and maintenance of vehicles and other equipment would occur on a paved surface or at least 100 feet from any wetland feature/drainage, sensitive habitat, or water body, with spill containment. Prior to the onset of work, a plan would be prepared to allow a prompt and effective response to any accidental spills. Workers would be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.

AMM-WTR-13: If the project utilizes oil/POL bulk fuel storage containers, a Spill Prevention Control and Countermeasure Plan would be prepared prior to the project implementation. All machinery would be properly maintained and cleaned to prevent spills and leaks. Any spills or leaks from the equipment would be reported and cleaned up in accordance with applicable local, state, and federal regulations. Workers would be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur. The spill plan would be submitted to the Beale AFB Environmental Office for approval.

AMM-WTR-14: All upland vegetated areas disturbed by construction would be revegetated with the Beale AFB-approved native seed mix. Exposed soil must be hydro-seeded and depending on slope, covered with a biodegradable geotextile to prevent sediments from entering waterways. Any straw used for erosion control materials would be “certified weed free.” Reseeded areas would be monitored and maintained by the contractor as needed until there is 70% survival of plantings and 70% vegetated ground cover in the seeded area.

AMM-WTR-15: No work would be conducted within 100 feet of streams or wetland feature between 1 November and 1 May, unless specifically approved by the Beale AFB NRM and the USFWS; if weather continues to be fair. Work continuation is dependent on prevailing conditions, forecasted weather, and whether or not activities would damage soil or vegetative cover. The NRM must be contacted to obtain permission to work after each storm event. Permission to work after 1 November would not be granted once wetlands are activated (standing water present). The only outdoor work allowed 12 hours before or after a storm event is the inspection, installation, and/or maintenance of erosions controls.

AMM-WTR-16: Prior to use, all equipment would be cleaned to remove external oil, grease, fuels, dirt, or mud. All construction equipment/vehicles must be inspected daily, in good working condition, showing no signs of leaks. Equipment would be left on site or inspected at return to the area. All equipment would have drip pans placed where potential leaks could occur. All leaks would be repaired off-site or in a suitable location prior to resumption of construction activity.

AMM-WTR-17: No activity may use unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.). Material used for construction or discharged must be free from toxic pollutants in toxic amounts.

Reduced Action Alternative

The Reduced Action Alternative is comprised of similar activities but would not include the dam improvements and omitting repairs or modifications to the four existing impoundments. Therefore, grading would be less than when compared to the Proposed Action, and impacts related to surface water from implementation of the Reduced Action Alternative would be slightly less when compared to the Proposed Action.

No Action Alternative

The No Action Alternative would have a minor adverse effect on surface water resources at Beale AFB. The dam and spillway would continue to be eroded at Blackbird Marsh, and the vertical erosion occurring in the main tributary would continue to result in increased sedimentation of surface water. Under the No Action Alternative, the tricolored blackbird wetlands habitat would not be created and/or enhanced.

3.5.2 Groundwater

3.5.2.1 Definition of the Resource

Groundwater resources consist of water located beneath the ground surface in soil pore space, bedrock fractures, and subterranean drainage (e.g., karst dissolution features).

3.5.2.2 Existing Conditions

Groundwater on Beale AFB is generally shallowest (42 to 53 feet) in the western portion of Beale AFB and deepest (up to 260 feet or greater) in the eastern portion of Beale AFB (Beale AFB 2019). The thickness of the geologic unit that produces water for potable use becomes increasingly thin toward Beale AFB northeastern boundary where it abuts the Bedrock Basement Complex of the Sierra Nevada Range. Groundwater in the northern portion of Beale AFB receives recharge from the Yuba River drainage basin and generally has the highest quality at the installation. Groundwater in the central portion of the installation has higher levels of total dissolved solids. The groundwater also receives recharge from Dry Creek and Bear River.

Beale AFB has seven water supply wells for drinking water located primarily in the north-central portion of Beale AFB. The water supply wells historically range in depths between 150 to greater than 300 feet. The current water supply wells have a capacity of 5.76 million gallons per day (GPD) and Beale AFB's water treatment plant has a capacity to treat five million GPD. Peak water demand is approximately 3.99 million GPD, with headroom of over one million GPD (Beale AFB 2015b). There are no groundwater production wells on Beale AFB on the eastern portion of the Base.

Based on well depth information provided by Beale AFB for nearby wells, groundwater near the Blackbird Basins is eight to 23 feet below ground (Christopherson, pers. Comm. 2018). Borings near Blackbird Marsh encountered groundwater at 23-45 feet bgs. It should be noted, groundwater data at both locations comes from environmental boring logs/monitoring wells used to monitor groundwater quality in the uppermost water bearing strata or water table aquifer. The water table aquifer is typically lenticular and discontinuous in this region and subject to periods of saturation and drying on a seasonal basis.

3.5.2.3 Environmental Consequences

Proposed Action

The Proposed Action may include the pumping of groundwater to increase the acreage of nesting habitat at Blackbird Basins and Blackbird Marsh. Maintaining saturated and shallowly inundated soils would be key to the establishment and maintenance of desirable nesting vegetation species. Ideally, water would be pumped into the tributaries upstream of Blackbird Marsh and Blackbird Basins to increase the hydroperiod of these features and provide enhanced habitat for prey insects upstream of the lakes. A hydrology study would be conducted during the detailed design phase to determine the extent of water supply augmentation and equipment required to meet design objectives. Water supply requirements would also vary based on annual precipitation. It is anticipated that water supply augmentation would be required during late spring and summer, at a minimum. Well production rates within bedrock substrate are commonly less than 10 gallons per minute (Zilles, pers. comm., 2022). Utilizing an estimated production rate of eight gallons per minute for each of the two wells, the amount of pumped groundwater would not be expected to exceed 23,040 gallons per day and would only be pumped when there is not adequate rainfall, usually from April – June and additionally in lower rainfall (drought) years from January – March. Groundwater may be pumped and distributed from the upstream portions of the habitat

restoration site to extend the seasonality of the surface water. Beale AFB has surplus groundwater available. Additionally, the current water supply wells have a capacity of 5.76 million GPD. With the peak water demand being approximately 3.99 million GPD, with headroom of over one million GPD, this seasonal pumping of groundwater is not expected to have an effect on groundwater quantity.

Reduced Action Alternative

The Reduced Action Alternative is comprised of similar activities but would not include the dam improvements and omitting repairs or modifications to the four existing impoundments. However, groundwater pumping would still be necessary, and impacts related to groundwater from implementation of the Reduced Action Alternative would be similar to the Proposed Action.

No Action Alternative

The No Action Alternative would not affect groundwater resources at Beale AFB.

3.5.3 Wetlands

3.5.3.1 Definition of the Resource

Wetlands and waters of the United States are defined within the CWA, as amended, and jurisdiction is addressed by EPA and USACE. These agencies assert jurisdiction over the following:

- Traditionally navigable waters
- Wetlands adjacent to navigable waters
- Non-navigable tributaries of traditional navigable waters that are relatively permanent where the tributaries typically flow year-around or have continuous flow at least seasonally
- Wetlands that directly abut tributaries.

Section 404 of the CWA regulates the discharge of dredge or fill into waters of the United States, including wetlands. Encroachment into waters of the United States and wetlands typically requires a permit from the state and the federal government.

3.5.3.2 Existing Conditions

The lateral limit of USACE jurisdiction for non-tidal watercourses (without adjacent wetland areas) is defined as the ordinary high-water mark (OHWM) (33 CFR 329.11 (a)(1)). The OHWM is defined as "…the line on the [bank] established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank; shelving; changes in litter and debris; or other appropriate means that consider the characteristics of the surrounding areas." The upstream limit of "waters" is defined as the point where the OHWM is no longer

perceptible. In addition, wetlands may be associated with non-tidal watercourses and are identified based on an evaluation of vegetation, hydrology, and soils.

Wetlands, vernal pools, streams, drainages, and other aquatic resources, collectively referred to as waters of the U.S., are regulated under Section 404 of the federal CWA. The USACE jurisdictional areas at Blackbird Basins and Blackbird Marsh typically correspond to the Regional Water Quality Control Board (RWQCB) jurisdiction, as regulated by Section 401 and the Porter-Cologne Water Quality Control Act.

Beale AFB received concurrence on a preliminary jurisdictional determination (PJD) for a LiDAR-based aquatic resources delineation in accordance with USACE Regulatory Guidance Letter 08-02, for the Beale AFB Planning Area in a letter dated October 23, 2012 (USACE 2012). For this project, a Delineation Area of 132.113 acres was reviewed within the area of the 2012 PJD: 70.835 acres near Blackbird Basins and 61.278 acres near Blackbird Marsh. Sites for enhancement activities were verified and reviewed during field visits on September 26, 2019 and July 22, 2020, and aerial photography in 2021. Additional field verifications were conducted by the Center for Environmental Management of Military Lands on April 21, 2021. This review served to fine-tune the nature of aquatic features from the 2012 PJD: streams were classified into "ephemeral", "intermittent", or "manmade (ephemeral)" channels; some wetlands were reclassified as vernal pools from Beale AFB "vernal pool" mapping; and some unvegetated "deep water" features were re-classified as wetlands if they appeared to maintain greater than five percent vegetative cover of hydrophytic species. Location and acreage of aquatic features remained essentially the same.

Within the Delineation Area, the aquatic resources mapping identified 22.988 acres of potential waters of the United States (U.S.), of which 10.414 acres are unvegetated water features (e.g., open water, ephemeral and intermittent channels, etc.) and 12.574 acres are wetlands (e.g., seeps, swales, vernal pools, etc.). These potential waters of the U.S. are summarized in Table 9 below.

Table 9 Summary of Jurisdictional Features in the Proposed Action Area

FEATURE TYPE	JURISDICTIONAL MEASUREMENTS*
Unvegetated Water Features	
Open water	3.814 acres
Ephemeral channel	3.136 acres and 19,464 linear feet
Intermittent channel	2.877 acres and 9,362 linear feet
Manmade channel (ephemeral)	0.534 acres and 1,853 linear feet
Ditch	0.053 acre and 1,078 linear feet
Total Unvegetated Water Features	***10.414 acres and 31,757 linear feet***
Wetlands	
Seep	4.376 acres
Swale	1.799 acres
Vernal pool	0.67 acres

Wetland	5.729 acres and 5,768 linear feet
Total Wetland Features	***12.574 acres and 5,768 linear feet***
USACE Potentially Jurisdictional Totals	**22.988 acres and 37,525 linear feet**

*linear feet refers to length of ordinary high water mark (OHWM)

3.5.3.3 Environmental Consequences

Proposed Action

The Proposed Action includes the improvement of the existing dam and spillway at Blackbird Marsh, and the expansion and enhancement of jurisdictional areas at Blackbird Basins and Blackbird Marsh. There may be temporary adverse impacts to jurisdictional areas where grading of the jurisdictional expansion areas meets with existing wetlands and waters. Project activities would result in an estimated 10.171 acres and 11,634 linear feet of temporary adverse impacts to waters of the U.S., as the result of impoundment and dam repair, and grading and channel repair for wetland augmentation. These temporary adverse impacts would be restored onsite. Project activities may cause 0.777 acres and 1,485 linear feet of permanent impacts to waters of the U.S. as the result of impoundment and dam repair, and rocked channel outlets for water augmentation. In addition, an estimated total of 14.450 acres of new wetlands would be created as the result of the project. These potential impacts are summarized in Table 10.

Table 10 Estimated Impacts to Aquatic Features from the Proposed Action

Waters Type	TEMPORARY IMPACTS (acres / OHWM linear feet*)	PERMANENT IMPACTS (acres / OHWM linear feet*)	PERMANENT IMPACTS Wetlands Created (acres)
Blackbird Basins Area			
Unvegetated Waters	1.006 ac / 2,420 ft	0.165 ac / 699 ft	--
Wetlands	1.889 ac / 1,704 ft	0.220 ac / 410 ft	7.394 ac created
Blackbird Marsh Area			
Unvegetated Waters	4.598 ac / 4,553 ft	0.023 ac / 131 ft	--
Wetlands	2.678 ac / 2,957 ft	0.369 ac / 245 ft	7.056 ac created
TOTALS			
TOTAL Unvegetated Waters	**5.604 ac / 6,973 ft**	**0.188 ac / 830 ft**	**--**
TOTAL Wetlands	**4.567 ac / 4,661 ft**	**0.589 ac / 655 ft**	**14.450 ac created**
TOTAL IMPACTS TO POTENTIAL WATERS OF THE U.S.	**10.171 ac / 11,634 ft**	**0.777 ac / 1,485 ft**	**14.450 ac created**

Clean soil removed in the excavation of jurisdictional areas would be used on site. Section 401 and 404 (under Nationwide Permit 27) water permit applications would be submitted to the USACE, Sacramento District, and the RWQCB, Central Valley Region. Approval of the Section 401 and 404 permit applications would be obtained prior to commencement of construction activities.

AMM-WTR-18-: All work conducted within 50 feet of a wetland feature shall have construction boundaries designated with fencing to ensure no equipment would be in the vicinity of a drainage/wetland/vernal pool. All wetlands/drainages/vernal pools would have erosion control measures (straw wattles, hay bales, silt fencing) installed when work is within 50 feet of a wetland feature or where hydrological continuity exists between the construction activities and the wetland feature. Soil erosion and sediment control must be used and maintained in effective operating condition during construction, and all exposed soil and other fills must be permanently stabilized at the earliest practicable date.

AMM-WTR-19: Intrusive work adjacent to branchiopod habitat shall have protection (plastic tarps) covering the aquatic feature to ensure the soil being removed and backfilled during the excavation process does not adversely impact habitat. These tarps shall only be in place while work is occurring in the area and removed at the end of each work day.

AMM-WTR-20: The placement of riprap must be the minimum necessary to protect the structure or to ensure the safety of the structure.

AMM-WTR-21: All t-posts would be placed outside of wetland areas.

AMM-WTR-22: All new posts for H-braces and gates would be placed greater than 20 feet from any potential vernal pool shrimp habitat to avoid all direct and indirect effects. No posts would be driven deep enough to penetrate the hardpan. Above ground rock structures would be used when a t-post or H-brace needs to be located on an impenetrable rock surface

Reduced Action Alternative

The Reduced Action Alternative is comprised of similar activities but would not include the dam improvements and omitting repairs or modifications to the four existing impoundments. Therefore, impacts to wetlands would be less than when compared to the Proposed Action. There would be no permanent impacts to wetlands at the Blackbird Basins site with implementation of the Reduced Action Alternative.

No Action Alternative

The No Action Alternative would not adversely affect wetland resources at Beale AFB. Under the No Action Alternative, the tricolored blackbird wetlands habitat would not be created and/or restored and there would not be a net benefit of a minimum of 12 acres of new wetlands.

3.5.4 Floodplains

3.5.4.1 Definition of the Resource

Floodplains are areas of low-level ground present along rivers, stream channels, or coastal waters. The living and non-living parts of natural flood zones interact with each other to create dynamic systems in which each component helps to maintain the characteristics of the environment that supports it. Floodplain ecosystems' functions include natural moderation of floods, flood storage and conveyance, groundwater recharge nutrient cycling, water quality maintenance and a diversity of plants and animals. Floodplains provide a broad area to spread out and temporarily store floodwaters. This reduces flood peaks and velocities and the potential for erosion. In their natural vegetated state, flood zones slow the rate at which the incoming overland flow reaches the main water body.

3.5.4.2 Existing Conditions

The Federal Emergency Management Agency develops floodplain maps to ensure compliance with regulatory statues and not necessarily from an ecosystem value standpoint. In addition, the Federal Emergency Management Agency categorizes Beale AFB as flood zone D, meaning it has not determined the flood hazard for the area (FEMA 2019). For this reason, the Beale AFB GIS layers were used to determine the location and extent of floodplains. Based on the GIS data, there are roughly 2,500 acres of floodplains across the installation (Beale AFB 2019). The location of the 100-year and 500-year floodplain at Beale AFB is shown in Figure 2.3.e of the 2019 INRMP (Beale AFB 2019). Large floodplains exist around the major drainages at Beale AFB and surround two unnamed drainages west of the flight line. These areas may flood during heavy rainfall in the region due to impervious soil conditions and lack of topographic relief.

The Blackbird Basins and the Blackbird Marsh sites are not located with the 100-year floodplain. However, both sites are located in the 500-year floodplain as shown in Figure 2.3.e of the 2019 INRMP (Beale AFB 2019).

3.5.4.3 Environmental Consequences

Proposed Action

None of the activities associated with the Proposed Action would negatively affect flood plains. The following measures would be implemented to compensate for any possible effects related to both sites being located in the 500-year floodplain.

AMM-WTR-22: The activity must comply with applicable FEMA-approved state or local floodplain management requirements.

Reduced Action Alternative

The Reduced Action Alternative is comprised of similar activities but would not include the dam improvements and omitting repairs or modifications to the four existing impoundments.

Therefore, none of the activities associated with the Reduced Action Alternative would negatively affect flood plains. Impacts related to floodplains from implementation of the Reduced Action Alternative would be similar to the Proposed Action.

No Action Alternative

Under the No Action Alternative, tricolored blackbird wetlands habitat would not be created and/or restored, and the dam at Blackbird Marsh would not be improved. The No Action Alternative would not impact floodplains at Beale AFB.

3.6 BIOLOGICAL RESOURCES

3.6.1 Definition of the Resource

Biological resources include native or naturalized plants and animals, along with the biotic communities, such as wetlands and grasslands, in which they exist. Sensitive and protected biological resources include species listed as threatened or endangered by the federal government or state agency. Wildlife, vegetation, and wetland resources provide aesthetic, recreational, and socioeconomic benefits to society.

3.6.2 Existing Conditions

This section describes the following aspects of the biological community within the affected environment:

- Annual grasslands
- Wetland resources
- Special-status plant and wildlife species
- Special-status plant and wildlife species

3.6.2.1 ***Annual Grassland:*** The majority of the area surrounding the locations of the Proposed Action supports annual grassland, the most common land cover type at Beale AFB. Grasslands cover approximately 18,835 acres of the installation and are an upland vegetation community dominated by non-native annual grasses and a variety of native and non-native forbs. Species of native perennial bunch grasses include purple needle grass (*Nassella pulchra*), California melic (*Melica californica*), and squirreltail (*Elymus elymoides*). Species of native annual grasses include oldfield three-awn (*Aristida oligantha*) and Pacific fescue (*Festuca microstachys*). These native grasses occur in pastures and roadsides throughout Beale AFB at various densities. Non-native annual grass species include ripgut brome (*Bromus diandrus*), Italian ryegrass (*Lolium multiflorum*), soft chess (*Bromus hordeaceus*), medusahead (*Taeniatherum caput-medusae)*, annual fescue (*Vulpia myuros*), and foxtail barley (*Hordeum jubatum*) (Beale AFB 2019).

Annual grasslands provide nesting and breeding habitat for a variety of grassland birds, as well as foraging habitat for many bird species that breed in other habitats. The proximity of riparian areas, oak woodlands and wetlands enhances the value of annual grasslands. Birds of special interest that have been observed foraging in the annual grasslands at Beale AFB include

Swainson's hawk (*Buteo swainsoni*), white-tailed kite (*Elanus leucurus*) and tricolored blackbird. Common wildlife species adapted to life in proximity to human development, such as raccoon (*Procyon lotor*), coyote (*Canis latrans*), and striped skunk (*Mephitis mephitis*) are likely to move through the Action Area on a regular basis to find food and utilize cover resources. Non-special-status reptiles and amphibians, such as Sierran treefrog (*Pseudacris sierra*), California king snake (*Lampropeltis californiae*), and Pacific gophersnake (P*ituophis catenifer catenifer*), are also likely to utilize annual grassland habitat adjacent to wetlands at Beale AFB. Several common native and non-native bird species are likely to use the Action Area for nesting and foraging, as there is suitable habitat available throughout the annual grasslands at Beale AFB.

3.6.2.2 ***Wetlands and Vernal Pools:*** Wetlands are saturated or ponded areas that commonly occur on floodplains along rivers and streams, in isolated depressions within playas or basins, along lake and pond margins, and within other low-lying areas where precipitation saturates the soil or groundwater permeates the soil surface. Wetlands can be perennial or ephemeral features, and under Section 404 of the CWA, the USACE has the authority to regulate activities that could discharge fill or dredge material or otherwise adversely modify wetlands or other waters of the United States. Typically, wetlands must pass the "three-parameter" test to be considered jurisdictional by USACE, which means the wetland must possess positive indicators of specific soils, hydric vegetation, and hydrology.

Wetlands are special aquatic sites that have a greater resource value than other jurisdictional waters, as they provide habitat functions and values that bolster flood control, increase foraging habitat for migratory bird species, and support aquatic habitat for many endangered or threatened plant and wildlife species. These features require specific avoidance and minimization strategies to ensure no net loss of wetland functions or values. The annual grasslands within Beale AFB support vernal pools, swales, and seasonal wetlands; however, vernal pools are the most common type of wetland at Beale AFB. The major differences in these types of wetlands are based on inundation periods (i.e., the length of time they pond or hold water), as well as the species that occur at each of these types of wetlands. All of these aquatic features can provide important foraging, breeding, and cover habitat for the federally listed vernal pool fairy shrimp (*Branchinecta lynchi*) and vernal pool tadpole shrimp (*Lepidurus packardi*), as well as special-status amphibian, bird, and plant species (Beale AFB 2019).

Vernal pools are topographic depressions with impervious clay pan, hardpan, or bedrock bottoms that fill with water in the winter-spring rainy season and then dry completely by early summer. Surface water ponds in these depressions because they lack external drainage, and water infiltration is slow to nonexistent due to underlying impervious soil layers. The length of time vernal pools can be inundated varies from several days to the entire length of the wet season. These ephemeral features also support highly specialized plant species adapted to growing conditions associated with seasonal and year-to-year variation in water availability. Vernal pools support the federally endangered vernal pool fairy shrimp and vernal pool tadpole shrimp at Beale AFB. The dominant plant species in high-quality vernal pools at Beale AFB include coyote thistle (*Eryngium vaseyi*), Fremont goldfields (*Lasthenia fremontii*), white-flowered navarretia (*Navarretia leucocephala*), bractless hedge-hyssop (*Gratiola ebracteata*), vernal pool buttercup (*Ranunculus bonariensis*), annual hairgrass (*Deschampsia danthonioides*), field owl's clover (*Castilleja campestris*), Sacramento mesa mint (*Pogogyne zizyphoroides*), and dwarf

woolly marbles (*Psilocarphus brevissimus*) (Beale AFB 2019). The high densities of terrestrial and aquatic invertebrates (e.g., ostracods, copepods, flatworms, and mosquito larvae) that occur in wetland habitats provide an abundance of food for many wildlife species that forage in seasonal wetlands, such as frogs, fish, and salamanders.

There are numerous seeps and vernal pools that occur adjacent to Blackbird Basins and Blackbird Marsh, and in close proximity to each project area footprint (Figure 11 and 12).

Figure 11 Wetlands at Blackbird Basins Site

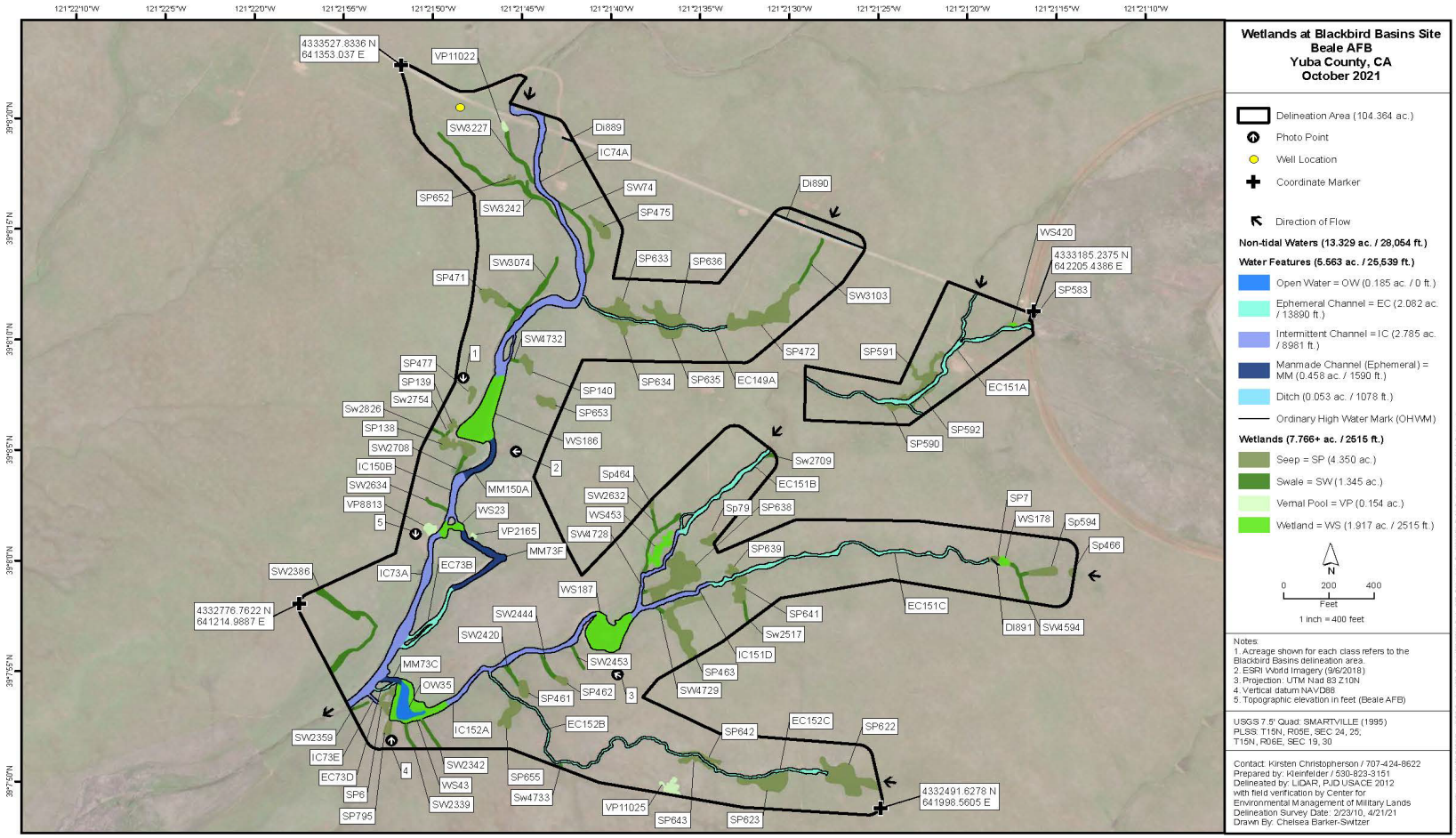
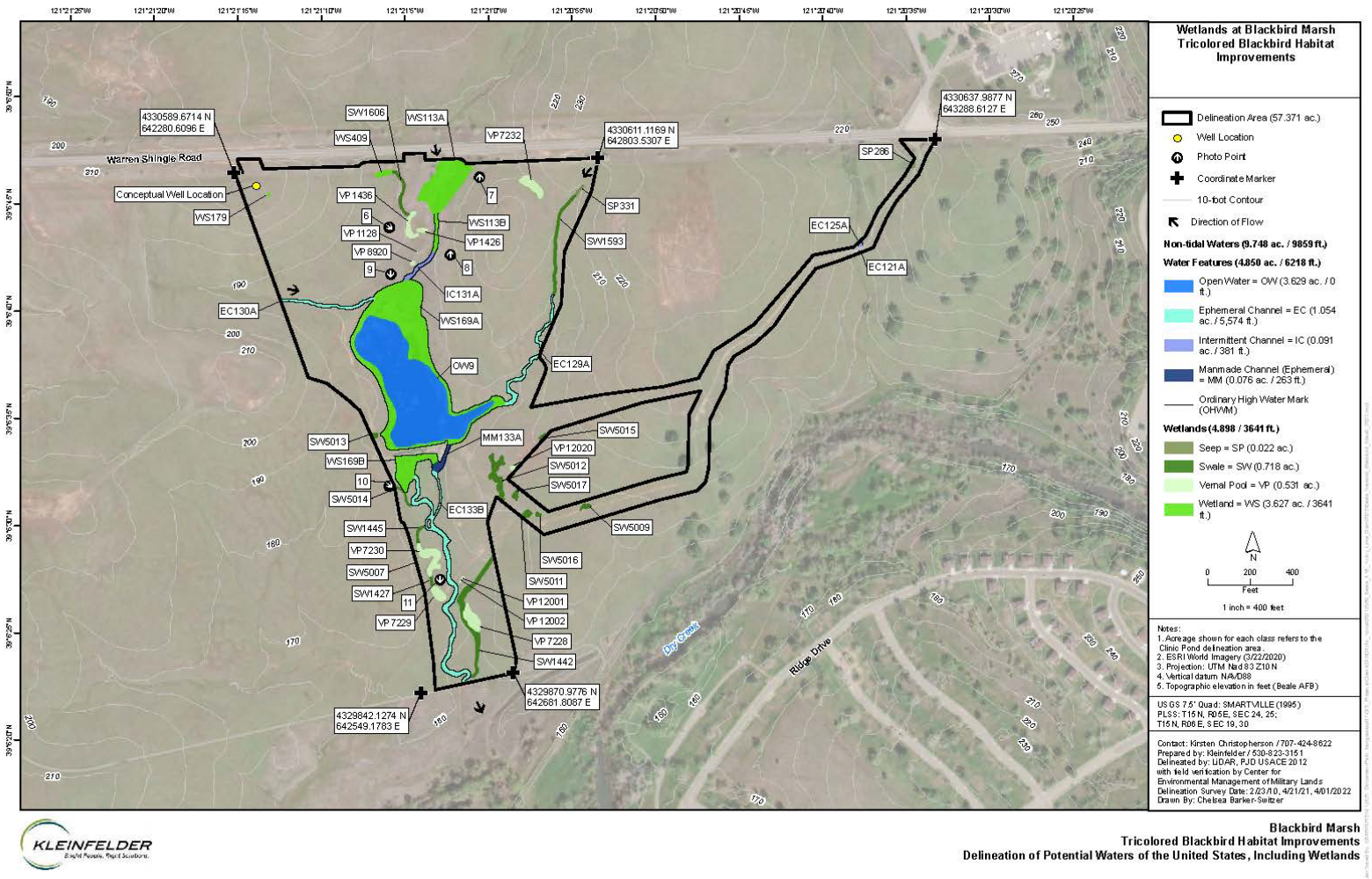


Figure 11
Wetlands at Blackbird Basins Site
Habitat Restoration for the Tricolored Blackbird - Phase 1 Beale AFB, Yuba County, CA - October 2021

Figure 12 Wetlands at Blackbird Marsh Site



3.6.2.3 Special-Status Species

There are 61 federally- or state-threatened, -endangered, or other special-status plant and wildlife species known to occur at Beale AFB (Beale AFB 2019). Of these, four federally listed wildlife species and four state-listed wildlife species have been documented within the Proposed Action area or have a moderate or greater potential to occur within the Proposed Action area due to the presence of suitable habitat and documented occurrences at Beale AFB. These are listed in Table 11.

No federally listed plant species have been documented at Beale AFB or within the Proposed Action area, but two state special-status plant species, dwarf downingia (*Downingia pusilla*) and legenere (*Legenere limosa*) have been documented elsewhere at Beale AFB and have potential to occur within the vernal pools in the Proposed Action area. However, vernal pools would be avoided under the current project plans.

The FESA prohibits the taking, possession, sale, or transport of endangered species. Pursuant to the requirements of FESA, a federal agency reviewing a project within its jurisdiction must determine whether any federally listed threatened or endangered species could be present in the project site and determine the extent to which the project would have an effect on such species. In addition, federal agencies are required to determine whether the project is likely to jeopardize the continued existence of any species proposed to be listed under FESA or result in the destruction or adverse modification of critical habitat designated for such species (16 U.S.C. 1536[3], [4]).

Special-status species with legal protections include species listed as endangered or threatened under the federal ESA, migratory birds included in the federal Migratory Bird Treaty Act (MBTA), and eagles protected under the Bald and Golden Eagle Protection Act (BGEPA). Other special-status species that are managed or monitored on Beale AFB, but that do not have federal legal protections, include the following:

- Species under review, proposed, or candidate species for listing under the federal ESA;
- Listed species, and species that are proposed or candidates for listing under the California ESA (CESA);
- California fully protected (FP) species;
- California species of special concern (SSC); and
- Plants considered rare, threatened, or endangered on California Rare Plant Rank (CRPR) Lists 1, 2, 3, or 4 by the California Native Plant Society (CNPS) or CDFW.

Detailed descriptions of all special-status wildlife species considered under this EA can be found in Appendix E, and a list of all special-status plant species considered under this EA can be found in Appendix F. Figures 13 and 14 include the biological occurrences at both Blackbird Basins and Blackbird Marsh.

Figure 13 Biological Occurrences at Blackbird Basins

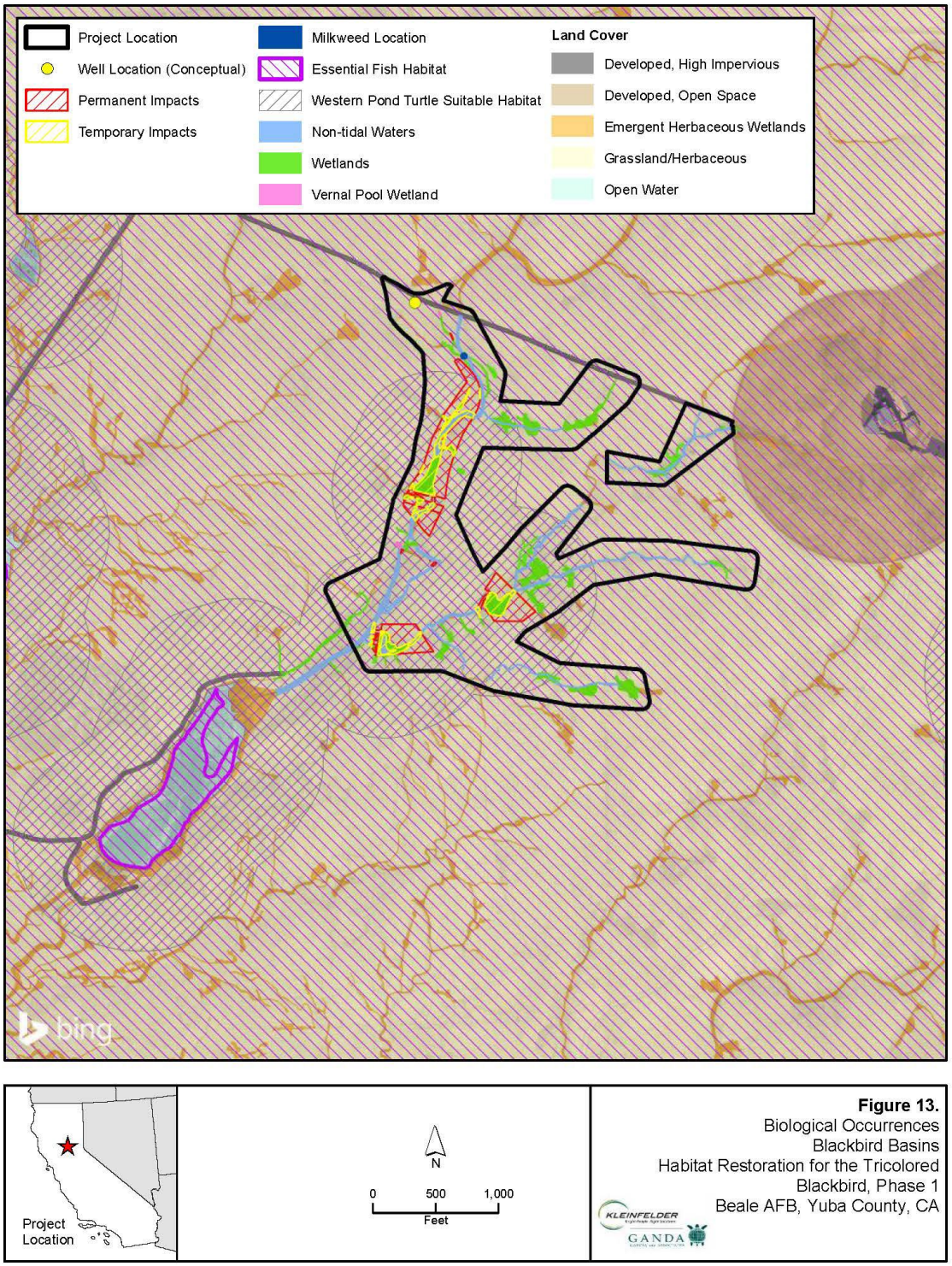


Figure 13.
Biological Occurrences
Blackbird Basins
Habitat Restoration for the Tricolored
Blackbird, Phase 1
Beale AFB, Yuba County, CA

Figure 14 Biological Occurrences at Blackbird Marsh

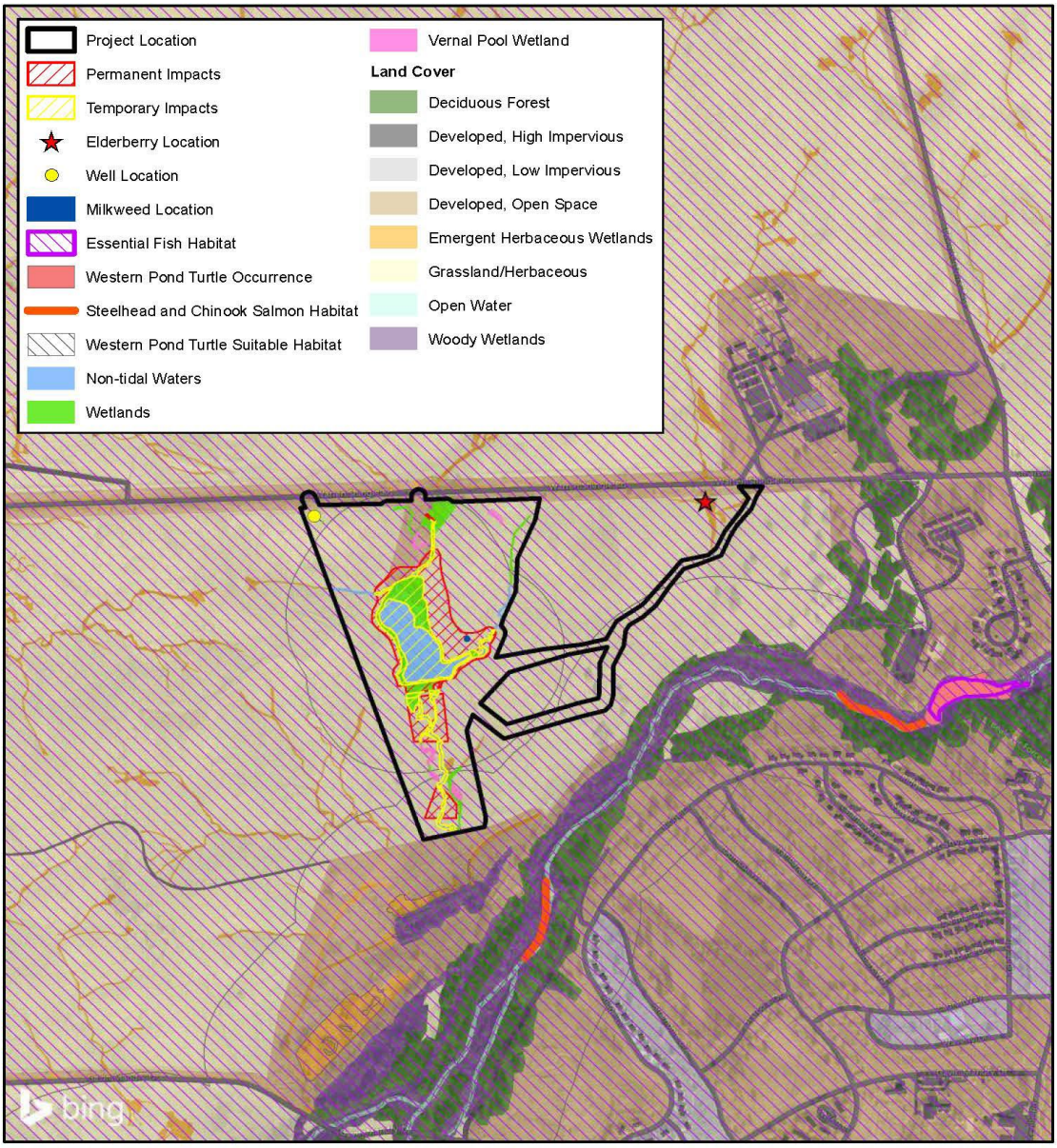


Figure 14.
Biological Occurrences
Blackbird Marsh
Habitat Restoration for the Tricolored
Blackbird, Phase 1
Beale AFB, Yuba County, CA

Table 11 Federal and State Listed Species Known to Occur at Beale AFB with Potential to Occur in the Action Area

Common Name	Scientific Name	Federal Status	State Status[1]	Known to Occur on Beale AFB	Potential to Occur within the Action Area[2]
Invertebrates					
crotch bumblebee	*Bombus crotchii*	None	Candidate Endangered	**Yes.** This species was recently detected at Beale AFB along A Street on the Main Base.	**Moderate potential to occur.** There is suitable foraging habitat within the Action Area and this species is known to occur at Beale AFB.
monarch – California overwintering population	*Danaus plexippus*	Candidate Threatened	None	**Yes.** Butterflies and caterpillars have been observed at multiple locations adjacent to drainages on Beale AFB.	**Moderate potential to occur.** There are documented occurrences of milkweed within the Action Area and this species is known to occur at Beale AFB. The nearest observation is from the pollinator garden at the base clinic.

Common Name	Scientific Name	Federal Status	State Status[1]	Known to Occur on Beale AFB	Potential to Occur within the Action Area[2]
vernal pool fairy shrimp	*Branchinecta lynchi*	Threatened	None	**Yes.** Suitable aquatic habitat exists for this species within and adjacent to the Action Area and they have been documented at several locations throughout Beale AFB.	**Presumed present.** There are vernal pools within the Action Area and this species is known to occur at Beale AFB. Presence of this species is assumed within vernal pools at Beale AFB.
vernal pool tadpole shrimp	*Lepidurus packardi*	Endangered	None	**Yes.** Suitable aquatic habitat exists for this species within and adjacent to the Action Area and they have been documented at several locations throughout Beale AFB.	**Presumed present.** There are vernal pools within the Action Area and this species is known to occur at Beale AFB. Presence of this species is assumed within vernal pools at Beale AFB.

Common Name	Scientific Name	Federal Status	State Status[1]	Known to Occur on Beale AFB	Potential to Occur within the Action Area[2]
Birds					
California black rail	*Laterallus jamaicensis coturniculus*	None	Threatened, FP	**Yes.** Suitable habitat for this species is present within the Action Area, and it has been observed in a marsh below Miller Lake, at a pond by the Small Arms Range and at PAVE PAWS lake in 2009. Subsequent surveys have not detected any at the base.	**Moderate potential to occur.** There is suitable habitat for this species within the Action Area and it is known to occur at Beale AFB.
Swainson's hawk	*Buteo swainsoni*	None	Threatened	**Yes.** Suitable nesting and foraging habitat exist at Beale AFB, and there was confirmed nesting in 2004, and 2016-2018.	**Moderate potential to occur.** There is suitable nesting and foraging habitat for this species within the Action Area and it is known to occur at Beale AFB.

Common Name	Scientific Name	Federal Status	State Status[1]	Known to Occur on Beale AFB	Potential to Occur within the Action Area[2]
tricolored blackbird	*Agelaius tricolor*	None	Threatened, SSC	**Yes.** There is suitable foraging and nesting habitat for this species at Beale AFB, and it has been observed year-round at the base. Nesting has been documented at A Street Pond, Reeds Creek in 2015 and 2016, Goose Lake in 2017, and south of the base in 2018. Nesting occurred in the Action Area 2020-2021.	**High potential to occur.** There is suitable nesting and foraging habitat for this species within the Action Area and it is known to occur at Beale AFB.

Common Name	Scientific Name	Federal Status	State Status[1]	Known to Occur on Beale AFB	Potential to Occur within the Action Area[2]
Western Yellow-billed cuckoo	*Coccyzus americanus occidentalis*	Threatened	Endangered	**Possible** Western yellow-billed cuckoo inhabits woodlands, thickets, orchards, and streamside groves. It breeds mostly in dense deciduous stands, often in willow groves around marshes and in the west, mostly in streamside trees, including cottonwood-willow groves in arid country. It forages by scaling through shrubs and trees, gleaning insects from foliage and branches.	**Low potential to occur.** There is some low-quality habitat for this species at Beale AFB, and it has not been detected during surveys. Possible incidental detections in 2014 and 2017 have not been confirmed.

Source: California Department of Fish and Wildlife (CDFW). 2020. California Natural Diversity Database (CNDDB). Rarefind, Version 5 (Commercial Subscription). Accessed January 2020. Sacramento, California. Website https://apps.wildlife.ca.gov/rarefind/view/RareFind.aspx#.

United States Fish and Wildlife Service (USFWS). 2020. Information for Planning and Consultation (IPaC). The Environmental Conservation Online System. Accessed January 2020. Auburn, California. Website https://ecos.fws.gov/ipac/.

[1]Status Legend:
SSC: Species of Special Concern (CDFW)
FP: Fully Protected (CDFW)

[2] Definitions Regarding Potential for Occurrence

- Not expected to occur – Habitat on and adjacent to the Action Area is unsuitable for the species requirements (foraging, breeding, cover, substrate, elevation, hydrology, plant community, site history, and disturbance regime).
- Low – Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the site is unsuitable or of poor quality. The species is not likely to be found on the site.

- Moderate – Some of the habitat components meeting the species requirements are present, and/or only some of the habitat on or adjacent to the site is unsuitable. The species has a moderate probability of being found on the site.
- High – All of the habitat components meeting the species requirements are present, and/or most of the habitat on or adjacent to the site is highly suitable. The species has a high probability of being found on the site.
- Present – Species is observed on the site or has been recorded (i.e., CNDDB, or other reports) on the site recently.

Ten state-species of special concern or fully protected wildlife species have a moderate potential to occur within the Action Area. These are listed below in Table 12.

Table 12 State Species of Special Concern or Fully Protected Species Known to Occur at Beale AFB with Potential to Occur in the Action Area

Common Name	Scientific Name	State Status[1]	Known to Occur on Beale AFB	Potential to Occur within the Action Area[2]
Amphibians and Reptiles				
western pond turtle	*Emys marmorata*	SSC	**Yes.** This species has been observed at several locations throughout Beale AFB.	**Moderate potential to occur.** There is suitable habitat for this species within the Action Area and it is known to occur at multiple locations throughout Beale AFB.
Birds				
American white pelican	*Pelecanus erythrorhynchos*	SSC	**Yes.** This species has been observed at Pond 4, Upper Blackwelder, Lower Blackwelder, Goose, and Miller Lakes.	**Moderate potential to occur.** There is suitable habitat for this species within the Action Area and it is known to occur at Beale AFB.
grasshopper sparrow	*Ammodramus savannarum*	SSC	**Yes.** This species is a summer resident at Beale AFB.	**Moderate potential to occur.** There is suitable nesting and foraging habitat for this species within the Action Area and it is known to occur at Beale AFB.
loggerhead shrike	*Lanius ludovicianus*	SSC	**Yes.** This species is a year-round resident at Beale AFB.	**Moderate potential to occur.** There is suitable nesting and foraging habitat for this species within the Action Area and it is known to occur at Beale AFB.

Common Name	Scientific Name	State Status[1]	Known to Occur on Beale AFB	Potential to Occur within the Action Area[2]
northern harrier	*Circus cyaneus*	SSC	**Yes.** This species is a year-round resident at Beale AFB.	**Moderate potential to occur.** There is suitable nesting and foraging habitat for this species within the Action Area and it is known to occur at Beale AFB.
short-eared owl	*Asio flammeus*	SSC	**Yes.** This species is a regular winter visitor to Beale AFB.	**Moderate potential to occur.** There is suitable nesting and foraging habitat for this species within the Action Area and it is known to occur at Beale AFB.
white-tailed kite	*Elanus leucurus*	FP	**Yes.** This species is an irregular visitor at Beale AFB.	**Moderate potential to occur.** There is suitable nesting and foraging habitat for this species within the Action Area and it is known to occur at Beale AFB.
Mammals				
pallid bat	*Antrozous pallidus*	SSC	**Yes.** This species has been detected during acoustical surveys at several locations throughout the base.	**Moderate potential to occur.** There is suitable roosting and foraging habitat for this species within the Action Area and it is known to occur at Beale AFB.
Townsend's big-eared bat	*Corynorhinus townsendii*	SSC	**Yes.** This species has been detected during acoustical surveys at several locations throughout the base.	**Moderate potential to occur.** There is suitable foraging habitat for this species within the Action Area and it is known to occur at Beale AFB.

Common Name	Scientific Name	State Status[1]	Known to Occur on Beale AFB	Potential to Occur within the Action Area[2]
western red bat	*Lasiurus blossevillii*	SSC	**Yes.** This species has been detected during acoustical surveys at several locations throughout the base and one has been confirmed dead.	**Moderate potential to occur.** There is suitable roosting and foraging habitat for this species within the Action Area and it is known to occur at Beale AFB.

Source: California Department of Fish and Wildlife (CDFW). 2020. California Natural Diversity Database (CNDDB). Rarefind, Version 5 (Commercial Subscription). A
Sacramento, California. Website https://apps.wildlife.ca.gov/rarefind/view/RareFind.aspx#.

United States Fish and Wildlife Service (USFWS). 2020. Information for Planning and Consultation (IPaC). The Environmental Conservation Online System. Access
California. Website https://ecos.fws.gov/ipac/.

[1]**Status Legend:**
SSC: Species of Special Concern (CDFW)
FP: Fully Protected (CDFW)

[2] **Definitions Regarding Potential for Occurrence**

- Not expected to occur – Habitat on and adjacent to the Action Area is unsuitable for the species requirements (foraging, breeding, cover, substrate, elevation, hydrology, plant community, site history, and disturbance regime).
- Low – Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the site is unsuitable or of poor quality. The species is not likely to be found on the site.
- Moderate – Some of the habitat components meeting the species requirements are present, and/or only some of the habitat on or adjacent to the site is unsuitable. The species has a moderate probability of being found on the site.
- High – All of the habitat components meeting the species requirements are present, and/or most of the habitat on or adjacent to the site is highly suitable. The species has a high probability of being found on the site.
- Present – Species is observed on the site or has been recorded (i.e., CNDDB, or other reports) on the site recently.

Plants

No federally listed plant species have potential to occur on Beale AFB. Based on data from the INRMP and an updated records search of the CNPS Online Rare Plant Inventory (CNPS 2020), two special-status plant species have some potential to occur within vernal pools in the Proposed Action area. These are discussed further below.

Dwarf downingia (CRPR 2B.2)
Several populations of this species have been detected in vernal pools at Beale AFB (Beale AFB 2019), and one population occurs approximately 0.5-mile southwest of Blackbird Marsh. This species is likely to occur within the Proposed Action area, however vernal pool habitats would not be disturbed under the Proposed Action.

Legenere (CRPR 1B.1)
Small populations of this species have been detected in vernal pools west of the airstrip at Beale AFB (Beale AFB 2019) and it is likely to occur within the Proposed Action area, however vernal pool habitats would not be disturbed under the Proposed Action.

Wildlife

An updated records search of the Information for Planning and Consultation (IPaC) (USFWS 2020) and the CNDDB (CDFW 2020) was performed as part of the preparation of this EA. Based on the results of species-specific studies performed at Beale AFB, the updated records searches, and the INRMP, four federally listed or candidate wildlife species have been documented (or possibly detected) at Beale AFB and have some potential to occur within the Proposed Action area. These include western yellow-billed cuckoo (*Coccyzus americanus occidentalis*, threatened), monarch (*Danaus plexippus*, candidate threatened), vernal pool fairy shrimp (*Branchinecta lynchi*, threatened), and vernal pool tadpole shrimp (*Lepidurus packardi*, endangered), which are discussed further below. Two federally listed fish species, chinook salmon (*Oncorhynchus tshawytscha*, federally endangered), and Central Valley steelhead (*Oncorhynchus mykiss*, federally threatened), have been documented at Beale AFB and just north of Beale AFB, but are not expected to occur within the Proposed Action area due to a lack of suitable habitat and physical barriers that prevent access to the Proposed Action area.

A Biological Assessment was provided to the USFWS (Appendix G) and NMFS (Appendix H) to support informal consultation under Section 7 of the ESA for determinations that the project may affect but is not likely to adversely affect (NLAA) vernal pool fairy shrimp, vernal pool tadpole shrimp, western yellow-billed cuckoo [WYBC], western monarch butterfly, and Essential Fish Habitat for Chinook salmon.

The remaining special-status wildlife species that have some potential to occur within the Proposed Action area are state-protected (threatened, endangered, species of special concern, or fully protected) species that have been documented at Beale AFB. These include four state-listed species and 10 species of special concern or fully protected species. A discussion of these species and Essential Fish Habitat is provided below. Species with low potential to occur within the Proposed Action area or not expected to occur within or adjacent to the Proposed Action area are not discussed further in this EA (with the exception of the WYBC for reasons discussed above). A detailed table of special-status wildlife species considered under this EA is included in Appendix E.

Western Yellow Billed Cuckoo (federally threatened)

There have been three possible observations of WYBC since 2014 on Beale AFB. Each observation was considered tentative due to the lack of clear visual confirmation. All observations were located in the southeastern portion of Beale AFB in or near the Dry Creek/Best Slough area by avian biologists working in the area. The most recent potential auditory detection of a WYBC was on June 3, 2016. It was heard at the Monitoring Avian Productivity and Survivorship (MAPS) bird banding station on Best Slough and timing suggests

that it was likely a migrating individual. The nearest confirmed record for this species is approximately 6.5 miles from Beale AFB, in the vicinity of the confluence of the Yuba and Feather Rivers (CDFW 2020). This record represents a historical breeding population that was active throughout the late 1800's with one record as late as 1976. More recently, two birds were reported in 2016 to eBird in the vicinity of the Marysville sewage ponds (Sullivan et al. 2009, eBird 2020). A WYBC habitat assessment was conducted on Beale AFB in 2018and protocol-level surveys were performed in the summers of 2018-(Halterman) 2019 and 2020 (CEMML 2020). The 2018 assessment identified three areas of poor quality potentially suitable habitat that warranted survey; patches of gallery forest along Dry Creek, dense willows around Mad Dog Lake, and an olive orchard below Lower Blackwelder Lake (Halterman 2019). In 2020, the survey area along Dry Creek was expanded to incorporate additional potentially suitable habitat upstream of Gavin Mandery Road as well as around Parks Lake. Notably, portions of the expanded area along Dry Creek are within 1000 feet of the Proposed Action area. To date, no WYBC have been documented on Beale AFB as part of these efforts. If WYBC do occasionally occur in the Dry Creek survey area, it is likely only during migration.

Monarch (federal Candidate Threatened)

Adult monarch butterflies and caterpillars have been observed at multiple locations adjacent to drainages on Beale AFB (2019), and it is likely to occur within the Proposed Action area during milkweed blooming periods. The nearest location where this species has been observed is in the pollinator garden at the Clinic (approximately 0.5-mile northeast of the Blackbird Marsh site).

Vernal pool fairy shrimp (federally Threatened) and vernal pool tadpole shrimp (federally Endangered)

There are several documented occurrences of vernal pool fairy shrimp and vernal pool tadpole shrimp within Beale AFB. Most occurrences are concentrated in the western and northwestern portions of the base (Beale AFB 2019). The nearest documented occurrences of vernal pool fairy shrimp are approximately 1.3 miles south of the Blackbird Basins site and 0.5-mile southwest of the Blackbird Marsh site. The nearest documented occurrences of vernal pool tadpole shrimp are approximately 1.7 miles southwest of the Blackbird Basins site and two miles west of the Blackbird Marsh site. Although none have been documented within the Proposed Action area, presence of these species is assumed within vernal pools in the vicinity of Blackbird Basins and Blackbird Marsh due to the substantial number of occurrences in other areas of Beale AFB (Beale AFB 2019).

Invertebrates

Crotch bumble bee (state Candidate Endangered)

Crotch bumble bee was observed for the first time at Beale AFB along A Street on the Main Base in June 2021 (Jaymee Marty, pers. comm, 2021) and there are suitable floral resources and nest sites for this species within the Proposed Action area. Because of these factors, crotch bumble bee has a moderate potential to occur within the Proposed Action area.

Amphibians and Reptiles

Western pond turtle (state Species of Special Concern)

Western pond turtle has been observed at Blackbird Marsh and Blackbird Basins, as well as other aquatic habitats within Beale AFB, in multiple survey years (Beale AFB 2019; Eli Rose, pers. comm. 2021). There is suitable aquatic and terrestrial habitat for this species at both project locations, and it is likely to occur within the Proposed Action area.

Birds

California black rail (state Threatened, Fully Protected)

Suitable habitat for this species is present within the Proposed Action area, and it has been observed in a marsh below Miller Lake, at a pond by the Small Arms Range and at PAVE PAWS lake in 2009. Subsequent surveys have not detected any at Beale AFB (Beale AFB 2019). Because there is similar habitat within the Proposed Action area as the habitat this species was previously observed in, this species has a moderate potential to occur within the Proposed Action area.

Swainson's hawk (state Threatened)

Swainson's hawks have been observed at multiple locations throughout Beale AFB and an active nest was confirmed on Beale AFB in 2004 (Beale AFB 2019). There is a documented occurrence of Swainson's hawk approximately one mile west of Blackbird Marsh (Eli Rose, pers. comm. 2021). This species could potentially forage within the Proposed Action area and nest in the oak trees adjacent to Blackbird Marsh.

Tricolored blackbird (state Threatened, Species of Special Concern)

There is suitable foraging and nesting habitat for this species at Beale AFB, and it has been observed year-round at Beale AFB, including within the Proposed Action area. Nesting has been documented at A Street Pond, Reeds Creek in 2015 and 2016, Goose Lake in 2017, south of Beale AFB in 2018 (Beale AFB 2019), and Blackbird Marsh in 2020 (Lipschutz, pers. comm. 2020). Tricolored blackbird is highly likely to occur within the Proposed Action area due to recent positive observations and the presence of suitable nesting and foraging habitat.

American white pelican (state Species of Special Concern)

Non-breeding American white pelicans have been seen at Reeds Creek, Pond Four, Upper Blackwelder, and Miller Lakes within Beale AFB (2019), and is likely to occur within Blackbird Basins and/or Blackbird Marsh in the winter.

Grasshopper sparrow (state Species of Special Concern)

This species is a summer resident at Beale AFB (2019) and is likely to occur within the Proposed Action area due to the availability of suitable nesting and foraging habitat within annual grasslands.

Loggerhead shrike (state Species of Special Concern)

This species is present year-round at Beale AFB (2019) and has been documented approximately 0.5-mile west of Blackbird Basins (Eli Rose, pers. comm. 2021). It has a moderate potential to occur within the Proposed Action area due to the presence of suitable annual grassland habitat.

Northern harrier (state Species of Special Concern)

This species is known to occur year-round at Beale AFB (2019) and has been documented within one mile of Blackbird Basins (Eli Rose, pers. comm. 2021). It is likely to occur within the Proposed Action area due to the availability of suitable nesting and foraging habitat.

Short-eared owl (state Species of Special Concern)

This species is known to occur at Beale AFB in the winter (Beale AFB 2019) and has been documented in the southwestern portion of the base by Beale AFB biologists (Eli Rose, pers. comm. 2021). There is suitable nesting and foraging habitat for this species within the Proposed Action area and therefore has a moderate potential to occur.

White-tailed kite (state Fully Protected)

This species is an irregular visitor at Beale AFB (2019) but has been documented approximately 0.6-mile south of Blackbird Marsh (Eli Rose, pers. comm. 2021). White-tailed kite has a moderate potential to forage within the Proposed Action area and could nest in trees adjacent to the Proposed Action area.

Mammals

Pallid bat (state Species of Special Concern)

This species has been detected during acoustical surveys at several locations throughout Beale AFB (2019), including the vicinity of Blackbird Marsh along Dry Creek (Eli Rose, pers. comm. 2021). Although there is no roosting habitat for this species within the Proposed Action area, this species is likely to forage within the Proposed Action area.

Townsend's big-eared bat (state Species of Special Concern)

This species has been detected during acoustical surveys at several locations throughout Beale AFB (2019), including the vicinity of Blackbird Marsh along Dry Creek (Eli Rose, pers. comm.

2021). Although there is no roosting habitat for this species within the Proposed Action area, this species is likely to forage within the Proposed Action area.

Western red bat (state Species of Special Concern)

This species has been detected during acoustical surveys at several locations throughout Beale AFB (2019), including the vicinity of Blackbird Marsh along Dry Creek (Eli Rose, pers. comm. 2021), and one individual has been confirmed dead on the base (Beale AFB 2019). Although there is no roosting habitat for this species within the Proposed Action area, this species is likely to forage within the Proposed Action area and could roost in the oak trees adjacent to Dry Creek.

In addition to the special-status species described above, all native migratory bird species present at Beale AFB (including those identified above) are subject to regulation under the Migratory Bird Treaty Act (MBTA) and/or California Fish and Game Code Section 3503.5.

Essential Fish Habitat

Beale AFB is located in Essential Fish Habitat (EFH; Figure 15), covered under the Magnuson-Stevens Fishery Conservation and Management Act (MSA; legal requirements set forth under section 305(b) of the MSA, implementing regulations at 50 CFR 600.920). The southeastern section of Beale AFB is located within the Upper Bear-Below Camp Far West Dam hydrologic unit, and the northwestern section is located within the Honcut Headwaters-Lower Feather – Below Dam hydrologic unit, both of which contain EFH for Chinook salmon. EFH for freshwater Chinook salmon has four vital elements: (1) spawning and incubation habitat; (2) juvenile rearing habitat; (3) juvenile migration corridors; and (4) adult migration corridors and holding habitat. Freshwater EFH is subject to lateral (e.g., riparian), longitudinal, and vertical connectivity to create optimal habitat conditions for spawning, rearing, and migration, which typically accounts for the following: (1) water quality (e.g., temperature, dissolved oxygen, nutrients, etc.); (2) water depth, quantity, and velocity; (3) riparian-stream-marine energy exchanges; (4) channel gradient and stability; (5) prey availability; (6) cover and habitat complexity; (7) space; (8) connectivity from the headwaters to the ocean (e.g., dispersal corridors); (9) groundwater-stream interactions; and (10) substrate composition.

Chinook salmon (*Oncorhynchus tshawytscha*; spring run – federal and state Threatened; fall run – state Species of Special Concern) have been observed in Dry Creek in 2012 (fall run), and a successful spawn was noted in 2014/2015. This species was also observed in 2015/2016. Beale AFB documented Chinook salmon in Dry Creek in November 2021 in areas around the former Beale Dam (Gallentine, pers. comm. 2021). Spring run salmon are not present at Beale AFB (2019). Central Valley steelhead (*Oncorhynchus mykiss*; federally Threatened) has been observed upstream of Beale AFB at the Spenceville Wildlife Area, and it may use Dry Creek in higher flow years (Beale AFB 2019).

1 Figure 15 Essential Fish Habitat at Beale AFB

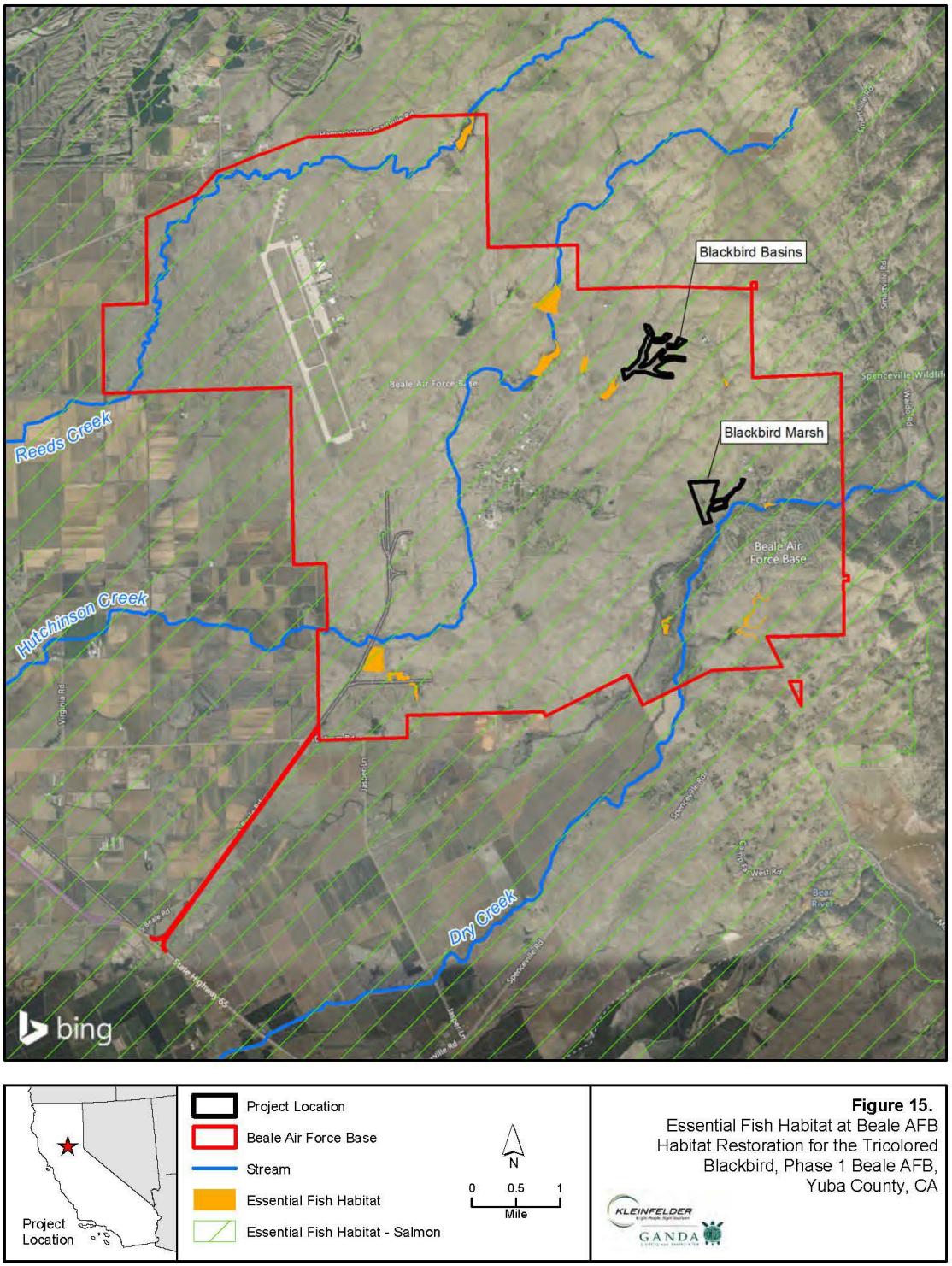


Figure 15.
Essential Fish Habitat at Beale AFB
Habitat Restoration for the Tricolored Blackbird, Phase 1 Beale AFB, Yuba County, CA

2

There is no suitable aquatic spawning or holding habitat for these species within Blackbird Basins or Blackbird Marsh, and the Proposed Action area also lacks suitable migration corridors for juvenile and adult salmon. In addition, the drainage that connects Dry Creek to Blackbird Marsh is of shallow depth with bedrock substrate and intermittent in nature, and there are barriers that prevent access to Blackbird Marsh (a small culvert and dam). The Proposed Action would have less than substantial adverse effects to an EFH for Chinook salmon habitat within the Dry Creek watershed of Beale AFB. Furthermore, the activities that would be authorized under the informal consultation may affect, not likely to adversely CCV steelhead and would not affect other federally listed marine species that occur in the general region of Beale AFB (Appendix H). The AMMs in this document include the measures included in the EFH and ESA Abbreviated Consultation for the Proposed Action (Appendix H) The project would adhere to the AMMs included in this document to prevent the Proposed Action from negatively impacting listed species and their habitats, and therefore no adverse effect would occur to listed fish species or EFH.

3.6.3 Environmental Consequences

Proposed Action

Based on information from Beale AFB biologists, a review of the INRMP, and results of the updated records searches (i.e., IPaC, CNDDB, and CNPS databases), four federal- and four-state listed wildlife species have some potential to occur within the Proposed Action area. Two special-status plant species known to occur in vernal pools at Beale AFB also have potential to occur within the vernal pools in the Proposed Action area. In addition, 10 state-protected (i.e., species of special concern or fully protected) wildlife species have a moderate or greater potential to occur within the Proposed Action area.

Under the Proposed Action, effects on biological and natural resources could include effects to native nesting birds protected by the MBTA and California Fish and Game Code Section 3503.5, and federal- and state-listed wildlife and special-status plant species that occur at Beale AFB and have been documented within the Proposed Action area.

Impacts to Federally Listed Species

Direct impacts to monarchs that are known to occur at Beale AFB could occur due to crushing of eggs that are laid on milkweed plants or adults resting on vegetation within the Proposed Action area, or along access roads to the sites. Indirect impacts due to dust from project activities could also cover milkweed plants and inhibit pupae development. Milkweed plants would be mapped for avoidance prior to the start of construction; however, any plants that cannot be avoided during construction would be replaced at a ratio of 3:1 with implementation of AMM-BIO-21. In addition, AMM-WTR-4 requires dust control during project activities. With implementation of AMM-BIO-21 and AMM-WTR-4, no significant impacts to monarch would occur under the Proposed Action.

Vernal pools would be avoided during construction under the Proposed Action, so no direct impacts would occur to vernal pool fairy shrimp and vernal pool tadpole shrimp. Indirect impacts

to vernal pool fairy and tadpole shrimp in the form of runoff and siltation from construction activities may affect the water quality of wetlands and vernal pools in the Proposed Action area. Implementation of AMM-WTR-2 and AMM-WTR-18 require vernal pools to be avoided and silt fencing to be constructed around vernal pools within the Action Area. With implementation of AMM-WTR-2 and AMM-WTR-18, no significant impacts to vernal pools would occur under the Proposed Action.

Due to the absence of suitable aquatic spawning or holding habitat for Chinook salmon and steelhead, the absence of suitable migration corridors for juvenile and adult salmon, and barriers to access Blackbird Basins or Blackbird Marsh, direct impacts to chinook salmon and steelhead would not occur under the Proposed Action as these species are not expected to occur in the Proposed Action area. Indirect impacts to steelhead and Chinook salmon in the form of runoff and siltation due to construction activities within the Proposed Action area would affect the water quality of Dry Creek within Beale AFB. Implementation of AMM-WTR-2 and AMM-WTR-18, which requires sediment and erosion-control BMPs to be utilized for all construction adjacent to creeks would ensure no significant impacts to Chinook salmon or steelhead occur under the Proposed Action.

Impacts to State-Listed Species

Direct impacts to crotch bumble bee could occur from crushing of adults or eggs during grading activities. Indirect impacts to foraging or nesting crotch bumble bees could occur due to noise and vibration that could disturb nesting bees, and dust from project activities that could accumulate on floral resources and prevent foraging. AMM-BIO-16 requires a preconstruction survey to be performed to identify any crotch bumblebee nests that occur within the Proposed Action area and avoidance of nests, while AMM-BIO-21 requires replacement of floral resources (including milkweed) at a ratio of 3:1 should avoidance be infeasible during construction. In addition, AMM-WTR-4 requires dust control during project activities. With implementation of AMM-BIO-16, AMM-BIO-21, and AMM-WTR-4, no significant impacts to crotch bumblebee would occur under the Proposed Action.

Direct impacts to nesting California black rail could occur by construction activities that cause nest abandonment due to increased noise, vibration, or direct removal of habitat (i.e., wetland vegetation). Indirect impacts to California black rail could occur by means of decreased water quality due to siltation or runoff that would reduce foraging success for aquatic insects, and removal of habitat that would reduce foraging success for terrestrial insects and seeds. AMM-BIO-18 requires preconstruction surveys, including nesting bird surveys, for state-listed species prior to the onset of construction. Any active California black rail nests within the Proposed Action area would be mapped and avoided until they are no longer active, as determined by a qualified biologist. Implementation of AMM-BIO-18 would ensure no significant impacts to California black rail occur under the Proposed Action.

There are no suitable large nesting trees within the Proposed Action area; therefore, direct impacts in the form of take of adults or juveniles or crushing of nesting Swainson's hawk eggs would not occur under the Proposed Action. Abandonment of active Swainson's hawk nests that

would leave eggs and chicks vulnerable to predation or without provisions in oak trees that are adjacent to the Proposed Action area due to increased noise, vehicle traffic, and human presence during construction would be considered an indirect impact. AMM-BIO-18 requires preconstruction surveys, including nesting bird surveys, for state-listed species prior to the onset of construction. Any active Swainson's hawk nests within 0.25-mile of the Proposed Action area would be mapped and avoided until they are no longer active, as determined by a qualified biologist. Implementation of AMM-BIO-18 would ensure no significant impacts to Swainson's hawk occur under the Proposed Action.

Tricolored blackbirds are known to nest at Blackbird Marsh and southwest of the Blackbird Basins site. Direct impacts to nesting tricolored blackbirds in the form of crushing adults, eggs or juveniles during vegetation removal could occur within the Proposed Action area. Indirect impacts in the form of increased noise and human activity that would cause adults to abandon active nests, cause foraging disturbance, and leave eggs and chicks vulnerable to predation or without provisions could occur under the Proposed Action. AMM-BIO-18 requires preconstruction surveys, including nesting bird surveys, for state-listed species prior to the onset of construction. Any active tricolored blackbird nests within the Proposed Action area would be mapped and avoided until they are no longer active, as determined by a qualified biologist. Implementation of AMM-BIO-18 would ensure no significant impacts to tricolored blackbird occur under the Proposed Action.

No direct impacts to special-status plant species are expected to occur under the Proposed Action due to avoidance of suitable (vernal pool) habitat for these species. Indirect impacts to dwarf downingia and legenere (CRPR 1 and 2 plant species) in the form of runoff and siltation due to construction activities would be avoided by AMM-WTR-2 and AMM-WTR-18, which requires installation of silt fencing around vernal pools in the Proposed Action area prior to the onset of construction. Implementation of these AMM-s would ensure significant impacts to state special-status plant species do not occur under the Proposed Action.

Impacts to State Species of Special Concern and Fully Protected Species

Western pond turtle is known to occur at several locations throughout Beale AFB, including Blackbird Marsh and the Blackbird Basins site. Direct impacts to western pond turtle by way of injury or death to individual turtles or eggs, or crushing of active burrows, could occur from vehicle traffic and heavy equipment. Indirect impacts from runoff and siltation due to construction activities that affect the water quality of aquatic habitat could also occur under the Proposed Action. AMM-BIO-17 requires preconstruction surveys, including western pond turtle surveys, for state-listed species prior to the onset of construction. Any active western pond turtle nests within the Proposed Action area would be mapped and avoided until they are no longer active, as determined by a qualified biologist. Adult western pond turtles would be relocated in accordance with the INRMP, in consultation with the appropriate agencies, and following standard best management practices utilized at Beale AFB when draining impoundments or replacing dams. Implementation of AMM-BIO-17 would ensure no significant impacts to the western pond turtle occur under the Proposed Action.

Native bird nests that are in the process of being constructed, or have eggs, chicks, or fledglings are considered active nests. Direct impacts to these nests, eggs, or birds could occur in the form of direct harm or mortality due to construction equipment or human activities that could crush or remove birds from vegetation, or cause abandonment of the nest and leave eggs and chicks vulnerable to predation or without provisions or destroy an active nest due to vegetation removal or grading activities. Indirect impacts to native nesting birds on the site could include disturbance during construction due to noise, dust, and increased human presence in the vicinity of active nests. AMM-BIO-18 requires preconstruction surveys, including nesting bird surveys, for state-listed species prior to the onset of construction. Any active native bird nests within the Proposed Action area would be mapped and avoided until they are no longer active, as determined by a qualified biologist. In addition, AMM-WTR-4 requires dust control during project activities. With implementation of AMM-WTR-4 and AMM-BIO-18, no significant impacts to native nesting birds would occur under the Proposed Action.

Several special-status bat species are known to occur at Beale AFB and may forage within the Proposed Action area. No suitable trees or other suitable roosting habitat occurs within the Proposed Action area; therefore, no direct impacts would occur to roosting bats under the Proposed Action. Indirect impacts in the form of disturbance to foraging adults within the Action Area or young, pre-volant bats roosting in habitat adjacent to the Proposed Action area, due to noise, dust, lighting and increased human presence could also occur under the Proposed Action. AMM-BIO-19 requires construction be limited to daylight hours (one hour after sunrise to two hours before sunset) to avoid impacts to foraging bats due to lighting and noise. In addition, AMM-WTR-4 requires dust control during project activities. With implementation of AMM-BIO-19 and AMM-WTR-4, no significant impacts to state-protected bats would occur under the Proposed Action.

Impacts to Jurisdictional Features

Several vernal pools and wetlands that serve as foraging, nesting, and cover habitat for listed or protected wildlife species occur within the Proposed Action area. Vernal pools at Blackbird Basins and Blackbird Marsh would be avoided under the Proposed Action, and therefore direct impacts to protected wildlife species that use these habitats would not occur under the Proposed Action. However, grading activities at Blackbird Basins and Blackbird Marsh could result in the introduction of noxious weeds to Beale AFB that displace native or rare plant species. Indirect impacts to adjacent vernal pools and wetlands could occur in the form of runoff and siltation due to project activities. AMM-WTR-2 and AMM-WTR-18 require installation of silt fencing around vernal pools in the Proposed Action area prior to the onset of construction, and installation of BMPs to avoid runoff and siltation in areas where construction is adjacent to wetlands and creeks. Implementation of AMM-WTR-2 and AMM-WTR-18 would ensure no significant impacts to jurisdictional features occur under the Proposed Action.

The Proposed Action includes improvement of the existing dam and spillway at Blackbird Marsh, and the expansion and enhancement of jurisdictional aquatic features at Blackbird Basins and Blackbird Marsh. There would be temporary direct impacts to jurisdictional features where grading within the jurisdictional expansion areas meets with existing wetlands and waters.

Project activities would result in an estimated 10.171 acres and 11,634 linear feet of temporary impacts to waters of the U.S., as the result of impoundment and dam repair and grading and channel repair for wetland augmentation. These temporary impacts would be restored onsite upon project completion. Project activities would cause 0.777 acres and 1,485 linear feet of permanent impacts to waters of the U.S. as the result of impoundment and dam repair, and rocked channel outlets for water augmentation. In addition, a minimum of 12 acres of new wetlands would be created as the result of the project. These potential impacts are summarized in Table 10 of Section 3.5.3.3 above.

Avoidance and Minimization Measures (AMMs)

The following AMM-s would be implemented under the Proposed Action to avoid or minimize the effects of the proposed project activities on federal- and state-listed wildlife species, as well as special-status plant species and sensitive habitats.

AMM-BIO-1: A Qualified Biologist would conduct pre-project surveys of all ground disturbance areas in sensitive habitats, two weeks prior to the start of the project to confirm the information in this document is still correct and conditions have not changed. If any sensitive species are found during the pre-project surveys, the Qualified Biologist would contact the Beale AFB NRM who would coordinate with the Service. No project activities would begin until proponents have received written approval from the Service that the biologist(s) is qualified to conduct the work.

AMM-BIO-2: A Qualified Biologist would monitor construction activities in or adjacent to sensitive habitats. The biological monitor would ensure compliance with these conservation measures, required for protected species and their habitats. If protected species are found that are likely to be affected by work activities, the Qualified Biologist would have the authority to stop any aspect of the proposed action that could result in unauthorized take of a protected species. If the Qualified Biologist exercises this authority, the biologist would notify the Beale AFB NRM who would then contact the Service by telephone and email within one working day.

AMM-BIO-3: Environmental Awareness Training: Environmental awareness training would be provided for all construction/field personnel working on the proposed project by the Qualified Biologist/monitor. All personnel would participate in training before activities begin and as new workers join the proposed project activities. The program would consist of a briefing on environmental issues related to the proposed project. The training program would include an overview of the legal status, biology, distribution, habitat needs, and compliance requirements for each sensitive species that may occur in the action area. The presentation would also include a discussion of the legal protection for endangered species under the ESA, including penalties for violations. A fact sheet conveying this information would be distributed to all personnel who enter the project site. Upon completion of the orientation, employees would sign a form stating that they attended the program and understand all AMMs. These forms would be maintained at Beale AFB and would be accessible to the appropriate resource agencies.

AMM-BIO-4: If a new vehicle access route is required in special status species habitat, the route will be pre-surveyed by a Qualified Biologist to minimize impacts to sensitive resources and

reviewed by the NRM. If routes will be reused over multiple years, they will be assessed annually to ensure that they are clear of special-status species.

AMM-BIO-5: No trenches or holes greater than six inches deep will be left open at the end of the day and may be covered with plywood or cone markers; trenched areas and holes will be compacted and restored to normal grade.

AMM-BIO-6: All vehicle operators will follow the posted speed limit on paved roads and a 15 MPH speed limit on unpaved roads.

AMM-BIO-7: No pets or nonmilitary firearms will be allowed in the Action Area during proposed project implementation.

AMM-BIO-8: During construction activities, all trash will be properly contained, removed from the work site daily, and disposed of properly. Following construction, all refuse and construction debris will be removed from work areas. All garbage and construction-related materials in construction areas will be removed immediately following project completion.

AMM-BIO-9: All plant debris potentially containing reproductive parts (i.e., seeds or plant fragments for species that reproduce vegetatively) will be disposed of at an off-site landfill or green waste facility. It will be transported in a manner that prevents the spread of invasive plants to other locations. This action may require, but is not limited to, bagging the material before it is transported off-site.

AMM-BIO-10: A Qualified Biologist will monitor and ensure that the spread or introduction of invasive exotic plant species will be avoided to the maximum extent possible. When practicable, invasive plants found in the action area will be removed using non-chemical methods. Specifically, equipment will be thoroughly cleaned of soil and vegetation before being delivered to the site to minimize the potential for spreading pathogens or exotic/invasive species. Equipment will be inspected by the Qualified Biologist and may be rejected if the Qualified Biologist determines that it is has not been adequately cleaned.

AMM-BIO-11: The site will be added to the Annual Invasive Species Management work plan and will be surveyed and maintained with the existing weed program at Beale AFB.

AMM-BIO-12: If excess materials, after appropriate testing has been conducted, are to be used on Beale AFB, the NRM will contact the Service before hauling the materials to ensure that the disposal site will not affect any sensitive species.

AMM-BIO-13: Any worker who inadvertently kills or injures a protected species, or finds one injured or trapped, will immediately report the incident to the biological monitor. The biological monitor will notify Beale AFB NRM who will then verbally notify the Service within three business days and will provide written notification via email of the incident within five business days.

AMM-BIO-14: Trenching Controls: In unimproved areas, the top six to 12 inches of the trench or hole will be backfilled with topsoil from the trench.

AMM-BIO-15: If USAF-approved pesticides (herbicides, insecticides, etc.) are used at the project site, they may only be applied by a DoD or California certified/licensed applicator. Beale AFB will ensure that label restrictions, and all regulations mandated by the Beale AFB IPMP, the Air Force Pest Management Program, a General NPDES Permit for Residual Aquatic Pesticide Discharges, DoD, U.S. Environmental Protection Agency and the California Department of Food and Agriculture are observed. No pesticides shall be used within 50 feet of a wetland unless approved by the Service and the Beale AFB NRM.

AMM-BIO-16: To minimize impacts to monarch and crotch bumblebee, preconstruction surveys would be performed by a qualified biologist to determine if any milkweed plants or monarch eggs are present on suitable vegetation (milkweed) within the project footprint. If milkweed plants (or milkweed plants with eggs) are detected during surveys, they would be flagged with a 25-foot avoidance buffer. A qualified biologist would monitor the buffer areas and construction may resume after the caterpillars have metamorphosed.

AMM-BIO-17: To avoid impacts to western pond turtle, pre-construction surveys would be conducted 24 hours prior to disturbance of any upland habitat from late spring through fall to locate any nesting or aestivation sites (typically within 325 feet of aquatic sites). If nesting and/or aestivation sites are identified during surveys, these areas would be flagged with a 50-foot buffer and avoided during construction activities. If western pond turtles are present within the work area, work would be postponed until either (1) the turtles move away from that location on their own, or (2) the turtles are removed and relocated to an appropriate location by a qualified biologist (with CDFW approval). Any active nest sites would be monitored twice weekly by a qualified biologist until the eggs have hatched and the hatchlings are no longer within the work area, or the nest is determined to be inactive by the qualified biologist.

AMM-BIO-18: A nesting bird survey would be performed by a qualified biologist no earlier than two weeks prior to construction during the nesting season (February 1–August 31) to determine if any native birds are nesting on or near the Proposed Action area (including a 250-foot buffer for raptors and a 0.25-mile buffer for Swainson's hawk). If the timing of construction should vary between the Blackbird Marsh and Blackbird Basins sites, the nesting bird survey would be performed separately, no earlier than two weeks prior to the start of construction at each site. If any active nests are observed during surveys, a suitable avoidance buffer from the nests would be determined by the qualified biologist and flagged around the nest(s) based on species, location, and planned construction activity. These nests would be avoided by construction personnel and monitored twice weekly by a qualified biologist until the chicks have fledged and/or the nests are no longer active, as determined by the qualified biologist. Suitable nesting habitat (i.e., trees and vegetation) would be removed outside of the breeding bird season (September 1–January 31) as feasible to avoid impacts to nesting birds. If a lapse in construction occurs for a week or more at either site, a new nesting bird survey would be performed to ensure no new nests have been built during the lapse.

AMM-BIO-19: To avoid impacts to foraging bats, all work would be performed during daylight hours (one hour after sunrise to two hours before sunset). If any bats are detected during proposed project activities, consultation with CDFW would be sought to determine an appropriate plan to avoid impacts to bats that may occur within the Proposed Action Area. No suitable roosting trees occur within the Proposed Action area; no tree removal is anticipated under the Proposed Action.

AMM-BIO-20: Western Yellow-billed Cuckoo: All projects that occur within 1,000 feet of suitable WYBC breeding habitat (e.g., "Poor" habitat quality or greater as identified in Halterman 2019), during the WYBC breeding season (June 1–August 31). A Qualified Biologist will make an initial site visit to verify the habitat suitability and determine the need for implementation of any of the below measures or whether additional surveys are needed. Beale AFB may (depending on project start dates and/or survey results) implement the following measures to avoid or minimize disturbances and adverse effects to the species. Conservation measures will be adjusted if additional guidelines are released by the USFWS, and the USFWS will be notified at that time.

***AMM-BIO-20*a**: Any projects that involve excessive noise (81 dB or more) or other disturbance within suitable WYBC habitat, commencing between June 1 and August 31 (migration and breeding season), will require a minimum of three pre-project surveys to identify nesting birds, and will be conducted by a Qualified Biologist.

a. Surveys will follow Western Yellow-billed Cuckoo Natural History Summary and Survey Methodology (Halterman et al. 2015).

b. A minimum of three pre-project surveys will be conducted within a 1000-foot buffer of the project footprint and shall take place within 30 calendar days before the onset of construction or vegetation removal activities. The final survey will be within three calendar days of commencement of activities.

AMM-BIO-20b: If WYBC nests are detected during the pre-project surveys, Beale AFB Environmental staff will establish buffers around nests that are sufficient to ensure that breeding is not likely to be disrupted or adversely impacted by the project.

a. No-disturbance buffers around active nests will be a minimum of 1,000 feet, unless a Qualified Biologist determines that smaller buffers will be sufficient to avoid impacts to nesting WYBC.

b. Factors to be considered for determining buffer size will include: the presence of natural buffers provided by vegetation or topography, nest height, locations of foraging territory, and baseline levels of noise and human activity.

c. Buffers will be maintained until a qualified biologist has determined that young have fledged and are no longer reliant upon the nest or parental care for survival.

AMM-BIO-20c: No riparian vegetation alterations will occur in confirmed WYBC breeding habitat area during the WYBC nesting season, June 1 – August 31. This includes mechanical removal and herbicide spray treatment. If vegetation removal cannot be avoided during nesting season, a Qualified Biologist will conduct a minimum of five surveys in the 30 calendar days leading up to the commencement of the project, with the

final survey conducted within the three calendar days of commencement of the project. If cuckoos are found during any of the surveys, vegetation removal will not proceed.

***AMM-BIO-20*d**: Herbicide treatments will be applied without motorized equipment during the nesting season (June 1 – August 31) unless otherwise approved by the Environmental Office or NRM. If a need for this is determined, surveys will be conducted first to ensure no nests are present.

AMM-BIO-20e: Pre- and post-project surveys will be conducted to record WYBC habitat condition before the start of a project and after completion of the project for tracking purposes. This may include photos and/or species surveys and will be used to better manage for the species.

AMM-BIO-20f: Prescribed burns will be limited to non-breeding season (September 1 through May 31).

AMM-BIO-20g: No high-intensity grazing will occur within the Dry Creek and Best Slough riparian corridor or other suitable WYBC breeding habitat. Targeted grazing for invasive plant and vegetation control may occur.

AMM-BIO-21: Monarch Butterfly: All projects that occur within 100 feet of milkweed plants or 250 feet from occupied habitat (roosting and breeding sites), will implement the following measures to avoid or minimize disturbances and adverse effects to the species. Conservation measures will be adjusted if additional guidelines are released by the USFWS, and the USFWS will be notified at that time.

AMM-BIO-21a: All individuals conducting work within the buffer area (100 or 250 feet as defined above) will receive training from a Qualified Biologist on the identification of milkweed plants and a description of both adult and larval monarchs in order to identify and avoid milkweed and monarchs during all activities.

AMM-BIO-21b: Preconstruction surveys to identify the presence of monarch host plants and to determine if any monarch eggs are present within the project footprint will be performed by a Qualified Biologist. If monarch eggs are detected during surveys, they will be flagged with a 25-foot avoidance buffer. A qualified biologist will monitor the buffer areas and construction in proximity to the host plant may resume after the caterpillars have metamorphosed.

AMM-BIO-21c: A 2-foot buffer will be maintained around extant milkweed plants during off-road vehicle access, restoration, and habitat enhancement planting, construction, and other ground-disturbing activities to protect breeding habitat.

AMM-BIO-21d: Unoccupied actively growing milkweed will be avoided by a minimum of two feet during the application of herbicides. Herbicide application within 50 feet of a

milkweed plant will be conducted with a low-pressure backpack sprayer to reduce the risk of drift.

AMM-BIO-21e: No broad-spectrum herbicide application will take place within 100 feet of occupied monarch habitat when wind speeds exceed 10 mph, or temperatures exceed 85°F to minimize potential for drift and volatilization.

AMM-BIO-21f: No persistent or pre-emergent herbicides will be used within 100 feet of milkweed or other occupied monarch habitats (e.g., roosting sites).

AMM-BIO-21g: Generally, mowing will not be conducted within 100 feet of areas with suitable monarch habitat during the active season (15-March through 31-October).

a. If mowing must be conducted (i.e., for habitat restoration projects benefitting monarchs or other listed species) and vehicle access must be allowed, all milkweed plants will be identified and avoided.

b. Additionally, if mowing occurs from March to June near areas where breeding occurs, mowing height will be set to a minimum of 10-12 inches to avoid cutting newly emerged plants.

c. Any mowing during the summer months will be conducted during the morning (until 1100) to avoid injuring resting monarchs.

AMM-BIO-21h: Willows and other trees known to or with the potential to be (within occupied habitat) used as roosting sites will be avoided during construction and maintenance activities.

a. Except for cut stump and wiping of target species, no herbicide application will occur during the active season of monarchs (March 15 through October 31) within 50 feet of known or potential roosting sites.

b. No trimming of trees used by monarchs as roosting sites will occur during the active season (March 15 through October 31).

AMM-BIO-21i: Projects occurring in or adjacent to known monarch breeding locations will incorporate native plants important for monarchs (e.g., milkweeds, late season flowering shrubs) as part of the landscape or revegetation plans.

AMM-BIO-21j: Any areas within 250 feet of known monarch breeding habitat requiring reseeding will include species beneficial to monarchs, including native milkweed. All seed mixes must be approved by the NRM.

AMM-BIO-21k: No prescribed fire treatment will occur within 100 feet of habitat occupied by monarchs during the active monarch season (March 15 through October 31).

AMM-BIO-21l: Riparian areas and drainages with known habitat used by monarchs (e.g., milkweed stands and roosting sites along Dry Creek, Hutchinson Creek) will be excluded from grazing. Heavy cattle or horse grazing in areas with low residual dry matter (below approximately 1000-1200 pounds per acre [lbs./ac]) or grazing with sheep and goats

would not occur in locations known to be occupied by monarchs during the active season (March 15 through 30 November) to prevent soil compaction and trampling of milkweeds.

Reduced Action Alternative

The Reduced Action Alternative is comprised of similar activities but would not include the dam improvements and omitting repairs or modifications to the four existing impoundments. Impacts to federally listed species, state-listed species, state species of special concern, and fully protected species would be similar to the Proposed Action. However, impacts to jurisdictional features would be less since there would be no permanent impacts to wetlands at Blackbird Basins from implementation of the Reduced Action Alterative. Therefore, impacts related to biological resources from implementation of the Reduced Action Alternative would be similar (with exception of wetlands, which would be less) to the Proposed Action.

No Action Alternative

The No Action Alternative would not result in impacts to other listed species with potential to occur in the Proposed Action area and would therefore have no effect on these species. However, under the No Action Alternative, the tricolored blackbird habitat would not be created and/or enhanced and the dam at Blackbird Marsh would not be improved. Therefore, the dam at Blackbird Marsh would continue to be classified as a low hazard, but in fair condition and require removal of tricolored blackbird nesting substrates during routine maintenance. The concrete blocks and slabs in the spillway would continue to contribute to erosion and the willow root channels would continue to have the potential to create seepage paths that could lead to increased erosion. In addition, there would be no long-term, beneficial impact to tricolored blackbird. The project purpose and need is to establish tricolored blackbird habitat to compensate for the removal of habitat in 2015. The current tricolored blackbird habitat is in a degraded state. Under the No Action Alternative, habitat would continue to be in a degraded state.

3.7 HUMAN HEALTH AND SAFETY

3.7.1 Definition of the Resource

A safe environment is one in which there is no, or there is an optimally reduced, potential for death, serious bodily injury or illness, or property damage. Human health and safety addresses both workers' health and public safety during demolition activities.

Construction site safety is largely a matter of adherence to regulatory requirements imposed for the benefit of employees and implementation of operational practices that reduce risks of illness, injury, death, and property damage. The health and safety of onsite military and civilian workers are safeguarded by numerous DoD and USAF regulations designed to comply with standards issued by the Occupational Safety and Health Administration and EPA. These standards specify the amount and type of training required for industrial workers, the use of protective equipment and clothing, engineering controls, and maximum exposure limits for workplace stressors.

Safety and accident hazards can often be identified and reduced or eliminated. Necessary elements for an accident-prone situation or environment include the presence of the hazard itself together with the exposed (and possibly susceptible) population. The degree of exposure depends primarily on the proximity of the hazard to the population. Activities that can be hazardous include transportation, maintenance and repair activities, and the creation of extremely noisy environments. The proper operation, maintenance, and repair of vehicles and equipment carry important safety implications. Any facility or human use area with potential explosive or other rapid oxidation process creates unsafe environments for nearby populations. Extremely noisy environments can also mask verbal or mechanical warning signals such as sirens, bells, or horns.

The Air Force Occupational and Environmental Safety, Fire Protection, and Health (AFOSH) Program (Secretary of the Air Force 1996) implements the Occupational Safety and Health Air Force Policy Directive by outlining the AFOSH Program. The purpose of the AFOSH Program is to minimize loss of USAF resources and to protect USAF personnel from occupational deaths, injuries, or illnesses by managing risks. In conjunction with the USAF Mishap Prevention Program, these standards ensure all USAF workplaces meet federal safety and health requirements. This instruction applies to all USAF activities.

3.7.2 Existing Conditions

Military Munitions Response Program

The Military Munitions Response Program (MMRP) was established in 2001 to manage environmental health and safety issues presented by unexploded ordinance (UXO), discarded military munitions (DMM), and munitions constituents (MC). The MMRP is an element of the Defense Environmental Restoration Program, under which the Secretary of Defense carries out environmental cleanup resulting from historical activities involving UXOs, DMM, and MC. Beale AFB has 101 Munition Response Sites (MRSs) (93 closed, eight feasibility or remedial investigation phase) (Beale AFB 2019). The Beale AFB Wing Safety Office provides the explosive safety support to ensure all construction site safety requirements related to unearthing UXOs are met.

Blackbird Basins overlaps with the boundaries of the open MRSSR614 or within the active Combat Arms Training and Maintenance (CATM) Range. In accordance with DoD regulations, UXO safety support is required for any work, including grading, within an open MRS. The Blackbird Marsh site does not overlap with any boundaries of open MRSs or active CATM Range. If the Proposed Action is selected, UXO safety support would be required.

Flight Safety/BASH Program

The 9 RW safety office is the Office of Primary Responsibility for the content and execution of the Bird/wildlife Aircraft Strike Hazard (BASH) Reduction Operational Plan (OPLAN) 91-212 in coordination with the 9th CES Natural Resources Manager (Beale AFB 2016). The OPLAN is established in accordance with AFI 91-202, USAF Mishap Prevention Program, to initiate a basewide program to minimize aircraft exposure to potentially hazardous bird strikes and danger from other wildlife. The 9 RW safety office monitors base-wide compliance and reports all aircraft bird strikes and hazards. Beale AFB currently has a contract with the USDA Wildlife Services to assist with management of the Beale AFB BASH program. The Bird Hazard

Working Group collects and reviews data on bird strikes, recommends changes to operation procedures and habitat, and initiates changes to the 9 RW Bird/Wildlife Aircraft Strike Hazard Plan (Beale AFB 2016). A Bird Hazard Working Group, comprised of interdisciplinary members from the Base, submits all major recommendations to the 9 RW Commander or Vice Commander for approval. Implementation of recommendations is through the normal chain of command (OPLAN 91-212; Department of Defense 2021).

Collisions between aircraft and wildlife are a concern throughout the world because they threaten pilot and passenger safety. BASH is a safety concern at Beale AFB because daily and heavy seasonal bird movements can create serious hazards to aircraft. Bird hazards exist on the airfield year-round with peaks in the spring and fall during migration. Numerous species of birds are present on Beale AFB, but most aircraft strikes occur with passerine species (small perching birds), waterfowl, and raptors (birds of prey). Because Beale AFB is located within the Pacific Flyway, heavy migratory bird density makes the wet season (fall through spring) a particular concern for waterfowl strikes. Beale AFB contains many seasonal wetlands that act as an attractant for waterfowl, wading birds, and gulls during the wet season, while the surrounding agricultural areas act as food sources throughout the year (Department of Defense 2021).

3.7.3 Environmental Consequences

Proposed Action

Short-term, minor direct adverse effects would be expected from the Proposed Action. Implementation of the Proposed Action would slightly increase the short-term risk associated with construction contractors performing work at Beale AFB during the normal workday because the level of such activity would increase. Contractors would be required to establish and maintain safety programs. Projects associated with the Proposed Action would not pose a safety risk to base personnel or activities at Beale AFB.

Military Munitions Response Program

The Proposed Action (Blackbird Basins portion) overlaps with the boundaries of the open MRS SR614 or within the active CATM Range. Subsurface clearances would be conducted in MRS SR614 in the summer of 2022. In accordance with DoD regulations, UXO safety support is required for any work, including grading, within an open MRS and active CATM Range. It is also suggested that implementation of this Phase of the restoration efforts would be conducted in 2023 to allow for subsurface clearances. Therefore, the Proposed Action requires adherence to UXO safety support and timing requirements.

Flight Safety/BASH Program

The proposed creation of tricolored blackbird nesting habitat would enable 9 RW to meet future mission objectives at Beale AFB and conduct or meet mission requirements in a safe operating environment. Specifically, creating tricolored blackbird foraging and nesting habitat at Blackbird Basins and Blackbird Marsh would not result in increased flight risks caused by increased bird activity near the flight line. This would enable Beale AFB to maintain flight safety and meet the goals laid forth in the OPLAN (Beale AFB 2016) under the Proposed Action.

Tricolored blackbirds typically fly in large flocks, and therefore pose a greater hazard to aircraft as these flocks can limit visibility and increase BASH potential. Blackbird Basins is located 3.5 miles and Blackbird Marsh is located approximately five miles east of the active runway on Beale AFB, which exceeds the USFWS recommended 2-mile distance to minimize aircraft exposure to potentially hazardous bird strikes and danger from other wildlife. The sites are also outside the Wildlife Exclusion Zone (WEZ), as defined in the BASH Plan (Beale AFB 2016) and are not within the flight path for aircraft approach and departure from the runway. By locating the restoration project outside the WEZ and away from flight path, this project would potentially reduce conflicts due to where the birds previously nested on the west side of the runway. Since 2015, Beale AFB has reduced habitat quality on west side of the base by spraying blackberry in an ongoing effort to remove TRBL nesting habitat. In lieu of that, the Proposed Action would be improving habitat on the east side where it is a lower BASH risk. Focusing on improving emergent marsh and planting native species on experimental nesting structures would not draw in the large numbers of birds like would be expected if proposing to plant 12 acres of non-native blackberry.

During tricolored blackbird hatching of eggs there is increased activity and number of birds. During the breeding season, the adult birds tend to forage within three miles of their breeding colonies (Beedy and Hamilton 1999). While they can travel five to six miles from the nesting site to forage (Meese 2021, personal comm), it is unlikely this would happen if suitable foraging habitat exists closer to the nesting site. Foraging distance is heavily influenced by the presence of concentrated food resources. Breeding individuals typically forage away from their nest sites, often well out of sight of the colony, but where insect foods are locally abundant, much foraging occurs well within sight of the colony. Most foraging occurs within five km of colony sites, but exceptionally to 13 km one way. Short-distance foraging (i.e., within sight of colony) for nestling provisioning is also common. At smaller colonies (< 1,000 adults), outward flights are pulsed and episodic; at larger colonies (> 20,000 adults), departures may form continuous and persistent streams of birds flying single-file back and forth between the colony and foraging substrates or outward foraging flights may occur in intermittent streams even in largest colonies (Beedy, et al 2018).

In addition, there are rice fields to the west and south of the Base. The rice fields to the south would attract the birds likely dissuading them to feed close to the flight line. Because quality foraging habitat would be supported on the base near the nesting sites, the birds would be less likely to travel to the rice fields.

The goals of the Proposed Action are to provide additional areas of open water, protected nesting substrate, and high-quality foraging areas within a couple of kilometers of the nesting areas. The Proposed Action includes features to meet “ideal foraging habitat” on the Base, such as shallow, flooded (irrigated) areas, grazing, and proximity to seasonal wetlands, riparian scrub, and open marsh borders (Shuford and Gardali 2008). This would be expected to enhance the viability of the species, while improving safety on the flight line.

The 2016 OPLAN for Beale AFB includes measures to monitor and manage birds and other wildlife that occur on Beale AFB. The plan outlines steps to obtain authorization for wildlife

abatement activities near the runway, bird activity monitoring on Beale AFB, Bird Watch Condition reporting, implementing habitat management strategies to deter wildlife, and reporting requirements for wildlife strikes that occur on Beale AFB (Beale AFB 2016). The project includes post-restoration monitoring, so the 9th CES Natural Resources Manager would know immediately if activity occurs at these sites that could affect the flight line. Notifications would be made to the 9 RW Safety Office, as needed. The INRMP outlines reporting procedures/ process (Beale AFB 2019). In addition, the AMMs would ensure further protection.

AMM-HHS-1: To the maximum extent feasible, construction shall not begin for the Blackbird Basins component of the restoration efforts until subsurface clearances are conducted in MRS SR614 in summer of 2022.

***AMM-HHS-2*:** Due to the Blackbird Basins component of the restoration efforts being located in MRS SR614, ensure that a UXO Tech be present during this work at the Blackbird Basins site if the AF cannot achieve regulatory concurrence for Site Closeout with Unlimited Use/Unrestricted Exposure (confirmation that all the Munitions or Explosives of Concern [MEC] or Munitions Presenting a Potential Explosive Hazard [MPPEH] have been removed from the MRS) prior to the start of construction.

***AMM-HHS-3*:** Due to the Blackbird Basins component being within an Active CATM Range, ensure that a UXO Tech be present when conducting work with the CATM Range fan since the area has not had surface nor subsurface clearances.

AMM-HHS-4: Monitor tricolored blackbird on Beale AFB to identify areas that pose a heightened BASH concern and implement an early warning system that would result in alerts to Flight Safety and the USFWS.

AMM-HHS-5: Incorporate supplemental feeding, as needed, with grain bins, freeze-dried insects, and/or meal worms at tricolored blackbird nesting sites to ensure. All supplemental feeding shall be reviewed as to ensure species used would not create additional invasive species concerns.

AMM-HHS-6: Should it be determined that tricolored blackbird are posing a heightened BASH concern, falconry may be used as abatement of behavior.

Reduced Action Alternative

The Reduced Action Alternative is comprised of similar activities but would not include the dam improvements and omitting repairs or modifications to the four existing impoundments. Therefore, impacts related to human health and safety from implementation of the Reduced Action Alternative would be similar to the Proposed Action.

No Action Alternative

Under the No Action Alternative, the tricolored blackbird habitat would not be created and no timing of the phases or UXO safety support would be required. The No Action Alternative would have no impact on human health and safety.

3.8 UTILITIES AND INFRASTRUCTURE

3.8.1 Definition of the Resource

Infrastructure consists of the systems and physical structures that enable a population in a specified area to function, which includes utility lines. Infrastructure is wholly human made, with a high correlation between the type and extent of infrastructure, and the degree to which an area is characterized as "urban" or developed. The availability of infrastructure and its capacity to support growth are generally regarded as essential to the economic growth of an area. Utilities and infrastructure generally include water supply, storm drainage systems, sanitary sewer and wastewater systems, power supply, and solid waste management.

3.8.2 Existing Conditions

The infrastructure and utility information presented in this section provides an overall general description of each infrastructure component at Beale AFB.

Water Supply: Beale AFB has seven water supply wells for drinking water located primarily in the north-central portion of Beale AFB. The water supply wells historically range in depths between 150 to greater than 300 feet. The current water supply wells have a capacity of 5.76 million GPD and Beale AFB's water treatment plant has a capacity to treat five million GPD. Peak water demand is approximately 3.99 million GPD, with headroom of over one million GPD (Beale AFB 2015b). There are no groundwater production wells on Beale AFB on the eastern portion of the Base.

There are also groundwater monitoring wells in each of the project areas. There is one existing groundwater monitoring well (BWL003PZ) in the Blackbird Basins area, located at the northeast end of Blackbird Basins (Figure 3). Depth to groundwater in the area has been recently (2017) documented at 7.99 feet below ground surface (Christopherson, pers. Comm. 2018). New groundwater wells or the treated water lines could be used to augment the water supply at the Proposed Action areas to supplement the natural hydrology of restoration areas and for temporary irrigation of plantings, and/or to supplement water sources for livestock outside of the fenced exclusion areas.

Sanitary Sewer and Wastewater System: The Beale AFB sanitary sewer system consists of a gravity and force main collection system and a wastewater treatment plant. The system includes approximately 47 miles of sewer main. Because the elevations at Beale AFB are 400 to 500 feet higher on the eastern portion of Beale AFB, much of the sanitary sewer system is gravity fed. The wastewater treatment plant treats, on average, 0.26 mgd, with a peak flow of 2.06 mgd in the winter. Effluent from the plant is pumped to the golf course pond or discharged to the 40-acre

irrigation field and is regulated by National Pollutant Discharge Elimination System Permit Number CA01 10299 (Beale AFB 2014). There are no sewer lines within the Proposed Action area.

Storm Drainage System: Dry Creek, Hutchinson Creek, and Reeds Creek are the three principal surface drainage systems for Beale AFB. Dry Creek is a perennial stream, while Hutchinson Creek and Reeds Creek are intermittent. Stormwater runoff is discharged through a system of open ditches, storm sewers, culverts, and pipes. Stormwater flow is directed to drainage ditches and is discharged into the creeks and regulated by the California Statewide General Industrial Activities Stormwater Discharge Permit Number 5A58S009991 (Beale AFB 2014). There are no drainage systems located within the Proposed Action area.

Electrical System: Pacific Gas and Electric is the primary supplier of electrical power at Beale AFB. Power is delivered by three transmission lines and two metering points, which enter Beale AFB at the Grass Valley Substation. There are no electrical lines located within the Proposed Action area.

Natural Gas System: Pacific Gas and Electric also supplies non-interruptible natural gas to Beale AFB. There are no natural gas lines located within the Proposed Action area.

Communication Systems: The communication system at Beale AFB consists of aerial and underground copper and fiber optic cables. A government-owned buried copper cable plant services the installation, except for multi-family housing units, where the cable plant is owned by Pacific Bell. The Beale AFB fiber optic backbone cable system joins local area networks together across the installation and carries the heaviest information transfer traffic (Beale AFB 2014). Although there are some communications lines along the access areas, there are no communication lines within the Proposed Action area.

Solid Waste: Recology Yuba-Sutter, Inc. is contracted to provide storage, collection, handling, and disposal of solid waste at Beale AFB. They are responsible for collecting refuse, yard, and wood waste; handling office paper and cardboard recycling; and handling refuse disposal. Once collected, solid waste is transported to the Ostrom Road Landfill, an off-installation landfill located in Wheatland, California (Beale AFB 2014).

3.8.3 Environmental Consequences

Proposed Action

Blackbird Marsh: Water supply may need to be artificially augmented to maintain desired water levels in Blackbird Marsh and in the upstream seasonal wetlands tributary to Blackbird Basins during the nesting season (generally mid-March through September; Beedy 2008). Existing potable water supply lines may be tapped and dechlorinated to provide irrigation of the restoration sites and seasonal flow augmentation. In addition, maintaining saturated and

shallowly inundated soils would be key to establishment and maintenance of desirable nesting vegetation species.

A hydrology study would be conducted during the detailed design phase to determine the extent of water supply augmentation and equipment required to meet design objectives. Water supply requirements would also vary based on annual precipitation. It is anticipated that water supply augmentation would be required during late spring and summer, at a minimum.

Blackbird Basins*:* In order to buffer the effects of seasonal fluctuations in precipitation, water would be pumped into the Blackbird Basins to augment the natural hydroperiod and to control hydrology during and after nesting. Groundwater would be pumped into the tributary channel(s) upstream of Blackbird Basins or a connection would be developed from a main water line at this location. Water supply augmentation in concert with repair or expansion of existing impoundments would increase areas of low-growing herbaceous seasonal wetland habitat and provide additional high-quality foraging habitat. The existing on-site well or a new well may be utilized to pump groundwater into tributary channels at Blackbird Basins. An additional solar powered well could be installed at one of the upstream tributaries. Water from the well or a main line connection would also be used for temporary irrigation of containerized plants and to fill troughs or provide another suitable water source for cattle outside of the riparian pasture. If a connection to the main water line is the selected water source, a de-chlorination method would be developed prior to water use at the restoration site.

The Proposed Action would not disrupt utility services or infrastructure. There would be no impacts to the buried utility lines as no excavation would occur within these areas. None of the utilities would be removed or reconfigured. Improvements to Blackbird Marsh dam and spillway would not generate additional solid waste that would need to be transported off base to an approved facility. Therefore, there would not be a generation of waste that would create adverse impacts to the solid waste program at Beale AFB.

The improvements to Blackbird Marsh dam and spillway would create long-term beneficial impacts to infrastructure at Beale AFB. Blackbird Marsh dam is currently deteriorating and would require continued maintenance for base personnel. The replacement of the dam and spillway would remove this need and minimize future maintenance needs.

Reduced Action Alternative

The Reduced Action Alternative is comprised of similar activities but would not include the dam improvements and omitting repairs or modifications to the four existing impoundments. Therefore, impacts related to utilities and infrastructure from implementation of the Reduced Action Alternative would be similar to the Proposed Action.

No Action Alternative

Under the No Action Alternative, the tricolored blackbird habitat would not be created, and the dam and spillway would not be improved at Blackbird Marsh. The existing dam and spillway

would continue to deteriorate and require continued maintenance for base personnel at Beale AFB.

3.9 TRANSPORTATION AND TRAFFIC

3.9.1 Definition of the Resource

Transportation is defined as the system of roadways, highways, and all other transportation networks that are in the vicinity of the Proposed Action area and could reasonably be expected to be affected by the Proposed Action. Traffic relates to changes in the number of vehicles on roadways and highways as a result of The Proposed Action.

3.9.2 Existing Conditions

Beale AFB is accessed from State Route (SR) 65, SR 70, and SR 20. Five roads provide access to the installation through five gates. North Beale Road extends from SR 70 in Linda to the Main Gate. This is the primary road that connects the installation and SR 70, Marysville, and Yuba City. Hammonton-Smartville Road provides access to the installation at the Doolittle Gate. Smartville Road provides access to the installation at the Grass Valley Gate and is south of SR 20. South Beale Road provides access from SR 65 northwest of Wheatland to the Wheatland Gate. Spenceville Road connects SR 65 at the City of Wheatland to the Vassar Lake Gate (Beale AFB 2014).

The road network on Beale AFB consists of arterials, collectors, and local streets. The majority of traffic on Beale AFB utilizes Gavin Mandery Drive (Main Gate to Camp Beale Highway), Doolittle Drive (Doolittle Gate to Warren Shingle Road), Grass Valley Road/Warren Shingle Road (Grass Valley Gate to J Street), Camp Beale Highway (Vassar lake Gate to Warren Shingle Road), and J Street (Wheatland Gate to Doolittle Drive). Blackbird Basins can be accessed via 30th Street and A Street on Beale AFB. Blackbird Marsh is accessed from Warren Shingle Road.

3.9.3 Environmental Consequences

Proposed Action

Construction activity would occur over a two-to-three-month period and would result in minor increases to local traffic. Construction traffic would be generated by construction workers traveling to and from the project site, as well as truck traffic bringing materials and equipment. However, these increases would be temporary and cease once the project is complete. As a result, the Proposed Action would not result in significant short or long-term adverse impacts to transportation and traffic.

Reduced Action Alternative

The Reduced Action Alternative is comprised of similar activities but would not include the dam improvements and omitting repairs or modifications to the four existing impoundments. Therefore, the short-term impacts during construction related to transportation and traffic may be

slightly less from implementation of the Reduced Action Alternative when compared to the Proposed Action.

No Action Alternative

Under the No Action Alternative, the tricolored blackbird habitat at both locations would not be created and the dam would not be improved at Blackbird Marsh. The existing dam and spillway would continue to deteriorate and potentially fail, but since it is considered a low flood risk it would not result in adverse impacts to transportation and traffic.

3.10 HAZARDOUS MATERIALS AND WASTES

3.10.1 Definition of the Resource

A hazardous substance, pursuant to the Comprehensive Environmental Response, Compensation and Liability Act (42 U.S. Code 9601(14)), is defined as, "any substance designated pursuant to Section 1321(b)(2)(A) of Title 33; any element, compound, mixture, solution, or substance designated pursuant to Section 9602 of this title; any hazardous substance having the characteristics identified under or listed pursuant to Section 3001 of the RCRA, as amended (42 U.S. Code 6921); any toxic pollutant listed under Section 1317(a) of Title 33; any hazardous air pollutant listed under Section 112 of the CAA; and any imminently hazardous chemical substance or mixture with respect to which the Administrator of the EPA has taken action pursuant to Section 2606 of Title 15. The term does not include petroleum, including crude oil or any fraction thereof, which is not otherwise specifically listed or designated as a hazardous substance; and the term does not include natural gas, natural gas liquids, liquefied natural gas, or synthetic gas usable for fuel (or mixtures of natural gas and such synthetic gas)."

Hazardous materials are defined by 49 CFR Part 171.8 as "hazardous substances, hazardous wastes, marine pollutants, elevated temperature materials, materials designated as hazardous in the Hazardous Materials Table (49 CFR Part 172.101), and materials that meet the defining criteria for hazard classes and divisions." Transportation of hazardous materials is regulated by the U.S. Department of Transportation regulations within 49 CFR Parts 105–180.

RCRA defines a hazardous waste as "any waste material – solid, liquid, or gaseous, or combination of waste material, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may cause, or significantly contribute, to an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed."

3.10.2 Existing Conditions

Beale AFB has 177 remediation sites defined in the following categories: 68 CERCLA-defined Environmental Restoration Program (ERP) sites, five RCRA-defined sites, Leaking Underground Storage Tank-defined sites, and 101 MRSs (Beale AFB 2019).

Hazardous Materials

AFI 32-7086, *Hazardous Materials Management*, establishes procedures and standards that govern management of hazardous materials throughout the USAF. This AFI applies to all USAF personnel who authorize, procure, issue, use, or dispose of hazardous materials, and those who manage, monitor, or track any of those activities. Under this regulation, the USAF has established roles, responsibilities, and requirements for the hazardous material management program. The purpose of the program is to control the procurement and use of hazardous materials to support USAF missions, ensure the safety and health of personnel and surrounding communities, minimize USAF dependence on hazardous materials, and maintain compliance with laws and regulations for hazardous material usage. Beale AFB's *Hazardous Materials Management Plan* applies to all hazardous materials brought onto Beale AFB.

Hazardous Waste

The Beale AFB *Hazardous Waste Management Plan* is required under AFI 32-7024, *Waste Management*, and complies with 40 CFR Parts 260 to 272. It prescribes the roles and responsibilities of all members of Beale AFB and organization assigned to Beale AFB with respect to the waste stream inventory, waste analysis plan, hazardous waste management procedures, training, emergency response, and pollution prevention. The plan establishes procedures to comply with applicable federal, state, and local standards for solid waste and hazardous waste management. The plan outlines procedures for transport, storage, and disposal. The Hazardous Waste Stream Inventory is maintained as part of the Beale *Hazardous Waste Management Plan*. Beale AFB is a permitted Large Quantity Generator of hazardous waste. The most common hazardous wastes generated at Beale AFB include corrosive cleaning compounds, photographic waste, solvents, waste paint-related materials, and waste petroleum products.

3.10.3 Environmental Consequences

Proposed Action

Both Blackbird Basins and Blackbird Marsh are not within the boundaries of an active ERP site that is either under investigation or remediation (Beale AFB 2018b). A SWPPP and BMPs would be prepared and implemented during construction of the Proposed Action to prevent contamination from hazardous materials associated with construction equipment, such as fuel. The Proposed Action would not result in adverse impacts related to hazardous materials.

Under the Proposed Action, excavation may generate waste that would be transported off site. The Beale AFB *Hazardous Waste Management Plan* would be implemented if wastes are deemed to be considered hazardous. The plan establishes procedures to comply with applicable federal, state, and local standards for solid waste and hazardous waste management. The *Hazardous Material Management Plan* would also be implemented if hazardous materials are brought onto Beale AFB during the construction period.

All refueling associated with the project would occur 250 feet or more from the edge of mapped wetlands. Although one of the standard BMPs for refueling operations at Beale AFB stipulates a minimum distance of 250 feet from surface waters, physical limitations of the project site may require that refueling occur at a shorter distance. In order to minimize potential for releases due

to refueling operations, additional BMPs would be implemented, including use of spill containment berms and drip pads. Further, any onsite fuel tanks for generators would be of dual-walled construction and would be placed within tertiary containment.

Reduced Action Alternative

The Reduced Action Alternative is comprised of similar activities but would not include the dam improvements and omitting repairs or modifications to the four existing impoundments. Therefore, grading and excavation would be less than when compared to the Proposed Action. Impacts related to hazards and hazardous materials may be slightly less from implementation of the Reduced Action Alternative when compared to the Proposed Action.

No Action Alternative

Under the No Action Alternative, the nesting and foraging habitat creation and enhancement at Blackbird Basins and Blackbird Marsh would not occur, nor would the dam improvement. No impacts to hazardous materials would result from the No Action Alternative.

3.11 SOCIOECONOMIC RESOURCES, POPULATION, AND PUBLIC SERVICES

3.11.1 Definition of the Resource

***Socioeconomics*—**Socioeconomics is typically defined as the relationship between economies and social elements, such as population and economic activity. Factors that describe the socioeconomic resources represent a composite of several attributes. There are several factors that can be used as indicators of economic conditions for a geographic area, such as demographics, income, unemployment, poverty level, and employment.

3.11.2 Existing Conditions

Beale AFB is located in Yuba County, California, approximately 40 miles north of Sacramento and 13 miles east of Marysville and Yuba City.

Table 13 presents general demographic data for Beale AFB, Yuba County. Beale AFB has a population living on base of 1,530 persons. The median age is 22.9, and 59% of the population are males and 41% are females. The population for Yuba County is 78,041 persons (U.S. Census Bureau 2018a). There is a total of 382 housing units at Beale AFB with 99% of these properties being rental homes. The main housing area is located southeast of the Proposed Action areas. Approximately 58% of homes in Yuba County are owner occupied. Education and employment data are presented in Table 13. This information is unavailable for Beale AFB because the population is less than 5,000.

Table 13 2018 General Demographic Information

Demographic	Beale AFB	Yuba County
Total Population	1,530	78,041
Total Housing Units	382	28,693

% Owner Occupied Housing Units	0.5%	58.2%
% Population High School Graduate	NA	82.1%
% Population Bachelor's Degree or Higher	NA	16.4%
% in Civilian Labor Force	NA	55.3%

Notes: NA = Data not available.

Source: U.S. Census Bureau 2018a, 2018b.

3.11.3 Environmental Consequences

Proposed Action

The Proposed Action does not involve activities that would contribute to changes in socioeconomic resources, nor would it directly or indirectly affect off-base activities. Although there may be temporary employees during construction, the Proposed Action would not affect the number of personnel assigned to Beale AFB, would not result in changes in area population, or the demand for housing and public services. In addition, the Proposed Action would not result in impacts to governmental services and would not generate a need for new governmental facilities.

Reduced Action Alternative

The Reduced Action Alternative is comprised of similar activities but would not include the dam improvements and omitting repairs or modifications to the four existing impoundments. Therefore, the Reduced Action Alternative does not involve additional activities that would contribute to changes in socioeconomic resources. Impacts related to socioeconomic resources, population, and public services from implementation of the Reduced Action Alternative would be similar to the Proposed Action.

No Action Alternative

Under the No Action Alternative, the tricolored blackbird habitat at both locations would not be created and the dam would not be improved at Blackbird Marsh. The existing dam and spillway would continue to deteriorate and could eventually fail, but since it is considered a low flood risk it would not result in adverse impacts to socioeconomic resources, public services, and/or population and housing.

3.12 CULTURAL AND TRIBAL CULTURAL RESOURCES

3.12.1 Definition of the Resource

Cultural resources are heritage related resources including prehistoric and historic archaeological sites; historic buildings, structures, and districts; and any other physical evidence of human activity or natural features important to a culture, a subculture, or a community for scientific, traditional, religious, or other reasons.

Cultural resources are commonly divided into three major categories including archaeological resources, architectural resources, and traditional cultural properties:

- Archaeological resources are defined in the Archaeological Resources Protection Act as any material remains of past human activity. These resources are further categorized as prehistoric – occurring prior to written records, or historic – occurring after written record.
- Architectural resources include standing buildings, structures, landscapes, objects, and other built-environment resources, usually 50 years or older.
- Traditional cultural properties are places with traditional, religious, or cultural significance to a living Native American tribe and are important to the cultural identity of the community.

The term 'Tribal Cultural Resources' seeks to recognize consideration of tribal cultural values as part of project planning. This section discusses both 'Cultural Resources' under federal statutes and 'Tribal Cultural Resources'.

Regulatory Setting

The National Historic Preservation Act of 1966, as amended (54 USC §300101 et seq.) is the nation's largest most comprehensive legislation concerning cultural resources and historic preservation issues. §106 of the National Historic Preservation Act requires federal agencies to consider the effects of their undertakings on historic properties. §110 of the act requires federal agencies to establish, in conjunction with the Secretary of the Interior, historic preservation programs for the identification, evaluation, and protection of historic properties. Cultural resources also may be covered by state, local, and territorial laws.

Cultural resources listed in or eligible for listing in the National Register of Historic Places are "historic properties" as defined by the National Historic Preservation Act. The National Register was established under §101 of the National Historic Preservation Act and is administered by the National Park Service on behalf of the Secretary of the Interior. The National Register of Historic Places includes properties on public and private land. Properties would be determined eligible for listing by the Secretary of the Interior or by a federal agency official with concurrence from the applicable State Historic Preservation Office. An eligible property has the same protections as a property listed in the register.

The Archaeological Resources Protection Act of 1979 (16 USC §470aa-47011) provides legal penalties for the unauthorized excavation, removal, damage, alteration, defacement, or the attempt of such acts, of any archaeological resource more than 100 years old on federal lands.

The American Indian Religious Freedom Act of 1978 and Amendments of 1994 recognize that freedom of religion for all people is an inherent right, and traditional American Indian religions are an indispensable and irreplaceable part of Indian life. It also recognized the lack of federal policy on this issue and made it the policy of the United States to protect and preserve the inherent right of religious freedom for Native Americans. Federal agencies are responsible for evaluating their actions and policies to determine if changes should be made to protect and preserve the

religious and cultural rights and practices of Native Americans. These evaluations must be made in consultation with native traditional religious leaders.

The Native American Graves Protection and Repatriation Act of 1990 (25 USC §3001-3013) ensures the protection and rightful disposition of Native American cultural items located on federal or Native American lands and in the federal government's possession or control.

EO 13007, *Indian Sacred Sites* (May 24, 1996), provides direction to federal agencies concerning the management of sacred Native American sites. Within the constraints of the mission, federal agencies are required to accommodate Native American tribes' access to and ceremonial use of sacred sites on public lands and avoid damaging the physical integrity of such sites.
EO 11593, *Protection and Enhancement of the Cultural Environment* (May 13, 1971), directs the federal government to provide leadership in the preservation, restoration, and maintenance of the historic and cultural environment. Federal agencies are required to locate and evaluate all federal sites under their jurisdiction or control which might qualify for listing on the National Register of Historic Places.

EO 13175, *Consultation and Coordination with Indian Tribal Governments* (November 6, 2000), was issued to provide for regular and meaningful consultation and collaboration with Native American tribal officials in the development of federal policies that have tribal implications, and to strengthen the United States government-to-government relationships with Native American tribes.

DoDI 4715.16, *Cultural Resources Management* (DoD 2008a), establishes policy and assigns responsibilities to comply with Integrated Cultural Resource Management Plans (ICRMPs) on DoD managed lands.

AFMAN 32-7003, *Environmental Conservation* (USAF 2020), implements AFPD 32-70, *Environmental Quality*, and DoDI 4715.16 by outlining required actions and processes for managing and protecting cultural resources on property affected by operations on installations of the USAF including Active-Duty USAF, USAF Reserve Command, Air National Guard, and government owned, contractor operated facilities on USAF controlled lands.

Discoveries of cultural items, including Traditional Cultural Properties, human remains and archaeological resources, may occur on USAF controlled lands. When discoveries are made, proper actions must be taken to minimize damage to resources and to ensure that applicable laws and requirements are identified and met as outlined in the base ICRMP.

3.12.2 Existing Conditions

Cultural resources and Tribal Cultural Resources reported for Beale AFB include archaeological sites related to the Native American occupation of the area by the Southern Maidu (Nisenan) and their ancestors. Additional cultural resources at the base include historic archaeological sites representing Euro-American settlement and the development of a farming/ranching economy, transportation, and mining; the U.S. Army operation of Camp Beale during World War II; and Cold War-era buildings (Beale AFB 2020).

Camp Beale was established in 1942 to train the 13th Armored Division and the 81st and 96th Infantry divisions. Camp Beale also housed a prisoner-of-war camp for captured German soldiers. Camp Beale was closed at the end of World War II, but in 1948 the post was transferred to the Air Force and renamed the Beale Bombing and Gunnery Range. The installation was used as a bombing and gunnery range until 1951. In 1952, the installation was transferred to the 2275th Air Base Squadron, which was later redesignated the 2275th Air Base Group. In 1954, Beale AFB was selected to house facilities for the Semi-Automatic Ground Environment (SAGE) program and the Headquarters Strategic Air Command (SAC) Alert program as part of the Cold War defense effort. Beale AFB's contribution to the SAC Alert program included the construction in 1957/1958 of a runway and other facilities to support B-52 bombers of the 17th Bombardment Wing and KC-135 stratotanker of the 100th Air Refueling Wing. In 1959, Beale AFB was designated the administration and service center for three Titan I Intercontinental Ballistic Missile complexes. Titan I missiles were phased out in 1964 in favor of the Titan II and Minuteman missiles. In 1963, the SAGE program was terminated and in 1964 the SAGE building was converted to house the new reconnaissance wing, making Beale AFB the primary base for the SR-71 "Blackbird." The SR-71 was operated by the 4200th Strategic Reconnaissance Wing. In 1976, the U-2 reconnaissance plane was transferred to the 9th Strategic Reconnaissance Wing at Beale AFB. In 1975, Beale AFB was selected as the site for one of four large phased-array radars known as PAVE PAWS, a system designed to monitor potential Soviet missile launches. Today, Beale AFB is home to the 9 RW, the 940th Air Refueling Wing, the 548th Intelligence Group, the 7th Space Warning Squadron, and Air Force Office Special Investigations Detachments 218 and 11 (Beale AFB 2020).

The cultural resources and Tribal Cultural Resources investigation has included a review of existing records and previous investigations, pedestrian survey, and a request for information from the tribal partners of Beale AFB. Newly located resources were documented using DPR 523 Forms and site record updates were created where necessary. Discussions with our tribal partners on Tribal Cultural Resources and NHPA Section 106 consultation is currently ongoing. Specifically consulted are Berry Creek Rancheria of Maidu Indians, Enterprise Rancheria of Maidu Indians, Mooretown Rancheria of Maidu Indians, Shingle Springs Rancheria, and United Auburn Indian Community. All of these tribes are federally recognized. Additionally, Beale AFB common practice is to inform about projects non-federally recognized groups, and three of these groups were also contacted. All outreach to our Native American partners was initiated via U.S. Mail unless the group has specifically requested alternative contact procedures. Follow-up telephone or email communications are also placed when necessary to confirm communications have been received. Letters to these communities and a contact record are included in Appendix I.

Concurrently, NHPA Section 106 consultation is being conducted with the California SHPO in regard to the Proposed Project. This includes submission of NRHP eligibility determinations for three historic-era resources (discussed below), a determination on the area of potential effects, and concurrence that a project finding of No Adverse Effects is appropriate pursuant to 36 CFR Part 800.4 (Appendix J).

3.12.3 Environmental Consequences

Proposed Action

With implementation of protective measures, the Proposed Action would have no significant impact on cultural resources under NEPA or Tribal Cultural Resources.

The entire Proposed Project has been inspected via pedestrian survey. Identified within the project boundaries are eight cultural resources: CA-YUB-1266, CA-YUB-1269, CAYUB-1277, water storage complex P-58-3329, road remains P-58-3351, road remains P-58-2797, fence line remains P-58-2798, and a newly identified extension of fence line remains P-58-2938. Additionally, CA-YUB-1268 is located adjacent to the project footprint. P-58-3329, P-58-3351, P-58-2797, P-58-2798, and the newly recorded portion of P-58-2938 have been evaluated and were determined ineligible for listing in the NRHP by the Air Force. DPR 523 Forms were completed for each and have been submitted to the California SHPO for review and concurrence with this determination. Of note, an originally recorded (and more intact) portion of P-58-2938 was determined by Beale AFB to be ineligible for the NRHP with SHPO concurrence in 2019. When Section 106 consultation with the SHPO is complete, these properties would not need to be considered further. The remaining resources, CA-YUB-1266, CA-YUB-1269, CAYUB-1277 within the Proposed Project footprint and CA-YUB-1268 adjacent, were not formally evaluated but are assumed eligible for listing in the NRHP for the purposes of this project. Also of interest, portions of CA-YUB-1269 are seasonally submerged under existing conditions, including two bedrock mortar features located on that archaeological site. To ensure protection of Proposed Project Impacts, AMM-CUL-1 would be implemented.

AMM-CUL-1: Prevent Project Impacts
Deny access to resources CA-YUB-1266, CA-YUB-1269, CA-YUB-1277 and CA-YUB-1268 by fencing the site boundaries with orange exclusion fencing and marking as an Environmentally Sensitive Area (ESA) prior to project activities and throughout active construction. Allow no construction of permanent fencing, project grading, installation of water systems, nesting structures, or plantings within ESA boundaries. As noted, portions of CA-YUB-1269 are currently seasonally inundated. Implementation of the project would not subject additional features of this site (or any other historic property) to seasonal inundation.

AMM-CUL-2: Cultural Resources Awareness Training
All construction personnel would receive cultural resources awareness training by the Beale AFB Environmental Office regarding the appropriate work practices necessary to protect cultural resources prior to starting work. Training would be provided at the start of the construction project and prior to any new worker's arrival on the project. This training would address federal, state, and local laws regarding cultural resources; the importance of these resources and the purpose and necessity of protecting them; and the appropriate methods for reporting and protecting inadvertently discovered cultural resources. Upon completion of the orientation, employees would sign a form stating that they attended the program and understand all AMM-s. These forms would be filed at Beale AFB offices and would be accessible to the appropriate resource agencies. It is the construction contractor’s responsibility to seek training from the Beale AFB Environmental Office for personnel as they join the project.

AMM-CUL-3: Monitor for Archaeological Resources
The environmental contractor would provide an archaeological monitor to witness ground-disturbing activities adjacent to CA-YUB-1266, CA-YUB-1269, and CA-YUB-1277. The monitor would meet the Secretary of the Interior Standards for an Archaeological Technician, with a minimum of a Bachelor's degree or comparable experience. In the event of an inadvertent discovery, the monitor would (in conjunction with the tribal monitor) notify the Beale AFB Cultural Resources Manager (CRM) and AMM-CUL-5 would be instituted.

AMM-CUL-4: Tribal Monitor for Tribal Cultural Resources
Tribal partners upon request may provide a tribal monitor to witness project activities. The monitor would be provided by the requesting tribe. The Beale AFB CRM would notify the interested tribal partners two weeks in advance of the project initiating earthwork. In the event of an inadvertent discovery of a suspected Tribal Cultural Resource, the tribal monitor is invited to inform the archaeological monitor to alert the Beale AFB CRM and AMM-CUL-5 would be instituted. If the Tribal monitor is not present and the archaeological monitor suspects the presence of a Tribal Cultural Resource, the archaeological monitor would alert the Beale AFB CRM and AMM-CUL-5 would be instituted.

AMM-CUL-5: Inadvertent Discovery of Archaeological and Tribal Cultural Resources
In the event that human remains, artifacts, or other archaeological materials, or suspected Tribal Cultural Resources are discovered during the course of any action or activity associated with the project, all ground-disturbing activity at the point of discovery, and within a 100 ft exclusionary area, must be halted, and the Beale AFB CRM notified. Any inadvertent discovery would be initially assumed potentially eligible for the NRHP (if applicable CRHR) and afforded appropriate protection until it is determined to be otherwise. The Beale AFB CRM would notify the Beale AFB Wing Commander, the CVRWQCB (where applicable), the SHPO, and the consulting tribal partners, if discovery is a suspected Tribal Cultural Resource. In the case of a suspected Tribal Cultural Resource, a tribal representative of the consulting tribal partners is invited to determine if the find is a Tribal Cultural Resource and make recommendations regarding treatment. Treatment measures determined to be necessary and feasible by the Beale AFB CRM would be implemented. If the find proves to be human remains, additional legal responsibilities are instituted and the appropriate county coroner, Beale AFB Wing Commander, and the CVRWQCB (where applicable) would be notified by the Beale AFB CRM (Beale AFB 2020: SOP 7.4). If the county coroner identifies the remains as Native American, they are required to notify the NAHC within 24 hours in accordance with California Health & Safety Code 7050.5(c). The NAHC would then identify the most likely descendants.

Reduced Action Alternative

The Reduced Action Alternative is comprised of similar activities but would not include the dam improvements and omitting repairs or modifications to the four existing impoundments. Therefore, the Reduced Action Alternative does not involve additional activities that would contribute to impacts related to cultural resources. Impacts related to cultural resources from implementation of the Reduced Action Alternative would be similar to the Proposed Action.

No Action Alternative

Under the No Action Alternative, the tricolored blackbird habitat would not be created or enhanced at Blackbird Basins or Blackbird Marsh. Therefore, cultural resources would not be impacted under the No Action Alternative.

3.13 ENERGY RESOURCES

3.13.1 Definition of the Resource

The California Environmental Quality Act requires a discussion of the potential energy impacts of the Proposed Action, including avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy. The goal of conserving energy implies efficient use of energy by decreasing overall energy consumption, decreasing reliance on natural gas and oil, and increasing reliance of renewable energy resources.

3.13.2 Existing Conditions

Blackbird Basins is not a destination for recreational purposes and therefore energy resources are not regularly expended within the project site. Blackbird Marsh is used for hunting and fishing, but there are no developments associated with this use. Within the project site, there are no energy resources.

3.13.3 Environmental Consequences

Proposed Action

The Proposed Action would have short-term, minor, adverse impacts to energy resources. During project activities, construction, and transport equipment, such as trucks, excavators, and skid loaders, would require the use of fuel and oil. Due to the minimal acreage of grading proposed, this use would be small scale and for a limited duration of construction activities. Overall, the Proposed Action would have a minimal impact on local and regional energy supplies.

Reduced Action Alternative

The Reduced Action Alternative is comprised of similar activities but would not include the dam improvements and omitting repairs or modifications to the four existing impoundments. Therefore, the Reduced Action Alternative does not involve additional activities that would contribute to an increase in energy use. Impacts related to energy resources from implementation of the Reduced Action Alternative would be slightly less when compared to the Proposed Action.

No Action Alternative

Under the No Action Alternative, the nesting and foraging habitat creation and enhancement at Blackbird Basins and Blackbird Marsh would not occur. There would be no impact to energy resources.

3.14 WILDFIRES

3.14.1 Definition of the Resource

In the past several years California has experienced extreme and devastating wildfires throughout the state. As a result, the California Environmental Quality Act now requires an analysis of project impacts to wildfires.

3.14.2 Existing Conditions

Wildfires are a regular occurrence on Beale AFB between May through October. Between 1998 and 2017, there were 131 wildfires on the installation, with nearly half having an unknown cause. Some documented causes of wildfires at the installation include powerlines, USAF and Army mission related activities, cigarettes, escaped prescribed burns, and fireworks. The average fire size is approximately 31 acres. Wildfires have occurred within the housing area southeast of the project area. Beale AFB has an active prescribed fire program. Between 2001 and 2015, a total of 70 prescribed fires were implemented, with most occurring between June and September. The average treated area was 622 acres (Beale AFB 2019).

A Wildland Fire Management Plan was prepared for Beale AFB in 2018 (Beale AFB 2018a). The Wildland Fire Management Plan provides for wildland fire prevention, management, and safety using methods that protect public property and natural and cultural resources. Wildland fire management on Beale AFB is guided by Section 3P of AFMAN 32-7003, AFI 32-2001, *Fire Emergency Services* Program, the Air Force Civil Engineer Center Environmental Operations Fire Playbook, and Federal Wildland Management Policy. Firebreaks occur throughout the installation and are maintained by Grounds Maintenance staff. Beale AFB is responsible for suppressing Wildland Urban Interface fires and supporting natural resource suppression efforts during wildfires and prescribed burns.

3.14.3 Environmental Consequences

Proposed Action

The Proposed Action would have no impact on wildfires. The enhancement and creation of tricolored blackbird nesting and foraging habitat at Blackbird Basins and Blackbird Marsh would not exacerbate wildfire risk. Construction activities would follow the requirements within the Wildland Fire Management Plan, which would reduce fire risk from the use of construction equipment. In addition, the Proposed Action would not require the installation or maintenance of fuel breaks, emergency water sources, power lines, or other utilities that may result in wildfires.

Reduced Action Alternative

The Reduced Action Alternative is comprised of similar activities but would not include the dam improvements and omitting repairs or modifications to the four existing impoundments. Therefore, the Reduced Action Alternative does not involve additional activities that would contribute to changes in wildfire risk. Impacts related to wildfires from implementation of the Reduced Action Alternative would be similar to the Proposed Action.

No Action Alternative

Under the No Action Alternative, the nesting and foraging habitat creation and enhancement at Blackbird Basins and Blackbird Marsh would not occur. There would be no impact on wildfires.

3.15 ENVIRONMENTAL JUSTICE

3.15.1 Definition of the Resource

***Environmental Justice*—**EO 12898 pertains to environmental justice issues and relates to various socioeconomic groups and the disproportionate impacts that could be imposed on them. That EO requires that federal agencies' actions substantially affecting human health or the environment do not exclude persons, deny persons benefits, or subject persons to discrimination because of their race, color, or national origin. The EO was enacted to ensure the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Consideration of environmental justice concerns includes race, ethnicity, and the poverty status of populations in the vicinity of a proposed action.

3.15.2 Existing Conditions

Beale AFB is located in Yuba County, California, approximately 40 miles north of Sacramento and 13 miles east of Marysville and Yuba City.

Table 14 presents census data on race and income. These data are used to determine if there are environmental justice concerns in the vicinity of the Proposed Action. Approximately 37% of the population at Beale AFB is considered a minority population (U.S. Census Bureau 2018b). Within Yuba County, minorities comprise approximately 22% of the population. The 2018 Federal Poverty Level for households with four people is $25,100. The median household income and percentage of the population living within the poverty level is unavailable for Beale AFB. In Yuba County, the median household income was approximately $52,000 with 15.4% of the population living below poverty level (U.S. Census Bureau 2018a).

There are no schools within the immediate vicinity of the Proposed Action area.

Table 14 2018 Race and Income Information

Demographic	Beale AFB	Yuba County
Race		
% Population White	62.5%	78.3%
% Population Black or African American	9.9%	4.4%
% Population American Indian and Alaska Native	0.3%	2.9%
% Population Asian	7.5%	7.5%
% Population Native Hawaiian and Other Pacific Islander	0.0%	0.5%
% Population Two or More Races	19.9%	6.4%
Income		
Median Household Income		$51,776
% Persons in Poverty		15.3%
Source: U.S. Census Bureau 2018a, 2018b.		

3.15.3 Environmental Consequences

Proposed Action

The Proposed Action and its activities are situated within the boundaries of Beale AFB, and as such, adverse impacts to low-income and minority populations would not be expected.

Reduced Action Alternative

The Reduced Action Alternative is comprised of similar activities but would not include the dam improvements and omitting repairs or modifications to the four existing impoundments. Therefore, the Reduced Action Alternative does not involve additional activities that would contribute to changes in environmental justice. Impacts related to environmental justice from implementation of the Reduced Action Alternative would be similar to the Proposed Action.

No Action Alternative

Under the No Action Alternative, the tricolored blackbird habitat at both locations would not be created, and the dam would not be improved at Blackbird Marsh. The existing dam and spillway would continue to deteriorate and could eventually fail. Since that is considered a low flood risk, it would not result in adverse impacts related to environmental justice.

4. CUMULATIVE AND OTHER EFFECTS

4.1 CUMULATIVE EFFECTS/MANDATORY FINDINGS OF SIGNIFICANCE

CEQ regulations stipulate that the cumulative effects analysis of an EA should consider the potential environmental effects resulting from "the incremental impacts of the action when added to other past, present, and reasonably foreseeable future action regardless of what agency or person undertakes such other actions" (40 CFR Part 1508.7). CEQ guidance, in considering cumulative effects, affirms this requirement, stating that the first steps in assessing cumulative effects involve defining the scope for the other actions and their interrelationship with a Proposed Action. The scope must consider other projects that coincide with the location and timetable of a proposed action and other actions. Cumulative effects analyses must also evaluate the nature of interactions among these actions (CEQ 1997).

To identify cumulative effects, the analysis needs to address two questions:

1. Does a relationship exist such that affected resource areas of the Proposed Action or alternatives might interact with the affected resource areas of past, present, or reasonably foreseeable actions?
2. If such a relationship exists, does an EA or an EIS reveal any potential significant impacts not identified when the Proposed Action is considered alone?

The scope of the cumulative effects analysis involves both timeframe and geographic extent in which effects could be expected to occur, and a description of what resources could potentially be cumulatively affected. The Proposed Action includes the creation and/or enhancement of nesting habitat with adjacent suitable forging habitat for tricolored blackbird (*Agelaius tricolor*) on Beale AFB. These project elements would impact the local project area at Beale AFB. The severity of potential impacts would be limited by regulatory compliance for the protection of the human and natural environment.

4.1.1 Projects Identified for Potential Cumulative Effects

Beale AFB has a number of projects ongoing and in the planning phases. For the purposes of this Project, past, present, and reasonably foreseeable future actions are those where Beale AFB has begun environmental review, engineering design, and/or has approved funding and are located near the project site. Actions announced for the region of influence (which does not include Yuba County) for this project that could occur during the same time period as the Proposed Action are:

- Dam Removal/Repair Projects
    - Dry Creek Fish Passage Enhancement (2020)
    - Repair Frisky Lake dam (2023)
    - Repair Upper Blackwelder Lake dam (2022)
    - Demolish and recontour Lower Blackwelder Lake dam (2023)
    - Repair Vassar Lake spillway (2023, 2024)

- Bridge Repairs
  - Repair A Street bridges (2022)
  - Repair three bridges along Hutchinson Creek (2024)
- Water Utility Repair/Installation
  - Excavate and install new 18-inch water main from B St to flight line (2021)
  - Repair/consolidate housing water tanks (2021)
  - Repair wastewater collection system infiltration & inflow (2022)
- Electrical Utilities Installation/Upgrades
  - Replace power poles at NAVAID and GATR Sites (2021)
  - Repair high-voltage powerlines to flight line and Munitions (2022)
  - Repair 60 kV circuit from B Street substation to east switch yard (2022)
- Facility Demolition
  - Demolish electrical utilities (Beale South, Temporary Lodging Facility, Gold Country, Saddle Club and PAVE PAWS) (2021)
  - Demolish unpermitted landfill between Upper Blackwelder Dam and Lower Blackwelder Lake (2022)
  - Demolish WWII concrete foundations at J St, Rod & Gun, and C St (2022)
  - Demolish B355 (2023)
- Repair A Street flood control canal (2022)
- Implementation of the IPMP, ongoing:
  - Insect pest control operations including surveillance and insecticide application
  - Vegetation management including yellow starthistle control and as-needed herbicide application
  - Animal pest management including trapping, re-location, and lethal control
- Grounds maintenance and landscaping activities, ongoing, including:
  - Mowing, trimming, and edging turf, landscaped areas, and semi-improved grounds
  - Prune, trim, and remove as-needed, trees and shrubs in developed and semi-improved areas
  - Maintain grass, weeds, and vegetation to prevent woody encroachment in un-improved grounds
  - Maintain ditches free from vegetation and debris
  - Herbicide and fertilizer application in landscaped areas
  - Operate and maintain irrigation systems
  - Cut and maintain firebreaks and disk clear zones around primary alert area, weapons storage area and petroleum, oil, and lubricants facilities

4.1.2 Cumulative Effects Analysis

Generally, the most likely cumulative impacts would arise from overlapping construction periods among these projects. Since the Projects being considered cumulatively are located on Beale AFB, much of these construction-related impacts would be avoided by close coordination among Beale AFB departments. Specific cumulative impacts are addressed below, organized by resource area analyzed in detail in this EA.

Cumulative impacts are assessed as best as possible given the limited information available on the above projects.

Noise – During construction, noise at the Blackbird Basins and Blackbird Marsh sites would only constitute a negligible increase in noise levels, and thus no significant cumulative impacts are expected as a result of the Proposed Action.

Air Quality and Greenhouse Gasses – Use of construction equipment and vehicles associated with the Proposed Action would result in minimal adverse cumulative impacts related to air quality. Criteria air pollutants would be generated but would not exceed the general conformity thresholds; therefore, no long-term cumulative impacts are anticipated.

Land Use, Agriculture, Recreation, and Aesthetics – There would be no cumulative impact to land use and agriculture, as land use and agriculture would remain the same as a result of the Proposed Action. During construction, recreational impacts are expected; however, no long-term adverse cumulative impacts to recreation are anticipated. Overall long-term, beneficial impacts to aesthetics would occur from the wetlands habitat creation at Blackbird Basins and Blackbird Marsh; therefore, no cumulative adverse impacts to aesthetics would occur.

Geologic, Mineral, and Soil Resources – The Proposed Action would have no impact to geology, topography, or mineral resources; therefore, no cumulative impacts would occur. The habitat enhancement and creation, as well as improvements to the Blackbird Marsh dam would create short-term, minor, adverse impacts to soil resources from the removal of soil along the eastern edge of the Blackbird Marsh, as well as from the minor grading that may occur from the expansion of the wetlands associated with the small impoundments upstream of Blackbird Basins. The AMMs would be in place to reduce impacts to soils, therefore cumulative impacts would be negligible.

Water Resources – The improvements of the dam at Blackbird Marsh would not alter the hydrology and fluvial processes within the project area; overall impacts to surface water would be beneficial. Therefore, cumulative impacts to surface waters would be negligible.

The Proposed Action would not result in adverse impacts to groundwater volumes and recharge rates and would have beneficial impacts to the floodplain. Overall, cumulative impacts to groundwater would be negligible. The Proposed Action would create long-term, beneficial impacts to wetlands due to the creation of wetlands as habitat for tricolored blackbird. Cumulative impacts to wetlands are expected to be negligible. Beneficial impacts to the floodplain are expected; therefore, cumulative impacts to floodplains would be negligible.

Coastal Zone Management – There would be no impacts to the coastal zone; therefore, no cumulative impacts would be expected.

Biological Resources – Overall, the Proposed Action would have long-term, beneficial impacts to vegetation; therefore, cumulative adverse impacts are expected to be negligible. Short-term, moderate, adverse impacts to wildlife would occur for species that use the emergent wetland

habitat for foraging and nesting. Overall cumulative impacts to wildlife would be negligible. Short-term, adverse impacts to state- and federal-listed species would occur during construction. Following the dam improvements and habitat creation/enhancement, long-term, beneficial impacts to wildlife would occur. Cumulative impacts would be negligible.

Human Health and Safety – Although during the construction phase of the Proposed Action, there may be short term, adverse impacts related to human health and safety, there would be long-term, beneficial impacts overall. Therefore, cumulative adverse impacts are expected to be negligible.

Utilities and Infrastructure – There would be no long-term impacts to utilities within the Proposed Action area; therefore, no cumulative impacts are expected. The dam improvements would create long-term, beneficial impacts to infrastructure. Overall long-term, beneficial impacts to infrastructure are expected. Therefore, cumulative adverse impacts are expected to be negligible.

Transportation and Traffic – The Proposed Action would have short-term, minor, adverse impacts to transportation during the construction period. Overall, cumulative impacts would be expected to be minor and adverse within the vicinity of the Proposed Action area.

Hazardous Materials and Wastes – The Proposed Action would create short-term, negligible impacts to hazardous material and wastes due to the generation of solid waste and hazardous materials. Cumulative impacts are expected to be negligible.

Socioeconomic Resources, Population, and Public Services –
Cumulative impacts are expected to be negligible. There would be no impacts to socioeconomic resources, population, or public services; therefore, cumulative adverse impacts are expected to be negligible.

Cultural and Tribal Cultural Resources – With implementation of AMMs, the Proposed Action would have no impact to cultural and tribal cultural resources. Therefore, no cumulative impacts to cultural and tribal cultural resources would occur.

Energy Resources – The use of construction equipment would create long-term, minor, adverse impacts to energy resources due to the consumption of oil and fuel. Cumulative impacts to energy resources would be negligible.

Wildfires – The Proposed Action would have no impact related to wildfires; therefore, no cumulative impacts would occur.

Environmental Justice – Cumulative impacts are expected to be negligible. There would be no impacts related to environmental justice; therefore, cumulative adverse impacts are expected to be negligible.

4.2 UNAVOIDABLE ADVERSE EFFECTS

Unavoidable adverse effects would result from implementation of the Proposed Action. These effects are not anticipated to be significant.

Air Quality – The Proposed Action would result in negligible impacts due to the use of construction equipment and travel along the access roads. Following completion of the project, the air quality would return to ambient levels. Although unavoidable, effects on air quality at the project site are not considered significant.

Noise – The Proposed Action would result in temporary adverse impacts to noise resulting from the use of construction equipment. Following completion of the habitat creation and enhancement, the noise levels would return to ambient levels. Although unavoidable, effects on noise at the project site are not considered significant.

Geological Resources – The Proposed Action would result in minor adverse impacts to soils due to compaction from the use of construction vehicles. Impacts would also result from soil disturbance from the habitat enhancement and creation, as well as improvements to the Blackbird Marsh dam, removal of soil along the eastern edge of the Blackbird Marsh, as well as from the minor grading that may occur from the expansion of the wetlands associated with the small impoundments upstream of Blackbird Basins. Although unavoidable, effects on soil at the project site are not considered significant.

Human Health and Safety – The Proposed Action would result in short-term, minor adverse impacts to the safety of contractors due to safety risks associated with working with construction equipment. Impacts to base personnel would be negligible. In addition, the Proposed Action would result in a long-term beneficial impacts related to BASH. The Proposed Action includes the creation of tricolored blackbird nesting habitat would enable 9 RW to meet future mission objectives at Beale AFB and conduct or meet mission requirements in a safe operating environment. Specifically, creating tricolored blackbird foraging and nesting habitat at Blackbird Basins and Blackbird Marsh would not result in increased flight risks caused by increased bird activity near the flight line. This would enable Beale AFB to maintain flight safety and meet the goals laid forth in the OPLAN (Beale AFB 2016).

Wetlands – The Proposed Action would result in short-term, moderate adverse impacts to wetlands, as well as permanent impacts. There may be temporary impacts to jurisdictional areas where grading of the jurisdictional expansion areas meets with existing wetlands and waters. Project activities would result in an estimated 10.171 acres and 11,634 linear feet of temporary impacts to waters of the U.S., as the result of impoundment and dam repair and grading and channel repair for wetland augmentation. These temporary impacts would be restored onsite. Project activities may cause 0.777 acres and 1,485 linear feet of permanent impacts to waters of the U.S. as the result of impoundment and dam repair, and rocked channel outlets for water augmentation. In addition, an estimated total of 14.450 acres of new wetlands would be created as the result of the project.

Vegetation, Wildlife, and Threatened and Endangered Species – The Proposed Action would result in temporary, minor adverse impacts to vegetation from the clearing of vegetation for construction. There would be short-term, minor adverse impacts to wildlife and listed species from disturbance during construction, but these impacts would be temporary in nature.

4.3 COMPATIBILITY OF PROPOSED ACTION AND ALTERNATIVES WITH THE OBJECTIVES OF FEDERAL, REGIONAL, STATE, AND LOCAL LAND USE PLANS, POLICIES, AND CONTROLS

The Proposed Action would be consistent with existing and future land uses. The creation and enhancement of tricolored blackbird nesting and foraging habitat would not interfere with applicable land use policies or objectives.

4.4 RELATIONSHIP BETWEEN SHORT-TERM USES OF THE ENVIRONMENT AND MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

The relationship between short-term uses and enhancement of long-term productivity from implementation of the Proposed Action is evaluated from the standpoint of short-term effects and long-term effects. Short-term effects would be those associated with the construction activities to create and/or enhance tricolored blackbird nesting and foraging habitat. The long-term benefit would be those effects associated with management of the habitat after implementation of the Proposed Action.

The Proposed Action represents the creation and enhancement of foraging and nesting habitat for the benefit of tricolored blackbird at Beale AFB. The negative effects of short-term construction activities would be minor compared to the positive benefits from the creation and enhancement of foraging and nesting habitat for tricolored blackbird. Immediate and long-term benefits for the species would be realized after completion of the Proposed Action.

4.5 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

This EA identifies any irreversible and irretrievable commitments of resources that would be involved in the Proposed Action if implemented. An irreversible effect results from the use or destruction of resources (e.g., energy) that cannot be replaced within a reasonable time. An irretrievable effect results from loss of resources (e.g., endangered species) that cannot be restored as a result of the Proposed Action. The Proposed Action would involve the irreversible and irretrievable commitment of material resources and energy, land resources, and human resources. The impacts on these resources would be permanent.

Material Resources—Material resources irretrievably used for the Proposed Action would include soil and rock of various sizes and other materials that may be utilized during improvements to the dam at Blackbird Marsh. These materials are not in short supply and would not be expected to limit other unrelated construction activities. Where practicable, materials such as soils removed from the project site would be recycled and reused to avoid excess use of

material resources, the irretrievable use of material resources would not be considered significant.

Energy Resources—Energy resources used for the Proposed Action would be irretrievably lost. These would include petroleum-based products (e.g., gasoline and diesel) and electricity. During construction, gasoline and diesel fuel would be used for the operation of construction vehicles. Consumption of these energy resources would not place a significant demand on their availability in the region; therefore, no significant impacts would be expected.

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5. LIST OF PREPARERS

This EA has been prepared under the direction of the Air Force Civil Engineer Center, USAF, and Ninth Reconnaissance Wing.

The individuals that contributed to the preparation of this EA are listed below.

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6. REFERENCES

Airola, D. A., C. W. Swarth, J. Harris, E. C. Beedy, G. Woods, K. Smith, D. Ross, and D Lasprugato. 2018. "Breeding status of the Tricolored Blackbird in the foothill grasslands of the Sierra Nevada, California." Central Valley Bird Club Bulletin 21:1-24.

Ayuda. 2016. Valley Elderberry Longhorn Beetle Summary Report. September 2016.

Beale Air Force Base (Beale AFB). 2014. *Final Environmental Assessment of Addressing New Construction and Demolition at Beale Air Force Base, California*.

Beale AFB. 2015a. *USAF/USFWS Partnering Meeting Agenda and Notes, Beale AFB*. October 29, 2015.

Beale AFB. 2015b. *Installation Development Plan, Beale Air Force Base*. August 2015.

Beale AFB. 2016. United States Air Force. *Beale Air Force Base Bird/Wildlife Aircraft Strike Hazard (BASH) Plan*. March 2016.

Beale AFB. 2018a. United States Air Force. *Wildland Fire Management Plan.* June 2018.

Beale AFB. 2018b. *Fiscal Year 2018 Update: Project Management Plan Beale Air Force Base, California.* April 2018.

Beale AFB. 2019. Integrated Natural Resources Management Plan. November. Prepared by CEMML (Center for Environmental Management Military Lands). Fort Collins, CO.

Beale AFB. 2020. *U.S. Air Force Integrated Cultural Resources Management Plan*.

Beedy, E. C. 2008. "Tricolored Blackbird (*Agelaius tricolor*)." In *California bird species of special concern*, edited by W. D. Shuford and T. Gardali, 437-443. Studies of West. Birds.

Beedy, E. C. 2018. Personal communication (in-person conversation) regarding open water areas and foraging space for tricolored blackbirds. October 5, 2018.

Beedy, E. C., W. J. Hamilton, III, R. J. Meese, D. A. Airola, and P. Pyle. 2018. Tricolored Blackbird (Agelaius tricolor), version 3.1. In *The Birds of North America (*P. G. Rodewald, Editor). Ithaca, NY: Cornell Lab of Ornithology. https://doi.org/10.2173/bna.tribla.03.1

Brady, E. 2006. *Aesthetics in Practice: Valuing the Natural World. Environmental Values.* The White Horse Press.

California Air Resources Board. 2018. Appendix C Maps and Tables of Area Designations for State and National Ambient Air Quality Standards. https://ww2.arb.ca.gov/rulemaking/2019/areadesignations18. 31 December.

California Air Resources Board. 2021. *California Ambient Air Quality Standards.* https://ww2.arb.ca.gov/resources/california-ambient-air-quality-standards. Accessed on 1 March 2021.

California Department of Fish and Wildlife (CDFW). 2018. Status Review of the Tricolored Blackbird in California. February.

CDFW. 2020. California Natural Diversity Database. Accessed January 2020. https://www.wildlife.ca.gov/Data/CNDDB/Maps-and-Data.

California Native Plant Society (CNPS). 2020. Inventory of Rare and Endangered Plants of California. Accessed January 2020. http://rareplants.cnps.org/.

Council on Environmental Quality (CEQ). 1997. *Considering Cumulative Effects under the National Environmental Policy Act.* Executive Office of the President of the United States. January.

Center for Environmental Management of Military Lands. 2020. Western yellow billed cuckoo surveys on Beale Air Force Base: June-August 2020. Prepared for Air Force Civil Engineer Center, Travis Installation Support Section and Beale AFB Environmental Section. Colorado State University, Fort Collins, Colorado, U.S.A.

CEQ. 2016. *Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews*. 1 August 2016.

CEQ. 2019. *Draft NEPA Guidance on Consideration of GHG Emissions*. 26 June 2019.

Christopherson, K.E. 2018. Personal communication (email) with K.E. Christopherson regarding the depth to groundwater in the Frisky Lake area. October 4, 2018.

Department of Water Resources (DWR). 2017. Dams within the Jurisdiction of the State of California. State of California, California Natural Resources Agency, Division of Safety of Dams.

Diggings. 2019. *Mining in California*. https://thediggings.com/usa/california. 24 October 2019.

eBird. 2020. eBird: An online database of bird distribution and abundance [web application]. eBird, Cornell Lab of Ornithology, Ithaca, New York. Available: http://www.ebird.org. (Accessed: September 23, 2020)

Federal Highway Administration. 2006. *Construction Noise Handbook*. Final Report. FHWA-HEP-06-015. DOT-VNTSC-FHWA-06-02. NTIS No. PB2006-10910.

https://www.fhwa.dot.gov/environment/noise/construction_noise/handbook/index.cfm. U.S. Department of Transportation, Washington, D.C. August 2006.

Gallentine, Tamara. 2021. Personal communication regarding Chinook salmon observations in November 2021.

Halterman, M. 2019. Western Yellow-billed Cuckoo Surveys on Beale AFB, California. February 2019. Prepared for U.S. Air Force, Installation Support Section Beale Air Force Base and Center for Environmental Management of Military Lands, Fort Collins, CO

Headquarters Air Force Safety Center 2021. AFI 91-212, *Bird/wildlife Aircraft Strike Hazard (BASH) Management Program.*

Hopkinson, P. 2017. *Grazing Management Guidelines Beale Air Force Base, California*. Fort Collins, CO: Center for Environmental Management of Military Lands, Colorado State. Revised September 2017.

Hopkinson, P. et al. 2017. *Updated Invasive Plant Species Management Guidelines Beale Air Force Base, California*. Fort Collins, CO: Center for Environmental Management of Military Lands, Colorado State. Revised November 2017.

Kleinfelder. 2021. *Habitat Restoration Plan for Tricolored Blackbird, Phase I Beale Air Force Base.* May 2021.

Lipschutz, M. 2020. Personal communication (field meeting) with Maia Lipschutz at Clinic Pond, Beale AFB regarding tricolored blackbird nesting observations on Beale AFB during 2020 nesting season. July 22, 2020.

Marty, J.T. 2021. Personal communication regarding Observations of Crotch Bumble Bee. June 2021.

Meese, R. J. and E. C. Beedy. 2015. "Managing nesting and foraging habitats to benefit breeding Tricolored Blackbirds." *Central Valley Bird Club Bulletin* 17 (No. 2-4):79-96.

Monroe, M. Mitch. Personal communication (phone call) regarding the existing Frisky Lake dam. December 9, 2019.

Secretary of the Air Force. 1996. *Air Force Occupational and Environmental Safety, Fire Protection, and Health (AFOSH) Program.* Air Force Instruction 91-301. 1 June.

Secretary of the Air Force. 2014b. AFI 32-7042, *Waste Management.*

Secretary of the Air Force. 2019. *Planning and Programming Military Construction (MILCON) Projects.* Air Force Instruction 32-1021. 2 April.

Secretary of the Air Force. 2020. *Environmental Conservation.* Air Force Manual 32-7003. 20 April.

Shuford, W. D., and Gardali, T., editors. 2008. *California Bird Species of Special Concern: A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California. Studies of Western Birds 1*. Western Field Ornithologists, Camarillo, California, and California Department of Fish and Game, Sacramento.

Sojda, R. S. and K. L. Solberg. 1993. "Management and Control of Cattails." *Waterfowl Management Handbook*. U.S. Department of the Interior Fish and Wildlife Service Leaflet 13.4.13.

Sullivan, B.L., C.L. Wood, M.J. Iliff, R.E. Bonney, D. Fink, and S. Kelling. 2009. eBird: a citizen-based bird observation network in the biological sciences. Biological Conservation 142: 2282-2292

Tricolored Blackbird Portal. 2018. University of California, Davis. Accessed August 2018. https://tricolor.ice.ucdavis.edu/location/friskey-lake.

Tricolored Blackbird Working Group (TBWG). 2016. *Tricolored Blackbird Habitat Management Recommendations Matrix*.

U.S. Army Corps of Engineers (USACE). 2012. *PJD Letter*. 23 October 2012.

USACE. 2014. Engineering and Design Safety of Dams – Policy and Procedures. Regulation No. 1110-2-1156. Department of the Army. March 31.

USACE. 2016. *Hospital Pond Dam Beale Air Force Base, California Inspection*. April 2016.

USACE. 2019. U.S. Army Corps of Engineers. *Comprehensive Hydraulic Modeling Study for Beale Air Force Base*. June 2019.

U.S. Census Bureau. 2018a. *Quick Facts. Yuba County, California; United States*.

U.S. Census Bureau. 2018b. *2013–2017 American Community Survey 5-Year Estimates.* https://www.census.gov/newsroom/press-kits/2018/acs-5year.html. Accessed on 31 January 2020.

U.S. Census Bureau. 2020. *2014−2018 American Community Survey 5-Year Estimates*. https://www.census.gov/acs/www/data/data-tables-and-tools/data-profiles/, Accessed February 17, 2020.

U.S. Department of Agriculture (USDA). 2021. Natural Resources Conservation Service. Web Soil Survey. Available online at the following link: http://websoilsurvey.sc.egov.usda.gov/. Accessed February 26, 2021.

U.S. Environmental Protection Agency (EPA). 2019. *Nonattainment Areas for Criteria Pollutants (Green Book)*. https://www.epa.gov/green-book. Accessed on 23 May 2019.

USFWS. 2020. Information for Planning and Consultation. Accessed January 2020. https://ecos.fws.gov/ipac/.

Weather Underground. 2020. *Beale AFB, CA Weather History for KBAB – January 2019*. https://www.wunderground.com/history/monthly/us/ca/beale-air-force-base/KBAB/date/2019-1. Accessed on 27 January 2020.

Yuba County. 2011. Yuba County General Plan 2030. https://www.yuba.org/Yuba%20County/Community%20Development/Planning/General%20Plan/Cover.pdf. Accessed on 19 December 2021.

Zilles, J. 2022. Personal communication (internal Kleinfelder email) with Susan Dewar regarding well output potential in similar settings as found on Beale AFB. May 25, 2022.

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Appendix A

Habitat Restoration Plan for the Tricolored Blackbird

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Appendix B

Coordination for Environmental Planning and Public Involvement

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Appendix I

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Appendix A

Habitat Restoration Plan for the Tricolored Blackbird

HABITAT RESTORATION PLAN FOR THE TRICOLORED BLACKBIRD, PHASE 1

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Summary

Breeding colonies of tricolored blackbird (*Agelaius tricolor*) in California historically attracted tens or hundreds of thousands of adults, but the species has been in decline in recent years due to crop-harvesting activities, insufficient insect resources, and habitat loss resulting from conversion of rangeland to vineyards, nut orchards, other agricultural crops, and urban development (Beedy et al. 2018).

This Habitat Restoration Plan for Tricolored Blackbird (Plan) intends to identify alternative opportunities to create and/or enhance nesting habitat with adjacent suitable foraging habitat for tricolored blackbirds on Beale Air Force Base (AFB), while avoiding conflicts with AFB operations. Tricolored blackbirds require the following habitat components to produce successful nesting colonies (Beedy 2008):

1. Open, accessible water[1]
2. Protected nesting substrate, including either flooded or thorny/spiny vegetation
3. Suitable foraging space[2] that provides adequate insect prey within a few kilometers of the nesting colony

The conceptual designs presented in this Plan aim to maximize integration of required habitat components into a diverse matrix that will ultimately be successfully occupied by large tricolored blackbird colonies. Two potential design enhancement options are proposed to provide habitat restoration/creation and enhancement opportunities, including (1) expansion/creation of wetland foraging habitat at the Blackbird Basins, and (2) expansion of nesting habitat at Blackbird Marsh.

Several methods may be used to create or enhance nesting and foraging habitats at Blackbird Marsh and the Blackbird Basins. Grading, dam improvements, and augmented water supply will be used to increase the area of shallow inundation at Blackbird Marsh to promote growth of cattails (*Typha* spp.) that can provide necessary nesting substrate. In addition, planting of desirable vegetation and installation of experimental artificial nesting structures will be used to provide attractive nesting substrates. Grading and repair of weirs may be used in the upstream tributaries of the Hutchinson

[1] Open water areas are required for drinking and bathing, and could include a stock pond, open canal, or marsh with open water at least at the edges. Examples of unsuitable water sources include dense, overgrown freshwater marshes with no exposed water, shaded riparian areas, and stagnant puddles with no source of freshwater input (Beedy, pers. comm. 2018).

[2] Suitable foraging space would include a relatively flat or gently sloping open pasture or grassland with moderate grazing and moist soil and low vegetation (i.e., less than 10 inches) of at least ~2,000 acres within 5 miles of the colony site (the closer the better). Examples of unsuitable foraging habitats include steep areas where water does not accumulate, ungrazed grasslands with tall vegetation, row crops, vineyards, orchards, and riparian habitats (Beedy, pers. comm. 2018).

Creek system, southwest of PAVE PAWS to enlarge adjacent seasonal wetlands to provide more foraging habitat (Blackbird Basins). Grazing will be maintained and managed in the adjacent uplands at both sites to enhance upland foraging habitat; however, nesting areas will be fenced to avoid destruction by cattle.

1.0 Introduction

The tricolored blackbird is currently listed as threatened under the California Endangered Species Act (CDFW 2018). Breeding colonies in California historically attracted tens or hundreds of thousands of adults, but the species has been in decline in recent years due to crop-harvesting activities, insufficient insect resources, and habitat loss resulting from conversion of rangeland to vineyards, nut orchards, other agricultural crops, and urban development (Beedy et al. 2018).

1.1 Purpose and Need

The purpose of this Beale AFB Plan is to create and/or enhance potential nesting habitat and adjacent suitable foraging habitat to benefit tricolored blackbird at Beale AFB at a distance of at least two miles from the AFB runway, to maintain safe flying operations.

1.1.1 Function and Value of Impacted Habitat

Approximately 12 acres of occupied nesting habitat composed of Himalayan blackberry (*Rubus armeniacus*) shrubs on the western side of Beale AFB was removed due to flight safety risks. The nesting habitat was located along Reed's Creek, approximately one mile from the main runway, the proximity of which posed a reoccurring hazard to normal flight operations.

1.1.2 Tricolored Blackbird Habitat Requirements

Historically, most tricolored blackbird colonies were located in freshwater marshes dominated by dense stands of cattails (*Typha* spp.) or tules (*Schoenoplectus* spp.); however, in recent decades and due to a decline in this preferred habitat, an increasing number of colonies have been reported to nest in Himalayan blackberry, nettles (*Urtica* spp.), and thistles (*Cirsium* spp.) (Beedy 2008). Ideal foraging conditions within nearby grasslands or agricultural fields are created when shallow flood-irrigation, mowing, or grazing keeps vegetation at an optimal height (less than 6 inches).

Tricolored blackbirds require the following habitat components to produce successful nesting colonies (Beedy 2008):

- Open, accessible water[3]
- Protected nesting substrate, including either flooded or thorny/spiny vegetation

[3]Open water areas are required for drinking and bathing, and could include a stock pond, open canal, or marsh with open water at least at the edges. Examples of unsuitable water sources include dense, overgrown freshwater marshes with no exposed water, shaded riparian areas, and stagnant puddles with no source of freshwater input (Beedy, pers. comm. 2018).

- Suitable foraging space[4] that provides adequate insect prey within a few kilometers of the nesting colony

Open water within 500 meters of nesting substrate is a requirement for colony settlement (Hamilton 2004). Prior to breeding, food sources in the spring generally include grains associated with dairy feedlots, cracked corn, sprouting rice, ripening oats, and milk barley (Skorupa et al. 1980, as cited in Hamilton 2004). During the breeding season, the tricolored blackbird diet shifts to insect prey, including grasshoppers, beetles, weevils, caddis fly larvae, moth and butterfly larvae, dragonfly larvae, and lakeshore midges (Skorupa et al. 1980, as cited in Hamilton 2004). After the breeding season, forage includes seeds from pasture grassland and weeds, and animal matter as available (Hamilton 2004).

Preferred foraging sites include crops such as rice, alfalfa, irrigated pastures, and ripening or cut grain fields, as well as annual grasslands, cattle feedlots, dairies, vernal pools, other seasonal wetlands, riparian scrub habitats, and open marsh borders (Beedy 2008). Proximity to suitable foraging habitat is essential for the successful colonization of a site (Airola et al. 2018; Beedy et al. 2018).

Though the greatest threat to the species is habitat loss and degradation from human activities, predators such as black-crowned night-herons (*Nycticorax nycticorax*), common ravens (*Corvus corax*), raccoons (*Procyon lotor*), and coyotes (*Canis latrans*) can cause major losses to individual colonies (Beedy 2008); however, tricolored blackbird colonies typically select breeding habitats that provide some degree of predator protection (CDFW 2018). Therefore, nesting areas must be inaccessible or protected from predation, either by the presence of standing water or naturally armored vegetation. In areas where cattle graze, it may be necessary to protect the nesting substrate from disturbance by cattle with fencing. Cattail stands must be at least 50 feet wide to support successful nesting habitat, and young, vigorous growth is most attractive to nesting birds (Meese and Beedy 2015).

1.2 Goals and Objectives

This Plan intends to identify alternative opportunities to create and/or enhance nesting habitat with adjacent suitable foraging habitat for tricolored blackbirds on Beale AFB, while avoiding conflicts with AFB flight operations (Figures 1 and 2). Within the aquatic component, the target will be to achieve an approximate 50:50 ratio of open water to suitable nesting vegetation.

1.2.1 Function and Value of Habitat to be Created and/or Enhanced

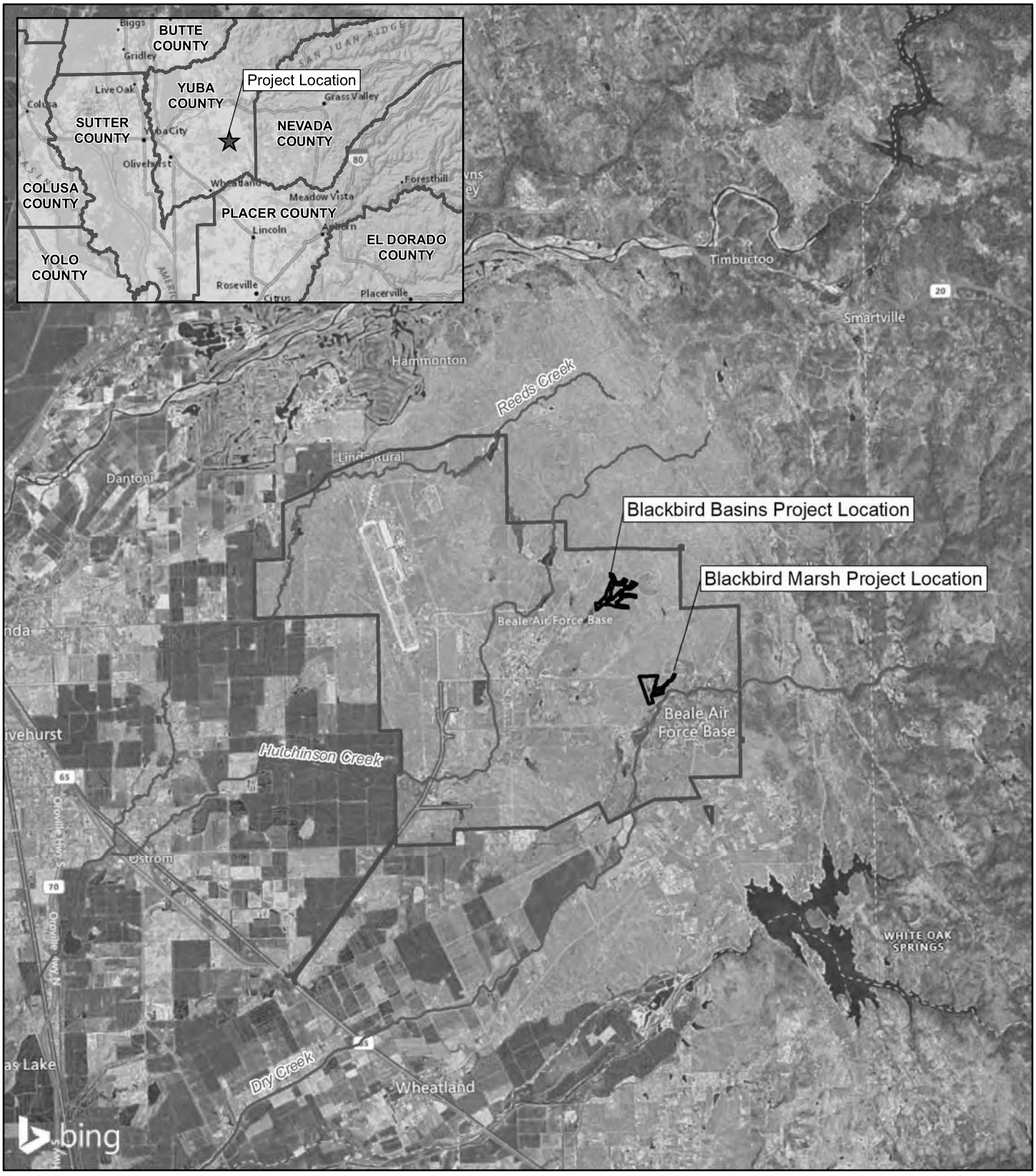
The alternatives presented below aim to maximize integration of required habitat components into a diverse matrix of existing ponds and grazed grasslands at Beale AFB that will ultimately be successfully utilized by large tricolored blackbird colonies. Two site locations are proposed under this Plan:

[4] Suitable foraging space would include a relatively flat or gently sloping open pasture or grassland with moderate grazing and moist soil and low vegetation (i.e., less than 10 inches) of at least ~2,000 acres within 5 miles of the colony site (the closer the better). Examples of unsuitable foraging habitats include steep areas where water does not accumulate, ungrazed grasslands with tall vegetation, row crops, vineyards, orchards, and riparian habitats (Beedy, pers. comm. 2018).

1. The upstream (tributary) drainages of the Hutchinson's Creek system, southwest of PAVE PAWS are presented as areas for potential enhancement of foraging habitat (Blackbird Basins)
2. Blackbird Marsh (at the area also known as Clinic Pond or Hospital Pond) is presented as a location to support expansion of nesting habitat and foraging habitat

The goals of this Plan will be to provide additional areas of open water, protected nesting substrate, and high-quality foraging areas on Beale AFB.

Aquatic areas at the Blackbird Marsh site will include both open water and shallow areas with emergent vegetation and collectively will be referred to as the zone of inundation throughout this Plan. Open water will provide drinking, bathing, and foraging areas free of emergent vegetation. Emergent vegetation, such as cattails, generally cannot persist in sustained water depths over 3 to 4 feet; therefore, design depths greater than or equal to 4 feet will be considered open water. The areas between the maximum surface water level (defined here by the approximate invert of the spillway) up to 3 to 4 feet in depth will be considered as shallow bench zones suitable to support growth of cattails. The width of cattail benches will be maximized to provide a protective buffer around nesting substrate from adjacent upland areas where predators may access a colony. Areas adjacent to and up to 2 feet in elevation above the zone of inundation will be planted with a variety of species that may provide protective, armored nesting substrate and/or deter terrestrial predators. Uplands and seasonal wetlands adjacent to the nesting areas at Blackbird Marsh and in the Blackbird Basins will be enhanced and managed to provide habitat for large insect prey species.



Beale Air Force Base

Project Location

N

0 1 2 Miles

0 1.5 3 Kilometers

Figure 1.
Regional Vicinity Map
Habitat Restoration for the
Tricolored Blackbird, Phase 1
Beale AFB, Yuba County, CA
May 2021

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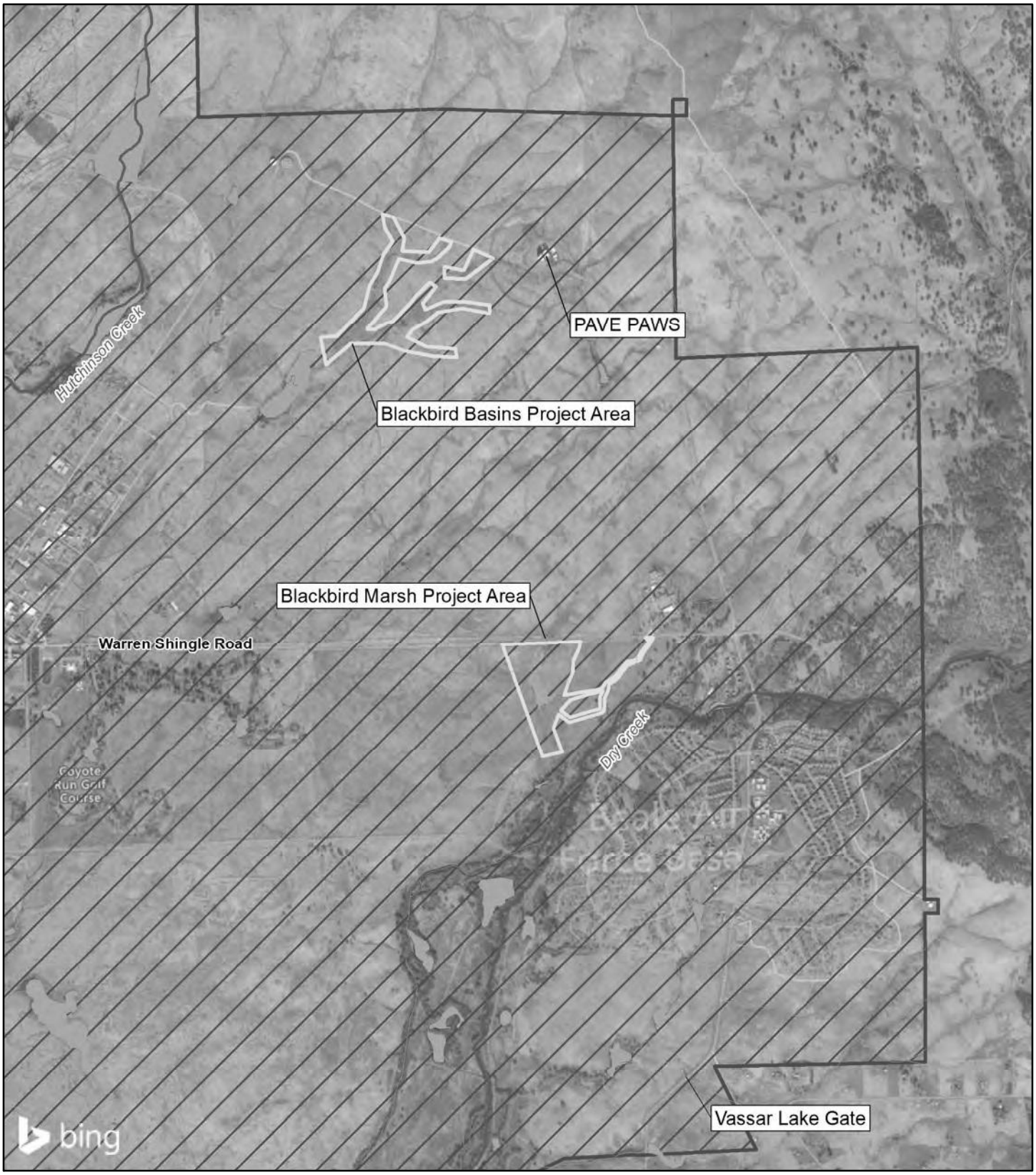

Project Location

Beale Air Force Base

N

0 1,500 3,000 Feet

0 500 1,000 Meters

Figure 2.
Project Location Map
Habitat Restoration for the
Tricolored Blackbird, Phase 1
Beale AFB, Yuba County, CA
May 2021

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2.0 Project Description

Two locations are proposed to be restored, which together will meet the project goals of creating high-quality tricolored blackbird nesting and foraging habitat: (1) seasonal wetland and drainage enhancements at the Blackbird Basins, and (2) nesting habitat expansion at Blackbird Marsh. The restoration approach at both locations will rely on a combination of habitat enhancement methods, as described herein, with the majority of improvements applicable to the Blackbird Marsh site. Actual design specifications will vary depending on field conditions and will be determined during the detailed design phase. Improvements at the Blackbird Basins will focus on repairing existing weirs and augmenting the hydroperiod of the upstream drainages. Expansion of nesting habitats in association with Frisky Lake are addressed under a separate Phase 2 Plan.

Blackbird Basins Existing Conditions

The Blackbird Basins are located within the northeastern portion of Beale AFB, approximately one mile southwest of the PAVE PAWS facility (Figure 3). The area is characterized by two main intermittent or ephemeral drainages with four small existing weirs supporting small ponds with herbaceous seasonal wetlands. The upland habitats around the Blackbird Basins are characterized by lightly grazed, non-native annual grasses. Approximately 40 adult tricolored blackbirds were observed south of the area, at Frisky Lake in 2015, but the nesting status there was not confirmed (Tricolored Blackbird Portal 2018). However, the seasonal wetlands in the tributaries and grazed upland areas adjacent to the Blackbird Basins appear to provide suitable foraging habitat.

Blackbird Basins Summary of Proposed Restoration Activities

Proposed restoration efforts at the Blackbird Basins in this Phase 1 Plan will focus on enhancement of the foraging habitats within the intermittent drainages. Enhancement of wetland ponds and drainages and installation of potentially suitable experimental nesting structures is proposed at the Blackbird Basins through grading, repair or resizing of weirs, augmentation of water supply, planting, installation of artificial nesting structures, and modifying of the current grazing areas. A subsequent project (Phase 2, addressed separately) aims to provide additional acreage of open water and shallowly inundated nesting areas downstream.

Blackbird Marsh Existing Conditions

Blackbird Marsh is located within the eastern portion of Beale AFB in the Dry Creek watershed, approximately 0.7 mile southwest of the Beale AFB hospital (Figure 2). There is an existing dam with a crest height of 175 feet (10 to 12 feet above the downstream toe) that supports a maximum of 19 acre-feet storage (USACE 2019) (approximately 4.7 acres of surface water at maximum capacity). The dam has been rated in poor condition but low hazard (USACE 2019). There is an open channel spillway at the left abutment with the entrance approximately 2 feet below the top of the dam (elevation 173 feet). There is no outlet control system and the spillway is eroding at the invert and downstream where concrete blocks and slabs have been placed (USACE 2016). Average summer low water surface area from aerial images appears to be approximately one acre. Two main intermittent or ephemeral drainages flow into the lake, with some downcutting evident in the main (northern) tributary. The upland habitats around Blackbird Marsh are characterized by lightly grazed, non-native annual grasses. Willows have established along the length of the dam and in patches in and around the lake. Small stands of cattails are present on the lake margins.

Approximately 900 female and juvenile tricolored blackbirds were observed nesting at Blackbird Marsh in 2020 (Lipschutz, pers. comm. 2020). The birds were utilizing all available substrates for nesting including Himalayan blackberry and the large willows.

Blackbird Marsh Summary of Proposed Restoration Activities

Enhancement of suitable foraging habitat and installation of potentially suitable experimental nesting structures is proposed at Blackbird Marsh through grading, repair or resizing of the dam and outlet, augmentation of water supply, planting, installation of artificial nesting structures, and modification of current grazing areas. Proposed restoration efforts at Blackbird Marsh will focus on expansion of potential nesting habitats in and around the lake, repair of the dam and spillway, rehabilitation of downcutting and other erosional issues in the drainage channels above and below the lake, and expansion of high-quality seasonal wetland foraging habitat. Ideally, portions of the existing habitats at the south end of the lake will not be significantly altered during construction (i.e., little to no vegetation removal or grading if possible) to ensure there is not a temporal loss of suitable nesting habitat during expansion of the lake. The intent is to expand the nesting habitats at the lake, primarily on the eastern side, while preserving the known previously occupied nesting substrates along the dam and current lake margins to the greatest extent feasible. Vegetation removal along the dam and other suitable nesting habitats will be limited to necessary disturbances only, and avoided and minimized as much as possible. Construction will ideally be timed to occur after nesting has occurred.

2.1 Habitat Enhancement Methods

Several methods may be used to create or enhance habitat values around Blackbird Marsh, including grading, dam improvements, and water pumping, which will be used to increase the area of shallow inundation to promote growth of cattails. Planting of desirable vegetation and installation of experimental artificial nesting structures (see Section 2.1.6) will be used to provide attractive nesting substrates for tricolored blackbird. Grading may be used to repair the currently incised channels above and below Blackbird Marsh and to create adjacent seasonal wetlands to provide more foraging habitat. Grazing will be maintained and managed in the adjacent uplands to enhance upland foraging habitat at both sites.

2.1.1 Dam Improvements at Blackbird Marsh

Blackbird Marsh (also referred to in reference documents as Clinic Pond and Hospital Pond) was created by the installation of a man-made earth and rock dam many years ago. The dam at Blackbird Marsh presents a low risk of flood hazard but has been rated in poor/fair condition due to root intrusion, seepage, and erosion of the spillway. Maintenance recommendations from recent inspections include complete and continual vegetation removal (USACE 2016), which would result in a loss of nesting substrate known to support recent occupation by tricolored blackbirds.

The dam crest is at an elevation of 175 feet above mean seas level (amsl) and is approximately 250 feet in length and 10 feet wide. The height is 10 to 12 feet above the downstream toe, and the spillway entrance is approximately two feet below the dam crest (USACE 2016). Concrete blocks and slabs have been placed in the spillway and are contributing to erosion (USACE 2016). Willows are rooted within the entire length of the dam which is generally an undesirable condition, as root channels can

create seepage paths that could lead to internal erosion. However, tricolored blackbird utilized the willows along the dam for nesting in 2020 (Lipschutz, pers. comm. 2020). One objective of the dam improvements will be to avoid temporal loss of nesting habitat while maintaining dam safety.

In summary of and per section 1.6 of the Engineering and Design Safety of Dams Policy and Procedures (USACE 2014), a USACE-recognized dam is an artificial barrier that is either 25-feet high or has an impounding capacity at maximum water storage elevation (dam crest, not spillway elevation) of 50 acre-feet or more. Any such barrier under six feet regardless of storage capacity, or that has a storage capacity at maximum water elevation not in excess of 15 acre-feet regardless of height is not considered a dam.

The Federal Emergency Management Agency (FEMA) categorizes dams solely by downstream hazard potential, regardless of condition. The Department of Water Resources (DWR) maintains a list of dams within the State of California (DWR 2017). The dam at Blackbird Marsh (referred to as “Clinic Pond” or Hospital Pond in other references) is not listed in the State dam inventory (DWR 2017).

The dam currently supports an approximate storage volume of 19 acre-feet and is classified as a low hazard, in poor to fair condition (USACE 2016). To avoid reclassification of the dam as a USACE-recognized impoundment, the dam will not be significantly raised and the maximum water storage capacity will be kept below 50 acre-feet. During the detailed design phase, engineering alternatives will be reviewed to determine the best approach to maintain safety of the dam while allowing for the continued expansion of tricolored blackbird nesting habitat.

In order to improve the safety of the dam and eliminate the need for vegetation removal, the spillway may be rebuilt at a lower elevation and/or an outlet control structure may be installed to allow for management of lake levels during winter storms. The bathymetry of the lake is unknown. A detailed topographic/bathymetric survey will need to be produced and the condition of the dam will need to be assessed by a civil engineer during the detailed design phase of the project to determine the specific options for repairing the dam.

2.1.2 Grading

Blackbird Marsh

Grading is proposed to produce suitable conditions for the growth and maintenance of preferred plant species for nesting, including cattails. The floodplain of the existing pond will be expanded by removing soil primarily from the eastern edge of Blackbird Marsh. In order to produce areas that are suitable for colonization by cattails, graded areas will provide shallow slopes and areas with average water depths from 0 to 3 feet (management of water depths of 6 to 18 inches will be maximized), with open water areas greater than 3 to 4 feet deep. Moats of deep water will be incorporated in some areas to protect nesting substrates from predators. Seasonal wetlands will be excavated along the channels flowing into and out of Blackbird Marsh to provide habitat for large insect prey species, and the channels will be reconfigured to address incision.

Shallow bench habitats will be increased by 2.5 acres at Blackbird Marsh (from approximately 2 acres existing to 4.5 acres; Figure 4). The total maximum storage volume of the lake will be maintained below 50 acre-feet (built condition may increase storage volume to 30 to 40 acre-feet). The downcutting in the northern tributary and outlet channel south of the lake will be repaired.

Approximately 1.5 acres of additional off-channel wetlands will be installed/enhanced along the drainage.

Existing environmentally sensitive areas (ESAs), such as vernal pools, wetlands, and archaeological sites will be identified and avoided prior to commencement of any restoration activities. Excavation equipment will be cleaned to remove any soil or potential weed seed prior to mobilization. Topsoil will be carefully removed by an experienced operator using a dragline, excavator, scraper, or dozer and will be stockpiled on site. Stockpiled topsoil will be clearly labeled on construction plans and flagged during restoration site construction. Restoration areas will be over-excavated by approximately 6 inches to allow for reapplication of topsoil to reach final grades in the planting areas. The topsoil layer will serve to increase the soil's organic matter content and overall productivity of the restoration sites. The exact depth of over-excavation and topsoil reapplication will be determined during the detailed design phase. If there is a significant lag between topsoil salvage and final grading, topsoil stockpiles will be stabilized by spraying with a tackifier (soil stabilizer) or covered with a permeable natural material, such as jute or coconut fiber blankets, consistent with Stormwater Pollution Prevention Plan (SWPPP) directives, if required. To minimize compaction, no equipment will be allowed to travel over or park on the salvaged soil stockpiles. Subsoil will be used for dam improvements or buried in the uplands adjacent to the site and/or hauled to an appropriate location on Beale AFB. If excess subsoils are deposited on site, the topsoil at the deposition location will be salvaged and placed over the subsoil to promote rapid recolonization of vegetation.

Though not anticipated, if soils are stockpiled for extended periods, establishment of a cover crop of perennial native grasses and forbs will be considered to help maintain the viability of soil fungi and microbial communities. Soil stockpiles will be monitored for weeds and weeds will be removed if present in accordance with Beale AFB management guidelines. Once stockpiled, topsoil will not be disturbed until it is re-spread to initiate revegetation of disturbed areas.

Blackbird Basins

The wetlands associated with the small impoundments at the Blackbird Basins may be expanded by superficial grading to increase the extent of high-quality foraging habitat. Grading will increase the flooded areas and soil saturation in the areas behind the weirs to increase the amount of high-quality foraging habitat. Soils in the drainages are shallow and bedrock is often exposed or near the surface which will limit the opportunities for grading. If grading cannot be used to achieve expansion of the impounded areas behind the weirs, the weirs may be raised to achieve larger areas of saturation/inundation.

2.1.3 Blackbird Basin Weirs

The four existing weirs may be raised and/or repaired. The intent of the weir raising and/or repairs is to increase the size of small seasonal wetlands adjacent to grazed annual grassland habitat, which will improve highly productive tricolored blackbird foraging areas that are suitable to support populations of large insect prey adjacent to the constructed nesting habitat. The repair of damaged weirs and upgrades to others will provide greater seasonal longevity of highly productive wetlands habitats.

2.1.4 Augmented Water Supply

Water supply may need to be artificially augmented to maintain desired water levels in Blackbird Marsh and in the Blackbird Basins during the nesting season (generally mid-March through September; Beedy 2008). Based on well depth information provided by Beale AFB from a nearby well, groundwater near the Blackbird Basins is 8 to 23 feet below ground surface (bgs). Borings near Blackbird Marsh encountered groundwater at 23-45 feet bgs. Installation of groundwater wells are the preferred method for establishing an artificial water supply. Main water lines are located upstream and northeast of the Blackbird Basins and north of Blackbird Marsh. These potable water supply lines may be tapped and dechlorinated to provide irrigation of the restoration sites and seasonal flow augmentation.

Maintaining saturated and shallowly inundated soils will be key to establishment and maintenance of desirable nesting vegetation species. In addition, standing water can inhibit the ability of terrestrial predators to access the colony. Ideally, water will be pumped into the tributaries upstream of Blackbird Marsh and the Blackbird Basins to increase the hydroperiod of these features and provide enhanced habitat for prey insects upstream of the lakes (Figures 3 and 4).

A hydrology study will be conducted during the detailed design phase to determine the extent of water supply augmentation and equipment required to meet design objectives. Water supply requirements will also vary based on annual precipitation. It is anticipated that water supply augmentation will be required during late spring and summer, at a minimum.

Blackbird Basins Water Supply

Water will be pumped into the Blackbird Basins tributaries to augment the natural hydroperiod and to control hydrology during and after nesting. Groundwater will be pumped into the tributary channel(s) or a connection will be developed from a main water line at this location. Water supply augmentation in concert with repair or expansion of existing weirs will increase areas of low-growing herbaceous seasonal wetland habitat and provide additional high-quality foraging habitat. There is one existing well (BWL003PZ) in the area, located southwest of the Blackbird Basins (Figure 3). Depth to groundwater in the area has been recently (2017) documented at 7.99 feet below ground surface (Christopherson, pers. comm. 2018). This existing well or a new well may be utilized to pump groundwater into the tributary channels. An additional solar-powered well could be installed at one of the upstream tributaries. Water from the well or a main line connection will also be used for temporary irrigation of container plants and to fill troughs or provide another suitable water source for cattle outside of the riparian pasture. If a connection to the main water line is the selected water source, a de-chlorination method will be developed prior to water use at the restoration site.

Blackbird Marsh Water Supply

Water will be pumped into the Blackbird Marsh north tributary to augment the natural hydroperiod and to control hydrology during and after nesting. Groundwater will be pumped into the tributary channel upstream of Blackbird Marsh or a connection will be developed from a main water line at Warren Shingle Road. Water from the well or main line connection will also be used for temporary irrigation of container plants and to fill troughs or provide another suitable water source for cattle outside of the riparian pasture. If a connection to the main water line is the selected water source, a de-chlorination method will be developed prior to use of the water in the restoration site.

2.1.5 Planting

Planting will be used to ensure target species become established at the restoration sites. Planting may include the use of seeds, container plants or vegetative propagation, or by encouraging natural recruitment of desired species (native cattails, primarily). Container plants may be installed in association with experimental nesting structures, along the lake margin at Blackbird Marsh, and within the new or expanded seasonal wetland areas. Tables 1 and 2 present key species to be planted and the potential source of the materials. Stinging nettle (*Urtica dioica*) and non-native Himalayan blackberry and thistles (*Cirsium* spp., *Silybum marianum*) may be allowed to recruit naturally. Additional native species, such as sedges (*Carex* spp.) and rushes (*Eleocharis* spp., *Juncus* spp.) or other locally occurring mesic grasses and forbs, may be introduced in foraging areas. Upland areas disturbed by grading may be seeded with a mix of native grasses and forbs. Total seed application rates should include a minimum of 25 to 30 pounds pure live seed (PLS) per acre, but specific rates will be determined at the time of seeding. To promote diversity and site stabilization, mixes should have no fewer than 5 to 10 species. Naturalized (non-native) cattle forage species, such as soft chess (*Bromus hordeaceus*), Italian ryegrass (*Festuca perennis*), and wild oats (*Avena fatua* and *A. barbata*) will be allowed to colonize disturbed areas.

Table 1: Key Plant Species for Tricolored Blackbird Habitat Structure

Common Name	Scientific Name	Planting Zone	Purpose	Potential Material Source
California mugwort	*Artemisia douglasiana*	Upland fringe (0–2 feet above normal pool)	Nesting substrate	Container plants, seed
California rose	*Rosa californica*	Upland fringe (0–2 feet above normal pool)	Nesting substrate	Container plants
California blackberry	*Rubus ursinus*	Upland fringe (0–2 feet above normal pool)	Nesting substrate	Container plants
cattail	*Typha angustifolia** (not rated by Cal-IPC), *T. domingensis, T. latifolia*	Shallow bench (0–3 feet deep)	Nesting substrate	Seed, rhizomes, container plants, natural recruitment
California grape	*Vitis californica*	Upland fringe (0–2 feet above normal pool)	Nesting substrate	Container plants

* Non-native species; Source: Cal-IPC 2018

Table 2: Key Plant Species for Seasonal Wetland and Upland Seeding

Common Name	Scientific Name	Life Form	Potential Seeding Rate (PLS lbs/ac)*
Upland Seed Mix			
Yarrow	*Achillea millefolium*	perennial	0.5-2
American bird's foot trefoil	*Acmispon americanus*	annual	2-5
Prairie three awn	*Aristida oligantha*	annual	5-10
Woolypod milkweed	*Asclepias eriocarpa*	perennial	2-6
Narrow leaf milkweed	*Asclepias fascicularis*	perennial	2-6
Showy milkweed	*Asclepias speciosa*	perennial	2-6
California brome	*Bromus carinatus var. carinatus*	perennial	10-12
Spikeweed	*Centromadia fitchii*	annual	1-2
Annual hairgrass	*Deschampsia danthonioides*	annual	1-2
Big squirreltail grass	*Elymus multisetus*	perennial	4-6
Blue wildrye	*Elymus glaucus*	perennial	10-12
Willow herb	*Epilobium densiflorum*	annual	0.25-0.5
Naked buckwheat	*Eriogonum nudum*	perennial	0.5-1.5
California poppy	*Eschscholzia californica*	annual/perennial	2-3
Small fescue	*Festuca microstachys*	annual	3-6
Hayfield tarweed	*Hemizonia congesta*	annual	1-2
Goldfields	*Lasthenia californica*	annual	1-2
Lupine	*Lupinus bicolor*	annual/perennial	3-5

Common Name	Scientific Name	Life Form	Potential Seeding Rate (PLS lbs/ac)*
California melic	*Melica californica*	perennial	4-6
Deergrass	*Muhlenbergia rigens*	perennial	1-3
Purple needlegrass	*Stipa pulchra*	perennial	8-12
Small head clover	*Trifolium microcephalum*	annual	2-4
Seasonal Wetland Mix			
Spike bentgrass	*Agrostis exarata*	perennial	3-6
California mugwort	*Artemisia douglasiana*	perennial	0.25-0.5
Valley sedge	*Carex barbarae*	perennial	2-4
Field sedge	*Carex praegracilis*	perennial	2-4
Spike rush	*Eleocharis macrostachya*	perennial	4-6
Beardless wild rye	*Elymus triticoides*	perennial	4-6
Yellow monkey flower	*Erythranthe guttata*	perennial	0.1-0.25
Meadow barley	*Hordeum brachyantherum*	perennial	10-12
Common bog rush	*Juncus effusus*	perennial	1-1.5
Iris leaved rush	*Juncus xiphioides*	perennial	1-1.5
Western witch grass	*Panicum acuminatum*	perennial	1-2

* PLS = pure live seed, lbs = pounds, ac = acre

Seed

Availability of local seed varies annually in response to weather patterns. Seed for direct seeding and container plant production (if used) will be sourced as locally as possible. Seed may be obtained from on-site seed collection or from commercial vendors.

For seed that is collected within Beale AFB, care will be taken to minimize collection sites in areas occupied by dense populations of invasive plant species with Cal-IPC Ratings of High or Moderate (Cal-IPC 2018). The specific number and distribution of collection sites will vary according to size, density, continuity of populations, as well as the desired quantity of seed to be obtained. Seed for species such as cattail may be collected on site and distributed immediately within planting areas.

Close monitoring is required in order to match the timing of seed collection activities to the distribution of seed maturation. Multiple trips to a site may be required to determine when the seed is mature and thus, suitable for collecting. Collecting at multiple times throughout the maturation period can help prevent inadvertent selection against either early or late maturing genotypes.

Seed not collected on Beale AFB will be obtained from a native plant nursery or native seed supplier with documented local source information. Seed collected from within the region will yield the best results for seeding and nursery stock production.

Following grading activities, a biologist with experience in habitat restoration will recommend seed mixes, seeding rates, and application methods, in consultation with Beale AFB and other biologists, as appropriate. Seeding mixes and rates will be developed based on site conditions and potential for natural recruitment; therefore, seed mixes and rates will be site-specific.

Container Plants

Nursery-produced container plants may be used for certain species and in association with experimental nesting structures (Figures 5 and 6). Stem or root cuttings may also be utilized from donor populations of cattails if available for direct planting or production of container plants. The size and shape of the containers should match the plant's rooting strategy (i.e., deep-rooted plants should be grown in tall pots to encourage more root development, while fibrous-rooted plants can be grown in shorter pots or as plugs). The number, species, size, and spacing of container plants, if used, will be determined in conjunction with the development of site-specific seed mixes and seeding approach. Container plants would be installed between October and March to take advantage of natural precipitation during the typical period of plant establishment.

Container stock installation in upland areas will require an associated irrigation method to supply ample water through the first year, at a minimum. If used, surface irrigation will be installed and tested prior to container plant installation and may include use of flood bubblers or drip emitters.

Planting holes will be excavated to diameters approximately twice that of the root ball, but not deeper than the root ball, to avoid settling. Planting holes will be thoroughly moistened by irrigation prior to placement of container plants. During installation of container stock, care will be taken to minimize disturbance of the root system while extracting the plants from their containers. The plants will be placed in the holes and loose native soil will be backfilled into the hole around the plant and firmly hand-packed around the root ball to eliminate any air pockets. For deep pots, soil will be backfilled and packed in lifts of a few inches at a time to discourage settling of plants. Berms or basins may be constructed to aid in irrigation, but special care will be taken to avoid pooling of water around plant stems or settling of the stem/root union below grade. Plants will be watered immediately after installation.

Natural Recruitment

The key target species (e.g., cattails) typically recruit successfully on their own. If there is a sufficient local propagule source, certain actions may be taken to facilitate recruitment of volunteer plants. For cattails, recruitment from seed occurs during the dry season and may be facilitated through managed hydrology (see Sections 2.3.2 and 2.3.3).

2.1.6 Experimental Nesting Structures

As discussed above, tricolored blackbirds require secure nesting areas. In the foothills of the Sierra Nevada and adjacent portions of the Central Valley, Himalayan blackberry is frequently used as a nesting substrate for the species (Airola et al. 2018; Beedy et al. 2018). However, fabricated nesting structures may be utilized experimentally to provide artificial nesting areas or structural support for less-robust native vegetation (such as native California blackberry [*Rubus ursinus*] or California wild rose [*Rosa californica*], which do not grow as densely as Himalayan blackberry, and have smaller spines/prickles and stems). Nesting structures may be located in limited areas throughout the restoration areas and made from rebar/metal, welded wire fencing, lumber, piled branches, or other materials (Figures 6 and 7). Native plants will be installed among the structures to encourage trellising since the species (on their own) do not generally provide a suitable nesting substrate.

Two conceptual nesting structure designs have been developed as part of this Plan (Figures 5 and 6). Each design represents single units that will be repeated and grouped into larger blocks of varying overall size. These conceptual designs are intended to mimic the structural function of the commonly used nesting substrate Himalayan blackberry. Because Himalayan blackberry is an invasive, exotic species, planting of this species is not proposed under this Plan. Instead, artificial nesting structures will be placed throughout the habitat restoration areas. These structures will provide nesting habitat by allowing native plant species to grow up around the structures, and barbed wire will be incorporated for protection against predation. The barbed wire is intended to function similarly to the spines of the Himalayan blackberry. The details of the structures shown in Figures 5 and 6 will vary based on actual installation and maintenance requirements. Gates or breaks in wire will be needed for larger blocks so that irrigation lines can be repaired, dead plants can be replaced, and weeds can be removed as-needed from under/within the structures.

Conceptual locations of the nesting structures are shown on Figure 3 and Figure 4; however, the exact size and locations of the structures will be determined once final grades have been planned to ensure suitable soil moisture to aid plant establishment and ease of access for tricolored blackbirds to open water. Structures may be placed directly adjacent to other suitable nesting vegetation to encourage their use and to provide additional protection to previously used nesting substrate.

Tricolored blackbird usage of each structure will be compared to the use of Himalayan blackberry stands for nesting colony sites during annual monitoring (described below). In addition to testing at least two structural designs, the experimental design will also include testing different sizes of nesting structure blocks, different shapes (square versus rectangular), adjacency to other suitable nesting substrate (i.e., blocks placed up against cattail versus blocks situated wholly within uplands), and plant species (rose only, California blackberry only, mix of both, addition of other climbing natives, such as California grape [*Vitis californica*], etc.). The number of treatments and types will be pre-determined during the detailed design phase to ensure robust results; however, a minimum of 12–24 structures may be installed between the two restoration sites.

2.1.7 Grazing Management

Grazing will be used in upland areas to reduce thatch of non-native grasses and to provide manure to attract insect prey. Grazing maintains grasses in a short stature (less than 15 inches), which is preferred by foraging blackbirds, and cattle manure attracts large insects, the preferred prey of nesting tricolored blackbirds. Cattle also disturb insect prey as they graze, making them more available to foraging birds (Meese and Beedy 2015). New fencing will be installed in accordance with existing best management practices for grazing infrastructure on Beale AFB including installation of t-posts outside of all wetland features and a minimum of 12.5 feet from potential branchiopod habitat.

Blackbird Basins

The areas around the Blackbird Basins are currently grazed (Figure 7; Pasture Unit C-1, Hopkinson 2017). Cattle grazing will continue on 2,553 acres of adjacent upland habitat within approximately 2.5 miles of the Blackbird Basins. Fencing will be installed to exclude livestock from the wetland areas; conceptual fence layout is shown on Figure 3.

Blackbird Marsh

The areas around Blackbird Marsh are currently grazed (Figure 7, Hopkinson 2017). Cattle grazing will continue on 5,800 acres of adjacent upland habitat within approximately 2.5 miles of Blackbird Marsh. Fencing will be installed to exclude livestock from the wetland areas; conceptual fence layout is shown on Figure 4.

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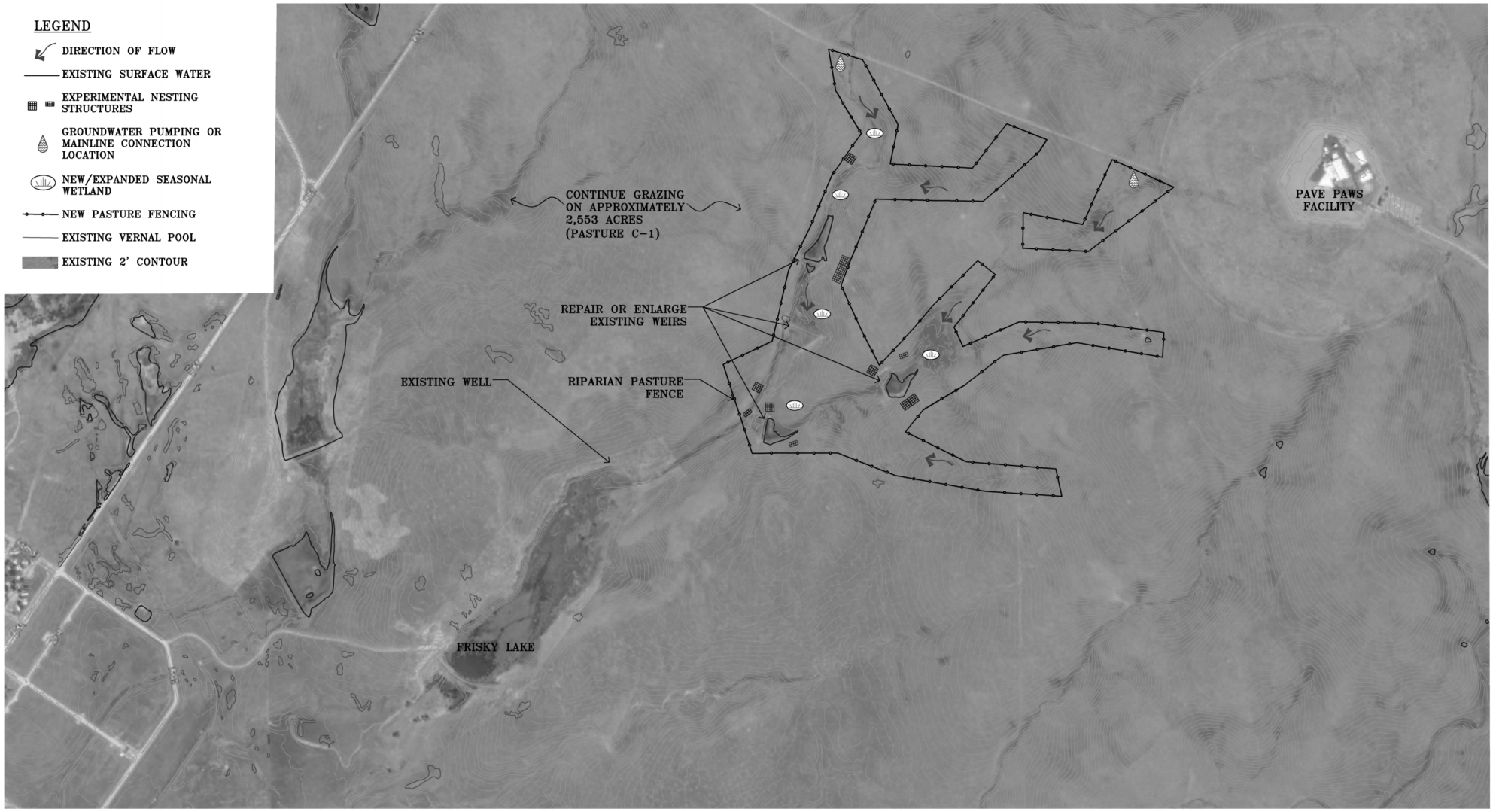

CONCEPTUAL RESTORATION PLAN

(NOT FOR CONSTRUCTION)

KLEINFELDER
Bright People. Right Solutions.

GANDA
GARCIA and ASSOCIATES

N

GRAPHIC SCALE
0 200 400 600 800 1000
(IN FEET)

Figure 3
HABITAT RESTORATION PLAN FOR THE TRICOLORED BLACKBIRD, PHASE 1
BLACKBIRD BASINS

Beale Air Force Base, Yuba County, CA
May 2021

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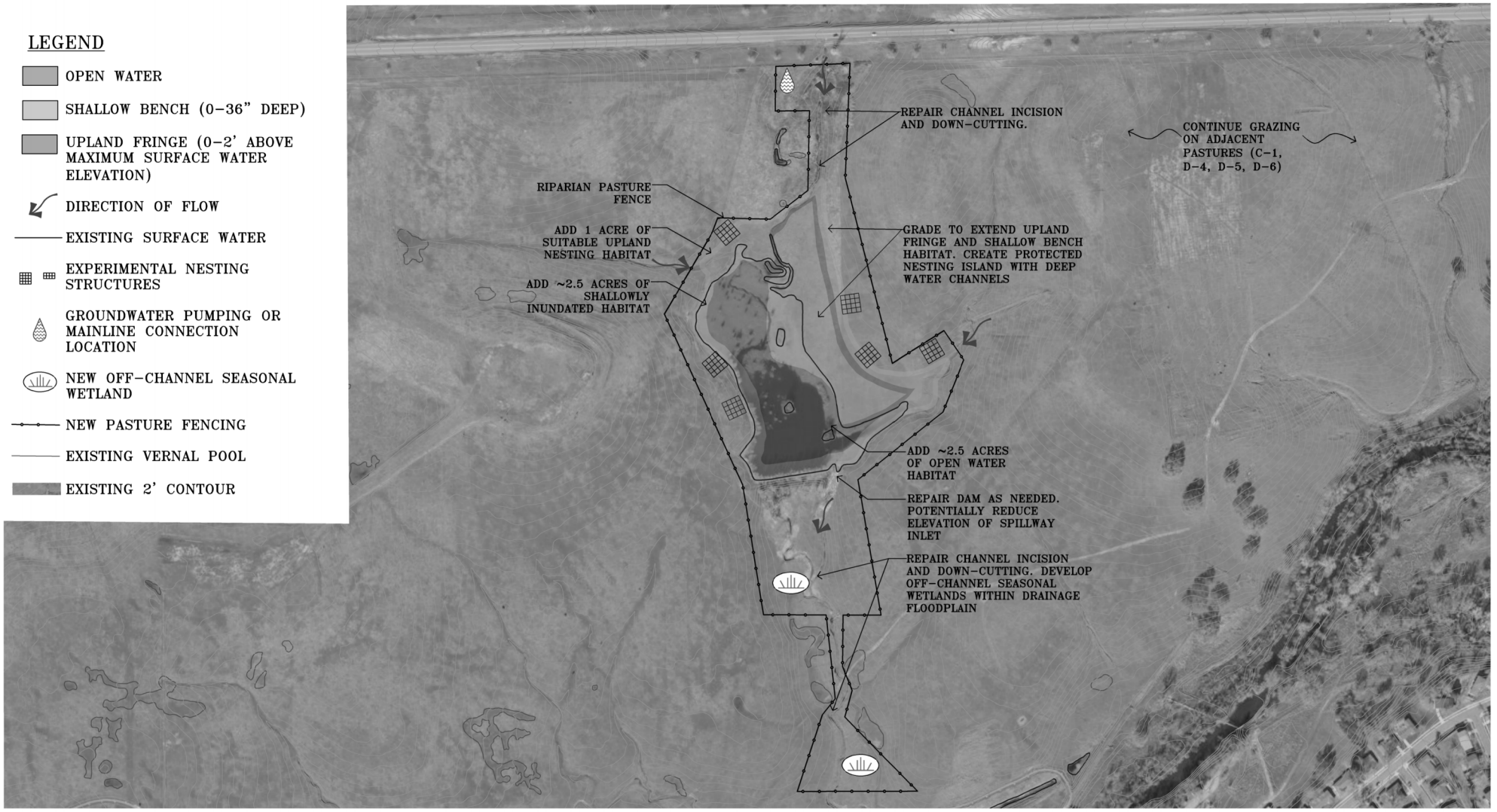

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CONCEPTUAL RESTORATION PLAN
(NOT FOR CONSTRUCTION)

N

GRAPHIC SCALE
0 100 200 300 400 500
(IN FEET)

Figure 4
HABITAT RESTORATION PLAN FOR THE TRICOLORED BLACKBIRD, PHASE 1
BLACKBIRD MARSH

Beale Air Force Base, Yuba County, CA
May 2021

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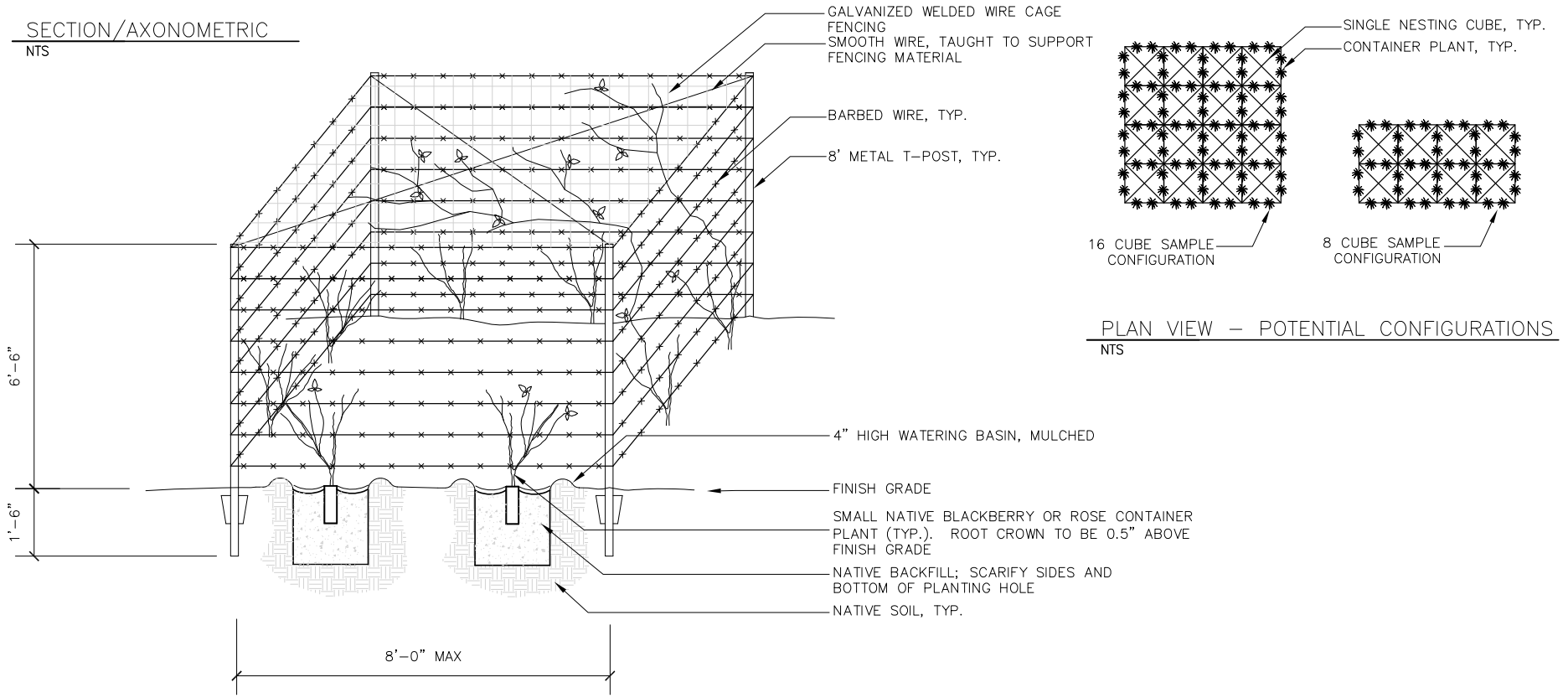

NOTES:
1. TYPICAL NESTING CUBE BLOCKS WILL BE GROUPED INTO UNITS WITH A MINIMUM OF SIX BLOCKS.
2. BLOCKS MAY BE ARRANGED IN LINEAR, SQUARE, RECTANGULAR, OR OTHER FORMATION AS SITE CONDITIONS AND EXPERIMENTAL OBJECTIVES DICTATE.
3. OVERALL HEIGHT OF STRUCTURES MAY VARY BASED ON EXPERIMENTAL DESIGN.
4. BREAKS IN WIRE OR ACCESS POINTS WILL BE INSTALLED TO ALLOW FOR MAINTENANCE UNDER CUBES.

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CONCEPTUAL NESTING CUBE (DESIGN A)
(NOT FOR CONSTRUCTION)

Figure 5
HABITAT RESTORATION PLAN FOR THE TRICOLORED BLACKBIRD
EXPERIMENTAL NESTING STRUCTURE DESIGN A

Beale Air Force Base, Yuba County, CA
May 2021

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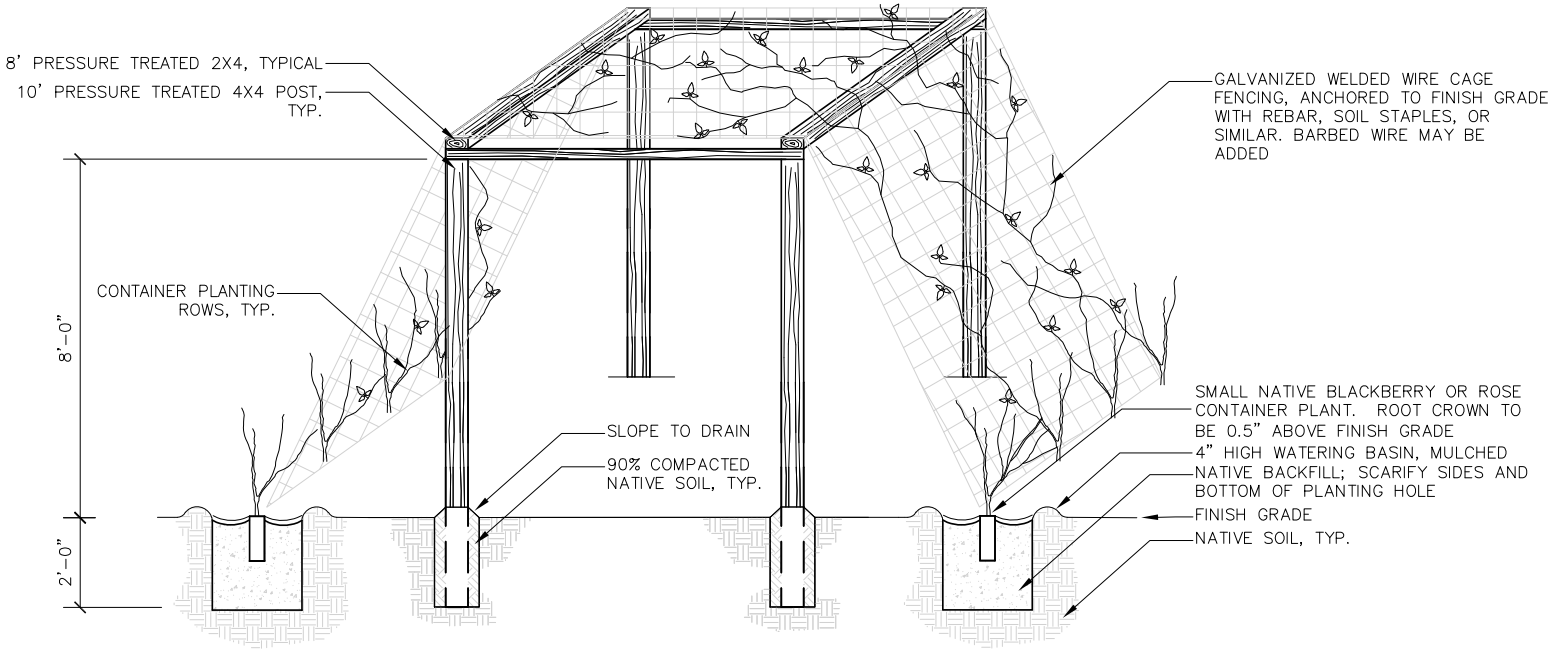

NOTES:

1. TYPICAL NESTING TRELLIS BLOCKS WILL BE GROUPED INTO UNITS WITH A MINIMUM OF FOUR BLOCKS. SEE FIGURE 5 FOR PLAN VIEW OF POTENTIAL BLOCK CONFIGURATIONS.
2. BLOCKS MAY BE ARRANGED IN LINEAR, SQUARE, RECTANGULAR, OR OTHER FORMATION AS SITE CONDITIONS AND EXPERIMENTAL OBJECTIVES DICTATE.
3. THOUGH NOT SHOWN, GALVANIZED FENCING MATERIAL AND CONTAINER PLANTINGS WILL BE INSTALLED ON ALL SIDES OF EACH BLOCK, WITH VERTICAL FENCING SUPPORTING PLANTING ROWS BETWEEN ADJOINING BLOCKS.
4. OVERALL HEIGHT OF STRUCTURES MAY VARY BASED ON EXPERIMENTAL DESIGN.

SECTION/AXONOMETRIC

NTS

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CONCEPTUAL NESTING TRELLIS (DESIGN B)

(NOT FOR CONSTRUCTION)

Figure 6
HABITAT RESTORATION PLAN FOR THE TRICOLORED BLACKBIRD
EXPERIMENTAL NESTING STRUCTURE DESIGN B

Beale Air Force Base, Yuba County, CA
May 2021

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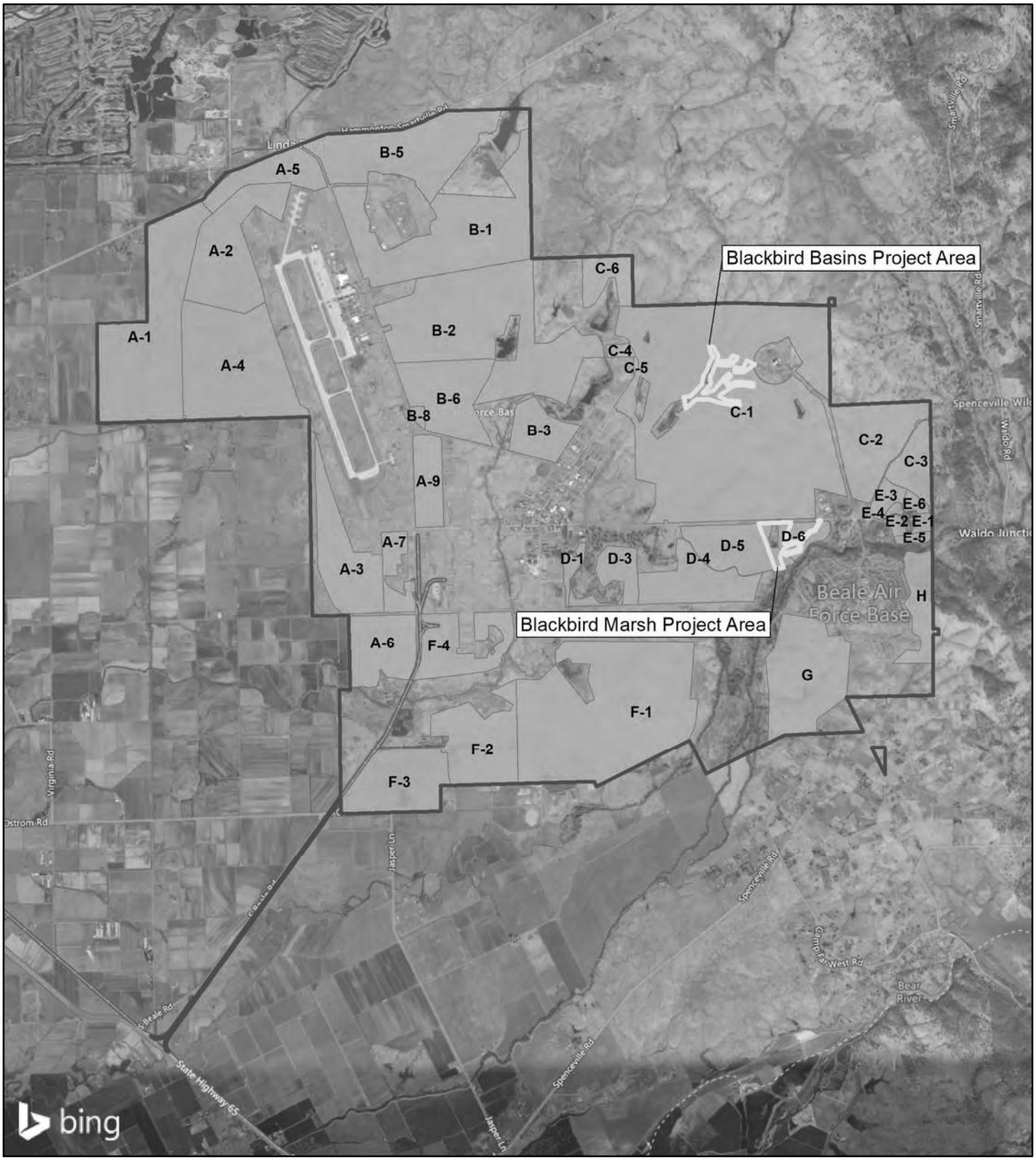

Project Location
Beale Air Force Base
Grazing Area

N

0 0.5 1 Miles

Figure 7.
Grazing Areas
Habitat Restoration for the
Tricolored Blackbird, Phase 1
Beale AFB, Yuba County, CA
May 2021

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2.2 Maintenance

Management of each site will be required to maintain suitable habitat conditions (open water, protected nesting substrate, and suitable foraging areas). The primary maintenance activities anticipated to maintain these conditions include removal of vegetation, removal of sediment, manipulation of hydrologic conditions, maintaining stable soils, and control of invasive species.

2.2.1 Riparian Vegetation Removal

Woody riparian vegetation may provide suitable nesting and perch habitat for tricolored blackbird predators and may encroach on desired nesting substrates. However, tricolored blackbirds were observed in 2020 at Blackbird Marsh on Beale AFB utilizing large willows for nesting (Lipschutz, pers. comm. 2020). If deemed appropriate, the restoration site will be managed to discourage establishment of woody riparian vegetation. Woody riparian vegetation may be periodically removed through mechanical treatment if it is believed to be encouraging the presence of avian predators, encroaching upon more suitable nesting substrates, or otherwise proving detrimental to the nesting success of tricolored blackbirds.

2.2.2 Removal of Sediment

Sediment is expected to accumulate over time within the open water channels and shallowly inundated areas. If a significant loss of open water and shallow bench habitat or protected nesting island occurs due to sedimentation of the deep-water moats and subsequent encroachment of vegetation, affected areas will be dredged to maintain design depths. At the end of the tricolored blackbird nesting season (as determined by a qualified biologist) but prior to October 15, water level in Blackbird Marsh or Blackbird Basins will be drawn down by natural means (groundwater pumping will cease), or active dewatering through a low-level release valve (if installed in the dam at Blackbird Marsh during dam upgrade) or pumping through the spillway. A backhoe or similar piece of heavy equipment will be used to remove accumulated sediment.

If there are areas of Blackbird Marsh that cannot be reached by a bucket arm of equipment staged outside the lakebed, or if the dewatered lakebed is not suitable to accommodate access of a tracked vehicle for sediment removal, the lake level may be raised to facilitate use of a suction or cutter-suction type floating dredge. Spillway or low-level releases would not occur during or immediately after dredging operations to ensure turbid water settles prior to release.

Excavated soils should be tested for contamination before they are moved from a site. Once determined to be clean, the soil would be used on the Base as fill for other projects or removed from the Base to an approved landfill.

2.2.3 Cattail Management

Cattail rhizomes store carbohydrates and allow the plant to reproduce asexually. Rhizomes begin to elongate in early summer, and start to form the next year's stems during midsummer with subsequent shoot growth in the late winter or early spring (Sojda and Solberg 1993). Cattails can produce seeds and contribute to the seed bank at all stages of hydrology, but recruitment from seed occurs only during the dry stage. Cattails do not germinate under more than 0.5-inch deep water, but can

germinate under a wide range of soil-surface temperatures if the soil is saturated generally from early to midsummer (Sojda and Solberg 1993). For initial establishment of cattails, water levels will be raised in midsummer to saturate soils, then drawn down after seeding has occurred. Once established, cattails will be managed to be a minimum of four feet high by May 1 annually, and they will remain flooded throughout site occupation by tricolored blackbird. For maintenance of established cattails, summer drawdowns (after nesting) will be used to stimulate additional germination. If cattails begin to encroach on open water habitats, they may be manually removed or controlled by increasing water depth. Because tricolored blackbirds prefer new, dense growth, old dead stems will need to be removed regularly through burning in late-fall (preferred method), cutting, grazing, disking, or masticating (Meese and Beedy 2015).

The Tricolored Blackbird Working Group (TBWG) produced habitat management recommendations that include rotation of vegetation management to maintain available habitat while regenerating new growth (TBWG 2016). Some vegetation maintenance and management recommendations include:

- Keeping a minimum of 20-30% of vegetation in 2-year-old stage to support annual nesting.
- Burning over water every 3 to 5 years (January to early March) to promote new growth (alternative options include disking, cutting, grazing, or masticating).
- Burning in late fall or early winter or burning with 2-3 inches of standing water in mid-winter, avoiding hot fires that may destroy tubers or seedbank.
- Flooding wetlands mid-February through June or July; early flooding (January to February) with fluctuating water levels (2-12 inches) encourages vegetation growth.

2.2.4 Erosion Control

Areas disturbed during construction will be monitored for erosion in accordance with the SWPPP for the project, if required. Any erosion issues observed during the plant establishment period, prior to site stabilization, will be brought to the attention of Beale AFB biologists. If erosion issues occur after the SWPPP has been closed out, then the restoration contractor will be responsible for stabilizing restoration sites. Site stabilization may involve recontouring, installation of biodegradable fiber rolls and/or blanket materials, and potentially reseeding.

2.2.5 Invasive Species

Invasive plant species of management concern already known within the vicinity of the Blackbird Basins and Blackbird Marsh include barbed goatgrass (*Aegilops triuncialis*), black mustard (*Brassica nigra*), Italian thistle (*Carduus pycnocephalus*), yellow star thistle (*Centaurea solstitialis*), rush skeletonweed (*Chondrilla juncea*), medusahead (*Elymus caput-medusae*), common fig (*Ficus carica*), St. John's wort (*Hypericum perforatum*), Himalayan blackberry, blessed milk thistle (*Silybum marianum*), and seashore vervain (*Verbena litoralis*), in addition to potential aquatic weeds (H.T. Harvey & Associates 2015, as cited in Hopkinson et al. 2017).The strategy for and principal methods of weed control are discussed in the *Updated Invasive Plant Species Management Guidelines Beale Air Force Base, California* (IPMG) (Hopkinson et al. 2017). Currently, methods used at Beale AFB and potentially proposed for this project include prevention, physical weed removal (hand pulling or mowing), grazing, prescribed burning, and herbicide application. For the purpose of habitat restoration and maintenance, weed prevalence will be evaluated prior to construction, during construction, and

during site stabilization. Following site stabilization, sites will be surveyed and maintained in accordance with the IPMG.

Physical removal of weeds will be the preferred means of maintaining restoration and revegetation sites and will be employed according to guidelines in the IPMG. Herbicide application will be reserved for the more difficult and aggressive invasive species not readily removed by physical methods, or for areas where repeated mechanical treatment fails to produce the desired reduction of invasive species. Since Himalayan blackberry is a desired species for tricolored blackbird nesting substrate, this species will be exempted from treatment at the restoration site and will be allowed to expand in some areas.

2.3 Monitoring

As described herein, monitoring will be used to assess habitat structure and occupation status.

2.3.1 Success Criteria

The restoration activities will be considered successful according to the Tier levels below. Success shall be measured/monitored within the pond/wetland area restored at Blackbird Marsh as well as the surrounding uplands/foraging habitats. Tier II and Tier III will be targeted; however, should none of the tiers be met, additional restoration/preservation is not required.

- Tier I Minimal Success: Additional area becomes suitable habitat for tricolored blackbird use.
- Tier II Progress: Supports tricolored blackbird roosting and foraging activities across expanded wetland and upland habitat.
- Tier III Successful: Supports tricolored blackbird nesting once/occasionally.
- Tier IV Fully Successful Off-Set of 12-Acre Beale Impact: Reliable nesting habitat across multiple years for tricolored blackbirds.

2.3.2 Monitoring Methods

Monitoring will begin the first spring/summer after restoration and continue annually to assess whether the success criteria have been achieved and whether corrective measures need to be employed. To ensure successful establishment of the site, monitoring may be conducted more frequently as deemed appropriate by Beale AFB biologists and during the initial establishment period. Restoration sites will be monitored for no fewer than 5 years, or until suitable tricolored nesting habitat has become established (whichever is greater). Monitoring will include an assessment of the progress and identification of potential problems with the restoration sites. If necessary, remedial action, such as additional planting, weeding, supplemental watering, or erosion control, will be taken during the initial establishment period.

Data collection and analysis will include assessment of the physical development of habitat parameters. Aerial photography and field observations will be used to estimate the size and condition of open water, nesting, and terrestrial foraging habitats. Standardized data sheets will be developed to record qualitative and quantitative attributes of site hydrology, plant community conditions, erosion, invasive species, and occupation status throughout the breeding season (March through July/August).

Permanent photo stations will be established to monitor site development over time. A minimum of four monitoring visits will be completed each year in April, May, June, and July/August (Table 3).

Table 3: Annual Monitoring Schedule and Parameters to be Evaluated

Parameter for Evaluation	April	May	June	July / early August
Evaluate hydrology	X	X	X	X
Assess site stability (erosion)	X			
Assess ratio of open water to nesting substrate/development of site			X	X
Monitor container plant growth and mortality; assess need for replanting, irrigation or invasive species management (during plant establishment period, approximately years 1–3 post-installation)			X	
Conduct photo monitoring (with GIS locations): one photo at each nesting structure (12–24); representative photos of shallow bench and blackberry fringe planting areas (number will vary); series of photos (to create panorama) from each side of restoration site (4: north, south, east, west with 2–3 photos each); photos of each existing weir and associated wetland (3–6); photos of any occupied nesting area (number will vary)			X	
Assess presence/absence of tricolored blackbirds at each nesting structure and all other suitable nesting areas (cattail marsh, willow stands, Himalayan blackberry patches)	X	X	X	X
Assess average height of vegetation in at least 20 predetermined sampling (1-meter quadrat) locations within grazed areas 1-mile from nesting areas		X		

2.3.3 Reporting

Annual reports will be prepared within 90 days after completion of monitoring. Each report will include results of quantitative and qualitative monitoring efforts, and address success standards and measures to correct issues, as needed.

The monitoring reports will include, but may not be limited to, the following information:

- Total acreage by community;
- Identification of maintenance issues or necessary adaptive management measures;

- Dates and descriptions of maintenance and monitoring activities conducted during the reporting period, including the timing and frequency of data collection, weed control, and maintenance activities;
- Description of the general health and vigor of the target plant species;
- Presentation of monitoring data and discussion of whether success criteria were met or if the site is progressing as desired;
- Photo documentation; and
- If it is determined that the restoration has not been successful, then the suspected causes of failure and identification of any adaptive management measures necessary for the success of the restoration effort will be noted and remedial, corrective actions would be identified and implemented.

3.0 References Cited

Airola, D. A., C. W. Swarth, J. Harris, E. C. Beedy, G. Woods, K. Smith, D. Ross, and D Lasprugato. 2018. “Breeding status of the Tricolored Blackbird in the foothill grasslands of the Sierra Nevada, California.” *Central Valley Bird Club Bulletin* 21:1-24.

Beedy, E. C. 2008. "Tricolored Blackbird (*Agelaius tricolor*)." In *California bird species of special concern*, edited by W. D. Shuford and T. Gardali, 437-443. Studies of West. Birds.

Beedy, E. C. 2018. Personal communication (in-person conversation) regarding open water areas and foraging space for tricolored blackbirds. October 5, 2018.

Beedy, E. C., W. J. Hamilton, III, R. J. Meese, D. A. Airola, and P. Pyle. 2018. Tricolored Blackbird (Agelaius tricolor), version 3.1. In *The Birds of North America (*P. G. Rodewald, Editor). Ithaca, NY: Cornell Lab of Ornithology. https://doi.org/10.2173/bna.tribla.03.1

California Department of Fish and Wildlife (CDFW). 2018. Status Review of the Tricolored Blackbird in California. February.

Cal-IPC (California Invasive Plant Council). 2018. Cal-IPC Inventory. Accessed October 2, 2018. https://www.cal-ipc.org/plants/inventory/

Christopherson, K.E. 2018. Personal communication (email) with K.E. Christopherson regarding the depth to groundwater in the Blackbird Basins area. October 4, 2018.

Department of Water Resources (DWR). 2017. Dams within the Jurisdiction of the State of California. State of California, California Natural Resources Agency, Division of Safety of Dams.

Hamilton, W. J. 2004. Tricolored Blackbird (*Agelaius tricolor*). In *The Riparian Bird Conservation Plan: a strategy for reversing the decline of riparian-associated birds in California*. California Partners in Flight. http://www.prbo.org/calpif/htmldocs/riparian_v-2.html

Hopkinson, P. 2017. *Grazing Management Guidelines Beale Air Force Base, California*. Fort Collins, CO: Center for Environmental Management of Military Lands, Colorado State. Revised September 2017.

Hopkinson, P. et al. 2017. *Updated Invasive Plant Species Management Guidelines Beale Air Force Base, California*. Fort Collins, CO: Center for Environmental Management of Military Lands, Colorado State. Revised November 2017.

Lipschutz, M. 2020. Personal communication (field meeting) with Maia Lipschutz at Clinic Pond, Beale AFB regarding tricolored blackbird nesting observations on Beale AFB during 2020 nesting season. July 22, 2020.

Meese, R. J. and E. C. Beedy. 2015. “Managing nesting and foraging habitats to benefit breeding Tricolored Blackbirds.” *Central Valley Bird Club Bulletin* 17 (No. 2-4):79-96.

Monroe, M. Mitch. Personal communication (phone call) regarding the existing Frisky Lake dam. December 9, 2019.

Sojda, R. S. and K. L. Solberg. 1993. “Management and Control of Cattails.” *Waterfowl Management Handbook*. U.S. Department of the Interior Fish and Wildlife Service Leaflet 13.4.13.

Tricolored Blackbird Portal. 2018. University of California, Davis. Accessed August 2018. https://tricolor.ice.ucdavis.edu/location/friskey-lake

Tricolored Blackbird Working Group (TBWG). 2016. *Tricolored Blackbird Habitat Management Recommendations Matrix*.

U.S. Army Corps of Engineers (USACE). 2016. *Hospital Pond Dam Beale Air Force Base, California Inspection*. April 2016.

USACE. 2014. Engineering and Design Safety of Dams – Policy and Procedures. Regulation No. 1110-2-1156. Department of the Army. March 31.

USACE. 2019. Comprehensive Hydraulic Modeling Study for Beale Air Force Base. Sacramento District. February 1.

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Appendix B
Coordination for Environmental Planning and Public Involvement

Appendix A: Coordination for Environmental Planning and Public Involvement

Federal Agencies	
U.S. Environmental Protection Agency, Region 9 Director, Officer of Federal Activities 75 Hawthorne Street San Francisco, CA 94105	U.S. Department of the Interior U.S. Fish and Wildlife Services California/Nevada Operations Office 2800 Cottage Way, Room W-2606 Sacramento, CA 95825
U.S. Army Corps. Of Engineers Sacramento District Regulatory Division 1325 J Street -- Room 1513 Sacramento, CA 95814	National Oceanic and Atmospheric Administration National Marine Fisheries Service 650 Capitol Mall Suite 5-100 Sacramento, CA 95814
State Agencies	
California Environmental Protection Agency (CalEPA) 1001 "I" Street P.O. Box 2815 Sacramento, CA 95812	California Department of Conservation 801 K Street, MS 24-01 Sacramento, CA 95814
California Air Resources Board Air Quality and Transportation Division 1001 "I" Street P.O. Box 2815 Sacramento, CA 95812	State Historic Preservation Officer Department of Parks and Recreation 1725 23rd Street, Suite 100 Sacramento, CA 95816
California Department of Fish and Wildlife Regional Manager - North Central Region 1701 Nimbus Road Rancho Cordova, CA 95670	Regional Water Quality Control Board Central Valley Region, 401 Certification Unit 11020 Sun Center Drive, #200 Rancho Cordova, CA 95670-6114
California Department of Fish and Wildlife Habitat Conservation Planning Branch 1700 9th Street, 2nd Floor Sacramento, CA 94244-2090 Mailing: P.O. Box 944209 Sacramento, CA 94244	Central Valley Regional Water Quality Control Board 11020 Sun Center Drive, #200 Rancho Cordova, CA 95670-6114
State Clearinghouse Office of Planning and Research P.O. Box 3044 Sacramento, CA95812	Mark Carroll Spenceville Wildlife Management Area CDFW 945 Oro Dam Boulevard W Oroville, CA 95965
Local Agencies	
Yuba County Board of Supervisors District 4 Supervisor 915 8th Street Suite 109 Marysville, CA 95901	Feather River Air Quality Management District 541 Washington Avenue Yuba City, CA 95991

Yuba County Water Agency 1220 F Street Marysville, CA 95901	
Tribal Agencies	
Tsi Akim Maidu Don Ryberg, Chairperson and Grayson Coney, Cultural Director P.O. Box 510 Browns Valley, CA, 95918	Estom Yumeka Maidu Tribe of the Enterprise Rancheria Glenda Nelson, Chairperson 2133 Monte Vista Avenue Oroville, CA, 95966
United Auburn Indian Community of the Auburn Rancheria Gene Whitehouse, Chairperson 10720 Indian Hill Road Auburn, CA, 95603	Mooretown Rancheria of Maidu Indians Benjamin Clark, Chairperson and Guy Taylor, Council Member 1 Alvera Drive Oroville, CA, 95966
Mechoopda Indian Tribe Dennis Ramirez, Chairperson 125 Mission Ranch Boulevard Chico, CA, 95926	KonKow Valley Band of Maidu Jessica Lopez, Chairperson 2086 North Villa Street Palermo, CA 95968
Pakan'yani Maidu of Strawberry Valley Rancheria Tina Goodwin, Chairperson P.O. Box 984 Marysville, CA, 95901	

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Appendix C
Analysis of Off-Site Opportunities

HABITAT RESTORATION PLAN FOR TRICOLORED BLACKBIRD--AN ANALYSIS OF OFF-SITE OPPORTUNITIES

BEALE AIR FORCE BASE

PREPARED FOR:

Colorado State University
6010 Campus Delivery
Fort Collins, Colorado 80523
Contact: Eric Hamrick
Phone: 970-491-6455

PREPARED BY:

Garcia and Associates
435 Lincoln Way
Auburn, California 95603
Contact: Sherri Miller
Phone: 530-823-3151

GANDA

August 2018

Beale Air Force Base
Habitat Restoration Plan for Tricolored Blackbird—An Analysis of Off-Site Opportunities

Background

Christine Bern of Colorado State University requested that the project Tricolored Blackbird biologist, Dr. Edward (Ted) C. Beedy, perform reconnaissance-level surveys of possible off-site restoration opportunities near Beale Air Force Base (AFB) in Yuba County. Dr. Beedy has many years of experience participating as the lead surveyor for Yuba, Sutter, and Colusa counties for the California Department of Fish and Wildlife's Statewide tri-annual Tricolored Blackbird Survey, and he is the lead author of the Birds of North America account for this species. He reviewed all the Yuba County records of breeding colonies that are provided in the Tricolored Blackbird Portal that is managed by the University of California, Davis: https://tricolor.ice.ucdavis.edu/locations prior to performing these surveys.

Dr. Beedy identified and visited a total of 7 previously-occupied Tricolored Blackbird colony sites within approximately 10 miles of Beale AFB (Figure 1), on July 31, 2018. Photographs of each site are provided below (Figures 2-8), along with brief descriptions of their existing habitat conditions and future potential to support nesting colonies with appropriate land management and restoration plans. Dr. Beedy did all of his site visits from existing public roads, and he has not contacted any of the owners of these private properties. These sites are listed in alphabetical order below. Note: the Haskell Ranch site is behind locked gates and there was no access during this survey.

Colorado State University. 2018. *Habitat Restoration Plan for Tricolored Blackbird—An Analysis of Off-Site Options*. August 2018. Beale Air Force Base, Yuba County, California. Prepared by Garcia and Associates, Auburn, California.

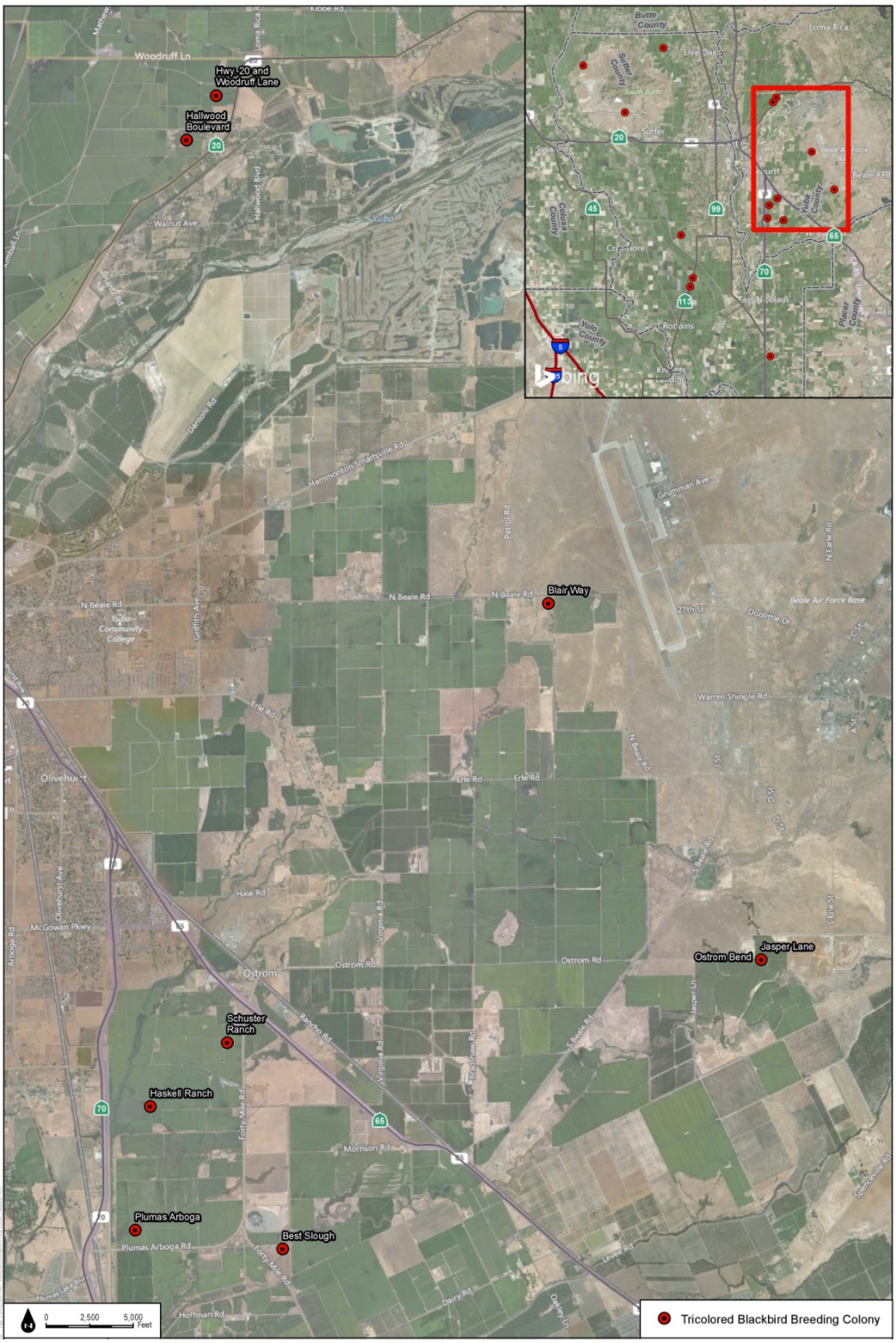

Figure 1. Approximate Locations of Known Tricolored Blackbird Colonies Near Beale Air Force Base, Yuba County, California.

Figure 2. Best Slough is located just off Forty Mile Road, to the south of Beale AFB. While this site has provided habitat for Tricolored Blackbird breeding colonies in the past, none were observed there during the 2014 or 2017 Statewide Surveys. The breeding substrate is Himalayan blackberry (*Rubus armeniacus*) with cottonwood (*Populus fremontii*) and willows (*Salix* spp.) nearby. There is suitable foraging habitat near this site, but most of the fields to the south and east are plowed and do not provide abundant insect prey. This site has **moderate potential** for future management as the foraging habitat is not optimal.

Figure 3. Blair Way is located just off North Beale Road, immediately west of Beale AFB. This site as occupied by approximately 1,500 adult Tricolored Blackbirds during the 2017 and 2018 breeding seasons. The breeding substrate at this colony site is Himalayan blackberry, and it is surrounded by grazed pastures and low, wet swales that provide abundant insect prey. This site has **high potential** for future management and could be managed to benefit the species. *Note: This photograph was taken on 5/9/18.*

Figure 4. Hallwood Boulevard is just off Highway 20 north of Marysville to the northwest of Beale AFB. This site has large stands of Himalayan blackberries that extend for almost a mile, and it has supported up to 20,000 breeding adult Tricolored Blackbirds in some past years. It has large areas of grazed pastures surrounded by rice fields in District 10. This site has **high potential** to be managed to benefit this species.

Figure 5. Jasper Lane is located just off Ostrom Road to the south of Beale AFB. It has long stretches of Himalayan blackberry that are surrounded by grazed pastures and wet fields. It has supported colonies of more than 5,000 Tricolored Blackbirds in past years, and it has **high potential** for habitat restoration and management.

Figure 6. Plumas-Arboga is just off Highway 70 to the south of Beale AFB. This site offers a mix of Himalayan blackberries and cattails (Typha spp.) for Tricolored Blackbird nesting colonies. This site has been occupied by breeding colonies in several past years, but much of the surrounding habitat is plowed for agriculture and it does not provide abundant insect prey. For this reason, this site has **moderate potential** for restoration and future management of this species.

Figure 7. Shuster Ranch is located off Forty Mile Road to the south of Beale AFB. There is a large cattail marsh at this site that has been occupied in past years by breeding Tricolored Blackbirds. The Surrounding pastures are wet and grazed and provide abundant insect prey. This site has **high potential** for habitat restoration and management.

Figure 8. Woodruff Lane is just off Highway 20 to the northwest of Beale AFB. It is a narrow strip of Himalayan blackberries and cattails with frequent disturbance from passing vehicles. While small groups of Tricolored Blackbirds have attempted to nest there in some past years, most have not been successful. Most of the surrounding areas are active rice fields in District 10 and foraging opportunities are limited. Overall, this site has **low potential** for habitat restoration and management for this species.

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Appendix D
Air Quality Conformity Analysis

AIR CONFORMITY APPLICABILITY MODEL REPORT
RECORD OF CONFORMITY ANALYSIS (ROCA)

1. General Information: The Air Force's Air Conformity Applicability Model (ACAM) was used to perform an analysis to assess the potential air quality impact/s associated with the action in accordance with the Air Force Manual 32-7002, Environmental Compliance and Pollution Prevention; the Environmental Impact Analysis Process (EIAP, 32 CFR 989); and the General Conformity Rule (GCR, 40 CFR 93 Subpart B). This report provides a summary of the ACAM analysis.

a. Action Location:

Base: BEALE AFB
State: California
County(s): Yuba
Regulatory Area(s): Yuba City-Marysville, CA

b. Action Title: Beale Air Force Base (AFB) Tricolored Blackbird Restoration Plan

c. Project Number/s (if applicable): NA

d. Projected Action Start Date: 4 / 2022

e. Action Description:

Two locations are proposed to be restored: (1) seasonal wetland and drainage enhancements upstream of Frisky Lake, and (2) nesting habitat expansion at Clinic Pond. Several methods may be used to create or enhance habitat values. Grading is proposed to produce suitable conditions for the growth and maintenance of preferred plant species for nesting, including cattails. The floodplain of the existing pond will be expanded by removing soil primarily from the eastern edge of Clinic Pond. The four existing weirs upstream of Frisky Lake may be raised and/or repaired to increase the size of small seasonal wetlands adjacent to Frisky Lake. Water supply may need to be artificially augmented to maintain desired water levels in Clinic Pond and in the upstream seasonal wetlands tributary to Frisky Lake during the nesting season. Planting will be used to ensure that target species become established at the restoration sites.

f. Point of Contact:

Name: Geoffrey Hornek
Title: Environmental Scientist
Organization: Northgate Environmental
Email: ghornek@sonic.net
Phone Number: 414-241-0236

2. Analysis: Total combined direct and indirect emissions associated with the action were estimated through ACAM on a calendar-year basis for the "worst-case" and "steady state" (net gain/loss upon action fully implemented) emissions. General Conformity under the Clean Air Act, Section 1.76 has been evaluated for the action described above according to the requirements of 40 CFR 93, Subpart B.

Based on the analysis, the requirements of this rule are: _____ applicable
__X__ not applicable

Conformity Analysis Summary:

2022

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
Yuba City-Marysville, CA			
VOC	1.089	100	No

AIR CONFORMITY APPLICABILITY MODEL REPORT
RECORD OF CONFORMITY ANALYSIS (ROCA)

NOx	6.866	100	No
CO	6.554		
SOx	0.019	100	No
PM 10	13.234		
PM 2.5	0.289	100	No
Pb	0.000		
NH3	0.006	100	No
CO2e	1912.9		

2023 - (Steady State)

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
Yuba City-Marysville, CA			
VOC	0.000	100	No
NOx	0.000	100	No
CO	0.000		
SOx	0.000	100	No
PM 10	0.000		
PM 2.5	0.000	100	No
Pb	0.000		
NH3	0.000	100	No
CO2e	0.0		

None of estimated emissions associated with this action are above the conformity threshold values established at 40 CFR 93.153 (b); Therefore, the requirements of the General Conformity Rule are not applicable.

_____ _____

Geoffrey Hornek, Environmental Scientist DATE

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

1. General Information

- Action Location
Base: BEALE AFB
State: California
County(s): Yuba
Regulatory Area(s): Yuba City-Marysville, CA

- Action Title: Beale Air Force Base (AFB) Tricolored Blackbird Restoration Plan

- Project Number/s (if applicable): NA

- Projected Action Start Date: 4 / 2022

- Action Purpose and Need:
The purpose of the Beale AFB Tricolored Blackbird Restoration Plan (Plan) is to create and/or enhance potential nesting habitat and adjacent suitable foraging habitat to benefit tricolored blackbird at Beale AFB at a distance of at least two miles from the AFB runway, to maintain safe flying operations.

- Action Description:
Two locations are proposed to be restored: (1) seasonal wetland and drainage enhancements upstream of Frisky Lake, and (2) nesting habitat expansion at Clinic Pond. Several methods may be used to create or enhance habitat values. Grading is proposed to produce suitable conditions for the growth and maintenance of preferred plant species for nesting, including cattails. The floodplain of the existing pond will be expanded by removing soil primarily from the eastern edge of Clinic Pond. The four existing weirs upstream of Frisky Lake may be raised and/or repaired to increase the size of small seasonal wetlands adjacent to Frisky Lake. Water supply may need to be artificially augmented to maintain desired water levels in Clinic Pond and in the upstream seasonal wetlands tributary to Frisky Lake during the nesting season. Planting will be used to ensure that target species become established at the restoration sites.

- Point of Contact

Name: Geoffrey Hornek
Title: Environmental Scientist
Organization: Northgate Environmental
Email: ghornek@sonic.net
Phone Number: 414-241-0236

- Activity List:

Activity Type		Activity Title
2.	Construction / Demolition	Beale Air Force Base (AFB) Tricolored Blackbird Restoration Plan

Emission factors and air emission estimating methods come from the United States Air Force's Air Emissions Guide for Air Force Stationary Sources, Air Emissions Guide for Air Force Mobile Sources, and Air Emissions Guide for Air Force Transitory Sources.

2. Construction / Demolition

2.1 General Information & Timeline Assumptions

- Activity Location
County: Yuba
Regulatory Area(s): Yuba City-Marysville, CA

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Activity Title: Beale Air Force Base (AFB) Tricolored Blackbird Restoration Plan

- Activity Description:
To create and/or enhance potential nesting habitat

- Activity Start Date
Start Month: 4
Start Month: 2022

- Activity End Date
Indefinite: False
End Month: 9
End Month: 2022

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	1.089330
SO_x	0.019484
NO_x	6.865527
CO	6.553791
PM 10	13.233780

Pollutant	Total Emissions (TONs)
PM 2.5	0.289023
Pb	0.000000
NH_3	0.005744
CO_2e	1912.9

2.1 Site Grading Phase

2.1.1 Site Grading Phase Timeline Assumptions

- Phase Start Date
Start Month: 8
Start Quarter: 1
Start Year: 2022

- Phase Duration
Number of Month: 2
Number of Days: 0

2.1.2 Site Grading Phase Assumptions

- General Site Grading Information
Area of Site to be Graded (ft^2): 650000
Amount of Material to be Hauled On-Site (yd^3): 10000
Amount of Material to be Hauled Off-Site (yd^3): 70000

- Site Grading Default Settings
Default Settings Used: No
Average Day(s) worked per week: 5

- Construction Exhaust

Equipment Name	Number Of Equipment	Hours Per Day
Crawler Tractors Composite	2	8
Crushing/Proc. Equipment Composite	1	8
Excavators Composite	2	6
Generator Sets Composite	2	8
Graders Composite	2	8

Off-Highway Tractors Composite	4	8
Off-Highway Trucks Composite	4	8
Other Construction Equipment Composite	4	8
Pumps Composite	2	24
Rollers Composite	2	8
Rubber Tired Loaders Composite	4	8
Scrapers Composite	2	8
Skid Steer Loaders Composite	1	8
Sweepers/Scrubbers Composite	1	8
Tractors/Loaders/Backhoes Composite	2	8

- Vehicle Exhaust

Average Hauling Truck Capacity (yd^3): 14

Average Hauling Truck Round Trip Commute (mile): 10

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips

Average Worker Round Trip Commute (mile): 30

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

2.1.3 Site Grading Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour)

Crawler Tractors Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0931	0.0012	0.5745	0.5163	0.0310	0.0310	0.0084	114.22
Crushing/Proc. Equipment Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0819	0.0014	0.4910	0.6208	0.0233	0.0233	0.0073	132.49
Excavators Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0648	0.0013	0.3170	0.5103	0.0136	0.0136	0.0058	119.72
Generator Sets Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0340	0.0006	0.2783	0.2694	0.0116	0.0116	0.0030	61.069
Graders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0806	0.0014	0.4657	0.5731	0.0217	0.0217	0.0072	132.92
Off-Highway Tractors Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1322	0.0016	0.9188	0.6320	0.0424	0.0424	0.0119	151.69
Off-Highway Trucks Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1303	0.0026	0.6573	0.5446	0.0215	0.0215	0.0117	260.37
Other Construction Equipment Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0507	0.0012	0.2785	0.3488	0.0105	0.0105	0.0045	122.61
Pumps Composite								

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0321	0.0005	0.2467	0.2640	0.0113	0.0113	0.0029	49.679
Rollers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0499	0.0007	0.3198	0.3798	0.0180	0.0180	0.0045	67.149
Rubber Tired Loaders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0661	0.0012	0.3848	0.4358	0.0180	0.0180	0.0059	108.76
Scrapers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1723	0.0026	1.1176	0.7579	0.0447	0.0447	0.0155	262.87
Skid Steer Loaders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0203	0.0003	0.1484	0.2114	0.0034	0.0034	0.0018	30.321
Sweepers/Scrubbers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0497	0.0009	0.2947	0.4867	0.0123	0.0123	0.0044	78.655
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0383	0.0007	0.2301	0.3598	0.0095	0.0095	0.0034	66.884

- Vehicle Exhaust & Worker Trips Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.114	000.003	000.084	000.992	000.047	000.020		000.023	00298.845
LDGT	000.288	000.004	000.178	001.871	000.048	000.021		000.024	00379.038
HDGV	000.600	000.011	001.339	008.875	000.183	000.078		000.045	01128.468
LDDV	000.026	000.003	000.125	000.281	000.060	000.032		000.008	00271.718
LDDT	000.094	000.003	000.533	000.594	000.112	000.082		000.008	00364.857
HDDV	000.194	000.014	004.796	001.133	000.211	000.117		000.028	01514.699
MC	004.452	000.002	001.252	023.791	000.019	000.009		000.054	00187.891

2.1.4 Site Grading Phase Formula(s)

- Fugitive Dust Emissions per Phase

$PM10_{FD} = (20 * ACRE * WD) / 2000$

$PM10_{FD}$: Fugitive Dust PM 10 Emissions (TONs)
20: Conversion Factor Acre Day to pounds (20 lb / 1 Acre Day)
ACRE: Total acres (acres)
WD: Number of Total Work Days (days)
2000: Conversion Factor pounds to tons

- Construction Exhaust Emissions per Phase

$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$VMT_{VE} = (HA_{OnSite} + HA_{OffSite}) * (1 / HC) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
HA_{OnSite}: Amount of Material to be Hauled On-Site (yd^3)
$HA_{OffSite}$: Amount of Material to be Hauled Off-Site (yd^3)
HC: Average Hauling Truck Capacity (yd^3)
(1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd^3)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Vehicle Exhaust On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase
$VMT_{WT} = WD * WT * 1.25 * NE$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
WD: Number of Total Work Days (days)
WT: Average Worker Round Trip Commute (mile)
1.25: Conversion Factor Number of Construction Equipment to Number of Works
NE: Number of Construction Equipment

$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

2.2 Building Construction Phase

2.2.1 Building Construction Phase Timeline Assumptions

- Phase Start Date
Start Month: 8
Start Quarter: 1
Start Year: 2022

- Phase Duration
Number of Month: 2
Number of Days: 0

2.2.2 Building Construction Phase Assumptions

- General Building Construction Information
Building Category: Office or Industrial
Area of Building (ft^2): 350000
Height of Building (ft): 10
Number of Units: N/A

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Building Construction Default Settings
Default Settings Used: No
Average Day(s) worked per week: 5

- Construction Exhaust

Equipment Name	Number Of Equipment	Hours Per Day
Crawler Tractors Composite	2	8
Crushing/Proc. Equipment Composite	1	8
Excavators Composite	2	8
Generator Sets Composite	2	8
Graders Composite	2	8
Off-Highway Tractors Composite	4	8
Off-Highway Trucks Composite	4	8
Other Construction Equipment Composite	8	8
Pumps Composite	2	24
Rollers Composite	2	8
Rubber Tired Loaders Composite	4	8
Scrapers Composite	2	8
Skid Steer Loaders Composite	1	8
Sweepers/Scrubbers Composite	1	8
Tractors/Loaders/Backhoes Composite	2	8

- Vehicle Exhaust
Average Hauling Truck Round Trip Commute (mile): 10

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips
Average Worker Round Trip Commute (mile): 30

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

- Vendor Trips
Average Vendor Round Trip Commute (mile): 30

- Vendor Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

2.2.3 Building Construction Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour)

Crawler Tractors Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0931	0.0012	0.5745	0.5163	0.0310	0.0310	0.0084	114.22
Crushing/Proc. Equipment Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0819	0.0014	0.4910	0.6208	0.0233	0.0233	0.0073	132.49

Excavators Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0648	0.0013	0.3170	0.5103	0.0136	0.0136	0.0058	119.72
Generator Sets Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0340	0.0006	0.2783	0.2694	0.0116	0.0116	0.0030	61.069
Graders Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0806	0.0014	0.4657	0.5731	0.0217	0.0217	0.0072	132.92
Off-Highway Tractors Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
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Off-Highway Trucks Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
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	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
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	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
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LDGT	000.288	000.004	000.178	001.871	000.048	000.021		000.024	00379.038
HDGV	000.600	000.011	001.339	008.875	000.183	000.078		000.045	01128.468
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HDDV	000.194	000.014	004.796	001.133	000.211	000.117		000.028	01514.699
MC	004.452	000.002	001.252	023.791	000.019	000.009		000.054	00187.891

2.2.4 Building Construction Phase Formula(s)

- Construction Exhaust Emissions per Phase

$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$VMT_{VE} = BA * BH * (0.42 / 1000) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
BA: Area of Building (ft^2)
BH: Height of Building (ft)
(0.42 / 1000): Conversion Factor ft^3 to trips (0.42 trip / 1000 ft^3)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase

$VMT_{WT} = WD * WT * 1.25 * NE$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
WD: Number of Total Work Days (days)
WT: Average Worker Round Trip Commute (mile)
1.25: Conversion Factor Number of Construction Equipment to Number of Works
NE: Number of Construction Equipment

$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Vender Trips Emissions per Phase

$VMT_{VT} = BA * BH * (0.38 / 1000) * HT$

VMT_{VT}: Vender Trips Vehicle Miles Travel (miles)
BA: Area of Building (ft^2)
BH: Height of Building (ft)
(0.38 / 1000): Conversion Factor ft^3 to trips (0.38 trip / 1000 ft^3)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$V_{POL} = (VMT_{VT} * 0.002205 * EF_{POL} * VM) / 2000$

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

V_{POL}: Vehicle Emissions (TONs)
VMT_{VT}: Vender Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

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Appendix E

List of Special-Status Wildlife Species with Potential to Occur

APPENDIX E
Special-Status Wildlife Species with Known or Potential Occurrence at or in the Vicinity of the Habitat Restoration for Tricolored Blackbird – Phase 1 Project in Yuba County, California

Common Name	Scientific Name	Federal/State Status[1]	Habitat Associations	Potential to Occur in the Action Area[2]
Invertebrates				
conservancy fairy shrimp	*Branchinecta conservatio*	Endangered/None	Conservancy fairy shrimp occurs in disjunct locations within Solano, Merced, Tehama, Butte, and Glenn counties. It is found in large, deep vernal pools in annual grasslands.	**Not expected to occur.** Beale AFB is outside of the species known range and none were detected during surveys in 2014 and 2015 (INRMP 2019).
crotch bumblebee	*Bombus crotchii*	None/Candidate Endangered	Crotch bumble bee was historically common throughout much of the southern two-thirds of California, but now appears to be absent from most of the state. Most bumble bees are primitively eusocial insects that live in colonies composed of a queen, workers, and, near the end of the season, reproductive members of the colony (new queens, or gynes, and males). Habitat requirements include availability of suitable colony nesting sites, floral resources to obtain nectar and pollen throughout the duration of the colony period (spring, summer and fall), and suitable overwintering sites for queens.	**Moderate potential to occur.** Suitable foraging habitat exists for this species within and adjacent to the proposed Action Area; and this species was recently documented along A Street on the Main Base.

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Special-Status Wildlife Species with Known or Potential Occurrence at or in the Vicinity of the Habitat Restoration for Tricolored Blackbird – Phase 1 Project in Yuba County, California

Common Name	Scientific Name	Federal/State Status[1]	Habitat Associations	Potential to Occur in the Action Area[2]
monarch – California overwintering population	*Danaus plexippus*	Candidate Threatened, /None	Monarch adults make massive, multi-generation migrations from August-October, flying south thousands of miles to hibernate along the California coast and in central Mexico. Some overwinter along the Gulf and south Atlantic coast. Monarchs stop to feed on flower nectar and to roost together at night. During warm winter days, the butterflies may take moisture and flower nectar. Most mating happens before they journey north in the spring, when females lay single eggs along the way under host plant leaves (*Asclepias* sp.); caterpillars eat flowers and leaves. Overwintering sites along the California coast are important for conservation of this species.	**Moderate potential to occur.** Butterflies and caterpillars have been observed at multiple locations adjacent to drainages on Beale AFB and within the pollinator garden near the base clinic. There are milkweed plants within the Action Area.
valley elderberry longhorn beetle	*Desmocerus californicus dimorphus*	Threatened/None	Valley elderberry longhorn beetle (VELB) is completely dependent on its host plant, elderberry (*Sambucus* ssp.), which occurs in riparian and other woodland communities in California's Central Valley and the associated foothills. Female beetles lay their eggs in crevices on the stems or on the leaves of living elderberry plants. When the eggs hatch, larvae bore into the stems and the larval stages last for one to two years. The fifth instar larvae create emergence holes in the stems and then plug the holes and remain in the stems through pupation. Adults emerge through the emergence holes from late March through June. The short-lived adult beetles forage on leaves and flowers of elderberry shrubs.	**Not expected to occur.** Elderberry shrubs are present within Beale AFB and VELB exit holes were observed in shrubs along Best Slough and Dry Creek during surveys in 2021. However, no elderberry shrubs are present within the Action Area.

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Common Name	Scientific Name	Federal/State Status[1]	Habitat Associations	Potential to Occur in the Action Area[2]
vernal pool fairy shrimp	*Branchinecta lynchi*	Threatened/None	Vernal pool fairy shrimp is adapted to seasonally inundated features and occur primarily in vernal pools, and also seasonal wetlands that fill with water during fall and winter rains and dry up in spring and summer. Typically, the majority of pools in any vernal pool complex are not inhabited by the species at any one time. Different pools within or between complexes may provide habitat for the fairy shrimp in alternative years, as climatic conditions vary.	**Presumed present.** Suitable aquatic habitat exists for this species within and adjacent to the Action Area and they have been documented at several locations throughout Beale AFB.
vernal pool tadpole shrimp	*Lepidurus packardi*	Endangered/None	Vernal pool tadpole shrimp is associated with low-alkalinity, ephemeral freshwater habitats in grasslands, including alkaline pools, clay flats, vernal lakes, vernal pools, vernal swales, and other seasonal wetlands in California. Suitable vernal pools and seasonal swales are generally underlain by hardpan or sandstone.	**Presumed present.** Suitable aquatic habitat exists for this species within and adjacent to the Action Area and they have been documented at several locations throughout Beale AFB.
western bumblebee	*Bombus occidentalis*	None/Candidate Endangered	Western bumblebee habitat requirements include availability of suitable colony nesting sites, floral resources to obtain nectar and pollen throughout the duration of the colony period (spring, summer and fall), and suitable overwintering sites for queens. Nest sites typically include underground cavities and open west-southwest slopes bordered by trees. Little is known about hibernacula or overwintering sites.	**Low potential to occur.** Although suitable floral resources and nest sites are present within the Action Area, there are no documented occurrences of this species at Beale AFB.
Fish				
Central Valley steelhead	*Oncorhynchus mykiss* (NMFS)	Threatened/None	Central Valley steelhead spawn downstream of dams on every major tributary within the Sacramento and San Joaquin River systems. Regardless of life history strategy, for the first year or two of life rainbow trout and steelhead are found in cool, clear, fast-flowing permanent streams and rivers where riffles predominate over pools, there is ample cover from riparian vegetation or undercut banks, and invertebrate life is diverse and abundant.	**Not expected to occur.** This species was observed upstream of Beale AFB at Spenceville Wildlife Area, and it may use Dry Creek in higher flow years. Barriers for this species to access the Action Area include a dam and an intermittent stream.

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Special-Status Wildlife Species with Known or Potential Occurrence at or in the Vicinity of the Habitat Restoration for Tricolored Blackbird – Phase 1 Project in Yuba County, California

Common Name	Scientific Name	Federal/State Status[1]	Habitat Associations	Potential to Occur in the Action Area[2]
chinook salmon	*Oncorhynchus tshawytscha (Central Valley fall/late fall and spring run)*	Threatened (spring run)/Threatened (spring run), SSC (fall run)	Adult fall-run chinook salmon immigration and holding (upstream spawning migration) through the Delta and into the lower Sacramento River occurs from July through December and they spawn from early October through late December. Adult Central Valley spring-run Chinook salmon leave the ocean to begin their upstream migration in late January and early February, and enter the Sacramento River between March and September, primarily in May and June. Spring-run Chinook salmon generally enter rivers as sexually immature fish and must hold in freshwater for up to several months before spawning. While maturing, adults hold in deep pools with cold water. Spawning normally occurs between mid-August and early October, peaking in September.	**Not expected to occur.** A small fall run was reported in Dry Creek in 2012, and a successful spawn was noted in 2014/15. This species was also observed in 2015/16. Spring run salmon have not been detected at Beale AFB; however, there is potential for a spring run to occur in Dry Creek in higher flow years. Barriers for this species to access the Action Area include a dam and an intermittent stream.
Delta smelt	*Hypomesus transpacificus*	Threatened/Endangered	Delta smelt are a tolerant of a wide salinity range. For a large part of their one-year life span, delta smelt live along the freshwater edge of the mixing zone (saltwater-freshwater interface), where the salinity is approximately 2 ppt. Shortly before spawning, adults migrate upstream from the brackish-water habitat associated with the mixing zone and disperse widely into river channels and tidally influenced backwater sloughs. They spawn in shallow, fresh or slightly brackish water upstream of the mixing zone.	**Not expected to occur.** The Action Area is likely outside of the species known range.
Sacramento perch	*Archoplites interruptus*	None/SSC	Sacramento perch is native to the Central Valley, Coast Range and Sierra foothills watersheds. It is now restricted to small disjunct populations in Clear Lake and Alameda Creek/Calaveras Reservoir, as well as in some farm ponds and reservoirs, the closest of which is in Collins Lake, Yuba County. They are most often found in warm reservoirs and ponds where summer temperatures range from 18-28°C. Sacramento perch are capable of surviving high temperatures, high salinities (up to 17 ppt), high turbidity, and low water clarity. Though Sacramento perch are often found in clear water among beds of aquatic vegetation, they achieve greater numbers in turbid lakes absent of plants.	**Not expected to occur.** The Action Area is likely outside of the species known range.

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Special-Status Wildlife Species with Known or Potential Occurrence at or in the Vicinity of the Habitat Restoration for Tricolored Blackbird – Phase 1 Project in Yuba County, California

Common Name	Scientific Name	Federal/State Status[1]	Habitat Associations	Potential to Occur in the Action Area[2]
Sacramento splittail	*Pogonichthys macrolepidotus*	None/SSC	Splittail are primarily freshwater fish but can tolerate moderately salty water. They are found mostly in slow-moving marshy sections of rivers and dead-end sloughs. Floodplains may be important for spawning. Splittail adults migrate upstream from brackish areas in the late winter and spring to spawn in freshwater. Splittail likely spawn in floodplains on submerged vegetation in temporarily flooded upland and riparian habitat. Spawning also occurs in the lower reaches of rivers, bypasses used for flood management, dead-end sloughs, and larger sloughs. Spawning is most successful in extremely wet years when large areas of floodplains and river margins are inundated for extended periods of time.	**Not expected to occur.** Suitable habitat for this species is not present within or adjacent to the proposed Action Area.
Amphibians and Reptiles				
California red-legged frog	*Rana draytonii*	Threatened/SSC	California red-legged frogs occur in different habitats depending on their life stage, the season, and weather conditions. Breeding habitat includes coastal lagoons, marshes, springs, permanent and semi-permanent natural ponds, and ponded backwater portions of streams. These frogs also breed in artificial impoundments including stock ponds, irrigation ponds, and siltation ponds. Creeks and ponds with dense growths of woody riparian vegetation, especially willows (*Salix* spp.) are preferred, although the absence of vegetation at an aquatic site does not rule out the possibility of occupancy. Adult frogs prefer dense, shrubby or emergent riparian vegetation near deep (≥2 to 3 feet), still or slow-moving water, especially where dense stands of overhanging willow and an intermixed fringe of cattail occur adjacent to open water.	**Low potential to occur.** This species has not been detected during surveys, and it only occurs in small disjunct populations in the Sierra Nevada foothills. It is likely extirpated from the project area, as the presence of predatory bullfrogs typically affect the survival of this species.
California tiger salamander	*Ambystoma californiense*	Threatened/Threatened	California tiger salamander (CTS) may be found in riparian and wet meadow habitats, but is more common in grasslands. CTS spends most of its life cycle underground in adjacent valley oak woodland or grassland habitat, primarily in rodent burrows. Breeding takes place following the first heavy winter rains. Temporary or permanent freshwater pools or slowly flowing streams are required for egg-laying and larval development. They appear to be absent in waters containing predatory game fish.	**Not expected to occur.** Although there is suitable habitat for this species in the Action Area, the Action Area is outside of the species known range.

APPENDIX E
Special-Status Wildlife Species with Known or Potential Occurrence at or in the Vicinity of the Habitat Restoration for Tricolored Blackbird – Phase 1 Project in Yuba County, California

Common Name	Scientific Name	Federal/State Status[1]	Habitat Associations	Potential to Occur in the Action Area[2]
giant gartersnake	*Thamnophis gigas*	Threatened/Threatened	Giant gartersnake is found in isolated populations restricted to the Central Valley of California. It is found in freshwater marshes and wetlands, irrigation ditches, low gradient streams and rice fields containing emergent vegetation. Adjacent upland habitat is necessary for cover and aestivation.	**Low potential to occur.** Although there was a possible sighting in Reeds Creek in 2004, this species has not been detected during protocol surveys that occurred from 2005-2018.
foothill yellow-legged frog	*Rana boylii*	None/Threatened	Foothill yellow-legged frog frequents streams and rivers with rocky substrates and open, sunny banks in forests, chaparral, and woodlands. They are sometimes found in isolated pools, vegetated backwaters, and deep, shaded, spring-fed pools.	**Low potential to occur.** Although there is suitable aquatic stream habitat for this species within the Action Area, it has not been detected during surveys and is not likely to occur due to the abundance of bullfrogs within Beale AFB. The nearest documented occurrence is approximately 11 miles northeast of the Action Area.
western pond turtle	*Emys marmorata*	None/SSC	Western pond turtles use both aquatic and terrestrial habitats. They are found in rivers, lakes, streams, ponds, wetlands, ephemeral creeks, reservoirs, agricultural ditches, estuaries, and brackish waters. Western pond turtles prefer areas that provide cover from predators, such as vegetation and algae, as well as basking sites for thermoregulation. Adults tend to favor deeper, slow moving water, whereas hatchlings search for slow and shallow water that is slightly warmer. Terrestrial habitats are used for wintering and egg-laying and usually consist of burrows in leaves and soil. They are rarely found at altitudes above 1,500 meters.	**Moderate potential to occur.** This species has been observed at several locations throughout Beale AFB, and the Action Area contains suitable habitat for this species.
western spadefoot	*Spea hammondii*	None/SSC	Western spadefoot inhabits areas with slightly moist, friable soils in mostly treeless habitats. They are usually absent from narrow canyons and highly mesic habitats. Requires rain pools with little to no vegetation for spawning.	**Low potential to occur.** There is suitable habitat for this species at Beale AFB and a faint call was heard during 2018 surveys. In addition, possible calls heard/recorded during 2012, 2016, and 2017 surveys. However, suitable habitat for this species is absent from the Action Area.

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Special-Status Wildlife Species with Known or Potential Occurrence at or in the Vicinity of the Habitat Restoration for Tricolored Blackbird – Phase 1 Project in Yuba County, California

Common Name	Scientific Name	Federal/State Status[1]	Habitat Associations	Potential to Occur in the Action Area[2]
Birds				
American white pelican	*Pelecanus erythrorhynchos*	None/SSC	American white pelican is a colonial species that utilizes lakes, marshes, and salt bays. During the breeding season, it nests on isolated inland islands in lakes, feeding on shallow lakes, rivers, and marshes. Feeding areas may be miles from nesting sites. It also breeds locally on coastal islands. It winters mainly along the coast, on shallow, protected bays and estuaries, but also on large lakes in warm climates. Forages by swimming on the surface, dipping bill into the water and scooping up fish in its pouch.	**Moderate potential to occur.** This species has been observed at Pond 4, Upper Blackwelder, Lower Blackwelder, Goose, and Miller Lakes. The Action Area provides suitable habitat for this species.
bald eagle	*Haliaeetus leucocephalus*	Delisted/Endangered, FP	Bald eagle lives near large bodies of open water such as lakes, marshes, estuaries, seacoasts and rivers where fish are abundant. It usually nests within one mile of water in tall trees with open branchwork bordering lakes or large rivers. In Central California, bald eagles prefer foothill pines for nesting.	**Low potential to occur.** This species is a regular winter visitor to Beale AFB, but is unlikely to occur within the Action Area due to a lack of foraging and nesting habitat.
bank swallow	*Riparia riparia*	None/Threatened	Bank swallow is restricted to riparian, lacustrine, and coastal areas with vertical banks, bluffs, and cliffs with fine-textured or sandy soils, into which it digs nesting holes. Feeds predominantly over open riparian areas, but also over brushland, grassland, wetlands, water, and cropland.	**Low potential to occur.** Suitable habitat for this species is not present within or adjacent to the Action Area; however, one was possibly observed by a BASH employee near the flightline.
burrowing owl	*Athene cunicularia*	None/SSC	Burrowing owl utilizes abandoned ground squirrel burrows in open habitats and grasslands, also disturbed areas. Diet consists of insects, small mammals, reptiles and amphibians. Commonly uses burrows on levees or mounds where there are unobstructed views of possible predators such as raptors or foxes.	**Low potential to occur.** Although this species has been documented year-round at Beale AFB and sporadic breeding has also been observed, no suitable burrows were observed within the Action Area during surveys performed in June 2021.

APPENDIX E
Special-Status Wildlife Species with Known or Potential Occurrence at or in the Vicinity of the Habitat Restoration for Tricolored Blackbird – Phase 1 Project in Yuba County, California

Common Name	Scientific Name	Federal/State Status[1]	Habitat Associations	Potential to Occur in the Action Area[2]
California black rail	*Laterallus jamaicensis coturniculus*	None/Threatened, FP	California black rail occurs near freshwater marshes along the margins of ponds, lakes, and water impoundments; also herb dominated wetlands on sloped ground associated with springs, canal leaks, seepage from impoundments and agricultural irrigation. Needs water depths of about 1 inch that do not fluctuate during the year and dense vegetation for nesting habitat.	**Moderate potential to occur.** Suitable habitat for this species is present within the Action Area, and it has been observed in a marsh below Miller Lake, at a pond by the Small Arms Range and at PAVE PAWS lake in 2009. Subsequent surveys have not detected any at the base.
golden eagle	*Aquila chrysaetos*	None/FP	Golden eagle is found in open country including mountains, foothills, and plains. In the west, they are found over prairie, rangeland, or desert. They are very wide-ranging in winter, and more restricted to areas with good nest sites in summer, which consist of cliff ledges or large trees.	**Low potential to occur.** Although this species is a year-round visitor at Beale AFB, there is low quality foraging habitat within the Action Area.
grasshopper sparrow	*Ammodramus savannarum*	None/SSC	Grasshopper sparrow is found in grasslands, hayfields and prairies. Breeds in dry fields and prairies, especially those with fairly tall grass and weeds and a few scattered shrubs. Also nests in overgrown pastures and hayfields, and sometimes in fields of other crops. May nest in small colonies. Forages for mostly insects and seeds.	**Moderate potential to occur.** This species is a summer resident at Beale AFB and there is suitable habitat within the Action Area.
least Bell's vireo	*Vireo bellii pusillus*	Endangered/Endangered, SSC	Least Bell's vireo primarily occupies riverine riparian habitats along water, including dry portions of intermittent streams that typically provide dense cover within 3-6 feet of the ground, often adjacent to a complex, stratified canopy.	**Low potential to occur.** Although there is some suitable habitat for this species at Beale AFB, the nearest documented occurrence is over 10 miles from the site near Marysville.
loggerhead shrike	*Lanius ludovicianus*	None/SSC	Loggerhead shrike is a year-round resident in most areas of California that contain grasslands, open areas, orchards and areas with scattered trees. Feeds on small vertebrates and invertebrates, impales prey on thorns or barbed wire.	**Moderate potential to occur.** This species is a year-round resident at Beale AFB and there is suitable foraging and nesting habitat within the Action Area.

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Common Name	Scientific Name	Federal/State Status[1]	Habitat Associations	Potential to Occur in the Action Area[2]
long-eared owl	*Asio otus*	None/SSC	Long-eared owl resides in woodlands and conifer groves that contain dense trees for nesting and roosting, and open country for hunting. It generally avoids unbroken forest. It does not build nests, instead it uses abandoned nests built by other birds, such as crows, ravens, magpies, and various hawk species. It forages over fields or in open woods.	**Not expected to occur.** Suitable habitat for this species is not present within Beale AFB.
northern harrier	*Circus cyaneus*	None/SSC	Northern harrier utilizes marshes, fields, and prairies. Found in many kinds of open terrain, both wet and dry habitats, where there is good ground cover. Often found in marshes, especially in nesting season, but sometimes will nest in dry open fields. Usually hunts by flying low over fields, scanning the ground.	**Moderate potential to occur.** This species is a year-round resident at Beale AFB and there is suitable foraging and nesting habitat within the Action Area.
olive-sided flycatcher	*Contopus cooperi*	None/SSC	Olive-sided flycatcher is found in conifer forests, burns, and clearings. It breeds mostly in coniferous forest of the north and the higher mountains, especially around the edges of open areas including bogs, ponds, and clearings.	**Not expected to occur.** Suitable habitat for this species is not present within Beale AFB.
short-eared owl	*Asio flammeus*	None/SSC	Short-eared owl lives in open terrain such as prairies and marshes. Nests on the ground and eats small mammals.	**Moderate potential to occur.** This species is a regular winter visitor to Beale AFB.
song sparrow ("Modesto" population)	*Melospiza melodia*	None/SSC	Song sparrow occurs in thickets, brush, marshes, roadsides and gardens. Habitat varies over its wide range, but in most areas, it is found in brushy fields, streamsides, shrubby marsh edges, woodland edges, hedgerows and well-vegetated gardens. Some coastal populations live in salt marshes. Nest site varies, usually on ground under clump of grass or shrub, or less than 4' above the ground, sometimes up to 10' or higher.	**Not expected to occur.** Although there is some suitable habitat for this species at Beale AFB, the nearest documented occurrences are over 10 miles to the west and south, near Marysville and Sheridan.
Swainson's hawk	*Buteo swainsoni*	None/Threatened	Swainson's hawk spends the breeding season in the Central Valley of California and is commonly found in agricultural areas or open grasslands containing solitary trees for nesting. Diet consists of insects, small mammals and reptiles.	**Moderate potential to occur.** Suitable nesting and foraging habitat exist at Beale AFB, and there was confirmed nesting in 2004, and 2016-2018.

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Special-Status Wildlife Species with Known or Potential Occurrence at or in the Vicinity of the Habitat Restoration for Tricolored Blackbird – Phase 1 Project in Yuba County, California

Common Name	Scientific Name	Federal/State Status[1]	Habitat Associations	Potential to Occur in the Action Area[2]
tricolored blackbird	*Agelaius tricolor*	None/Threatened, SSC	Tricolored blackbird is a colonial species found almost exclusively in California. It utilizes wetlands, marshes and agricultural grain fields for foraging and nesting. The tricolored blackbird population has declined significantly in the past 6 years due to habitat loss and harvest of grain fields before young have fledged.	**High potential to occur.** There is suitable foraging and nesting habitat for this species at Beale AFB, and it has been observed year-round at the base. Nesting has been documented at A Street Pond, Reeds Creek in 2015 and 2016, Goose Lake in 2017, and south of the base in 2018. Nesting occurred in the Action Area 2020-2021.
western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	Threatened/Endangered	Western yellow-billed cuckoo inhabits woodlands, thickets, orchards, and streamside groves. It breeds mostly in dense deciduous stands, often in willow groves around marshes and in the west, mostly in streamside trees, including cottonwood-willow groves in arid country. It forages by scaling through shrubs and trees, gleaning insects from foliage and branches.	**Low potential to occur.** There is some low-quality habitat for this species at Beale AFB, and it has not been detected during surveys. Possible incidental detections in 2014 and 2017 have not been confirmed.
white-tailed kite	*Elanus leucurus*	None/FP	White-tailed kite nests in woodland, riparian, and individual trees near open lands; forages opportunistically in grassland, meadows, scrubs, agriculture, emergent wetland, savanna, and disturbed lands.	**Moderate potential to occur.** Although this species is an irregular visitor at Beale AFB, there is suitable foraging and nesting habitat within the Action Area.
willow flycatcher	*Empidonax traillii*	None/Endangered	Willow flycatcher is found in bushes, willow thickets, brushy fields, and upland groves. It breeds in thickets of deciduous trees and shrubs, especially willows, or along woodland edges. Often near streams or marshes (especially in southern part of range).	**Low potential to occur.** Some suitable habitat exists for this species at Beale AFB, and there have been audible and visual confirmed detections in the Dry Creek area; however, breeding has not been confirmed.

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Common Name	Scientific Name	Federal/State Status[1]	Habitat Associations	Potential to Occur in the Action Area[2]
yellow-breasted chat	*Icteria virens*	None/SSC	Yellow-breasted chat is found in brushy tangles, briars, and stream thickets. It breeds in very dense scrub (such as willow thickets), often along streams and at the edges of swamps or ponds. It is sometimes found in dry overgrown pastures, and upland thickets along margins of woods.	**Low potential to occur.** Although this species is a summer resident at Beale AFB, there is no suitable habitat within the Action Area.
yellow warbler	*Setophaga petechial*	None/SSC	Yellow warbler is associated with riparian habitat, particularly willow and alder thickets in montane areas, and willow cottonwood riparian at lower elevations.	**Low potential to occur.** This species is a migrant at Beale AFB in spring and fall, and a possible summer resident; however, there is no suitable habitat for this species within the Action Area.
Mammals				
Marysville kangaroo rat	*Dipodomys californicus eximius*	None/SSC	Marysville kangaroo rat is found in annual grassland and foothill woodlands within brushy and grassy slopes and flats.	**Not expected to occur.** This species is likely to have been extirpated from the vicinity of the project area.
pallid bat	*Antrozous pallidus*	None/SSC	Pallid bat occupies a variety of habitats including grassland, shrubland, woodland and forests from sea level up through mixed conifer forest. It roosts in caves, mines, crevices and occasionally hollow trees or buildings. Prefers open habitats for foraging.	**Moderate potential to occur.** This species has been detected during acoustical surveys at several locations throughout the base.
ringtail	*Bassariscus astutus*	None/FP	Ringtail is a member of the raccoon family (Procyonidae). It is widely distributed throughout California, and suitable habitat consists of a mixture of forest and shrubland in close association with rocky areas or riparian habitats. It is primarily carnivorous, eating mainly rodents (woodrats and mice) and rabbits, but will also take substantial amounts of birds and eggs, reptiles, invertebrates, fruits, nuts, and some carrion. It uses hollow trees, logs, snags, and cavities in talus and other rocky areas for cover. Ringtail nests in rock recesses, hollow trees, logs, snags, abandoned burrows, or woodrat nests, usually not more than 1 km (0.6 mi) from permanent water.	**Not expected to occur.** Although scat was observed in the Dry Creek area in 2000 during trapping surveys conducted by CSUS, there are no oak trees or other suitable large trees with cavities within the Action Area. There are 13 blue oak trees in the vicinity of the Blackbird Marsh access route; however, no suitable cavities were detected during surveys performed in June 2021.

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Common Name	Scientific Name	Federal/State Status[1]	Habitat Associations	Potential to Occur in the Action Area[2]
Townsend's big-eared bat	*Corynorhinus townsendii*	None/SSC	Townsend's big-eared bat is found throughout most of western North America. It hibernates and roosts in caves and mines near entrances, or cave like structures such as buildings or under decks. Forages in forested habitats, along open edges.	**Moderate potential to occur.** This species has been detected during acoustical surveys at several locations throughout the base, and could forage over the Action Area.
western red bat	*Lasiurus blossevillii*	None/SSC	Western red bat is locally common in some areas of California, occurring from Shasta County to the Mexican border, west of the Sierra Nevada/Cascade crest and deserts. Roosting habitat includes forests and woodlands from sea level up through mixed conifer forests. This species feeds over a wide variety of habitats including grasslands, shrublands, open woodlands and forests, and croplands.	**Moderate potential to occur.** This species has been detected during acoustical surveys at several locations throughout the base and one has been confirmed dead. This species could utilize the trees for roosting and forage throughout the Action Area.

[1]**Status Legend:**
SSC: Species of Special Concern (CDFW)
FP: Fully Protected (CDFW)

[2] **Definitions Regarding Potential for Occurrence**

- Not expected to occur – Habitat on and adjacent to the Project Area is unsuitable for the species requirements (foraging, breeding, cover, substrate, elevation, hydrology, plant community, site history, and disturbance regime).
- Low – Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the site is unsuitable or of poor quality. The species is not likely to found on the site.
- Moderate – Some of the habitat components meeting the species requirements are present, and/or only some of the habitat on or adjacent to the site is unsuitable. The species has a moderate probability of being found on the site.
- High – All of the habitat components meeting the species requirements are present, and/or most of the habitat on or adjacent to the site is highly suitable. The species has a high probability of being found on the site.
- Present – Species is observed on the site or has been recorded (i.e., CNDDB, or other reports) on the site recently.

Sources

California Department of Fish and Wildlife (CDFW). 2020. California Natural Diversity Database (CNDDB). Rarefind, Version 5 (Commercial Subscription). Accessed January 2020. Sacramento, California. Website https://apps.wildlife.ca.gov/rarefind/view/RareFind.aspx#.

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Appendix F
List of Special-Status Plant Species with Potential to Occur

APPENDIX F
Special-Status Plant Species with Known or Potential Occurrence at or in the Vicinity of the Habitat Restoration for Tricolored Blackbird – Phase 1 Project in Yuba County, California

Scientific Name	Common Name	Status (Federal/State, CRPR)[1]	Life Form/Primary Habitat Associations/ Elevation Range/Blooming Period	Potential to Occur in the Action Area[2]
Astragalus tener var. *ferrisiae*	Ferris' milk-vetch	None/CRPR 1B.1	Annual herb found in meadows and seeps (vernally mesic), and valley and foothill grassland (subalkaline flats). Elevation 0-225 feet. Blooms Apr-May.	**Not expected to occur.** Although suitable habitat for this species is present within Beale AFB, there are no documented occurrences within Yuba County.
Balsamorhiza macrolepis var. *macrolepis*	big-scale balsamroot	None/CRPR 1B.2	Perennial herb found in chaparral, cismontane woodland, and valley and foothill grassland. Sometimes found in serpentine soils. Elevation 135-4,665 feet. Blooms Mar-Jun.	**Not expected to occur.** Although suitable habitat for this species is present within Beale AFB, there are no documented occurrences within Yuba County.
Delphinium recurvatum	recurved larkspur	None/CRPR 1B.2	Perennial herb that occurs in chenopod scrub, cismontane woodland, and valley and foothill grassland (alkaline soils). Elevation 0-2,400 feet. Blooms Mar-Jun.	**Not expected to occur.** Suitable habitat for this species is not present within or adjacent to the Action Area.
Downingia pusilla	dwarf downingia	None/CRPR 2B.2	Annual herb found in mesic valley and foothill grassland habitats, vernal pools. Elevation 0-1,600 feet. Blooms Mar-May.	**Moderate potential to occur.** Several populations of this species have been detected at Beale AFB and there are vernal pools within the Action Area; however, vernal pools will not be impacted under the project.
Gratiola heterosepala	Boggs Lake hedge-hyssop	None/Endangered, CRPR 1B.2	Annual herb found in marshes and swamps (lake margins), vernal pools (clay). Elevation 30-7,125 feet. Blooms Apr-Aug.	**Not expected to occur.** Although suitable habitat for this species is present within Beale AFB, there are no documented occurrences within Yuba County.
Pseudobahia bahiifolia	Hartweg's golden sunburst	Endangered/Endangered, CRPR 1B.1	Annual herb found in clay, often acidic soils in cismontane woodland, valley and foothill grassland. Elevation 50-500 feet. Blooms Mar-Apr.	**Low potential to occur.** Although there is some suitable habitat for this species within Beale AFB, there is only one documented occurrence of this species in Yuba County, in the vicinity of Marysville.
Juncus leiospermus var. *ahartii*	Ahart's dwarf rush	None/CRPR 1B.2	Annual herb found in valley and foothill grassland (mesic). Elevation 90-700 feet. Blooms Apr-May.	**Low potential to occur.** Although there is some suitable habitat for this species within Beale AFB, there is only one documented occurrence of this species in Yuba County, approximately 12 miles north of the project area near Honcut Creek.

Scientific Name	Common Name	Status (Federal/State, CRPR)[1]	Life Form/Primary Habitat Associations/ Elevation Range/Blooming Period	Potential to Occur in the Action Area[2]
Legenere limosa	legenere	None/CRPR 1B.1	Annual herb found in vernal pools. Elevation 0-2,640 feet. Blooms Apr-June.	**Moderate potential to occur.** Small populations of this species have been detected at Beale AFB and there are vernal pools within the Action Area; however, vernal pools will not be impacted under the project.
Monardella venosa	veiny monardella	None/CRPR 1B.1	Annual herb found in cismontane woodland, valley and foothill grassland (heavy clay). Elevation 240-1,200 feet. Blooms May, July.	**Low potential to occur.** Although there is some suitable habitat for this species within Beale AFB, there is only one documented historical occurrence of this species in Yuba County, in the vicinity of Marysville.
Navarretia myersii	pincushion navarretia	None/CRPR 1B.1	Annual herb found in vernal pools, often in acidic soils. Elevation 60-1,000 feet. Blooms Apr-May.	**Not expected to occur.** Although suitable habitat for this species is present within Beale AFB, there are no documented occurrences within Yuba County.
Sagittaria sanfordii	Sanford's arrowhead	None/CRPR 1B.2	Perennial rhizomatous herb (emergent) found in shallow freshwater marshes and swamps. Elevation 0-2,100 feet. Blooms May-Oct.	**Low potential to occur.** Although there is some suitable habitat for this species within Beale AFB, there is only one documented occurrence of this species in Yuba County, approximately 10 miles southwest of the project area.
Wolffia brasiliensis	Brazilian watermeal	None/CRPR 2B.3	Perennial aquatic herb found in shallow freshwater marshes and swamps. Elevation 50-300 feet. Blooms Apr, Dec.	**Low potential to occur.** Although there is some suitable habitat for this species within Beale AFB and there is a documented occurrence just east of Beale AFB, this species has not been documented within the Action Area.

[1]Status Legend:

California Rare Plant Ranks (CRPR):

1A – Plants presumed extinct in California
1B – Plants rare, threatened, or endangered in California and elsewhere
2 – Plants rare, threatened, or endangered in California, but more common elsewhere

CRPR Threat Code Extensions:

.1 – Seriously endangered in California
.2 – Fairly endangered in California

[2] Definitions Regarding Potential for Occurrence

- Not expected to occur – Habitat on and adjacent to the site is unsuitable for the species life history requirements (foraging, breeding, cover, substrate, elevation, hydrology, plant community, soils, site history, and disturbance regime).
- Low – Few of the habitat components meeting the species life history requirements are present, and/or the majority of habitat on and adjacent to the site is unsuitable or of poor quality. The species is not likely to found on the site.
- Moderate – Some of the habitat components meeting the species life history requirements are present, there may be documented occurrences of the species in the vicinity of the site, and/or only some of the habitat on or adjacent to the site is unsuitable. The species has a moderate probability of being found on the site.
- High – All of the habitat components meeting the species life history requirements are present, there may be documented occurrences of the species on or adjacent to the site and/or most of the habitat on or adjacent to the site is highly suitable. The species has a high probability of being found on the site.
- Present – Species was observed on the site.

Sources

California Native Plant Society, Rare Plant Program. 2020. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Website http://www.rareplants.cnps.org [accessed January 2020].

California Department of Fish and Wildlife (CDFW). 2020. RareFind 5 Version 5.2.14. Website https://apps.wildlife.ca.gov/rarefind/view/RareFind.aspx [accessed January 2020]

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In Reply Refer to:
08ESMF00-2022-I-0218

December 8, 2021

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Subject: Informal Consultation on the Tricolored Blackbird Habitat Restoration at Beale Air Force, Yuba County, California

Dear Julia Riley:

This letter is in response to the Beale Air Force Base's (Beale AFB) October 1, 2021, email request for initiation of informal consultation with the U.S. Fish and Wildlife Service (Service) on the proposed Tricolored Blackbird (blackbird) Habitat Restoration Project (proposed project) at Beale AFB in Yuba County, California. The Service received your email request on October 1, 2021. At issue are the proposed project's effects on the federally-listed threatened vernal pool fairy shrimp (*Branchinecta lynchi*) (fairy shrimp), and the western yellow-billed cuckoo *(Coccyzus americanus)* (cuckoo), and the federally-listed as endangered vernal pool tadpole shrimp (*Lepidurus packardi*) (tadpole shrimp). This response is provided under the authority of the Endangered Species Act of 1973, as amended (16 U.S.C. §1531 et seq.) (Act) and in accordance with the implementing regulations pertaining to interagency cooperation (50 CFR 402).

The federal action we are consulting on Beale AFB's restoration of blackbird habitat. The proposed project will restore 12 acres of tri-colored blackbird habitat in compensation for destroying nesting blackbird habitat in 2015 that resulted in the death of birds without a permit.

Pursuant to 50 CFR §402.12(j), you submitted a biological assessment for our review and requested concurrence with the findings present therein. These findings conclude that the proposed project may affect but is not likely to adversely affect the fairy shrimp, the tadpole shrimp, and the cuckoo. The proposed project is not within designated or proposed critical habitat for any federally-listed species.

In considering your request, we based our evaluation of your findings on the following: (1) the October 1, 2021, letter initiating informal consultation; (2) the October 2021, *Tricolored Blackbird Habitat Restoration at Beale Air Force, California Informal Consultation,* received October 1, 2021; (3) telephone and email correspondence between the Service and Beale AFB

from October 1, 2021 to November 19, 2021; and (4) additional information available to the Service.

Project Description

The proposed project is located on Beale AFB in Yuba County, about 40 miles north of Sacramento. The proposed project consists of infrastructure improvements and habitat enhancements aimed at expanding tri-colored blackbird foraging and nesting habitat within two geographically separate action areas on Beale AFB; Blackbird Basin (104 acres) and Blackbird Marsh (61.2 acres).

The proposed project will accomplish much needed infrastructure repairs, and expand tri-colored blackbird habitat outside of the flight zone.

Blackbird Basin Area

Impoundment Repair and Habitat Enhancement

Within the Blackbird Basins area, the tri-colored blackbird habitat enhancements will include repair and/or resizing of four existing impoundments, superficial grading, installation of artificial nesting structures, restoration planting, augmentation of the water supply, and modification of the current grazing area with fencing. Currently, three of the four existing impoundments within the Blackbird Basins Restoration are compromised or subject to continuous downstream erosion. The proposed project will repair and/or elevate existing structures to re-establish and maintain shallow wetlands which will expand potential nesting and foraging habitat by 4 acres. Grading will be limited as soils in the area are shallow and bedrock is often exposed or near the surface. Upland areas will be seeded with a mix of native grasses and forbs and wet areas will be planted and/or seeded with native plants and allowed to regenerate naturally.

Grading will also be used to repair and stabilize slopes of eroding banks (downcutting) in the drainage channels within the proposed project. Grading will avoid branchiopod habitat and potentially protect the vernal pools from damage by future erosion of the stream channel if no action were taken.

In addition to impoundment repairs and grading, artificial tri-colored blackbird nesting structures will be strategically placed within the restoration area. These structures are designed to mimic the structure and function of commonly used non-native Himalayan blackberry (*Rubus armeniacus)* nesting sites, but will be planted with native plants (e.g., California mugwort *(Artemisia douglasiana),* California wild rose [*Rosa californica]*, California blackberry [*Rubus ursinus]*, cattail [*Typha angustifolia]*, and California grape [*Vitis californica]*). Each individual artificial nesting structure will be a maximum of 8 feet long x 8 feet wide x 8 feet tall, and will be placed adjacent to one another to increase length and or width. Structures are composed of either a t-post or 2-foot x 4-foot lumber frame covered by a wire trellis (barbed wire or galvanized welded wire fencing). T-posts or pressure-treated lumber frames will be driven into native soil without penetrating the hardpan. Ultimately, native plantings will cover these structures, providing tri-colored blackbird nesting sites that are protected from common nest predators (coyote [*Canis latrans*], raccoon [*Procyon lotor*], and gray fox [*Urocyon cinereoargenteus*]).

To ensure quality wetland habitat for tri-colored blackbird and to buffer seasonal fluctuations in precipitation, water augmentation infrastructure will be established at the upstream end of two tributaries within the Blackbird Basin. These water sources will be used to (1) irrigate plantings during the initial phases of plant establishment, (2) regulate hydrology during and after tri-colored blackbird nesting, and (3) provide a source of water for cattle outside fenced riparian areas. The preferred method of water infrastructure will be to install up to two wells over 70 feet away from vernal pool species habitat: one upstream of each of the two tributaries feeding the Blackbird Basin area. An existing well in the area downstream and at a lower elevation indicate that ground water is 8-23 feet below ground surface. Well installation will include a small concrete pad (typically 4 feet x 4 feet) around the well casing, extending at least 2 feet (ft) in each direction. The concrete pad will be six inches thick, reinforced with heavy screen or rebar, and sealed to the well casing. Fencing will be constructed immediately surrounding the structures to protect well casing and associated control panel from livestock. A discharge pipe will be run above ground to the stream channel with proper anchoring and diffusion at the outlet as needed to prevent erosion. Alternatively, an existing main water line along the northern edge of the proposed Blackbird Basin project area may be connected and filtered to provide a reliable source of water to augment the existing hydrology.

Laydown Area

The staging and laydown area will be located approximately 0.5 mi from the Blackbird Basin project area, in the vicinity of the large drinking water storage tanks at the northern end of B Street. A large gravel shoulder that has been used for staging during previous projects lies adjacent to the water storage tank along the north side. This laydown area will be used to stage construction equipment, materials, and temporarily stockpile debris prior to off-site disposal and recycling.

Access Route

The Blackbird Basin area will be accessed at the northern end of B Street. A gravel road continues southeast from the proposed laydown area and crosses the two tributaries that feed the proposed project south of the road.

Fencing

All grazing will be consistent with the *Non-Native Noxious Plant Species Management Project* (08ESMF00-2020-I-1563). The existing barbed-wire fencing within both proposed project areas will be removed and rerouted to exclude cattle from the expanded wetlands and vegetation plantings while allowing current grazing practices on nearby uplands to continue. Some of the new grazing fence will be temporary and left in place until the habitat is stabilized and established, then removed to allow for grazing. The wetlands will be monitored and grazing will be adjusted to avoid damage to wetlands. New fencing will be installed in accordance with existing best management practices for grazing infrastructure on Beale AFB including installation of all t-posts outside of wetland features.

- Steel t-posts (line posts) will be installed 12’ to 30’ apart (with stays) and will be placed to avoid impacts to wetlands. These will be driven into the ground 1.5’ deep using small equipment such as a hydraulic post driver or compact track loader type vehicles.

- Wooden corner posts and H-braces will be pressure-treated and seated 2.5' to 4' deep using similar equipment as for the t-posts. Post holes may be driven/pounded or drilled and filled with cement or base course rock to stabilize. No H-braces will be installed within 20 feet of potential branchiopod habitat.

- Steel corner or brace posts will be seated a minimum depth of 3.5' deep using similar equipment as the t-posts. Post holes may be driven/pounded or drilled and filled with cement or base course rock to stabilize. No steel corner/brace posts will be installed within 20 feet of potential branchiopod habitat.

- Gate posts will be set in concrete approximately 2.5'-3.5' deep and filled with concrete and crowned at post to prevent water from ponding around post. No gate posts will be installed within 20 feet of potential branchiopod habitat

Blackbird Marsh Area

Dam Repairs and Habitat Enhancements

Within the Blackbird Marsh area, tri-colored blackbird habitat enhancements will include repairs to the man-made earth and rock dam and associated spillway, grading, installation of artificial nesting structures, restoration planting, augmentation of the water supply, and modification of existing grazing areas. The existing dam is in poor condition due to root intrusion, seepage, and erosion of the spillway. Recent inspections recommend complete and continual removal of vegetation from the dam and spillway (USACE 2019), which will result in the loss of habitat used for nesting by tri-colored blackbird during the 2020/21 breeding season. To improve the safety of the dam and eliminate the need for vegetation removal, the proposed project will include rebuilding the top of the spillway below its current elevation and/or adding an outlet control structure. Habitat enhancements will also include grading within and upstream of the existing pond basin to expand the inundated habitats associated with Blackbird Marsh. To make areas suitable for colonization by cattails, graded areas will have shallow slopes to help maximize management of water depths between 6-18 inches, while retaining some open water areas greater than 3 feet deep. An additional 2.5 acres of shallow bench habitat will be created (from approximately 2 acres to 4.5 acres) and the total area of the pond will be increased by 4 acres.

Grading will also be used to repair and stabilize slopes of eroding banks (downcutting) in the two northern and the southern drainage channels. However, grading will avoid branchiopod habitat and potentially protect the vernal pools from damage by future erosion of the stream channel if no action was taken. In addition, up to 1.5 acres of off-channel wetlands will be installed/enhanced along the drainage to provide habitat for large insect prey species. Artificial tri-colored blackbird nesting structures will be strategically placed within the Blackbird Marsh proposed project area using the same approach described for the Blackbird Basins proposed project area. In addition to restoration plantings associated with artificial nesting structures, native riparian and wetland vegetation will be planted along the pond margin and within the new wetland areas.

Water augmentation will also be used at the Blackbird Marsh proposed project area to ensure quality wetland habitat and to buffer seasonal fluctuations in precipitation, similar to the approach described for the Blackbird Basins proposed project area. The preferred method of water infrastructure is to install a single well upstream of Blackbird Marsh. The well will be

installed over 70 feet away from vernal pool species habitat and will be used to provide a reliable source of water to irrigate plantings during the initial phases of plant establishment, regulate hydrology during and after blackbird nesting, and provide a source of water for cattle outside fenced riparian area. See description above for well installation. Alternatively, an existing main water line that currently runs along Warren Shingle Road upstream of the Blackbird Marsh proposed project area may be connected and filtered to provide a reliable source for water augmentation.

Laydown Area

The staging and laydown area will be located approximately 0.5 mile from the Blackbird Marsh proposed project area on the south side of Warren Shingle Road, opposite the Beale AFB Clinic. A large gravel shoulder provides access to grazing areas adjacent to Warren Shingle Road. This laydown area will be used to stage construction equipment, materials, and temporarily stockpile project debris prior to off-site disposal and recycling.

Access Route

The Blackbird Marsh proposed project area will be accessed from the gravel pullout south of Warren Shingle Road directly across from the Beale AFB Clinic. This pullout leads to a grave/dirt road used to access a cattle trough and was previously used for access to sewer repair project in 2016.

Fencing

See above Black Bird Basin Area.

Maintenance

Long-term maintenance will include the removal of woody riparian vegetation, cattail management, invasive species management, the removal of sediment, and maintenance of pasture fencing. These activities will be needed to maintain habitat conditions for the tri-colored blackbird (i.e., open water, protected nesting substrates, and suitable foraging areas). For further detail of maintenance refer back to the October 2021, *Tricolored Blackbird Habitat Restoration at Beale Air Force, California Informal Consultation Biological Assessment.*

Conservation Measures

Beale AFB and its contractors will implement the following measures to reduce the potential for adverse effects to the fairy shrimp, the tadpole shrimp, the cuckoo and their habitat. For the purposes of this consultation, a "qualified biologist," as referenced in this document, refers to an individual who, at a minimum, holds a four-year degree in a relevant biological field and who has demonstrated knowledge and experience with fairy shrimp and tadpole shrimp and vernal pools.

Monitoring

1. **Preconstruction Surveys:** A qualified biologist will conduct pre-project surveys of all ground disturbance areas in sensitive habitats, 2 weeks prior to the start of the project to confirm the information in this document is still correct and conditions have not changed. If any sensitive species are found during the pre-project surveys, the Qualified Biologist

will contact the Beale AFB Natural Resource Manager (NRM) who will coordinate with the Service. No project activities will begin until proponents have received written approval from the Service that the biologist(s) is qualified to conduct the work.

2. **Biological Monitor:** A qualified biologist will monitor construction activities in or adjacent to sensitive habitats. The biological monitor will ensure compliance with these conservation measures, required for protected species and their habitats. If protected species are found that are likely to be affected by work activities, the Qualified Biologist will have the authority to stop any aspect of the proposed action that could result in unauthorized take of a protected species. If the Qualified Biologist exercises this authority, the biologist will notify the Beale AFB NRM who will then contact the Service by telephone and email within 1 working day.

Environmental Awareness Training

3. **Environmental Awareness Training**: Environmental awareness training will be provided for all construction/field personnel working on the proposed project by the qualified biologist/monitor. All personnel will participate in training before activities begin and as new workers join the proposed project activities. The program will consist of a briefing on environmental issues related to the proposed project. The training program will include an overview of the legal status, biology, distribution, habitat needs, and compliance requirements for each sensitive species that may occur in the action area. The presentation will also include a discussion of the legal protection for endangered species under the ESA, including penalties for violations. A fact sheet conveying this information will be distributed to all personnel who enter the project site. Upon completion of the orientation, employees will sign a form stating that they attended the program and understand all avoidance and minimization measures. These forms will be maintained at Beale AFB and will be accessible to the appropriate resource agencies**.**

General Conservation Measures

4. **Limited Operations Period:** No work will be conducted within 100 feet of streams or wetland feature between 1 November and 1 May, unless specifically approved by the Beale AFB NRM and the Service, if weather continues to be fair. Work continuation is dependent on prevailing conditions, forecasted weather, and whether or not activities will damage soil or vegetative cover. The NRM must be contacted to obtain permission to work after each storm event. Permission to work after 1 November will not be granted once wetlands are activated (standing water present). The only outdoor work allowed 12 hours before or after a storm event is the inspection, installation, and/or maintenance of erosions controls.

5. **Demarcation of Access Routes, Work and Staging Areas, and Sensitive Areas:** Prior to initiation of the proposed project, boundaries of access routes, work areas, staging areas, and sensitive areas (water features, potential habitat for sensitive species), will be clearly demarcated with orange construction barrier fencing (or an appropriate alternative method). Coordinate with the qualified biologist to stake and flag the boundaries of all access routes, work areas, and staging areas that are within sensitive habitat buffers, as exclusion zones where construction activities may not occur, to indicate where to install appropriate boundary and containment materials for the project. The flagging and fencing

will be clearly marked as identifying an environmentally sensitive area. The contractor will remove fencing, stakes, and flagging within 60 calendar days of project completion.

6. **Location of Work and Staging Areas:** All materials, vehicle parking and staging areas are designated by the Beale Environmental Office and are located at least 50 feet away from drainages and wetland features, or contained on hardscape surface. Storage of all construction material/debris will be kept to the designated storage/staging area. The number and size of staging areas and the total area of the activity will be limited to the minimum area necessary to achieve the project goal.

7. **Minimization of Off-Road Access Routes:** Off-road access routes will be established in upland areas as much as possible, and road length will be the minimum necessary, to reduce adverse effects on wetland features. Where it is necessary for access routes to go through a wetland feature, weight-dispersing mats will be placed over the wetland feature to avoid any potential effects to sensitive species and/or sensitive habitats. Off-pavement access routes can only be used if the soil is dry. Any ruts or furrows caused by operations shall be raked level by hand, compacted and restored to normal grade. Access routes will be restored as closely as possible to preconstruction contours and elevations. This will be done prior to leaving the current area of operation.

8. **Additional Access Routes:** If a new vehicle access route is required in special status species habitat, the route will be pre-surveyed by a qualified biologist to minimize impacts to sensitive resources, and reviewed by the NRM. If routes will be reused over multiple years, they will be assessed annually to ensure that they are clear of special-status species.

9. **Trenches and Holes:** No trenches or holes greater than 6 inches deep will be left open at the end of the day and may be covered with plywood or cone markers; trenched areas and holes will be compacted and restored to normal grade.

10. **Revegetation:** All upland vegetated areas disturbed by construction will be revegetated with the Beale AFB-approved native seed mix. Exposed soil must be hydro-seeded and depending on slope, covered with a biodegradable geotextile to prevent sediments from entering waterways. Any straw used for erosion control materials will be "certified weed free." Reseeded areas will be monitored and maintained by the contractor as needed until there is 70% survival of plantings and 70% vegetated ground cover in the seeded area.

11. **Suitable Material:** No activity may use unsuitable material (e.g., trash, debris, car bodies asphalt, etc.). Material used for construction or discharged must be free from toxic pollutants in toxic amounts.

12. **Speed Limits:** All vehicle operators will follow the posted speed limit on paved roads and a 15 MPH speed limit on unpaved roads.

13. **Pets/Firearms:** No pets or nonmilitary firearms will be allowed in the proposed project area during proposed project implementation.

14. **Garbage Removal:** During construction activities, all trash will be properly contained, removed from the work site daily, and disposed of properly. Following construction, all refuse and construction debris will be removed from work areas. All garbage and

construction-related materials in construction areas will be removed immediately following project completion.

15. **Green Waste Disposal:** All plant debris potentially containing reproductive parts (i.e., seeds or plant fragments for species that reproduce vegetatively) will be disposed of at an off-site landfill or green waste facility. It will be transported in a manner that prevents the spread of invasive plants to other locations. This action may require, but is not limited to, bagging the material before it is transported off-site.

16. **Invasive Species:** A qualified biologist will monitor and ensure that the spread or introduction of invasive exotic plant species will be avoided to the maximum extent possible. When practicable, invasive plants found in the action area will be removed using non-chemical methods. Specifically, equipment will be thoroughly cleaned of soil and vegetation before being delivered to the site to minimize the potential for spreading pathogens or exotic/invasive species. Equipment will be inspected by the Qualified Biologist and may be rejected if the Qualified Biologist determines that it is has not been adequately cleaned.

17. **Fueling and Servicing in Designated Areas:** Motor vehicles and equipment will only be fueled and serviced in designated service areas. All fueling and maintenance of vehicles and other equipment will occur on a paved surface or at least 100 feet from any wetland feature/ drainage, sensitive habitat, or water body, with spill containment. Prior to the onset of work, a plan will be prepared to allow a prompt and effective response to any accidental spills. Workers will be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.

18. **Equipment Condition:** Prior to use, all equipment will be cleaned to remove external oil, grease, fuels, dirt, or mud. All construction equipment/vehicles must be inspected daily, in good working condition, showing no signs of leaks. Equipment will be left on site, or inspected at return to the area. All equipment will have drip pans placed where potential leaks could occur. All leaks will be repaired off-site or in a suitable location prior to resumption of construction activity.

19. **Spill Plan:** If the project utilizes oil/POL bulk fuel storage containers a Spill Prevention Control and Countermeasure Plan will be prepared prior to the project implementation. All machinery will be properly maintained and cleaned to prevent spills and leaks. Any spills or leaks from the equipment will be reported and cleaned up in accordance with applicable local, state and federal regulations. Workers will be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur. The spill plan will be submitted to the Beale AFB Environmental Office for approval.

20. **Fire Prevention and Suppression Plan:** A fire prevention and suppression plan will be prepared prior to the proposed project implementation. The fire prevention and suppression plan shall be submitted to the Beale AFB NRM for Wildland Fire Chief approval.

21. **Erosion Control Systems:** Site-specific erosion control measures (i.e., hay bales, silt fencing) will be installed, maintained in effective operating condition and in place at all times during construction to protect drainage ditches, storm drains, wetlands and water

bodies from sedimentation resulting from construction activity. All wetlands/ drainages/ vernal pools will have erosion control measures installed when work is within 50 feet of a wetland feature or where hydrological continuity exists between the construction activities and the wetland. All exposed soil and other fills must be permanently stabilized at the earliest practicable date. Erosion control devices will not contain plastic netting and will be "certified weed free" to prevent the spread of invasive species.

22. **Dust Control:** All unpaved road areas will be watered, or alternative dust control measures will be used, during project construction to prevent excessive dust from silting nearby vernal pools.

23. **Excess Soil Protection:** Excess soil temporarily stored on-site during construction must be covered with geotextile stabilization blankets/tarp and wattles/gravel bags/socks to prevent exposure to the elements and to lessen chances of sedimentation due to storm water runoff and wind erosion. All remaining fill material will be removed in its entirety according to disposal requirements and the affected areas will be revegetated.

24. **Use of Excavated Soil on Base:** If excess materials, after appropriate testing has been conducted, are to be used on Beale AFB, the NRM will contact the Service before hauling the materials to ensure that the disposal site will not affect any sensitive species.

25. **Disposal of Excavated Soil:** All excess soil excavated during construction will be removed and disposed of at a landfill located off Beale AFB. If soil is contaminated, then Beale AFB Environmental Office will coordinate with the Army Corps of Engineers and/or Sacramento Water Regional Control Board, as appropriate prior to disposal of excavated soil.

26. **Upland Buffers:** Upland vegetated buffers will be established and maintained, to the maximum extent practicable, next to all preserved open waters, streams and wetlands including created, restored, enhanced, or preserved Waters of the US. Except in unusual circumstances, vegetated buffers will be at least 50 feet in width.

27. **Report Kills/Injuries:** Any worker who inadvertently kills or injures a protected species, or finds one injured or trapped, will immediately report the incident to the biological monitor. The biological monitor will notify Beale AFB NRM who will then verbally notify the Service within 3 business days and will provide written notification via email of the incident within 5 business days.

28. **Trenching Controls:** In unimproved areas, the top 6 to 12 inches of the trench or hole will be backfilled with topsoil from the trench.

29. **Pesticides:** If U.S. Air Force approved pesticides (herbicides, insecticides, etc.) are used at the proposed project site, they may only be applied by a DoD or California certified/licensed applicator. Beale AFB will ensure that label restrictions, and all regulations mandated by the Beale AFB IPMP, the Air Force Pest Management Program, a General NPDES Permit for Residual Aquatic Pesticide Discharges, DoD, U.S. Environmental Protection Agency and the California Department of Food and Agriculture are observed. No pesticides shall be used within 50 feet of a wetland unless approved by the Service and the Beale AFB NRM.

30. **Temporary Fills:** Temporary fills must be removed in their entirety, and the affected areas returned to pre-construction elevations. The affected areas must be revegetated as appropriate.

31. **Riprap:** The placement of riprap must be the minimum necessary to protect the structure or to ensure the safety of the structure.

32. **Fills within 100-year Floodplains:** The activity must comply with applicable Federal Emergency Management Agency-approved state or local floodplain management requirements

33. **T-post Placement:** All t-posts will be placed outside of wetland areas.

34. **Brace post Placement:** All new posts for H-braces and gates will be placed greater than 20 feet from any potential vernal pool shrimp habitat to avoid all direct and indirect effects. No posts will be driven deep enough to penetrate the hardpan. Above ground rock structures will be used when a t-post or H-brace needs to be located on an impenetrable rock surface.

Wetland and Vernal Pool Branchiopod Conservation Measures

35. **Wetland Erosion Control:** All work conducted within 50 feet of a wetland feature shall have construction boundaries designated with fencing to ensure no equipment will be in the vicinity of a drainage/wetland/vernal pool. All wetlands/drainages/vernal pools will have erosion control measures (straw wattles, hay bales, silt fencing) installed when work is within 50 feet of a wetland feature or where hydrological continuity exists between the construction activities and the wetland feature. Soil erosion and sediment control must be used and maintained in effective operating condition during construction, and all exposed soil and other fills must be permanently stabilized at the earliest practicable date.

36. **Wetland Feature Protection:** Intrusive work adjacent to branchiopod habitat will have protection (plastic tarps) covering the aquatic feature to ensure the soil being removed and backfilled during the excavation process does not adversely impact habitat.

37. **Wetland Pre-Project Vegetation Clearing:** If the project site is within 50 feet of a wetland feature, the pre-project clearing of vegetation will be done with hand equipment to ensure no subsurface disturbance below 6 inches occurs in or near the wetland. Mechanical clearing of vegetation is prohibited during the wet season.

38. **Well Installation:** Wells will be placed at least 70 feet from vernal species habitat in a way to avoid impacts to vernal pool species and hydrology.

Western Yellow-Billed Cuckoo Avoidance and Minimization Measures: For all proposed project activities that occur within 1,000 feet of suitable cuckoo breeding habitat (e.g. “Poor” habitat quality or greater as identified in Halterman 2019), during the cuckoo breeding season (June 1–August 31); a qualified biologist will make an initial site visit to verify the habitat suitability and determine the need for implementation of any of the below Conservation Measures or whether additional surveys are needed.

39. **Pre-Project Surveys:** Any projects that involve excessive noise (81 dB or more) or other disturbance within suitable cuckoo habitat, commencing between June 1 and August 31

(migration and breeding season), will require a minimum of three pre-project surveys to identify nesting birds, and will be conducted by a qualified biologist.

a. Surveys will follow Western Yellow-billed Cuckoo Natural History Summary and Survey Methodology (Halterman et al. 2015)

b. A minimum of three pre-project surveys will be conducted within a 1000-foot buffer of the project footprint and shall take place within 30 calendar days before the onset of construction or vegetation removal activities. The final survey will be within 3 calendar days of commencement of activities.

40. **Nesting Buffers:** If cuckoo nests are detected during the pre-project surveys, Beale AFB Environmental staff will establish buffers around nests that are sufficient to ensure that breeding is not likely to be disrupted or adversely impacted by the proposed project.

a. No-disturbance buffers around active nests will be a minimum of 1,000 feet, unless a qualified biologist determines that smaller buffers will be sufficient to avoid impacts to nesting cuckoo.

b. Factors to be considered for determining buffer size will include: the presence of natural buffers provided by vegetation or topography, nest height, locations of foraging territory, and baseline levels of noise and human activity.

c. Buffers will be maintained until a qualified biologist has determined that young have fledged and are no longer reliant upon the nest or parental care for survival.

41. **Vegetation Alteration:** No riparian vegetation alterations will occur in confirmed cuckoo breeding habitat area during the cuckoo nesting season, June 1 – August 31. This includes mechanical removal and herbicide spray treatment.

a. If vegetation removal cannot be avoided during nesting season, a qualified biologist will conduct a minimum of five surveys in the 30 calendar days leading up to the commencement of the project, with the final survey conducted within the 3 calendar days of commencement of the project. If cuckoos are found during the any of the surveys, vegetation removal will not proceed.

42. **Herbicide Treatment:** Herbicide treatments will be applied without motorized equipment during the nesting season (June 1 – August 31) unless otherwise approved by the Environmental Office or NRM. If a need for this is determined, surveys will be conducted first to ensure no nests are present.

43. **Pre-and Post-Project Surveys**: Pre- and post-project surveys will be conducted to record cuckoo habitat condition before the start of a project and after completion of the project for tracking purposes. This may include photos and/or species surveys and will be used to better manage for the species.

Monarch Butterfly Avoidance and Minimization Measures: Conservation measures will be adjusted if additional guidelines are released by the Service.

44. **Milkweed Training:** All individuals conducting work within the buffer area (100 or 250 feet as defined above) will receive training from a qualified biologist on the identification

of milkweed plants and a description of both adult and larval monarchs in order to identify and avoid milkweed and monarchs during all activities

45. **Pre-Project Surveys:** Preconstruction surveys to identify the presence of monarch host plants and to determine if any monarch eggs are present within the project footprint will be performed by a qualified biologist. If monarch eggs are detected during surveys, they will be flagged with a 25-foot avoidance buffer. A qualified biologist will monitor the buffer areas and construction in proximity to the host plant may resume after the caterpillars have metamorphosed.

46. **Milkweed Buffers:** A 2-foot buffer will be maintained around extant milkweed plants during off-road vehicle access, restoration and habitat enhancement planting, construction and other ground-disturbing activities to protect breeding habitat.

47. **Herbicide Use within 50 feet of Milkweed:** Unoccupied actively growing milkweed will be avoided by a minimum of 2 feet during the application of herbicides. Herbicide application within 50 feet of a milkweed plant will be conducted with a low-pressure backpack sprayer to reduce the risk of drift.

48. **Herbicide Use Near Occupied Monarch Habitat:** No broad-spectrum herbicide application will take place within 100 feet of occupied monarch habitat when wind speeds exceed 10 mph, or temperatures exceed 85°F to minimize potential for drift and volatilization.

49. **Pre-emergent Herbicide Use:** No persistent or pre-emergent herbicides will be used within 100 feet of milkweed or other occupied monarch habitats (e.g., roosting sites).

50. **Mowing:** Generally, mowing will not be conducted within 100 feet of areas with suitable monarch habitat during the active season (15-March through 31-October).

    a. If mowing must be conducted (i.e., for habitat restoration projects benefitting monarchs or other listed species) and vehicle access must be allowed, all milkweed plants will be identified and avoided.

    b. Additionally, if mowing occurs from March to June near areas where breeding occurs, mowing height will be set to a minimum of 10-12 inches to avoid cutting newly emerged plants.

    c. Any mowing during the summer months will be conducted during the morning (until 1100) to avoid injuring resting monarchs.

51. **Preservation of Trees:** Willows and other trees known to or with the potential to be (within occupied habitat) used as roosting sites will be avoided during construction and maintenance activities.

    a. Except for cut stump and wiping of target species, no herbicide application will occur during the active season of monarchs (15 March through 31 October) within 50 feet of known or potential roosting sites.

    b. No trimming of trees used by monarchs as roosting sites will occur during the active season (15 March through 31 October).

52. **Habitat Enhancement:** Projects occurring in or adjacent to known monarch breeding locations will incorporate native plants important for monarchs (e.g., milkweeds, late-season flowering shrubs) as part of the landscape or revegetation plans.

53. **Reseeding:** Any areas within 250 feet of known monarch breeding habitat requiring reseeding will include species beneficial to monarchs, including native milkweed. All seed mixes must be approved by the NRM.

After reviewing all the available information provided, the Service concurs with your determination that the proposed project, as described, may affect, but is not likely to adversely affect the fairy shrimp and tadpole shrimp. The proposed project occurs within the known range of the fairy shrimp and the tadpole shrimp and they are known to occur in the lowland habitats of Beale AFB. No fairy shrimp or tadpole shrimp have been documented at either of the two restoration sites. The nearest known occurrence of fairy shrimp and tadpole at Blackbird Basin and Blackbird Marsh is 7,250 feet and 10,500 feet and 2,100 and 9,750 respectively. Potential impacts from the proposed project will be minimized and avoided through implementation of the conservation measures including demarcation and avoidance of sensitive areas, erosion control systems and conducting work during the dry season. In addition to avoiding direct effects, the conservation measures will be used to reduce the potential for indirect effects associated with sedimentation of wetlands and vernal pools adjacent to, or down slope from, construction activities. Therefore, the Service believes that any potential adverse effects to the tadpole shrimp and fairy shrimp are unlikely to occur and are therefore discountable for the purposes of this consultation.

After reviewing all the available information provided, the Service concurs with your determination that the proposed project, as described, may affect, but is not likely to adversely affect the cuckoo. The cuckoo has not been documented within either restoration area identified in the proposed project. The propose project will avoid impacts to poor quality cuckoo habitat located in the Dry Creek riparian area. The proposed project is scheduled to start before the cuckoo breeding period in May, and will be creating disturbance and noise during the time period when the cuckoo would be selecting nesting sites. Therefore, the Service believes that any potential effect to the cuckoo will be extremely unlikely to occur and are therefore discountable for the purposes of this consultation.

This concurrence is provided specific to this proposed project area, and for the proposed project action only as described within your request. Therefore, if: 1) new information reveals the effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this review; 2) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this review; or 3) a new species is listed or critical habitat designated that may be affected by the action. Please note, however, that this letter does not authorize take of listed species.

If you have any questions regarding the proposed Tricolored Blackbird Habitat Restoration at Beale Air Force, at Beale Air Force Base, please contact Cathy Johnson at cathy_s_johnson@fws.gov.

Sincerely,

Jennifer Hobbs
Supervisor, Military and Waterway Planning Division

ec:
Tamara Gallentine, Natural & Cultural Resources Manager, Beale Air Force Base

LITERATURE CITED

Beedy, E. C., and Hamilton, W. J., III. 1999. Tricolored Blackbird (Agelaius tricolor), in The Birds of North America (A. Poole and F. Gill, eds.), no. 423. Birds N. Am., Philadelphia.

Halterman, M., M.J. Johnson, J.A. Holmes and S.A. Laymon. 2015. A Natural History Summary and Survey Protocol for the Western Distinct Population Segment of the Yellow-billed Cuckoo: U.S. Fish and Wildlife Techniques and Methods, 45 p.

Halterman, M. 2019. Western Yellow-billed Cuckoo Surveys on Beale AFB, California. February 2019. Prepared for U.S. Air Force, Installation Support Section Beale Air Force Base and Center for Environmental Management of Military Lands, Fort Collins, CO.

Hopkinson, P., S. Ratay, J. Marty, Marty M. Ball, E. Howe, J. LaBonte, and K. Olthof. 2017. Updated Invasive Plant Species Management Guidelines Beale Air Force Base, California. Fort Collins, CO: Center for Environmental Management of Military Lands, Colorado State. Revised November 2017

Meese, R. J. and E. C. Beedy. 2015. "Managing nesting and foraging habitats to benefit breeding Tricolored Blackbirds." Central Valley Bird Club Bulletin 17 (No. 2-4):79-96.

Sojda, R. S. and K. L. Solberg. 1993. "Management and Control of Cattails." Waterfowl Management Handbook. U.S. Department of the Interior Fish and Wildlife Service Leaflet 13.4.13.

U.S. Army Corps of Engineers [USACE]. 2019. Comprehensive Hydraulic Modeling Study for Beale Air Force Base. Sacramento District.

U.S. Fish and Wildlife Service [USFWS]. 2020. Informal Consultation on Non-Native and Noxious Plant Species Management Project, Beale Air Force Base, Yuba County, California. October 6, 2020. Reference # 08ESMF00 2020-I-1563

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 9TH RECONNAISSANCE WING (ACC)
BEALE AIR FORCE BASE, CALIFORNIA

MEMORANDUM FOR U.S. FISH AND WILDLIFE SERVICE
ATTN: MR. MICHAEL FRIS
2800 Cottage Way, Room W2605
Sacramento, CA 95825-1846

FROM: 9 CES/CEIE
6425 B Street, Bldg. 25390
Beale AFB, CA 95903-1708

SUBJECT: Informal Consultation – Tricolored Blackbird Habitat Restoration at Beale Air Force Base (AFB), California

1. The intent of this letter is to submit an informal biological assessment (BA) to the U.S. Fish and Wildlife Service (USFWS) to initiate consultation pursuant to Section 7 of the Endangered Species Act (ESA) of 1973 (16 United States Code [U.S.C.] 1536) for the Tricolored Blackbird Habitat Restoration Project at Beale AFB, California. Beale AFB has prepared an informal BA document summarizing the details of the project and effects (Attachment).

2. The activities that will be authorized under this informal BA may affect, not likely to adversely affect vernal pool tadpole shrimp (*Lepidurus packardi*), vernal pool fairy shrimp (*Branchinecta lynchi*) and western yellow-billed cuckoo (*Coccyzus americanus occidentalis*). Additionally, the activities in this BA may affect, not likely to adversely affect the monarch butterfly (Danaus plexippus) that is currently under review for federal listing under the ESA. Beale AFB has determined this Proposed Action is not likely to affect other federally-listed species occurring in the general region of the Action Area on Beale AFB. This determination is based on field observations, prior consultations with USFWS, and past experience with other projects.

3. Please review the enclosed documents and if you have comments or need additional information on this project, contact Tamara Gallentine, Beale AFB Natural & Cultural Resources Program Manager, at (530) 634-2738 or tamara.gallentine.2@us.af.mil.

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Date: 2021.09.30 19:15:16 -07'00'

JULIA L. RILEY, GS-13, USAF
Environmental Element Chief

Attachment:
Informal Consultation – Tricolored Blackbird Habitat Restoration at Beale Air Force Base, California

TRICOLORED BLACKBIRD HABITAT RESTORATION

AT

BEALE AIR FORCE BASE, CALIFORNIA

Informal Consultation

1 OCTOBER 2021

PREPARED BY:

BEALE AIR FORCE BASE
9 CES/CEIE
6425 B STREET
BEALE AIR FORCE BASE, CA 95903-1712

CONTACT:
TAMARA GALLENTINE
NATURAL RESOURCES MANAGER
(530) 634-2738
tamara.gallentine.2@us.af.mil

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Acronyms and Abbreviations

AFB	Air Force Base
AMM	Avoidance and Minimization Measure
CFR	Code of Federal Regulations
CRLF	California Red-Legged Frog
ESA	Endangered Species Act
TRBL	Tricolored Blackbird
U.S.TRBL	United StatesTricolored Blackbird
WoUS	Waters of the United States
WYBC	Western yellow-billed cuckoo

1.0 Introduction

The purpose of this informal consultation is to review the proposed Tricolored Blackbird Habitat Restoration Project (Proposed Action) at Beale Air Force Base (AFB) in sufficient detail to determine to what extent the Proposed Action may affect threatened and endangered species and designated or proposed critical habitats under the Endangered Species Act (ESA). This informal consultation has been prepared in accordance with legal requirements set forth under regulations implementing Section 7 of the ESA (50 CFR 402; 16 USC 1536 (c)). As noted on the official list, there is no designated or proposed critical habitat for any species within the area covered by the Proposed Action on Beale AFB due to the benefits provided to these species through the INRMP, per the ESA (16 USC) Section 4(a)(3)(B)(i).

The purpose of the Tricolored Blackbird Restoration Project is to compensate for 12 acres of lost nesting habitat that was removed on Beale AFB in 2015 and killed thousands of birds without a permit and uphold Beale's subsequent agreement with the USFWS to create and/or enhance 12 acres of potential nesting habitat and adjacent suitable foraging habitat away from the flightline, to benefit Tricolored Blackbird (*Agelaius tricolor*; TRBL) at Beale AFB. In 2015, TRBLs presented a serious flight safety risk on Beale AFB, where large flocks of nesting birds crossed back and forth across the runway from nesting habitat to foraging habitat. Annual efforts, since 2016, have been and currently are continuing to be made to eliminate nesting habitat in the area west of the flightline to minimize risks to flying aircraft and personnel.

The TRBL was petitioned for listing under the ESA in February 2015 and on September 18, 2015, the Service stated in the Federal Register that a petition for listing presented substantial scientific or commercial information indicating that listing the TRBL may be warranted (USFWS 2015b), prompting a review of the species status. The 12-month finding for the TRBL determined that it did not warrant listing under the federal ESA (USFWS 2019). This species is a federal Bird of Conservation Concern (BCC) (USFWS 2008) and a Department of Defense Partners in Flight (DOD-PIF) Mission-Sensitive Species.

The Proposed Action is greater than 3 miles east of the Beale AFB runway and 6 miles east of the prior nesting habitat. TRBLs, during the breeding season, tend to forage within three miles of their breeding colonies (Beedy and Hamilton, 1999). The Proposed Action would repair deteriorating impoundment infrastructure and expand potential tricolored blackbird nesting and foraging habitats at two locations on Beale AFB (Beale AFB 2021). Both locations are intended to provide high quality TRBL breeding and foraging habitat that is more than 3 miles from the Base flight line to avoid bird aircraft strike hazards.

The two Action Areas, named Blackbird Basins and Blackbird Marsh, are within the Beale AFB boundary, in Yuba County, California (Figure 1). The Proposed Action would consist of the following:

- Repairs to an existing dam and associated spillway
- Repairs and improvements to four existing impoundments
- Grading to expand an existing floodplain
- Grading to repair and stabilize slopes of eroding banks (downcutting) in the drainage channels
- Creating up to 4 acres additional wetland habitat
- Planting to ensure that target plant species establish at the restoration site
- Addition of experimental TRBL nesting structures
- Fencing to exclude cattle from expanded riparian areas and to encourage/establish desirable nesting vegetation
- Augmenting water flows to maintain vegetation that promotes desirable TRBL nesting conditions
- Future site maintenance

The following listed and candidate species may be affected by the Proposed Action and are addressed in this informal consultation:

- Vernal pool fairy shrimp (*Branchinecta lynchi*) – **Federally Threatened**
- Vernal pool tadpole shrimp (*Lepidurus packardi*) – **Federally Endangered**
- Western yellow-billed cuckoo (WYBC) (*Coccyzus americanus*) – **Federally Threatened**
- Monarch butterfly (Monarch) (*Danaus plexippus plexippus*) – **Candidate Species**

The following species were eliminated from consideration for the reasons described in section 3.5 of this document:

- Conservancy fairy shrimp (*Branchinecta conservatio)* – **Federally Endangered**
- Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus)* – **Federally Threatened**
- Giant garter snake (*Thamnophis gigas)* – **Federally Threatened**
- California red-legged frog (CRLF) (*Rana draytonii)* – **Federally Threatened**

Additionally, this consultation will analyze effects to one additional species that is currently a candidate species for federal listing under the ESA, the monarch butterfly (*Danaus plexippus*). While the monarch butterfly is not at present eligible for protection under the ESA, it warrants inclusion because of the species' current candidate status, its known and extensive occurrence on Beale AFB, and the potential for the species to be affected by the Proposed Action.

Adherence to the Avoidance and Minimization Measures (AMM) included in the project description would prevent the Proposed Action from adversely affecting listed species and their

habitats. For this reason, Beale AFB believes the Proposed Action warrants a determination of May Affect, Not Likely to Adversely Affect vernal pool fairy shrimp, vernal pool tadpole shrimp, Western yellow-billed cuckoo, or monarch butterfly.

2.0 Proposed Action

2.1 Overview

The Proposed Action consists of infrastructure improvements and habitat enhancements aimed at expanding TRBL foraging and nesting habitat within two geographically separate Action Areas on Beale AFB (Figure 1); Blackbird Basins Action Area (upstream of Frisky Lake) and Blackbird Marsh Action Area (formerly called Clinic and/or Hospital Pond). This Proposed Project would accomplish much needed infrastructure repairs, and expand existing TRBL habitat away from the Base runway.

The Blackbird Basins Action Area includes four small impoundments upstream of Frisky Lake. These impoundments are in disrepair and would be repaired to re-establish ponding for shallow wetlands, thereby improving their capacity to support TRBL nesting vegetation. Along with impoundment repairs, a combination of superficial grading, native marsh plant restoration, installation of experimental TRBL nesting structures, and the addition of pasture fencing to improve and expand as much wetland area as possible behind the impoundments without impacting protected resources for TRBL nesting habitat in an around the existing impoundment structures.

Similarly, the Blackbird Marsh Action Area has an aging earthen dam that is in poor condition (USACE 2019), and concrete blocks within the spillway are contributing to downstream erosion. Regardless of its poor condition, TRBL used the willows and non-native Himalayan blackberry (blackberry) (*Rubus armeniacus)* patches growing from the existing dam for nesting in 2020 and 2021, and nested in upstream blackberry patches in 2021. Work in the vicinity of Blackbird Marsh would repair the existing dam and expand existing TRBL nesting habitat above the dam. Dam repairs would include rebuilding the spillway and the possible addition of an outlet control structure to help manage lake levels during winter storms. In addition to dam repairs, the Blackbird Marsh immediately upstream of the dam would be re-contoured to promote marsh vegetation and TRBL nesting habitat. Along with this grading, native vegetation would be planted within the expanded wetland areas and in the vicinity of strategically placed artificial TRBL nesting structures.

To buffer the effects of seasonal fluctuations in precipitation, water augmentation infrastructure would be installed at the upstream end of each of the two Action Areas. Water augmentation infrastructure would be used to (1) irrigate plantings during the initial phases of plant establishment, (2) regulate hydrology during and after TRBL nesting, and (3) provide a source of water for cattle outside fenced riparian areas that would not be connected to a drinking water line.

2.2 Fencing

Appropriately managed grazing can help to reduce the thatch of non-native grasses, keep grasses short, and provide manure to attract insect prey. Grazing cattle can also disturb insect prey as they graze, making them more available to foraging birds (Meese and Beedy 2015). As such, the existing barbed-wire fencing within both Action Areas would be removed and rerouted to protect the expanded wetlands and vegetation plantings while allowing current grazing practices on nearby uplands to continue. Continued grazing would help to reduce the thatch of non-native grasses, keep grasses short, and provide manure to attract insect prey. Some of the new grazing fence would be potentially temporary and left in place until the habitat is stabilized and established, then removed to allow for grazing. The temporary fence and permanent fence would be evaluated and monitored for grazing impacts and adjusted accordingly to avoid damage to wetlands and yet still allow grazing in as many wetlands as possible for their health. New fencing would be installed in accordance with existing best management practices for grazing infrastructure on Beale AFB including installation of all t-posts outside of wetland features.

- Steel t-posts (line posts) will be installed 12’ to 30’ apart (with stays) and will be placed to avoid impacts to wetlands. These will be driven into the ground 1.5’ deep using small equipment such as a hydraulic post driver or compact track loader type vehicles.
- Wooden corner posts and H-braces will be pressure-treated and seated 2.5’ to 4’ deep using similar equipment as for the t-posts. Post holes may be driven/pounded or drilled and filled with cement or base course rock to stabilize. *No H-braces will be installed within 20 feet of potential branchiopod habitat.*
- Steel corner or brace posts will be seated a minimum depth of 3.5’ deep using similar equipment as the t-posts. Post holes may be driven/pounded or drilled and filled with cement or base course rock to stabilize. *No steel corner/brace posts will be installed within 20 feet of potential branchiopod habitat.*
- Gate posts will be set in concrete approximately 2.5’-3.5’ deep and filled with concrete and crowned at post to prevent water from ponding around post. *No gate posts will be installed within 20 feet of potential branchiopod habitat.*

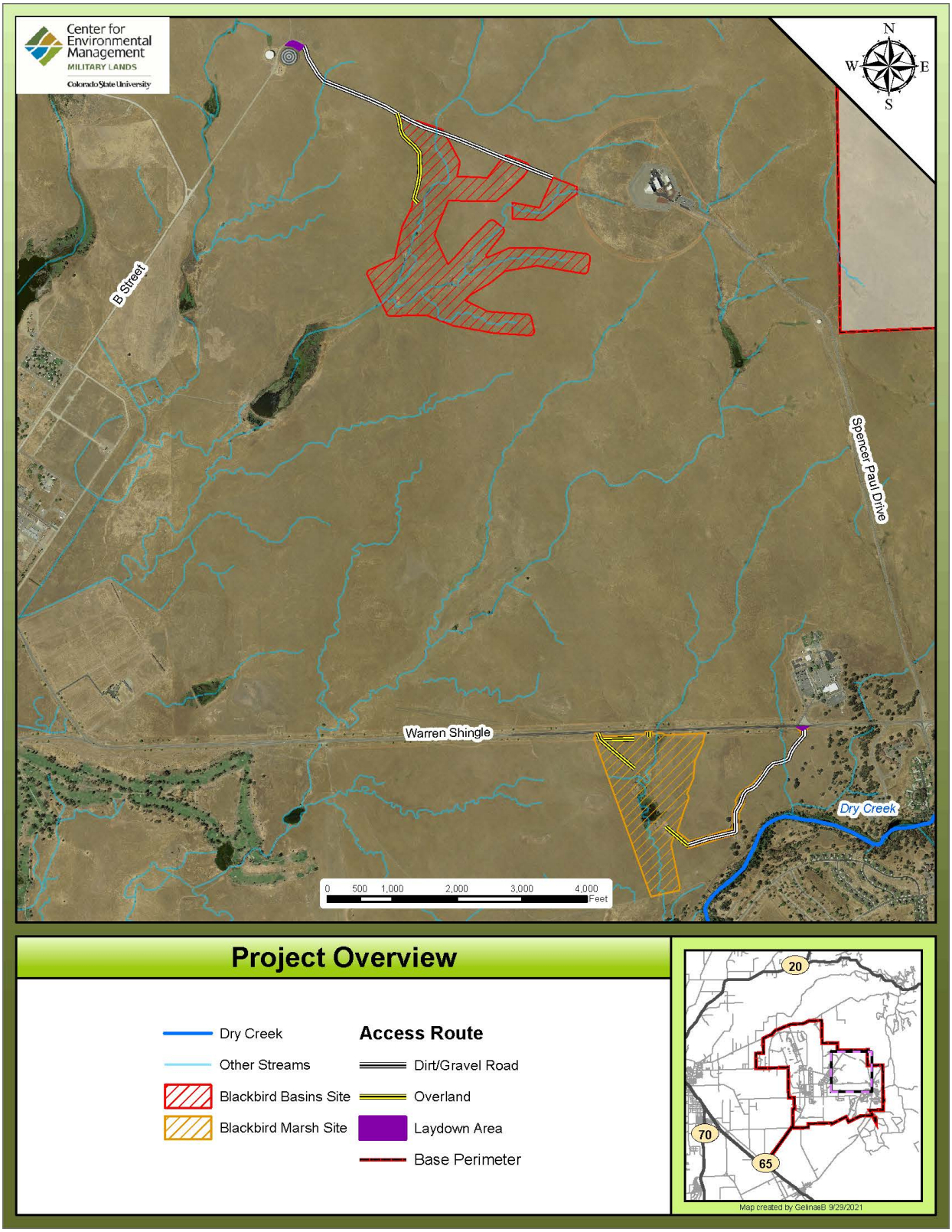

Figure 1. Project overview of proposed tricolored blackbird habitat restoration sites

2.3 Blackbird Basins Action Area

2.3.1 Impoundment Repair and Habitat Enhancements

Within the Blackbird Basins Action Area the TRBL habitat enhancements would include repair and/or resizing of the four existing impoundments, superficial grading, installation of artificial nesting structures, restoration planting, augmentation of the water supply, and modification of the current grazing area with fencing (Figure 2).

Currently, three of the four existing impoundments within the Blackbird Basins Restoration Action Area are compromised or subject to continuous downstream erosion (Figures 3-6). The Proposed Action would repair and/or elevate existing structures to re-establish and maintain shallow wetlands. The impoundment repairs and improvements would maintain the dams to be under reportable elevations/water holding capacities. In addition to expanding potential TRBL foraging habitat, this would improve the shallow wetland capacity of these areas to support large insect prey. Superficial grading of the associated wetlands currently at the impoundments may be conducted to expand the extent of high-quality foraging habitat in this area. Grading would be limited however, as soils in the area are shallow and bedrock is often exposed or near the surface. Upland areas would be seeded with a mix of native grasses and forbs and wet areas would be planted and/or seeded with native plants and allowed to regenerate naturally. The plant list can be found on page 16 in the *Habitat Restoration Plan for Tricolored Blackbird – Phase 1* (Beale AFB 2021).

Grading would also be used to repair and stabilize slopes of eroding banks (downcutting) in the drainage channels within the Action Area. However, grading would avoid branchiopod habitat and potentially protect the vernal pools from damage by future erosion of the stream channel if no action were taken.

In addition to impoundment repairs and grading, artificial TRBL nesting structures would be strategically placed within the restoration area. These structures are designed to mimic the structure and function of commonly used non-native Himalayan blackberry nesting sites, but would be planted with native plants (e.g., California mugwort [*Artemisia douglasiana*], California wild rose [*Rosa californica*], California blackberry [*Rubus ursinus*], cattail [*Typha angustifolia*], and California grape [*Vitis californica*]). Each individual artificial nesting structure would be a maximum of 8 feet long x 8 feet wide x 8 feet tall, and may be placed adjacent to one another to increase length and or width. Structures are composed of either a t-post or 2x4 lumber frame covered by a wire trellis (barbed wire or galvanized welded wire fencing). T-posts or pressure-treated lumber frames would be driven into native soil without penetrating the hardpan. Ultimately, native plantings would cover these structures, providing TRBL nesting sites that are protected from common nest predators (coyote [*Canis latrans*], raccoon [*Procyon lotor*], and gray fox [*Urocyon cinereoargenteus*]). Additional design details can be found in the *Habitat Restoration Plan for Tricolored Blackbird – Phase 1* (Appendix I; Beale AFB 2021).

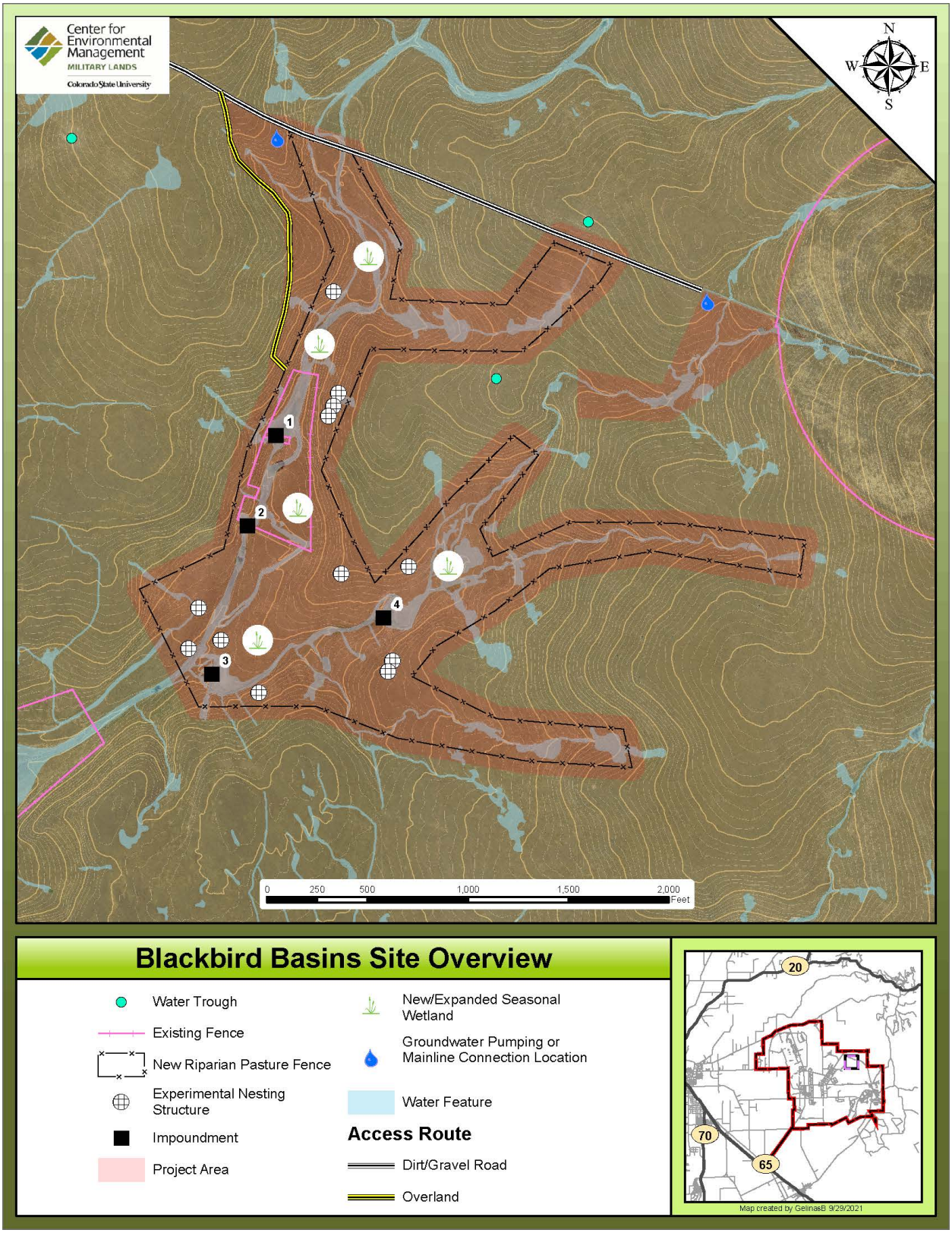

Figure 2. Blackbird Basins Action Area

Figure 3. Impoundment #1 (A), incised spillway looking SW, (B) and downstream erosion looking SW, (C), damaged impoundment looking west, within the Blackbird Basins Action Area

Figure 4. Erosion compromised impoundment #2, looking west, with VP#8813 in foreground, within the Blackbird Basins Action Area

Figure 5. Current condition of impoundment #3, looking NW, within the Blackbird Basins Action Area

Figure 6. Current condition of impoundment #4 (above) and the eroding spillway (below), looking north, within the Blackbird Basins Action Area

To ensure quality wetland habitat for TRBL and to buffer seasonal fluctuations in precipitation, water augmentation infrastructure would be established at the upstream end of two tributaries within the Blackbird Basins Action Area. These water sources would be used to (1) irrigate plantings during the initial phases of plant establishment, (2) regulate hydrology during and after TRBL nesting, and (3) provide a source of water for cattle outside fenced riparian areas. The preferred method of water infrastructure would be to install up to two wells; one upstream of each of the two tributaries feeding the Blackbird Basins Action Area. An existing well in the area downstream and at a lower elevation indicate that ground water is 8-23 feet below ground surface. Well installation would include a small concrete pad (typically 4 feet by 4 feet) around the well casing, extending at least 2 feet (ft) in each direction. The concrete pad would be six inches thick, reinforced with heavy screen or rebar, and sealed to the well casing. Fencing would be constructed immediately surrounding the structures to protect well casing and associated control panel from livestock. A discharge pipe would be run above ground to the stream channel with proper anchoring and diffusion at the outlet as needed to prevent erosion. Alternatively, an existing main water line along the northern edge of the proposed Blackbird Basins Action Area may be connected and filtered to provide a reliable source of water to augment the existing hydrology.

2.3.2 Laydown Area

The staging and laydown area, shown in Figure 1, would be located approximately 0.5 mi from the Blackbird Basins Action Area, in the vicinity of the large drinking water storage tanks at the northern end of B Street. A large gravel shoulder that has been used for staging during previous projects lies adjacent to the water storage tank along the north side. This laydown area would be used to stage construction equipment, materials, and temporarily stockpile debris prior to off-site disposal and recycling. See Figure 1.

2.3.3 Access Route

The Blackbird Basins Action Area would be accessed at the northern end of B Street. A gravel road continues southeast from the proposed laydown area and crosses the two tributaries that feed the Action Area south of the road.

2.4 Blackbird Marsh Action Area

2.4.1 Dam Repairs and Habitat Enhancements

Within the Blackbird Marsh Action Area, TRBL habitat enhancements would include repairs to the man-made earth and rock dam and associated spillway, grading, installation of artificial nesting structures, restoration planting, augmentation of the water supply, and modification of existing grazing areas (Figure 7).

The existing pond's aging dam is in poor condition due to root intrusion, seepage, and erosion of the spillway (Figure 8). Recent inspections recommend complete and continual removal of vegetation from the dam and spillway (USACE 2019), which would result in the loss of habitat used for nesting by TRBL during the 2020/21 breeding season. To improve the safety of the dam and eliminate the need for vegetation removal, the Proposed Action would include rebuilding the top of the spillway below its current elevation and/or adding an outlet control structure. Habitat enhancements would also include grading within and upstream of the existing pond basin to

expand the inundated habitats associated with Blackbird Marsh. To make areas suitable for colonization by cattails, graded areas would have shallow slopes to help maximize management of water depths between 6-18 inches, while retaining some open water areas greater than 3 feet deep. Shallow bench habitats would be increased by 2.5 acres (from approximately 2 acres to 4.5 acres) and the total storage volume of the pond would be increased to 30 to 40 acre-ft. The total maximum storage volume of the lake would be maintained below 50 acre-ft.

Grading would also be used to repair and stabilize slopes of eroding banks (downcutting) in the two northern and the southern drainage channels. However, grading would avoid branchiopod habitat and potentially protect the vernal pools from damage by future erosion of the stream channel if no action were taken. In addition, up to 1.5 acres of off-channel wetlands would be installed/enhanced along the drainage to provide habitat for large insect prey species.

Artificial TRBL nesting structures would be strategically placed within the Blackbird Marsh Action Area using the same approach described for the Blackbird Basins Action Area. These structures are designed to mimic the structure and function of commonly used non-native Himalayan blackberry nesting sites, but would be planted with native plants (e.g., California mugwort [*Artemisia douglasiana*], California wild rose [*Rosa californica*], California blackberry [*Rubus ursinus*], cattail [*Typha angustifolia*], and California grape [*Vitis californica*]). Additional design details can be found in the *Habitat Restoration Plan for Tricolored Blackbird – Phase 1* (Beale AFB 2021).

In addition to restoration plantings associated with artificial nesting structures, native riparian and wetland vegetation would be planted along the lake margin and within the new wetland areas.

Water augmentation would also be used at the Blackbird Marsh Action Area to ensure quality wetland habitat and to buffer seasonal fluctuations in precipitation, similar to the approach described for the Blackbird Basins Action Area. The preferred method of water infrastructure would be to install a single well upstream of Blackbird Marsh (Figure 7) to be used to provide a reliable source of water to irrigate plantings during the initial phases of plant establishment, regulate hydrology during and after TRBL nesting, and provide a source of water for cattle outside fenced riparian area. Similar to previously described, well installation would include a small concrete pad around the well casing and extend at least 2 feet in each direction. The concrete pad would be six inches thick, reinforced with heavy screen or rebar, and sealed to the well casing. Fencing would be constructed immediately surrounding the structures to protect the well casing and associated control panel from livestock. A discharge pipe would be run above ground to the stream channel with proper anchoring and diffusion at the outlet as needed to prevent erosion. Alternatively, an existingmain water line that currently runs along Warren Shingle Road upstream of the Blackbird Marsh Action Area may be connected and filtered to provide a reliable source for water augmentation.

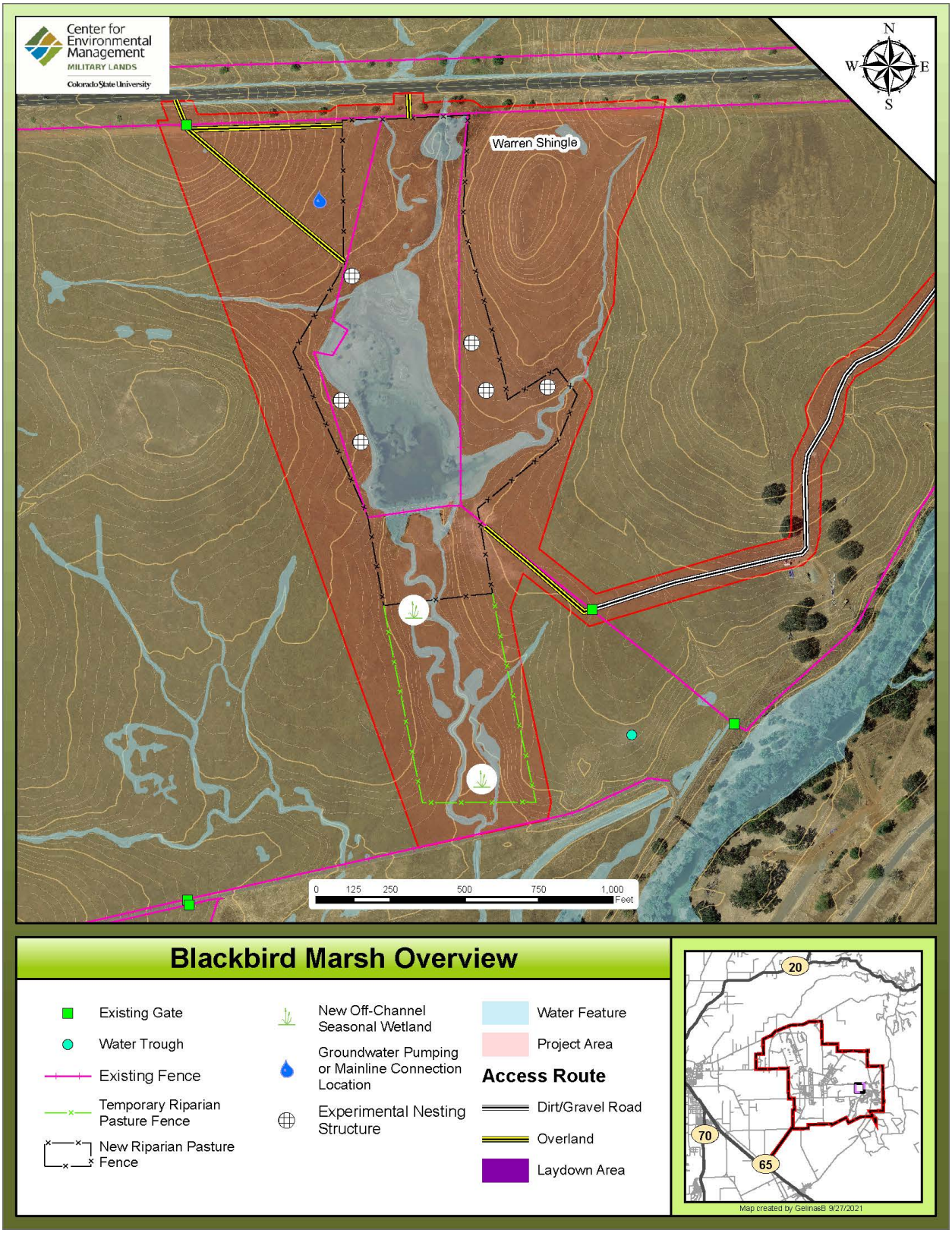

Figure 7. Blackbird Marsh Action Area

Figure 8. Blackbird Marsh Action Area (A), the pond spillway (B), and the heavily vegetated dam (C)

2.4.2 Laydown Area

The staging and laydown area would be located approximately 0.5 mile from the Blackbird Marsh Action Area on the south side of Warren Shingle Road, opposite the Beale AFB Clinic. A large gravel shoulder provides access to grazing areas adjacent to Warren Shingle Road. This laydown area would be used to stage construction equipment, materials, and temporarily stockpile project debris prior to off-site disposal and recycling. See Figure 1.

2.4.3 Access Route

The Blackbird Marsh Action Area would be accessed from the gravel pullout south of Warren Shingle Road directly across from the Beale AFB Clinic. This pullout leads to a grave/dirt road used to access a cattle trough and was previously used for access to sewer repair project in 2016.

2.5 Maintenance

Maintenance following the Proposed Action could include the removal of woody riparian vegetation, cattail management, invasive species management, the removal of sediment, and

maintenance of pasture fencing. These activities may be needed to maintain habitat conditions for TRBL (i.e., open water, protected nesting substrates, and suitable foraging areas).

Woody riparian vegetation would only need to be removed if conditions were deemed detrimental to the nesting success of TRBL. For examples, if woody riparian vegetation was believed to be encouraging the presence of avian predators or compromising pond hydrology.

Regular cattail management would benefit TRBL, as they prefer dense stands of new cattail growth for nesting. As such, old cattails may need to be removed regularly through late-fall by burning (preferred), cutting, disking, or masticating (Meese and Beedy 2015). In addition, water levels would be manipulated to manage cattail establishment and encroachment. Cattails do not germinate under more than 0.5 inches of water, but require moist soils (Soida and Solberg 1993). For initial establishment, water levels would be raised in midsummer to saturate soils, then drawn down after seeding has occurred. Once established, cattails would be managed to be a minimum of 4 feet high by May 1 annually. To manage established cattails, marsh habitats would be flooded in the winter and flooded conditions would be maintained through the early summer. If needed, late summer drawdowns (after TRBL nesting) would be used to stimulate additional cattail germination and removal.

Invasive plant species that compromise TRBL nesting or foraging habitats would be managed according to this Proposed Project and the Non-Native and Noxious Plant Species Management Project (USFWS 2020). In addition to invasive plant management efforts outlined in Beale AFB's Invasive Plant Species Management Guidelines (Hopkinson et al. 2017), post-construction monitoring would be conducted to identify new invasions.

In addition to vegetation management, sediment removal may be necessary as maintenance. Accumulation of sediment may result in significant loss of the deep-water moats and subsequent vegetation encroachment, the affected areas would be cleaned out to maintain design depths. Vegetation accumulation and maintenance would be the likely cause of sedimentation within the site. The road, grazing and firebreak north of the Action Area are potential outside sources of sedimentation. Sediment removal would occur after the end of the tricolored blackbird nesting season (as determined by a qualified biologist) but prior to October 15. Water level in Blackbird Marsh would be drawn down naturally when water augmentation would cease, or active dewatering through a low-level release valve (if installed in the dam at Blackbird Marsh during dam upgrade) or pumping through the spillway. A backhoe or similar piece of heavy equipment would be used to remove accumulated sediment. If areas of Blackbird Marsh cannot be reached by a bucket arm of equipment staged outside the lakebed, or if the dewatered lakebed is not suitable to accommodate access of a tracked vehicle for sediment removal, the lake level may be raised to facilitate use of a suction or cutter-suction type floating dredge. Spillway or low-level releases would not occur during or immediately after clean out operations to ensure turbid water settles prior to release. Any excavated soils would be tested for contamination before removal from any site. Once determined to be clean, the soil would be used on the Base as fill for other projects, or removed from the Base to an approved landfill.

2.6 Avoidance and Minimization Measures

The Proposed Action would implement the AMMs listed below based upon consultations on similar construction projects conducted on Beale AFB that have received concurrence (e.g., USFWS 2019a,b,c). The assessment of the potential impacts of the Proposed Action is based on the implementation of these measures.

Beale AFB and its contractors implement the following Conservation Measures to reduce the potential for adverse effects to fairy shrimp and tadpole shrimp and their habitat. For the purposes of this consultation, a "qualified biologist," as referenced in this document, refers to an individual who, at a minimum, holds a four-year degree in a relevant biological field and who has demonstrated knowledge and experience with fairy shrimp, tadpole shrimp, and vernal pool habitat, WYBC, and monarch habitat. The Beale AFB Natural Resources Manager (NRM) will review the resume(s) for sufficiency prior to submitting to the Service. The Service has 5 business days to refuse the submittal.

Note: USFWS is referred to as the Service.

Monitoring

1. **Preconstruction Surveys:** A Qualified Biologist will conduct pre-project surveys of all ground disturbance areas in sensitive habitats, 2 weeks prior to the start of the project to confirm the information in this document is still correct and conditions have not changed. If any sensitive species are found during the pre-project surveys, the Qualified Biologist will contact the Beale AFB NRM who will coordinate with the Service. No project activities will begin until proponents have received written approval from the Service that the biologist(s) is qualified to conduct the work.
2. **Biological Monitor:** A Qualified Biologist will monitor construction activities in or adjacent to sensitive habitats. The biological monitor will ensure compliance with these conservation measures, required for protected species and their habitats. If protected species are found that are likely to be affected by work activities, the Qualified Biologist will have the authority to stop any aspect of the proposed action that could result in unauthorized take of a protected species. If the Qualified Biologist exercises this authority, the biologist will notify the Beale AFB NRM who will then contact the Service by telephone and email within 1 working day.

Environmental Awareness Training

3. **Environmental Awareness Training:** Environmental awareness training will be provided for all construction/field personnel working on the proposed project by the Qualified Biologist/monitor. All personnel will participate in training before activities begin and as new workers join the proposed project activities. The program will consist of a briefing on environmental issues related to the proposed project. The training program will include an overview of the legal status, biology, distribution, habitat needs, and compliance requirements for each sensitive species that may occur in the action area. The presentation will also include a discussion of the legal protection for endangered species under the ESA, including penalties for violations. A fact sheet conveying this information will be

distributed to all personnel who enter the project site. Upon completion of the orientation, employees will sign a form stating that they attended the program and understand all avoidance and minimization measures. These forms will be maintained at Beale AFB and will be accessible to the appropriate resource agencies.

General Avoidance and Minimization Measures

4. **Limited Operations Period:** No work will be conducted within 100 feet of streams or wetland feature between 1 November and 1 May, unless specifically approved by the Beale AFB NRM and the Service; if weather continues to be fair. Work continuation is dependent on prevailing conditions, forecasted weather, and whether or not activities will damage soil or vegetative cover. The NRM must be contacted to obtain permission to work after each storm event. Permission to work after 1 November will not be granted once wetlands are activated (standing water present). The only outdoor work allowed 12 hours before or after a storm event is the inspection, installation, and/or maintenance of erosions controls.
5. **Demarcation of Access Routes, Work and Staging Areas, and Sensitive Areas:** Prior to initiation of the proposed project, boundaries of access routes, work areas, staging areas, and sensitive areas (water features, potential habitat for sensitive species), will be clearly demarcated with orange construction barrier fencing (or an appropriate alternative method). Coordinate with the qualified biologist to stake and flag the boundaries of all access routes, work areas, and staging areas that are within sensitive habitat buffers, as exclusion zones where construction activities may not occur, to indicate where to install appropriate boundary and containment materials for the project. The flagging and fencing will be clearly marked as identifying an environmentally sensitive area. The contractor will remove fencing, stakes, and flagging within 60 calendar days of project completion.
6. **Location of Work and Staging Areas:** All materials, vehicle parking and staging areas shall be designated by the Beale Environmental Office and located at least 50 feet away from drainages and wetland features, or contained on hardscape surface. Storage of all construction material/debris will be kept to the designated storage/staging area. The number and size of staging areas and the total area of the activity will be limited to the minimum area necessary to achieve the project goal.
7. **Minimization of Off-Road Access Routes:** Off-road access routes will be established in upland areas as much as possible, and road length will be the minimum necessary, to reduce adverse effects on wetland features. Where it is necessary for access routes to go through a wetland feature, weight-dispersing mats will be placed over the wetland feature to avoid any potential effects to sensitive species and/or sensitive habitats. Off-pavement access routes can only be used if the soil is dry. Any ruts or furrows caused by operations shall be raked level by hand, compacted and restored to normal grade. Access routes will be restored as closely as possible to preconstruction contours and elevations. This will be done prior to leaving the current area of operation.
8. **Additional Access Routes:** If a new vehicle access route is required in special status species habitat, the route will be pre-surveyed by a Qualified Biologist to minimize impacts

to sensitive resources, and reviewed by the NRM. If routes will be reused over multiple years, they will be assessed annually to ensure that they are clear of special-status species.

9. **Trenches and Holes:** No trenches or holes greater than 6 inches deep will be left open at the end of the day and may be covered with plywood or cone markers; trenched areas and holes will be compacted and restored to normal grade.
10. **Revegetation:** All upland vegetated areas disturbed by construction will be revegetated with the Beale AFB-approved native seed mix. Exposed soil must be hydro-seeded and depending on slope, covered with a biodegradable geotextile to prevent sediments from entering waterways. Any straw used for erosion control materials will be "certified weed free." Reseeded areas will be monitored and maintained by the contractor as needed until there is 70% survival of plantings and 70% vegetated ground cover in the seeded area.
11. **Suitable Material:** No activity may use unsuitable material (e.g., trash, debris, car bodies asphalt, etc.). Material used for construction or discharged must be free from toxic pollutants in toxic amounts.
12. **Speed Limits:** All vehicle operators will follow the posted speed limit on paved roads and a 15 MPH speed limit on unpaved roads.
13. **Pets/Firearms:** No pets or nonmilitary firearms will be allowed in the Action Area during proposed project implementation.
14. **Garbage Removal:** During construction activities, all trash will be properly contained, removed from the work site daily, and disposed of properly. Following construction, all refuse and construction debris will be removed from work areas. All garbage and construction-related materials in construction areas will be removed immediately following project completion.
15. **Green Waste Disposal:** All plant debris potentially containing reproductive parts (i.e., seeds or plant fragments for species that reproduce vegetatively) will be disposed of at an off-site landfill or green waste facility. It will be transported in a manner that prevents the spread of invasive plants to other locations. This action may require, but is not limited to, bagging the material before it is transported off-site.
16. **Invasive Species:** A Qualified Biologist will monitor and ensure that the spread or introduction of invasive exotic plant species will be avoided to the maximum extent possible. When practicable, invasive plants found in the action area will be removed using non-chemical methods. Specifically, equipment will be thoroughly cleaned of soil and vegetation before being delivered to the site to minimize the potential for spreading pathogens or exotic/invasive species. Equipment will be inspected by the Qualified Biologist and may be rejected if the Qualified Biologist determines that it is has not been adequately cleaned.
17. **Invasive Species Monitoring:** The site will be added to the Annual Invasive Species Management work plan and will be surveyed and maintained with the existing weed program at Beale AFB.

18. **Fueling and Servicing in Designated Areas:** Motor vehicles and equipment will only be fueled and serviced in designated service areas. All fueling and maintenance of vehicles and other equipment will occur on a paved surface or at least 100 feet from any wetland feature/ drainage, sensitive habitat, or water body, with spill containment. Prior to the onset of work, a plan will be prepared to allow a prompt and effective response to any accidental spills. Workers will be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.
19. **Equipment Condition:** Prior to use, all equipment will be cleaned to remove external oil, grease, fuels, dirt, or mud. All construction equipment/vehicles must be inspected daily, in good working condition, showing no signs of leaks. Equipment will be left on site, or inspected at return to the area. All equipment will have drip pans placed where potential leaks could occur. All leaks will be repaired off-site or in a suitable location prior to resumption of construction activity.
20. **Spill Plan:** If the project utilizes oil/POL bulk fuel storage containers a Spill Prevention Control and Countermeasure Plan will be prepared prior to the project implementation. All machinery will be properly maintained and cleaned to prevent spills and leaks. Any spills or leaks from the equipment will be reported and cleaned up in accordance with applicable local, state and federal regulations. Workers will be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur. The spill plan will be submitted to the Beale AFB Environmental Office for approval.
21. **Fire Prevention and Suppression Plan:** A fire prevention and suppression plan will be prepared prior to the proposed project implementation. The fire prevention and suppression plan shall be submitted to the Beale AFB NRM for Wildland Fire Chief approval.
22. **Erosion Control Systems:** Site-specific erosion control measures (i.e., hay bales, silt fencing) will be installed, maintained in effective operating condition and in place at all times during construction to protect drainage ditches, storm drains, wetlands and water bodies from sedimentation resulting from construction activity. All wetlands/ drainages/ vernal pools will have erosion control measures installed when work is within 50 feet of a wetland feature or where hydrological continuity exists between the construction activities and the wetland. All exposed soil and other fills must be permanently stabilized at the earliest practicable date. Erosion control devices will not contain plastic netting and will be "certified weed free" to prevent the spread of invasive species.
23. **Dust Control:** All unpaved road areas will be watered, or alternative dust control measures will be used, during project construction to prevent excessive dust from silting nearby vernal pools.
24. **Excess Soil Protection:** Excess soil temporarily stored on-site during construction must be covered with geotextile stabilization blankets/tarp and wattles/gravel bags/socks to prevent exposure to the elements and to lessen chances of sedimentation due to storm water runoff and wind erosion. All remaining fill material will be removed in its entirety according to disposal requirements and the affected areas will be revegetated.

25. **Use of Excavated Soil on Base:** If excess materials, after appropriate testing has been conducted, are to be used on Beale AFB, the NRM will contact the Service before hauling the materials to ensure that the disposal site will not affect any sensitive species.
26. **Disposal of Excavated Soil:** All excess soil excavated during construction will be removed and disposed of at a landfill located off Beale AFB. If soil is contaminated, then Beale AFB Environmental Office will coordinate with the Army Corps of Engineers and/or Sacramento Water Regional Control Board, as appropriate prior to disposal of excavated soil.
27. **Upland Buffers:** Upland vegetated buffers will be established and maintained, to the maximum extent practicable, next to all preserved open waters, streams and wetlands including created, restored, enhanced, or preserved Waters of the US. Except in unusual circumstances, vegetated buffers will be at least 50 feet in width.
28. **Report Kills/Injuries:** Any worker who inadvertently kills or injures a protected species, or finds one injured or trapped, will immediately report the incident to the biological monitor. The biological monitor will notify Beale AFB NRM who will then verbally notify the Service within 3 business days and will provide written notification via email of the incident within 5 business days.
29. **Trenching Controls:** In unimproved areas, the top 6 to 12 inches of the trench or hole will be backfilled with topsoil from the trench.
30. **Pesticides:** If USAF-approved pesticides (herbicides, insecticides, etc) are used at the project site, they may only be applied by a DoD or California certified/licensed applicator. Beale AFB will ensure that label restrictions, and all regulations mandated by the Beale AFB IPMP, the Air Force Pest Management Program, a General NPDES Permit for Residual Aquatic Pesticide Discharges, DoD, U.S. Environmental Protection Agency and the California Department of Food and Agriculture are observed. No pesticides shall be used within 50 feet of a wetland unless approved by the Service and the Beale AFB NRM.
31. **Temporary Fills:** Temporary fills must be removed in their entirety, and the affected areas returned to pre-construction elevations. The affected areas must be revegetated as appropriate.
32. **Riprap:** The placement of riprap must be the minimum necessary to protect the structure or to ensure the safety of the structure.
33. **Fills within 100-year Floodplains:** The activity must comply with applicable FEMA-approved state or local floodplain management requirements.
34. **T-post Placement:** All t-posts will be placed outside of wetland areas.
35. **Brace post Placement:** All new posts for H-braces and gates will be placed greater than 20 feet from any potential vernal pool shrimp habitat to avoid all direct and indirect effects. No posts will be driven deep enough to penetrate the hardpan. Above ground rock structures will be used when a t-post or H-brace needs to be located on an impenetrable rock surface.

36. **Restoring Surface Flow:** Gradual release of water flow. Once the grading is complete, the diverted water flow will be gradually restored to avoid a strong flush of water that could erode exposed soil and cause sedimentation and/or increased turbidity.

Wetland and Vernal Pool Branchiopod Avoidance and Minimization Measures

37. **Wetland Erosion Control:** All work conducted within 50 feet of a wetland feature shall have construction boundaries designated with fencing to ensure no equipment will be in the vicinity of a drainage/wetland/vernal pool. All wetlands/drainages/vernal pools will have erosion control measures (straw wattles, hay bales, silt fencing) installed when work is within 50 feet of a wetland feature or where hydrological continuity exists between the construction activities and the wetland feature. Soil erosion and sediment control must be used and maintained in effective operating condition during construction, and all exposed soil and other fills must be permanently stabilized at the earliest practicable date.

38. **Wetland Feature Protection:** Intrusive work adjacent to branchiopod habitat shall have protection (plastic tarps) covering the aquatic feature to ensure the soil being removed and backfilled during the excavation process does not adversely impact habitat.

39. **Wetland Pre-Project Vegetation Clearing:** If the project site is within 50 feet of a wetland feature, the pre-project clearing of vegetation will be done with hand equipment to ensure no subsurface disturbance below 6 inches occurs in or near the wetland. Mechanical clearing of vegetation is prohibited during the wet season.

Western Yellow-billed cuckoo Avoidance and Minimization Measures: All projects that occur within 1,000 feet of suitable WYBC breeding habitat (e.g. "Poor" habitat quality or greater as identified in Halterman 2019), during the WYBC breeding season (June 1–August 31). A Qualified Biologist will make an initial site visit to verify the habitat suitability and determine the need for implementation of any of the below AMMs or whether additional surveys are needed. Beale AFB may (depending on project start dates and/or survey results) implement the following measures to avoid or minimize disturbances and adverse effects to the species. Conservation measures will be adjusted if additional guidelines are released by the USFWS, and the USFWS will be notified at that time.

40. **Pre-Project Surveys:** Any projects that involve excessive noise (81 dB or more) or other disturbance within suitable WYBC habitat, commencing between June 1 and August 31 (migration and breeding season), will require a minimum of three pre-project surveys to identify nesting birds, and will be conducted by a Qualified Biologist.

    a. Surveys will follow *Western Yellow-billed Cuckoo Natural History Summary and Survey Methodology* (Halterman et al. 2015).

    b. A minimum of three pre-project surveys will be conducted within a 1000-foot buffer of the project footprint and shall take place within 30 calendar days before the onset of construction or vegetation removal activities. The final survey will be within 3 calendar days of commencement of activities.

41. **Nesting Buffers:** If WYBC nests are detected during the pre-project surveys, Beale AFB Environmental staff will establish buffers around nests that are sufficient to ensure that breeding is not likely to be disrupted or adversely impacted by the project.
    a. No-disturbance buffers around active nests will be a minimum of 1,000 feet, unless a Qualified Biologist determines that smaller buffers will be sufficient to avoid impacts to nesting WYBC.
    b. Factors to be considered for determining buffer size will include: the presence of natural buffers provided by vegetation or topography, nest height, locations of foraging territory, and baseline levels of noise and human activity.
    c. Buffers will be maintained until a qualified biologist has determined that young have fledged and are no longer reliant upon the nest or parental care for survival.
42. **Vegetation Alteration:** No riparian vegetation alterations will occur in confirmed WYBC breeding habitat area during the WYBC nesting season, June 1 – August 31. This includes mechanical removal and herbicide spray treatment.
    a. If vegetation removal cannot be avoided during nesting season, a Qualified Biologist will conduct a minimum of five surveys in the 30 calendar days leading up to the commencement of the project, with the final survey conducted within the 3 calendar days of commencement of the project. If cuckoos are found during the any of the surveys, vegetation removal will not proceed.
43. **Herbicide Treatment:** Herbicide treatments will be applied without motorized equipment during the nesting season (June 1 – August 31) unless otherwise approved by the Environmental Office or NRM. If a need for this is determined, surveys will be conducted first to ensure no nests are present.
44. **Pre-and Post-Project Surveys:** Pre- and post-project surveys will be conducted to record WYBC habitat condition before the start of a project and after completion of the project for tracking purposes. This may include photos and/or species surveys and will be used to better manage for the species.
45. **Prescribed Burns:** Prescribed burns will be limited to non-breeding season (September 1 through May 31).
46. **Grazing Limitations:** No high-intensity grazing will occur within the Dry Creek and Best Slough riparian corridor or other suitable WYBC breeding habitat. Targeted grazing for invasive plant and vegetation control may occur.

Monarch Butterfly Avoidance and Minimization Measures: All projects that occur within 100 feet of milkweed plants or 250 feet from occupied habitat (roosting and breeding sites), will implement the following measures to avoid or minimize disturbances and adverse effects to the species. Conservation measures will be adjusted if additional guidelines are released by the USFWS, and the USFWS will be notified at that time.

47. **Milkweed Training:** All individuals conducting work within the buffer area (100 or 250 feet as defined above) will receive training from a Qualified Biologist on the identification

of milkweed plants and a description of both adult and larval monarchs in order to identify and avoid milkweed and monarchs during all activities.

48. **Pre-Project Surveys:** Preconstruction surveys to identify the presence of monarch host plants and to determine if any monarch eggs are present within the project footprint will be performed by a qualified biologist. If monarch eggs are detected during surveys, they will be flagged with a 25-foot avoidance buffer. A qualified biologist will monitor the buffer areas and construction in proximity to the host plant may resume after the caterpillars have metamorphosed.
49. **Milkweed Buffers:** A 2-foot buffer will be maintained around extant milkweed plants during off-road vehicle access, restoration and habitat enhancement planting, construction and other ground-disturbing activities to protect breeding habitat.
50. **Herbicide Use within 50 feet of Milkweed:** Unoccupied actively growing milkweed will be avoided by a minimum of 2 feet during the application of herbicides. Herbicide application within 50 feet of a milkweed plant will be conducted with a low-pressure backpack sprayer to reduce the risk of drift.
51. **Herbicide Use Near Occupied Monarch Habitat:** No broad-spectrum herbicide application will take place within 100 feet of occupied monarch habitat when wind speeds exceed 10 mph, or temperatures exceed 85°F to minimize potential for drift and volatilization.
52. **Pre-emergent Herbicide Use:** No persistent or pre-emergent herbicides will be used within 100 feet of milkweed or other occupied monarch habitats (e.g., roosting sites).
53. **Mowing:** Generally, mowing will not be conducted within 100 feet of areas with suitable monarch habitat during the active season (15-March through 31-October).
    a. If mowing must be conducted (i.e., for habitat restoration projects benefitting monarchs or other listed species) and vehicle access must be allowed, all milkweed plants will be identified and avoided.
    b. Additionally, if mowing occurs from March to June near areas where breeding occurs, mowing height will be set to a minimum of 10-12 inches to avoid cutting newly emerged plants.
    c. Any mowing during the summer months will be conducted during the morning (until 1100) to avoid injuring resting monarchs.
54. **Preservation of Trees:** Willows and other trees known to or with the potential to be (within occupied habitat) used as roosting sites will be avoided during construction and maintenance activities.
    a. Except for cut stump and wiping of target species, no herbicide application will occur during the active season of monarchs (15 March through 31 October) within 50 feet of known or potential roosting sites.

b. No trimming of trees used by monarchs as roosting sites will occur during the active season (15 March through 31 October).

55. **Habitat Enhancement:** Projects occurring in or adjacent to known monarch breeding locations will incorporate native plants important for monarchs (e.g., milkweeds, late-season flowering shrubs) as part of the landscape or revegetation plans.

56. **Reseeding:** Any areas within 250 feet of known monarch breeding habitat requiring reseeding will include species beneficial to monarchs, including native milkweed. All seed mixes must be approved by the NRM.

57. **Prescribed Fire Treatment and Milkweed:** No prescribed fire treatment will occur within 100 feet of habitat occupied by monarchs during the active monarch season (15 March through 31 October).

58. **Grazing and Milkweed:** Riparian areas and drainages with known habitat used by monarchs (e.g., milkweed stands and roosting sites along Dry Creek, Hutchinson Creek) will be excluded from grazing. Heavy cattle or horse grazing in areas with low residual dry matter (below approximately 1000-1200 pounds per acre (lbs./ac)) or grazing with sheep and goats would not occur in locations known to be occupied by monarchs during the active season (15 March through 31 November) to prevent soil compaction and trampling of milkweeds.

3.0 Affected Environment/Action Area

Beale AFB is in Yuba County, approximately 40 miles north of Sacramento. The Blackbird Basins Action Area is in the Smartsville 7.5-minute U.S. Geological Survey topographic quadrangle, and the Blackbird Marsh Action Area is in the Camp Far West 7.5 minute U.S. Geological Survey topographic quadrangle. The Proposed Action Areas are both within the Beale AFB boundary and within the Hutchinson Creek and the Dry Creek drainages, respectively (Figure 1).

3.1 Plant Community

The Proposed Action would occur within a combination of wetlands riparian, and uplands. Wetland plants in and around the two Action Areas include marsh vegetation and ephemeral vernal pool wetlands. Marsh plants at the sites include cattail (*Typha spp.*) and bulrush (*Schoenoplectus spp.*), while riparian vegetation includes Gooding's black willow (*Salix gooddingii*), red willow (*Salix laevigata*), and Freemont cottonwood (*Populus fremontii*).

The dominant wetland plants associated with vernal pools are coyote thistle (*Eryngium vaseyi*), Fremont goldfields (*Lasthenia fremontii*), white-flowered navarretia (*Navarretia leucocephala*), annual hairgrass (*Deschampsia danthonioides*), fields owl's-clover (*Castillega campestris*), and ornate downingia (*Downingia ornatissima*).

The upland vegetation in and around the two Action Areas is dominated by grassland species. Most of the grassland species at Beale AFB are naturalized grasses, with native bunch grasses found in varying densities in the pastures and along roadsides. Typical non-native grassland species found in the area include ripgut brome (*Bromus diandrus*), Italian ryegrass (*Lolium*

multiflorum), soft chess (*Bromus hordeaceus*), medusahead grass (*Elymus caput-medusae*), annual fescue (*Vulpia myuros*), and foxtail barley (*Hordeum jubatum*).

3.2 Site Soils

The soil type at the Blackbird Basins Action Area consists of Argonaut-Auburn complex, 3-8% slopes, Pardee-Ranchoseco complex, 0-3% slopes, and Perkins loam, 0-2% slope, soils (USDA 2021). Argonaut-Auburn complex soils are found farthest upstream and are typical of 3% to 8% slopes while Perkins loam soils are farthest downstream and are typical of 0% to 2% slopes. All three soil complexes are well drained and have low runoff potential. The two upstream soils (Argonaut-Auburn complex and Pardee Ranchoseco complex) are typically found above a restrictive bedrock layer.

The Blackbird Marsh Action Area is predominantly Redding-Corning Complex, 3-8% slope, which is also categorized as a well-drained soil with a low runoff classification (USDA 2021). These soils are typically found in high fan terraces with slopes of 3% to 8%. The hazard of soil erosion in this complex is slight and the depth to duripan is typically from 20 to 40 inches.

3.3 Site Topography

The Proposed Action occurs within two previously modified intermittent stream channels. The Blackbird Basins Action Area includes portions of two tributaries of Hutchinson Creek, upstream of Frisky Lake. The Action Area is within two moderately sloped intermittent stream channels, approximately 1,500 feet upstream of Frisky Lake, and includes four small (<1.5 acres) previous impoundments (2 impoundments on each stream channel).

The Blackbird Marsh Action Area is within a moderately sloped portion of an intermittent tributary to Dry Creek, immediately downstream of where the drainage crosses Warren Shingle Road. This Action Area includes about 2.5 acres of floodplain along the seasonal creek above the Blackbird Marsh dam, the pond itself, and approximately 3 acres along the channel below the dam.

3.4 Wetland Features

From 2006-2009, Light Detection and Ranging (LiDAR) was used to develop a preliminary jurisdictional delineation of water features at Beale AFB (USACE 2012) and to develop an inventory of aquatic features and Waters of the United States (WoUS). In 2021, the area within 50 feet of the proposed improvements was visited by Beale AFB biologists to further investigate, verify, and ground-truth (e.g., examine for hydric soils, vegetation, and evidence of ponding as well as contours, slope, and depth) to confirm the location and classification of wetland features. Colorado State University biologists working under a cooperative agreement with the Air Force visited Blackbird Basins on 10-February-2021 and Blackbird Marsh on 31-March-2021. Figures 9 and 10 provide an overview of wetlands within the two Action Areas. Tables 1 and 2 list all the water features within 50 feet of the Proposed Action Area.

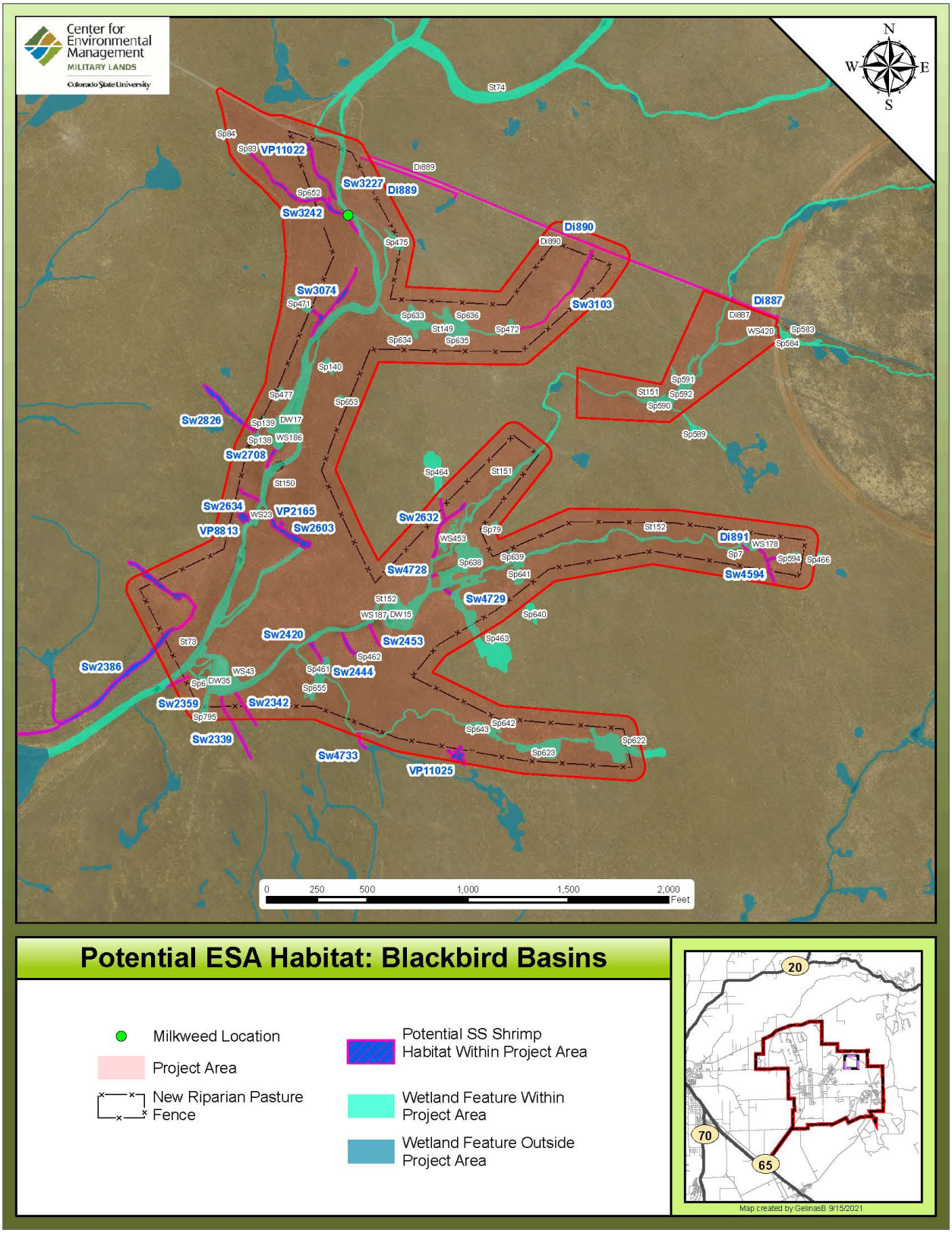

Figure 9. Potential ESA habitat within 50 feet of the Blackbird Basins Action Area

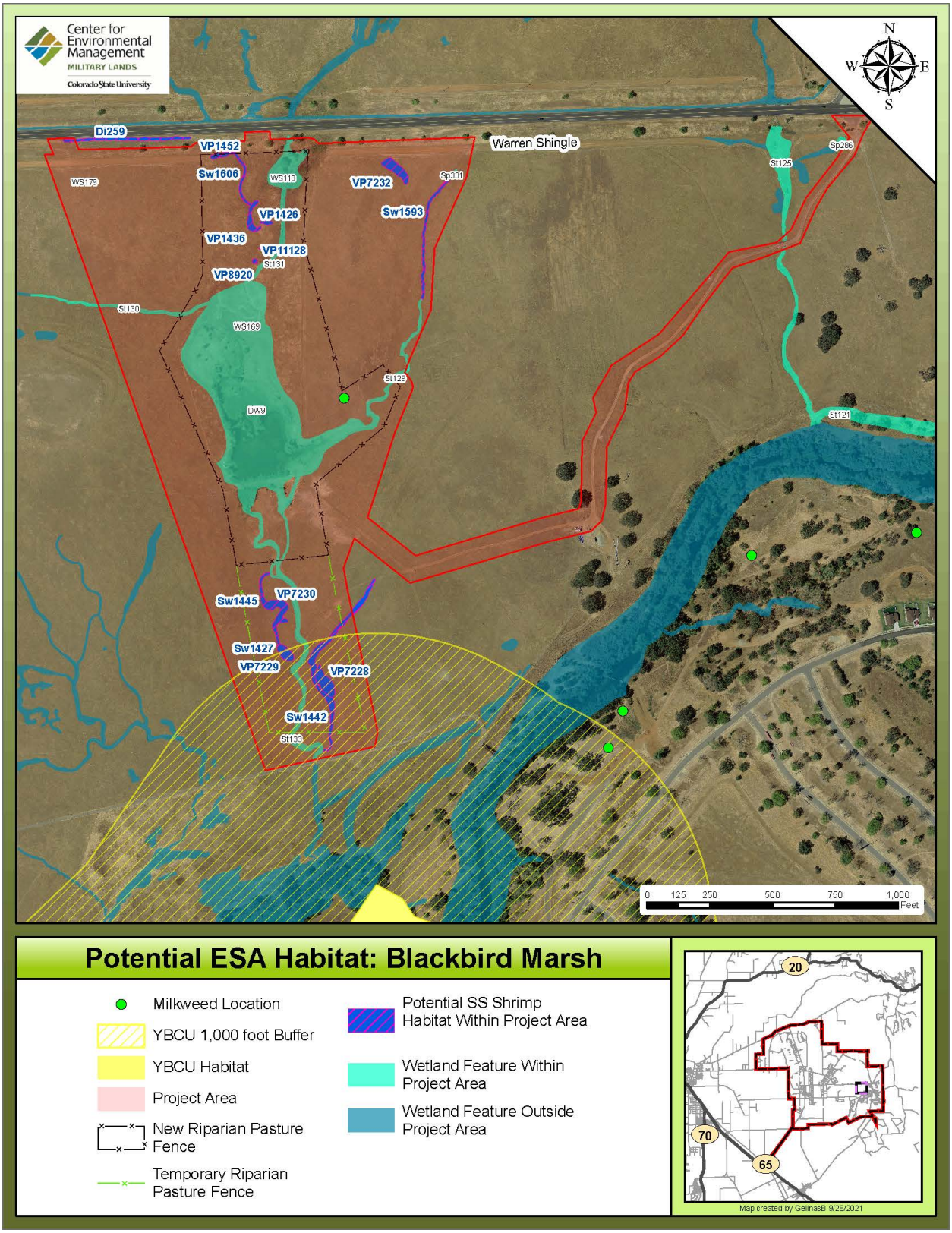

Figure 10. Potential ESA habitat within 50 feet of the Blackbird Marsh Action Area

Table 1. Wetland Features within 50 feet of Proposed Blackbird Basins Action Area

Wetland ID Number	Wetland Type	Acreage	Within Proposed Action Area	Potential Branchiopod Habitat	Description and Justification
15	Deep Water	0.304	Y	N	Portions of this feature would be modified through weir repair and grading to enhance for wetland habitat.
17	Deep Water	0.438	Y	N	Portions of this feature would be modified through weir repair and grading to enhance for wetland habitat.
35	Deep Water	0.185	Y	N	Portions of this feature would be modified through weir repair and grading to enhance for wetland habitat.
887	Ditch	0.030	N	Y	This feature is on the north side of the gravel access road and upslope from soil disturbance activities.
889	Ditch	0.050	N	Y	This feature is along the south side of the gravel access road. If equipment needs to cross this feature, weight dispersing mats would be used. No soil disturbance would occur within this feature.
890	Ditch	0.165	N	Y	This feature is on the north side of the gravel access road and upslope from soil disturbance activities.
891	Ditch	0.003	Y	Y	Work will not occur within 10 feet of this feature.
6	Seep	0.080	Y	N	Portions of this feature, right below the weir, would be modified to reduce bank erosion and repair the weir.
7	Seep	0.020	Y	N	Work will not occur within 10 feet of this feature.
79	Seep	0.050	Y	N	This feature is upslope and outside the project area and within the 50ft buffer. Feature will be avoided.
83	Seep	0.020	Y	N	This feature is upslope and more than 50 feet from soil disturbance activities. Feature avoided.
84	Seep	0.015	Y	N	No soil disturbance would occur within 50 feet of this feature. Feature would be avoided.
138	Seep	0.147	Y	N	Portions of this feature, right below the weir, would be modified to reduce bank erosion and repair the weir.
139	Seep	0.033	Y	N	Portions of this feature, adjacent to the weir, would be modified to reduce bank erosion and repair the weir.
140	Seep	0.068	Y	N	No work would occur within this feature.
461	Seep	0.064	Y	N	No work would be conducted within this feature
462	Seep	0.033	Y	N	No work would be conducted within this feature.
463	Seep	0.766	Y	N	Work will not occur within 10 feet of this feature.
464	Seep	0.277	N	N	This feature is upslope and outside the project area and just barely within the 50ft buffer. Feature will be avoided.

Wetland ID Number	Wetland Type	Acreage	Within Proposed Action Area	Potential Branchiopod Habitat	Description and Justification
466	Seep	0.072	Y	N	Work will not occur within 10 feet of this feature.
471	Seep	0.122	Y	N	No work would be conducted within this feature. Fence post installation would avoid this feature. Weight dispersing mats would be used for equipment crossing for fence installation.
472	Seep	0.399	Y	N	Work would potentially modify a portion of this feature to reduce bank erosion at the connection with St 149 and work would not occur at the connection with Sw 3103.
475	Seep	0.095	Y	N	Work would potentially modify a portion of this feature to reduce bank erosion at the connection with St 74. Fence post installation would be adjusted to avoid this feature. Weight dispersing mats would be used for equipment crossing for fence installation, if needed.
477	Seep	0.037	Y	N	No work would be conducted within this feature. Fence post installation would be adjusted to avoid this feature. Weight dispersing mats would be used for equipment crossing for fence installation, if needed.
583	Seep	0.099	Y	N	This feature is upslope and outside the project area and at the edge of the project area that will have no work. Feature avoided.
584	Seep	0.026	Y	N	This feature is upslope and outside the project area and on the other side of a security fence.
589	Seep	0.051	Y	N	This feature is upslope and outside the project area.
590	Seep	0.052	Y	N	Work would potentially modify a portion of this feature to reduce bank erosion at the connection with St 151. Fence post installation would be adjusted to avoid this feature. Weight dispersing mats would be used for equipment crossing for fence installation, if needed.
591	Seep	0.196	Y	N	Work would potentially modify a portion of this feature to reduce bank erosion at the connection with St 151. Fence post installation would be adjusted to avoid this feature. Weight dispersing mats would be used for equipment crossing for fence installation, if needed.
592	Seep	0.028	Y	N	Work would potentially modify a portion of this feature to reduce bank erosion at the connection with St 151. Fence post installation would be adjusted to avoid this feature. Weight dispersing mats would be used for equipment crossing for fence installation, if needed.
593	Seep	0.147	Y	N	This feature is upslope and more than 20 feet from soil disturbance activities that could happen on St 151. Feature avoided.
594	Seep	0.088	Y	N	Work will not occur within 10 feet of this feature.

Wetland ID Number	Wetland Type	Acreage	Within Proposed Action Area	Potential Branchiopod Habitat	Description and Justification
622	Seep	0.543	Y	N	Work would potentially modify this feature to reduce bank erosion within St152, if needed within the project area.
623	Seep	0.267	Y	N	Work would potentially modify this feature to reduce bank erosion within St152, if needed within the project area.
633	Seep	0.180	Y	N	Work would potentially modify a portion of this feature to reduce bank erosion at the connection with St 149.
634	Seep	0.100	Y	N	Work would potentially modify a portion of this feature to reduce bank erosion at the connection with St 149.
635	Seep	0.092	Y	N	Work would potentially modify a portion of this feature to reduce bank erosion at the connection with St 149.
636	Seep	0.220	Y	N	Work would potentially modify a portion of this feature to reduce bank erosion at the connection with St 149.
638	Seep	0.490	Y	N	Work would potentially modify this feature to reduce bank erosion within St 151, if needed within the project area.
639	Seep	0.037	Y	N	Work would potentially modify this feature to reduce bank erosion within St 151, if needed within the project area.
640	Seep	0.107	N	N	This feature is upslope and outside the project area and just barely within the 50ft buffer. Feature will be avoided.
641	Seep	0.127	Y	N	Work would potentially modify this feature to reduce bank erosion within St 151, if needed within the project area.
642	Seep	0.062	Y	N	Work would potentially modify this feature to reduce bank erosion within St 152, if needed within the project area.
643	Seep	0.067	Y	N	Work would potentially modify this feature to reduce bank erosion within St 152, if needed within the project area.
652	Seep	0.031	Y	N	No work would be conducted within this feature. Fence post installation would avoid this feature. Weight dispersing mats would be used for equipment crossing for fence installation.
653	Seep	0.078	Y	N	No work would be conducted within this feature. Fence post installation would avoid this feature. Weight dispersing mats would be used for equipment crossing for fence installation.
655	Seep	0.147	Y	N	Work would potentially modify this feature to reduce bank erosion within St 152, if needed within the project area.
795	Seep	0.094	Y	N	Portions of this feature, adjacent to the weir, would be modified to repair the weir if necessary.
73	Stream	1.811	Y	N	Work would modify portions of this feature to reduce bank erosion in locations and to the

Wetland ID Number	Wetland Type	Acreage	Within Proposed Action Area	Potential Branchiopod Habitat	Description and Justification
					extent that work would not directly impact ESA habitat features.
74	Stream	9.946	Y	N	Portions of this feature would potentially be modified to reduce bank erosion in locations and to the extent that work would not directly impact ESA habitat features..
149	Stream	0.165	Y	N	Portions of this feature would potentially be modified to reduce bank erosion.
150	Stream	0.327	Y	N	Work would modify portions of this feature to reduce bank erosion in locations and to the extent that work would not directly impact ESA habitat features.
151	Stream	2.538	Y	N	Work would modify portions of this feature to reduce bank erosion in locations and to the extent that work would not directly impact ESA habitat features.
152	Stream	0.886	Y	N	Work would modify portions of this feature to reduce bank erosion in locations and to the extent that work would not directly impact ESA habitat features.
2339	Swale	0.078	Y	Y	No work would be conducted within this feature. Work in St 152 would avoid this feature where the two are connected.
2342	Swale	0.044	Y	Y	No work would be conducted within this feature. Work in St 152 would avoid this feature where the two are connected.
2359	Swale	0.023	Y	Y	No work would be conducted within this feature. Work in St 73 would avoid this feature where the two are connected.
2386	Swale	0.690	Y	Y	No work would be conducted within this feature. Fence post installation would avoid this feature. Weight dispersing mats would be used for equipment crossing for fence installation.
2420	Swale	0.031	Y	Y	No work would be conducted within this feature. Work in St 152 would avoid this feature where the two are connected.
2444	Swale	0.042	Y	Y	No work would be conducted within this feature. Work in St 152 would avoid this feature where the two are connected.
2453	Swale	0.027	Y	Y	No work would be conducted within this feature. Work in St 152 would avoid this feature where the two are connected.
2603	Swale	0.157	Y	Y	No work would be conducted within this feature. Work in St 150 and St 73 would avoid this feature where it is adjacent and connected.
2632	Swale	0.106	Y	Y	No work would be conducted within this feature. Work in St 151 would avoid this feature where it is adjacent and connected. Fence post installation would avoid this feature. Weight dispersing mats would be used for equipment crossing for fence installation.

Wetland ID Number	Wetland Type	Acreage	Within Proposed Action Area	Potential Branchiopod Habitat	Description and Justification
2634	Swale	0.029	Y	Y	No work would be conducted within this feature. Work in St 150 would avoid this feature where it is adjacent and connected. Fence post installation would avoid this feature. Weight dispersing mats would be used for equipment crossing for fence installation, if needed.
2708	Swale	0.028	Y	Y	No work would be conducted within this feature. Work in St 150 would avoid this feature where it is adjacent and connected.
2826	Swale	0.150	Y	Y	No work would be conducted within this feature. Work in St 74 would avoid this feature where it is adjacent and connected. Fence post installation would avoid this feature. Weight dispersing mats would be used for equipment crossing for fence installation.
3074	Swale	0.138	Y	Y	No work would be conducted within this feature. Work in St 74 would avoid this feature where it is adjacent and connected. Fence post installation would avoid this feature. Weight dispersing mats would be used for equipment crossing for fence installation.
3103	Swale	0.085	Y	Y	No work would be conducted within this feature. Fence post installation would avoid this feature. Weight dispersing mats would be used for equipment crossing for fence installation. Or the fence maybe moved to the roadside to avoid.
3227	Swale	0.084	Y	Y	No work would be conducted within this feature. Work in St 74 would avoid this feature where it is connected.
3242	Swale	0.212	Y	Y	No work would be conducted within this feature. Work in St 74 would avoid this feature where it is adjacent and connected. Fence post installation would avoid this feature. Weight dispersing mats would be used for equipment crossing for fence installation.
4594	Swale	0.061	Y	Y	No work would be conducted within this feature. Fence post installation would avoid this feature. Weight dispersing mats would be used for equipment crossing for fence installation.
4728	Swale	0.006	Y	Y	No work would be conducted within this feature. Work in St 151 would avoid this feature where the two are connected.
4729	Swale	0.011	Y	Y	No work would be conducted within this feature. Work in St 151 would avoid this feature where the two are connected.
4733	Swale	0.021	N	Y	No work would be conducted within this feature. Work in St 152 would avoid this feature where the two are connected.
2165	Vernal Pool	0.010	Y	Y	No work would be conducted within 10 feet of this feature and will be avoided.

Wetland ID Number	Wetland Type	Acreage	Within Proposed Action Area	Potential Branchiopod Habitat	Description and Justification
8813	Vernal Pool	0.049	Y	Y	No work would be conducted within this feature that is adjacent to the stream and weir. See Figure 4.
11022	Vernal Pool	0.017	Y	Y	No work would be conducted within this feature. Fence post installation and access would avoid this feature.
11025	Vernal Pool	0.082	Y	Y	No work would be conducted within this feature. Fence post installation and access would avoid this feature. Weight dispersing mats would be used for equipment crossing for fence installation. Fence could easily move to avoid this feature also.
23	Wetland	0.104	Y	N	Portions of this feature would be modified through weir repair and grading to enhance for wetland habitat.
43	Wetland	0.389	Y	N	Portions of this feature would be modified through weir repair and grading to enhance for wetland habitat.
178	Wetland	0.034	Y	N	No work would be conducted within this feature
186	Wetland	0.237	Y	N	Portions of this feature would be modified through weir repair and grading to enhance for wetland habitat.
187	Wetland	0.275	Y	N	Portions of this feature would be modified through weir repair and grading to enhance for wetland habitat.
420	Wetland	0.015	Y	N	Work would potentially modify this feature to reduce bank erosion within St151, if needed within the project area.
453	Wetland	0.121	Y	N	No work would be conducted within this feature. Work in St 151 would avoid this feature.

DW = Deep water
Di = Ditch
Sp = Seep
St = Stream
Sw = Swale
VP = Vernal Pool
Ws = Wetland

Table 2. Wetland Features within 50 feet of Proposed Blackbird Marsh Action Area

Wetland ID Number	Wetland Type	Acreage	Within Proposed Action Area	Potential Branchiopod Habitat	Description and Justification
9	Deep Water	3.629	Y	N	This feature would be modified to create wetland habitat and improve tricolored blackbird habitat on the upstream side of the dam.
259	Ditch	0.118	N	Y	This feature runs along Warren Shingle Road and is near the road entrance to the project area. This feature will be avoided.
286	Seep	0.050	N	N	This feature is not hydrologically connected to the work area and outside, but within 50 feet of the access route, thus will be avoided.
331	Seep	0.011	Y	N	This feature is upslope of proposed work activities and will be avoided.
121	Stream	2.238	N	N	This feature is not hydrologically connected to the work area. It runs through a culvert under an existing road that would be used to access the work area. Feature avoided.
125	Stream	0.473	N	N	This feature is not hydrologically connected to the work area. It runs through a culvert under an existing road that would be used to access the work area. Feature avoided.
129	Stream	0.246	Y	N	Work would modify this feature to reduce bank erosion except where it is connected down slope with Sw 1593.
130	Stream	0.221	Y	N	Work would potentially modify this feature to reduce bank erosion, if needed within the project area.
131	Stream	0.184	Y	N	Work would modify this feature to reduce bank erosion in locations and to the extent that work would not directly impact ESA habitat features.
133	Stream	0.761	Y	N	Work would modify this feature to reduce bank erosion in locations and to the extent that work would not directly impact ESA habitat features.
1427	Swale	0.012	Y	Y	No work would be conducted within 10 feet of this feature.
1442	Swale	0.301	Y	Y	No work would be conducted within this feature. Work in St 133 would avoid this feature in 2 locations where it is adjacent (approximately 10ft) and connected. Fence post installation would avoid this feature. Weight dispersing mats would be used for equipment crossing for fence installation.
1445	Swale	0.024	Y	Y	No work would be conducted within this feature. Work in St 133 would avoid this feature where the two are connected.
1593	Swale	0.114	Y	Y	This feature is upslope of proposed work activities and will be avoided.
1606	Swale	0.058	Y	Y	No work would be conducted within 10 feet of this feature. Feature avoided.

Wetland ID Number	Wetland Type	Acreage	Within Proposed Action Area	Potential Branchiopod Habitat	Description and Justification
1426	Vernal Pool	0.016	Y	Y	No work would be conducted within 10 feet of this feature. Feature greater than 30ft from St 131. Feature avoided.
1436	Vernal Pool	0.063	N	Y	No work would be conducted within 10 feet of this feature. Feature avoided.
7228	Vernal Pool	0.119	Y	Y	No work would be conducted within 10 feet of this feature.
7229	Vernal Pool	0.064	Y	Y	No work would be conducted within 10 feet of this feature.
7230	Vernal Pool	0.142	Y	Y	No work would be conducted within 10 feet of this feature.
7232	Vernal Pool	0.104	Y	Y	This feature is upslope of any proposed work activity and will be avoided.
8920	Vernal Pool	0.008	Y	Y	This feature is approximately 11ft from St 131. No work would be conducted within 10 feet of this feature. Feature avoided.
11128	Vernal Pool	0.001	N	Y	No work would be conducted within 10 feet of this feature.
1452	Vernal Pool	0.029	Y	N	No work would be conducted within 10 feet of this feature. Feature avoided.
113	Wetland	0.410	Y	N	Work would potentially modify this feature to reduce bank erosion, if needed within the project area.
169	Wetland	2.659	Y	N	This feature would be modified to create additional wetland habitat and improve tricolored blackbird habitat on the upstream side of the dam
179	Wetland	0.003	Y	N	No work would be conducted within 10 feet of this feature. Feature avoided.

DW = Deep water
St = Stream
Sw = Swale
VP = Vernal Pool
Ws = Wetland

3.5 Threatened and Endangered Species/Habitat Considered

A preliminary list of species for consideration was compiled from the USFWS Information for Planning and Consultation (IPaC) tool and data from special status species surveys of Beale AFB (USFWS 2019d). Federally-listed species with the potential to occur in or near the Action Area were evaluated to determine if the Proposed Action could affect the species or their habitat (Table 3). There are no known occurrences of federally listed species in or within 250 feet of either Proposed Action Area, but there are features considered potential habitat.

Table 3. ESA-Listed Species with Potential to Occur at Beale AFB

Species	Federal Status	State Status	Known to Occur at Beale AFB	Potential to Occur within Action Area
Invertebrates				
Vernal pool fairy shrimp (*Branchinecta lynchi*)	Threatened	None	Yes	Yes
Conservancy fairy shrimp (*Branchinecta conservation***)**	Endangered	None	No	No
Vernal pool tadpole shrimp (*Lepidurus packardi***)**	Endangered	None	Yes	Yes
Insects				
Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus***)**	Threatened	None	Yes	No
Monarch butterfly (*Danaus plexippus plexippus***)**	Candidate	None	Yes	Yes
Reptiles and Amphibians				
Giant garter snake (*Thamnophis gigas*)	Threatened	Threatened	No	No
California red-legged frog (*Rana draytonii***)**	Threatened	None	No	No
Birds				
Western yellow-billed cuckoo (*Coccyzus americanus***)**	Threatened	Endangered	Unknown	Yes

3.5.1 Species Potentially Present Near the Proposed Action Area

Of the species listed in Table 3, only vernal pool fairy shrimp, vernal pool tadpole shrimp, WYBC, and monarch butterfly were determined to have the potential to be present near the Proposed Action and are, therefore, considered below.

Vernal pool fairy shrimp (*Branchinecta lynchi*): The nearest known vernal pool fairy shrimp occurrences are approximately 7,250 feet from the proposed Blackbird Basins Action Area and approximately 2100 feet from the proposed Blackbird Marsh Action Area. However, potential habitat exists within both of the Proposed Action Areas (Beale AFB 2019).

Vernal pool tadpole shrimp (*Lepidurus packardi*): The nearest vernal pool tadpole shrimp occurrences are approximately 10,500 feet from the proposed Blackbird Basins Action Area and approximately 9,750 feet from the proposed Blackbird Marsh Action Area. However, potential habitat exists within both of the proposed Action Areas (Beale 2019).

Monarch butterfly (*Danaus plexippus plexippus*): Although there are no records of monarchs within 250 feet of either Action Area, a single patch of approximately 20 plants of woolypod milkweed (*Asclepias eriocarpa*) was documented within the Blackbird Basins Action Area (Figure 9) and another patch of approximately 15 plants of woolypod milkweed within the Blackbird Marsh Action Area (Figure 10) on 12-May-2021. There are potential nectaring sources on the site in the form off annual wildflowers and native perennial bulbs (e.g., *Dichlostema and Brodeia* spp.).

Western Yellow-billed cuckoo (WYBC) (*Coccyzus americanus occidentalis*): In addition to the species noted on the official IPAC list, the western distinct population segment of the WYBC was also evaluated due to its relatively recent ESA listing as threatened.

There have been three possible observations of WYBC since 2014 on Beale AFB. Each observation was considered tentative due to the lack of clear visual confirmation. All observations were located in the southeastern portion of Beale AFB in or near the Dry Creek/Best Slough area by avian biologists working in the area. The most recent potential auditory detection of a WYBC was on June 3, 2016. It was heard at the Monitoring Avian Productivity and Survivorship (MAPS) bird banding station on Best Slough and timing suggests that it was likely a migrating individual. The nearest confirmed record for this species is approximately 6.5 miles from Beale AFB, in the vicinity of the confluence of the Yuba and Feather Rivers (CDFW 2020). This record represents a historical breeding population that was active throughout the late 1800's with one record as late as 1976. More recently, two birds were reported in 2016 to eBird in the vicinity of the Marysville sewage ponds (Sullivan et al. 2009, eBird 2020).

A WYBC habitat assessment was conducted on Beale AFB in 2018and protocol-level surveys were performed in the summers of 2018-(Halterman 2019 and 2020 (CEMML 2020b). The 2018 assessment identified three areas of poor quality potentially suitable habitat that warranted survey; patches of gallery forest along Dry Creek, dense willows around Mad Dog Lake, and an olive orchard below Lower Blackwelder Lake (Halterman 2019). In 2020, the survey area along Dry Creek was expanded to incorporate additional potentially suitable habitat upstream of Gavin Mandery Road as well as around Parks Lake. Notably, portions of the expanded area along Dry Creek are within 1000 feet of the proposed Action Area (see Figure 10). To date, no WYBC have been documented on Beale AFB as part of these efforts. If WYBC do occasionally occur in the Dry Creek survey area, it is likely only during migration.

3.5.2 Species Excluded from Further Consideration

The remaining species were excluded from further consideration for the following reasons:

Conservancy fairy shrimp (*Branchinecta conservatio*): This species is not likely to occur on Beale AFB, and there are no known occurrences of the species within 10 miles of the Base (Beale AFB 2020). Therefore, this species was eliminated from further consideration.

Valley elderberry longhorn beetle (*Desmocerus californicus dimorphis*): While there is a single blue elderberry shrub (*Sambucus nigra* subsp. *caerulea*) in the vicinity of the Blackbird Marsh site access (CEMML 2020a), it is more than 250 feet from the proposed Action Area.

Giant garter snake (*Thamnophis gigas*): Reeds Creek and the surrounding upland grasslands may provide potentially suitable habitat for the federally threatened giant garter snake; however multiple survey efforts have failed to detect any giant garter snakes on Beale AFB (AECOM 2011, Bhate 2016, Hansen 2005, Harvey & Associates 2012). In addition, Reeds Creek is several miles away. Other waterways on Beale AFB do not contain suitable habitat for these species. As such, there is no suitable habitat within the two Action Areas, and this species was eliminated from further consideration.

California red-legged frog (*Rana draytonii*): An amphibian assessment of Beale AFB, did not find any CRLF on Base and they are believed to be historically present but extirpated (EDAW 2006, URS Corporation 2008). Although CRLF habitat may have been present on Beale AFB in the past, poor habitat conditions and the presence of predators including the American bullfrog (*Lithobates catesbeianus*) do not allow populations to persist. The nearest recorded observation of CRLF was 32.5 miles from Beale AFB (CDFW 2019). Therefore, this species was eliminated from further consideration.

4.0 Analysis of Potential Effects of the Proposed Action

The following subsections provide a summary of the anticipated direct and indirect effects to listed species that may occur as a result of the Proposed Action. Potential direct and indirect effects on the listed species are evaluated based on USFWS definitions; direct effects are "consequences to listed species or critical habitat that are caused by the proposed action, including the consequences of other activities that are caused by the proposed action"; and indirect effects are "consequences that may occur later in time and may include consequences occurring outside the immediate area involved in the action" [50 CFR §402.02].

4.1 Effects of the Proposed Action

Overall, the Proposed Action would avoid branchiopod habitat and in the long term expand and improve aquatic wildlife habitat, specifically wetland habitat, on Beale AFB and potentially could provide long-term benefits to special status species. The Proposed Action would ultimately increase the amount of wetland and marsh habitat, as it includes the development of approximately 4 acres of wetland and marsh habitat within the Blackbird Marsh Action Area. Short-term adverse effects to listed branchiopod habitat within the two Action Areas could occur. However, potential effects due to construction, would be short-term, temporary, and negligible.

Although vernal pool fairy shrimp and vernal pool tadpole shrimp have not been documented within either Action Area, implementation of the AMMs during ground-disturbing activities such as excavating, filling, and grading within and adjacent to WoUS, could directly affect federally-listed branchiopod habitat (Table 4). However, potential direct effects would be minimized and avoided through implementation of the AMMs, included in Section 2.6 and consist of demarcation of sensitive areas, erosion control systems, as well as the use of wetland feature protection. In addition to minimizing the potential for direct impacts, the AMM's would be used to reduce the potential for indirect impacts associated with sedimentation of wetlands and vernal pools adjacent to, or down slope from, construction activities. Importantly, while alteration and management of wetland hydrology could change the period of inundation within portions of the two Action Areas, these activities would be focused on wetland, stream, and deep-water habitats, and should have minimal effect on vernal pool hydrology. As a result of the Proposed Actions, vernal pool branchiopods could potentially benefit from the creation of additional off-channel wetlands that may develop into vernal pools. As such, it is anticipated that any potential adverse effects to vernal pool habitat from construction would be short-term, temporary and negligible.

Grading to repair and stabilize slopes of eroding banks (downcutting) in the drainage channels within the Action Areas could protect branchiopod habitat from damage due to future erosion of the stream channel if no action were taken. Example of this can be seen in Figure 4 where a vernal pool is approximately 10 feet from the eroded channel.

In addition to vernal pools, a single patch of woolypod milkweed (a host plant for the monarch butterfly) was documented within each of the Action Areas. Although no monarch butterflies have been observed at the site, the presence of their host milkweed plant indicates potentially suitable habitat. As outlined in the AMM's, exclusion fencing would be established around known patches of milkweed prior to construction. In addition, milkweed plants would be monitored for monarch caterpillars, eggs, and developing butterflies prior-to and during restoration activities. With the implementation of these AMMs, Beale AFB does not expect any adverse effects to monarch butterflies and anticipate improving and increasing their habitat area.

WYBC have not been documented within either Action Area, but there is marginal quality potentially suitable WYBC breeding habitat within 1,000 feet of the Blackbird Marsh Action Area. The Proposed Project would avoid direct effects to WYBC habitat located in the Dry Creek riparian area. Implementation of the AMMs during ground-disturbing activities such as excavating, filling, and grading within the 1,000 foot buffer could indirectly affect the WYBC. However, the Proposed Project is scheduled to start before the WYBC breeding period in May, and will be creating disturbance and noise during the time period when WYBC would be selecting nesting sites, it is extremely unlikely that WYBC would select marginal quality habitat near active disturbance for breeding. If the project start date is postponed, adherence to the AMMs in Section 2.6 will minimize the potential for impacts to WYBC. Therefore, adverse effects to WYBC are not anticipated.

Table 4. Summary for ESA determination of impacts within the Action Areas

Wetland Type	Number of Features	Elevation Relative to Action Areas			Hydrologically Connected?		Acres	Distance (ft)
		Lower	Equal	Higher	Yes	No		
Blackbird Basins Area								
Ditch	4	0	1	3	4	0	0.25	0– 10.6
Swale	20	10	6	4	20	0	2.02	0 – 28.7
Vernal Pool	4	3	1	0	2	2	0.16	0
Total	28	13	8	7	26	2	2.43	0-28.7
Blackbird Marsh Action Area								
Ditch	1	0	1	0	0	1	0.12	60.1
Swale	5	0	4	1	5	0	0.51	0-288
Vernal Pool	9	1	7	1	5	4	0.41	0 – 279.8
Total	15	1	12	2	10	5	1.04	0 – 288
Justification for Not Likely to Adversely Affect								
A Service-approved biologist will monitor all construction activities in and adjacent to known or potential federally-listed vernal pool shrimp habitat. All vernal pools within 50 feet of the Action Area will be flagged or fenced, and protected by the physical erosion control measures outlined in the Avoidance and Minimization Measures (AMMs). Implementation of AMMs will prevent adverse effects to potential vernal pool shrimp habitat. A Service-approved biologist will designate and flag access routes to avoid potential branchiopod habitats to the greatest extent possible, if access routes must cross potential branchiopod habitat, matting will be used for protection. Because work will be conducted during the dry season, hydrologically connected potential vernal pool shrimp habitat will not be adversely affected.								

4.2 Future Effects

The Proposed Action would result in an increase in wetlands within both Action Areas. Although long-term maintenance of TRBL habitat may involve the removal of woody vegetation, cattail management, invasive species management, the removal of sediment from open water areas, and fence maintenance, these actions would not directly or adversely affect existing branchiopod habitats (USFWS 2020). The proposed improvements would not substantively alter the fluvial processes within either of the Action Areas and overall effects would be beneficial to species that depend on seasonal wetlands.

Overall, the Proposed Action would have long-term, beneficial effects for marsh and adjacent upland vegetation; future adverse effects would be negligible. Following dam improvements and habitat enhancement, species that depend on marsh habitats and seasonal wetlands would

experience long-term improvements over existing habitat conditions. Through the implementation of AMM's in Section 2.5, no direct future effects are anticipated.

4.3 Cumulative Effects

Cumulative impacts, as defined by the ESA, are those effects of future activities that are reasonably certain to occur within the Action Area (ESA, Section 402.14[g][4]). This Proposed Project could be initiated as early as the 2022 construction season and could therefore overlap in the Blackbird Basins area with the Removal Action Activities at Seven Munitions Response Sites Action Area (USFWS 2021). Aside from ongoing water management and invasive species management tools in the Non-Native and Noxious Plant Species Management consultation (USFWS 2020) to promote TRBL breeding habitat development (see Section 4.2), no future projects are expected to occur within either Action Area. A future project to repair Frisky Lake Dam is being planned downstream of the Blackbird Basins Action Area, having no overlap, and would start no earlier than 2024.

4.4 Conclusion

The Proposed Action has the potential to have temporary direct and indirect effects on vernal pool crustacean, WYBC, and western monarch habitat as a result of construction activities due to erosion potential and construction noise. Although there is potential for adverse effects to vernal pool fairy shrimp, vernal pool tadpole shrimp, WYBC, and western monarch during construction, any effects from construction would be temporary, short-term, and negligible. The Proposed Action would ultimately result in restoring wetland habitat within the Blackbird Basins action area and increasing wetland and marsh habitats within the Blackbird Marsh action area. Vernal pool crustacean, WYBC, and monarch habitat will be avoided and protected from direct work activities.

Beale AFB has assessed the potential effects of the Proposed Action on federally listed species and their habitats have been taken into account with the implementation of the proposed AMM'sin Section 2.6. Additionally, future maintenance would also avoid and protect listed species and their habitat, and would conform to all applicable AMMs as presented in Section 2.6. Based on this determination, no compensatory mitigation should be required.

5.0 Summary and Determination for the Proposed Action

The information and analysis presented in this document formed the basis for the finding that the Proposed Action warrants the effects determination for the ESA species with potential to occur within or near the Proposed Action. Beale AFB has determined that portions of the Proposed Action may affect, but is not likely to adversely affect the federally-listed species that occur or have the potential to occur within the Proposed Action Area. Table 5 summarizes the determinations of the analysis of the species with potential to occur in the Action Area and included in this informal consultation.

Table 5. Summary of Endangered Species Act determinations

Species	Federal Status	Endangered Species Act Determination of Effect on the Species
Vernal Pool Fairy Shrimp (*Branchinecta lynchi*)	Endangered	May Affect, Not Likely to Adversely Affect
Vernal Pool Tadpole Shrimp (*Lepidurus packardi*)	Endangered	May Affect, Not Likely to Adversely Affect
Western yellow-billed cuckoo (*Coccyzus americanus)*	Threatened	May Affect, Not Likely to Adversely Affect
Western Monarch Butterfly (*Danaus plexippus)*	Candidate	May Affect, Not Likely to Adversely Affect

6.0 References

AECOM. 2011. Special Status Species Surveys, Beale Air Force Base. January 2011.

Beale Air Force Base [Beale AFB]. 2021. Habitat Restoration Plan for Tricolored Blackbird Phase 1. February 2021. Beale Air Force Base, Yuba County, California. Prepared by Kleinfelder/Garcia and Associates, Auburn, California.

Bhate Environment Infrastructure (Bhate). 2016. Beale AFB Special Species Survey Report. March 2016.

Beedy, E. C., and Hamilton, W. J., III. 1999. Tricolored Blackbird (Agelaius tricolor), in The Birds of North America (A. Poole and F. Gill, eds.), no. 423. Birds N. Am., Philadelphia.

California Department of Fish and Wildlife [CDFW]. 2020. California Natural Diversity Database (CNDDB) –State and federally listed endangered and threatened animals of California. Retrieved June 30, 2020.

California Department of Fish and Wildlife [CDFW]. 2019. California Natural Diversity Database, RareFind 5, Version 5.2.7. Available: https://www.wildlife.ca.gov/Data/CNDDB/Maps-and-Data. Accessed June 10, 2019.

Center for Environmental Management of Military Lands [CEMML]. 2020a. Base-wide Elderberry Survey Report. Prepared for Beale Air Force Base. November 2020. Prepared for Air Force Civil Engineer Center, Travis Installation Support Section and Beale AFB Environmental Section. Colorado State University, Fort Collins, Colorado, U.S.A.

Center for Environmental Management of Military Lands [CEMML]. 2020b. Western yellow-billed cuckoo surveys on Beale Air Force Base: June-August 2020. Prepared for Air Force Civil Engineer Center, Travis Installation Support Section and Beale AFB Environmental Section. Colorado State University, Fort Collins, Colorado, U.S.A.

EDAW. 2006. Beale Air Force Base and Lincoln Receiver Site Amphibian and Reptile Survey Report. Prepared by EDAW, Inc. Sacramento, CA.

eBird. 2020. eBird: An online database of bird distribution and abundance [web application]. eBird, Cornell Lab of Ornithology, Ithaca, New York. Available: http://www.ebird.org. (Accessed: Septermber 23, 2020).

Halterman, M. 2019. Western Yellow-billed Cuckoo Surveys on Beale AFB, California. February 2019. Prepared for U.S. Air Force, Installation Support Section Beale Air Force Base and Center for Environmental Management of Military Lands, Fort Collins, CO.

Hansen, E. 2005. Giant Garter Snake (*Thamnophis gigas*) Surveys at Beale Air Force Base: Yuba County, California. November 2005.

Hopkinson, P., S. Ratay, J. Marty, Marty M. Ball, E. Howe, J. LaBonte, and K. Olthof. 2017. Updated Invasive Plant Species Management Guidelines Beale Air Force Base, California. Fort Collins, CO: Center for Environmental Management of Military Lands, Colorado State. Revised November 2017.

H.T. Harvey & Associates. 2012. Final Beale Air Force Base Special Status Species Report. November 2012.

Meese, R. J. and E. C. Beedy. 2015. "Managing nesting and foraging habitats to benefit breeding Tricolored Blackbirds." Central Valley Bird Club Bulletin 17 (No. 2-4):79-96.

Sojda, R. S. and K. L. Solberg. 1993. "Management and Control of Cattails." Waterfowl Management Handbook. U.S. Department of the Interior Fish and Wildlife Service Leaflet 13.4.13.

Sullivan, B.L., C.L. Wood, M.J. Iliff, R.E. Bonney, D. Fink, and S. Kelling. 2009. eBird: a citizen-based bird observation network in the biological sciences. Biological Conservation 142: 2282-2292.

URS Corporation. 2008. Soil Aquitard Study for Beale Air Force Base. July.

URS Corporation. 2008. Amphibian Habitat Assessment for Beale Air Force Base.

U.S. Army Corps of Engineers [USACE]. 2019. Comprehensive Hydraulic Modeling Study for Beale Air Force Base. Sacramento District. February 1.

U.S. Army Corps of Engineers [USACE]. 2012. USACE Jurisdictional Wetland Delineation for Beale AFB. October.

U.S. Department of Agriculture [USDA]. 2021. Web Soil Survey - online portal: https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx. Accessed 18-February-2021.

U.S. Fish and Wildlife Service [USFWS]. 2019a. Informal Consultation on the Proposed Repair and Construct Doolittle to PAVE PAWS Power Poles Project, Beale Air Force Base, Yuba County, California. June 14, 2019. Reference #08ESMF00-2019-I-2202.

U.S. Fish and Wildlife Service [USFWS]. 2019b. Informal Consultation on the Proposed Repair and Construct Doolittle to PAVE PAWS Power Poles Project, Beale Air Force Base, Yuba County, California. August 14, 2019. Reference #08ESMF00-2019-I-2202-R001.

U.S. Fish and Wildlife Service [USFWS]. 2019c. Informal Consultation on the Proposed Repair and Construct Doolittle to PAVE PAWS Power Poles Project, Beale Air Force Base, Yuba County, California. September 23, 2019. Reference #08ESMF00-2019-I-2202-R002.

U.S. Fish and Wildlife Service [USFWS]. 2019d. IPaC Resource List. https://ecos.fws.gov/ipac/location/XVLXIYWUMFB63HMB4GKDFVHC4Y/resources. Accessed April 1, 2020.

U.S. Fish and Wildlife Service [USFWS]. 2020. Informal Consultation on Non-Native and Noxious Plant Species Management Project, Beale Air Force Base, Yuba County, California. October 6, 2020. Reference # 08ESMF00 2020-I-1563.

U.S. Fish and Wildlife Service [USFWS]. 2021. Formal Consultation on Removal Action Activities at Seven Munitions Response Sites at Beale Air Force Base, Yuba County, California. October 6, 2020. Reference # 08ESMF00-2021-F-2255.

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Appendix H

NMFS Essential Fish Habitat (EFH) and Endangered Species Act (ESA) Abbreviated Consultation

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
West Coast Region
650 Capitol Mall, Suite 5-100
Sacramento, California 95814-4700

Refer to NMFS ECO#: WCRO-2021-02451

December 03, 2021

Julia L. Riley
Acting Environmental Element Chief
9th Civil Engineer Squadron
Department of the Air Force
9 CES/CEIE
6425 B Street, Bldg. 25390
Beale AFB, CA 95903-1708

Re: Endangered Species Act Section 7(a)(2) Concurrence Letter and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Response for Habitat Restoration Project for Tricolored Blackbird, Phase I at Beale Air Force Base, California

Dear Ms. Riley:

On October 1, 2021, NOAA's National Marine Fisheries Service (NMFS) received your request for a written concurrence that the U.S. Air Force's (USAF) Habitat Restoration Project for Tricolored Blackbird, Phase I at Beale Air Force Base (AFB) is not likely to adversely affect (NLAA) species listed as threatened or endangered or critical habitats designated under the Endangered Species Act (ESA). This response to your request was prepared by NMFS pursuant to section 7(a)(2) of the ESA and implementing regulations at 50 CFR 402.

Thank you also for your request for consultation pursuant to the essential fish habitat (EFH) provisions in section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. 1855(b)) for this action. This review was pursuant to section 305(b) of the MSA, implementing regulations at 50 CFR 600.920, and agency guidance for use of the ESA consultation process to complete EFH consultation.

This letter underwent pre-dissemination review using standards for utility, integrity, and objectivity in compliance with applicable guidelines issued under the Data Quality Act (section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001, Public Law 106-554). The document will be available within two weeks at the Environmental Consultation Organizer [https://www.fisheries.noaa.gov/resource/tool-app/environmental-consultation-organizer-eco]. A complete record of this consultation is on file at NMFS California Central Valley Office in Sacramento, CA.

Consultation History

- June 24, 2021 – NMFS received request for EFH consultation from USAF
- June 28, 2021 – phone call from NMFS to USAF to clarify that USAF was requesting only EFH consultation

- August 3, 2021 – phone call from NMFS to USAF, recommending that USAF also request ESA consultation
- September 24, 2021 – NMFS received an updated consultation request
- September 29, 2021 – NMFS requested confirmation from USAF that request for concurrence included California Central Valley steelhead
- October 1, 2021 – NMFS received second and final consultation request and initiated consultation
- December 2, 2021 – NMFS and USAF agreed to extend the deadline for this project by eight days to December 10, 2021.

Proposed Action and Action Area

Beale AFB proposes to carry out a restoration project that will result in infrastructure improvements and habitat enhancements aimed at expanding tricolored blackbird (TRBL) foraging and nesting habitat. The proposed action will occur at two locations on Beale AFB, in the tributaries upstream of Frisky Lake, an area now being referred to as Blackbird Basins, and a second location called Blackbird Marsh, formerly known as Clinic Pond or Hospital Pond.

The action area is located on Beale AFB in Yuba County, California and includes the Blackbird Basins and Blackbird Marsh sites. The Blackbird Basins site is located within the northeastern portion of Beale AFB (39.130416° N, 121.368547° W). The Blackbird Basins site is characterized by two main intermittent or ephemeral drainages with four small existing weirs supporting small ponds with herbaceous seasonal wetlands. The Blackbird Marsh site is located on an unnamed tributary within the eastern portion of Beale AFB in the Dry Creek watershed (39.109856° N, 121.351516° W). Blackbird Marsh has an existing dam with a crest height of 175 feet (10 to 12 feet above the downstream toe) that supports a maximum of 19-acre-feet storage. The dam holds approximately 4.7 acres of surface water at maximum capacity. There is an open channel spillway at the left abutment with the entrance approximately two feet below the top of the dam. The average summer low water surface area estimated from aerial images is approximately one acre. Two main intermittent or ephemeral drainages flow into the lake, with some downcutting in the northern, main tributary. Willows have established along the length of the dam and in patches in and around the lake. The action area extends 800 feet downstream of the dam at the Blackbird Marsh site and ends approximately 200 feet downstream of the confluence with Dry Creek.

The Blackbird Basins site is upstream of the dam that creates Frisky Lake and is not accessible to anadromous salmonids, so will not be considered further in this consultation.

The proposed action at the Blackbird Marsh site consists of the following:

- Repairs to the existing dam and spillway, and rehabilitation of erosion issues in tributaries;
- Installation of an outlet control structure to manage lake levels during winter storms;
- Re-contour and create shallow bench areas within the pond to enhance nesting areas;
- Create/enhance 1.5 acres of wetlands along the drainage to support large insect prey species;

- Planting to ensure that target species establish at the restoration site;
- Addition of experimental tricolored blackbird nesting structures;
- Maintenance, which could include dredging of the channels leading to Blackbird Marsh if sediment builds up;
- Installation of fencing to exclude livestock from wetland areas.

USAF plans to repair the existing dam and spillway at the Blackbird Marsh site. To avoid removing vegetation that provides nesting habitat for tricolored blackbirds, USAF may rebuild the spillway at a lower elevation and/or install an outlet control structure to allow for management of lake levels during winter storms. USAF may regrade portions of the channels upstream and downstream of the dam at Blackbird Marsh. USAF plans to create/enhance wetlands within the floodplain along the stream below the dam at Blackbird Marsh. Grazing currently occurs within the action area. USAF proposed to add fencing that will exclude grazing livestock from wetland areas in their tricolored blackbird restoration area.

USAF included the following avoidance and minimization measures:

WTR-MM-1: Prior to initiation of the proposed project, boundaries of access routes, work and staging areas, and sensitive areas will be clearly demarcated with orange construction barrier fencing (or an appropriate alternative method). Coordinate with the approved biologist to stake and flag the boundaries of all access routes, work and staging areas in portions that are within 50 feet of a drainage or vernal pool/seasonal wetland habitat for the proposed project to install appropriate boundary and containment materials. Off-road travel outside the demarcated construction boundaries will be strictly prohibited. The contractor will remove fencing, stakes, and flagging within 60 calendar days of project completion.

WTR-MM-2: The contractor will install and maintain site-specific erosion control measures (*i.e.*, gravel/sandbags, silt fence, straw bale barriers, erosion control/stabilization blankets, straw wattles, etc.). Erosion control systems will be kept in place and in effective operating condition at all times during construction. All drainages/wetlands/vernal pools will have erosion control measures installed when work is within 50 feet or where hydrological continuity exists between the construction activities and the drainage/wetland/vernal pool. Soil erosion and sediment controls will be used and maintained in effective operating condition during construction, and all exposed soil and other fills will be permanently stabilized at the earliest practicable date. Erosion control devices will not contain plastic netting and will be "certified weed free" to prevent the spread of invasive species.

WTR-MM-3: Once grading is complete, the diverted water flow, if any, will be gradually restored to avoid a strong flush of water that could erode exposed soil and cause sedimentation and/or increased turbidity.

WTR-MM-4: All road areas will be watered, or alternative dust control measures will be used, during project construction to prevent excessive dust from silting nearby drainages/wetlands/vernal pools.

WTR-MM-5: All excess soil excavated during construction will be removed and disposed of at a landfill located off Beale AFB. If soil is contaminated, the Beale AFB Environmental Office will coordinate with the Army Corps of Engineers and/or Sacramento Water Regional Control Board, as appropriate, prior to disposal of excavated soil.

WTR-MM-6: Excess soil temporarily stored on-site during construction will be covered with geotextile stabilization blankets/tarps and wattles to prevent exposure to the elements and to lessen chances of sedimentation due to storm water run-off and wind erosion. All remaining fill material will be removed in entirety according to disposal requirements and the affected areas will be revegetated as appropriate.

WTR-MM-7: All materials, vehicle parking, and staging areas will be designated by the Beale Environmental Office and located at least 50 feet away from drainages and other wetlands or on hardscape surface. Storage of all construction material/debris will be kept to the designated storage/staging area. The number and size of staging areas and the total area of the activity will be limited to the minimum area necessary to achieve the project goal.

WTR-MM-8: If the project site is within 50 feet of a drainage/wetland not proposed for expansion, the preconstruction clearing of vegetation will be done with hand equipment to ensure no subsurface disturbance below 6 inches occurs in or near the drainage/wetland.

WTR-MM-9: Upland vegetated buffers will be established and maintained next to all preserved open waters, streams and wetlands, including created, restored, enhanced, or preserved Waters of the U.S. Except in unusual circumstances, vegetated buffers will be at least 50 feet in width.

WTR-MM-10: Off-road access routes will be established in upland areas as much as possible, and the length of the road will minimize any adverse effects on wetlands and drainages. Where it is necessary for access routes to go through a wetland or drainage feature, weight-dispersing mats will be placed to minimize soil disturbance. Off-pavement access routes can only be used if the soil is dry. Any ruts or furrows caused by operations shall be raked by hand back to match existing surrounding ground surface. Access routes will be restored as closely as possible to preconstruction contours and elevations. This will be done prior to leaving current area of operation.

WTR-MM-11: Temporary fills will be removed in their entirety, and the affected areas returned to preconstruction elevations. The affected areas will be revegetated as appropriate.

WTR-MM-12: Motor vehicles and equipment will only be fueled and serviced in designated service areas. All fueling and maintenance of vehicles and other equipment will occur at least 250 feet from any wetland/drainage habitat or water body, or on impervious surfaces to the maximum extent practicable. Prior to the onset of work, Beale AFB or its contractors will prepare a plan to allow a prompt and effective response to any accidental spills. Workers will be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.

WTR-MM-13: A Spill Prevention Control and Countermeasure Plan will be prepared prior to the project implementation. All machinery will be properly maintained and cleaned to prevent spills and leaks. Any spills or leaks from the equipment will be reported and cleaned up in accordance

with applicable local, state, and Federal regulations. All parked vehicles will have drip pans situated below potential leak sites.

WTR-MM-14: All upland vegetated areas disturbed by construction will be revegetated with a Beale AFB approved native seed mix. Exposed soil will be hydro-seeded and depending on slope, covered with a biodegradable geotextile to prevent sediments from entering waterways. Reseeded areas will be monitored and maintained by the contractor as needed until there is 70% perennial vegetation cover in the seeded area.

GEN-MM: The construction period at Beale AFB is limited to the dry season (May through October). No work will be conducted within 100 feet of streams or wetland feature between 1 November and 1 May, unless specifically approved by the Beale AFB Natural Resources Manager (NRM) and NMFS; if weather continues to be fair. Work continuation is dependent on prevailing conditions, forecasted weather, and whether or not activities will damage soil or vegetative cover. The NRM must be contacted to obtain permission to work after each storm event. Permission to work after 1 November will not be granted once wetlands are activated (standing water present). The only outdoor work allowed 12 hours before or after a storm event is the inspection, installation, and/or maintenance of erosion controls. Any dredging will be conducted after the TRBL nesting season, but prior to 15 October. Spillway or low-level water releases would not occur during or immediately after dredging operations to ensure turbid water settles prior to release.

We considered, under the ESA whether or not the proposed action would cause any other activities and determined that it would not.

Background and Action Agency's Effects Determination

USAF determined that the proposed action may affect, but is not likely to adversely affect, the federally listed as threatened California Central Valley (CCV) steelhead distinct population segment (*Oncorhynchus mykiss)* (Table 2). The streams in the action area are not designated critical habitat. The USAF's determination was based on available information, including low stream flows and high water temperatures in the summer, lack of CCV steelhead observations during snorkel surveys, and inclusion of avoidance measures as part of the project. Salmonids have never been observed in the unnamed tributary of Dry Creek where project activities will take place. Dry Creek in the action area supports rearing and migrating salmonids, but studies have not been conducted to determine if these are listed or unlisted salmonids.

Table 1. *ESA listing history.*

Species Name	ESU or DPS	Current Final Listing Status	Critical Habitat Designated
Steelhead (*O. mykiss*)	California Central Valley DPS	1/5/2006 71 FR 834 Threatened	9/2/2005 70 FR 52488

USAF determined that the proposed action will have less than substantial adverse effects to EFH for Pacific Coast salmon. Habitat areas of particular concern (HAPCs) for Pacific Coast salmon

that may be present within the proposed action area are 1) complex channels and floodplain habitats.

ENDANGERED SPECIES ACT

Effects of the Action

Under the ESA, "effects of the action" are all consequences to listed species or critical habitat that are caused by the proposed action, including the consequences of other activities that are caused by the proposed action. A consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur. Effects of the action may occur later in time and may include consequences occurring outside the immediate area involved in the action (50 CFR 402.02). In our analysis, which describes the effects of the proposed action, we considered 50 CFR 402.17(a) and (b). When evaluating whether the proposed action is not likely to adversely affect listed species or critical habitat, NMFS considers whether the effects are expected to be completely beneficial, insignificant, or discountable. Completely beneficial effects are contemporaneous positive effects without any adverse effects to the species or critical habitat. Insignificant effects relate to the size of the impact and should never reach the scale where take occurs. Effects are considered discountable if they are extremely unlikely to occur.

The effects of the proposed action include increased sedimentation and turbidity, introduction of hazardous chemicals or other deleterious materials into streams in the action area, livestock exclusion, and extending the life of an existing structure.

Disturbance to soils and the stream bank within the project limits due to construction effects of the restoration project and repairs to the dam, spillway, and stream channels may temporarily mobilize sediment and increase turbidity in the action area. Any increase in sedimentation and turbidity resulting from project activities will be minimal and temporary and will occur when the channel is dry or very low, water temperatures are high, and CCV steelhead presence is likely to be low. Best management practices (BMPs) to minimize the potential for sedimentation into the streams in the action area will be employed. Therefore, the potential for adverse effects to CCV steelhead due to sedimentation and turbidity is insignificant.

Project construction and repair activities could potentially impair water quality should hazardous chemicals or other deleterious materials enter streams in the action area. Hazardous chemicals or other deleterious materials could potentially affect CCV steelhead by causing physiological stress, reducing biodiversity, interfering with fish passage, and causing direct mortality, or decrease the water quality of habitat. The inclusion of project BMPs will avoid the potential for exposure to hazardous chemicals. Therefore, the potential for adverse effects to CCV steelhead due to hazardous chemicals is discountable.

Fencing areas of wetlands and streams will exclude grazing livestock from entering streams. Grazing livestock can damage riparian areas and trample fish. So, excluding livestock from streams will protect riparian areas and prevent trampling of fish. Therefore, effects to CCV steelhead due to livestock exclusion are beneficial.

By repairing the dam at Blackbird Marsh, USAF is extending the useful life of a structure in a meaningful way, which may result in effects to CCV steelhead. This dam prevents upstream movement of anadromous fish. These effects will occur throughout the life of the dam. Given that the tributary with the dam is unnamed and the only inputs to the lake upstream of the dam are intermittent or ephemeral drainages, the unnamed tributary was likely never had consistent flows to support CCV steelhead even prior to the building of the dam. A larger, more consistent stream, Dry Creek, is approximately 530 feet downstream of the dam and provides rearing and migration habitat for CCV steelhead. Because there are preferred areas for CCV steelhead adjacent to the action area which provide higher quality rearing and migration habitat, the effects of the continued presence of the dam would be insignificant.

Conclusion

Based on this analysis, NMFS concurs with USAF that the proposed action is not likely to adversely affect the subject listed species and designated critical habitats.

Reinitiation of Consultation

Reinitiation of consultation is required and shall be requested by USAF or by NMFS, where discretionary Federal involvement or control over the action has been retained or is authorized by law and (1) the proposed action causes take; (2) new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered; (3) the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the written concurrence; or (4) a new species is listed or critical habitat designated that may be affected by the identified action (50 CFR 402.16). This concludes the ESA consultation.

MAGNUSON-STEVENS FISHERY CONSERVATION AND MANAGEMENT ACT

Section 305(b) of the MSA directs Federal agencies to consult with NMFS on all actions or proposed actions that may adversely affect EFH. Under the MSA, this consultation is intended to promote the conservation of EFH as necessary to support sustainable fisheries and the managed species' contribution to a healthy ecosystem. For the purposes of the MSA, EFH means "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity", and includes the associated physical, chemical, and biological properties that are used by fish (50 CFR 600.10). Adverse effect means any impact that reduces quality or quantity of EFH, and may include direct or indirect physical, chemical, or biological alteration of the waters or substrate and loss of (or injury to) benthic organisms, prey species and their habitat, and other ecosystem components, if such modifications reduce the quality or quantity of EFH. Adverse effects may result from actions occurring within EFH or outside of it and may include direct, indirect, site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions (50 CFR 600.810). Section 305(b) of the MSA also requires NMFS to recommend measures that can be taken by the action agency to conserve EFH. Such recommendations may include measures to avoid, minimize, mitigate, or otherwise offset the adverse effects of the action on EFH (50 CFR 600.905(b)).

Habitat areas of particular concern (HAPCs) for Pacific Coast salmon that may be present within the proposed action area are 1) complex channels and floodplain habitats. NMFS determined the proposed action would adversely affect EFH as follows 1) temporary impacts to complex channels and floodplain habitats, 2) permanent impacts to complex channels and floodplain habitats. Approximately 500 feet of EFH will be temporarily impacted by increased sedimentation and turbidity. Temporary impacts also include any dredging or regrading of the channels below the dam at Blackbird Marsh. Permanent impacts to complex channels and floodplain will be improvements to the channel following any dredging or regrading to address channel incision, addition of floodplain wetlands below the dam at Blackbird Marsh, and exclusion of livestock.

Given the proposed project design and intended BMPs to be employed, NMFS offers no further conservation recommendations for EFH. This concludes the MSA consultation.

Please direct questions regarding this letter to Neal McIntosh at the NMFS California Central Valley Office at 916-930-5647 or neal.mcintosh@noaa.gov.

Sincerely,

Ellen McBride

Ellen Roots McBride, M.S.
Sacramento River Basin Branch

cc: To the file: ARN 15422-WCR2021-SA00130
Tamara Gallentine, Natural & Cultural Resources Manager Beale AFB, tamara.gallentine.2@us.af.mil

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 9TH RECONNAISSANCE WING (ACC)
BEALE AIR FORCE BASE, CALIFORNIA

MEMORANDUM FOR NATIONAL MARINE FISHERIES SERVICE
ATTN: MARIA REA
650 Capitol Mall, Suite 5-100
Sacramento, CA 95814-4708

FROM: 9 CES/CEIE
6425 B Street, Bldg. 25390
Beale AFB, CA 95903-1708

SUBJECT: Essential Fish Habitat (EFH) and Endangered Species Act (ESA) Abbreviated Consultation for the Proposed Action of Habitat Restoration Project for Tricolored Blackbird, Phase I at Beale AFB

1. The intent of this letter is to submit an abbreviated consultation to the National Marine Fisheries Service (NMFS) to initiate consultation pursuant to essential fish habitat (EFH) provisions in Section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act (MSA) (16 U.S.C. 1855(b)) and Endangered Species Act regulations (50 CFR 402.02) for the Proposed Action of Habitat Restoration Project for the Tricolored Blackbird (TRBL), Phase I at Beale Air Force Base (AFB) (Figure 1). The Proposed Action in the tributaries upstream of Frisky Lake, an area now being referred to as Blackbird Basins and a second location called Blackbird Marsh (formerly known as Clinic Pond) (Figure 2) will result in infrastructure improvements and habitat enhancements aimed at expanding TRBL foraging and nesting habitat as described in the *Habitat Restoration Plan for the Tricolored Blackbird, Phase I, Beale Air Force Base, Yuba County, California* (Attachment 1). The focus of this notification is for the activities within the Blackbird Marsh restoration site, as this area is within the Dry Creek watershed and Dry Creek is known to provide habitat for fall-run Chinook salmon (*Oncorhynchus tshawytscha*) and California Central Valley (CCV) steelhead (*Oncorhynchus mykiss*) on Beale AFB.

2. **Description of the Proposed Action:** The proposed action at the Blackbird Marsh (Figure 3) consists of the following:

- Repairs to the existing dam and spillway, and rehabilitation of erosion issues in tributaries
- Installation of an outlet control structure to manage lake levels during winter storms
- Re-contour and create shallow bench areas within the pond to enhance nesting areas
- Create/enhance 1.5 acres of wetlands along the drainage to support large insect prey species
- Planting to ensure that target species establish at the restoration site
- Addition of experimental tricolored blackbird nesting structures
- Maintenance, which could include dredging of the channels leading to Blackbird Marsh if sediment builds up.

3. **Analysis of Effects:** Currently, all of Beale AFB is located within the EFH for the Chinook salmon. Within Beale AFB only Dry Creek has been known to provide suitable habitat for fall-run Chinook salmon and CCV steelhead. In the past, and as recent as 2015/16 salmonids have been observed in Dry Creek during years with high flows. Successful spawning was observed in the winter of 2014/15 in Dry Creek. Blackbird Marsh is located within the Dry Creek watershed and is fed by two ephemeral drainages that flow into the marsh. The closest work will be in a tributary to Dry Creek and is located approximately 530 feet upstream from Dry Creek (Fig 3). The tributaries in the Blackbird Marsh area do not provide habitat for Chinook salmon or CCV steelhead due to intermittent flows, shallow depth and a bedrock substrate. However, the soil disturbance due to contouring and repair work within the channels and the central pond may have the potential for temporary increased sedimentation downstream into Dry Creek. Sedimentation can create overall changes to water quality, flows and habitat within the creek. To limit any impacts to the Dry Creek area project specific avoidance and minimization measures will be implemented to ensure sediment and siltation during and after construction activities will be contained and controlled. Additionally, work conducted under this project will improve water quality by repairing drainage areas with significant erosion thereby reducing downstream sedimentation.

4. **Determination:** It is Beale AFB's determination that the Proposed Action will have less than substantial adverse effects to and EFH for Chinook salmon habitat within the Dry Creek watershed of Beale AFB. Furthermore, the activities that would be authorized under this informal consultation may affect, not likely to adversely CCV steelhead and would not effect other federally-listed marine species that occur in the general region of Beale AFB. By implementing project specific minimization measures during construction would reduce potential impacts to a negligible level. It is also our determination that repairs conducted under this project will have an overall improvement to the water quality within Dry Creek. By implementing the appropriate minimization measures listed below, any potential for downstream sedimentation during construction activities will be minimized:

WTR-MM-1: Prior to initiation of the proposed project, boundaries of access routes, work and staging areas, and sensitive areas will be clearly demarcated with orange construction barrier fencing (or an appropriate alternative method). Coordinate with the approved biologist will stake and flag the boundaries of all access routes, work and staging areas in portions that are within 50 feet of a drainage or vernal pool/seasonal wetland habitat for the proposed project to install appropriate boundary and containment materials. Off-road travel outside the demarcated construction boundaries is strictly prohibited. The contractor will remove fencing, stakes, and flagging within 60 calendar days of project completion. .

WTR-MM-2: The contractor will install and maintain site-specific erosion control measures (i.e., gravel/sandbags, silt fence, straw bale barriers, erosion control/stabilization blankets, straw wattles, etc.). Erosion control systems will be kept in place and in effective operating condition at all times during construction. All drainages/wetlands/vernal pools will have erosion control measures installed when work is within 50 feet or where hydrological continuity exists between the construction activities and the drainage/wetland/vernal pool. Soil erosion and sediment controls will be used and maintained in effective operating condition during construction, and all exposed soil and other fills will be permanently stabilized at the earliest practicable date. Erosion control devices will not contain plastic netting and will be "certified weed free" to prevent the spread of invasive species.

WTR-MM-3: Once grading is complete, the diverted water flow, if any, will be gradually restored to avoid a strong flush of water that could erode exposed soil and cause sedimentation and/or increased turbidity.

WTR-MM-4: All road areas will be watered, or alternative dust control measures will be used, during project construction to prevent excessive dust from silting nearby drainages/wetlands/ vernal pools.

WTR-MM-5: All excess soil excavated during construction will be removed and disposed of at a landfill located off Beale AFB. If soil is contaminated, then Beale AFB Environmental Office will coordinate with the Army Corps of Engineers and/or Sacramento Water Regional Control Board, as appropriate prior to disposal of excavated soil.

WTR-MM-6: Excess soil temporarily stored on-site during construction will be covered with geotextile stabilization blankets/tarp and wattles to prevent exposure to the elements and to lessen chances of sedimentation due to storm water run-off and wind erosion. All remaining fill material will be removed in entirety according to disposal requirements and the affected areas will be revegetated as appropriate.

WTR-MM-7: All materials, vehicle parking, and staging areas will be designated by the Beale Environmental Office and located at least 50 feet away from drainages and other wetlands or on hardscape surface. Storage of all construction material/ debris will be kept to the designated storage/ staging area. The number and size of staging areas and the total area of the activity will be limited to the minimum area necessary to achieve the project goal.

WTR-MM-8: If the project site is within 50 feet of a drainage/wetland not proposed for expansion, the preconstruction clearing of vegetation will be done with hand equipment to ensure no subsurface disturbance below 6 inches occurs in or near the drainage/wetland.

WTR-MM-9: Upland vegetated buffers will be established and maintained, to the maximum extent practicable, next to all preserved open waters, streams and wetlands, including created, restored, enhanced, or preserved Waters of the U.S. Except in unusual circumstances, vegetated buffers will be at least 50 feet in width.

WTR-MM-10: Off-road access routes will be established in upland areas as much as possible, and the length of the road will minimize any adverse effects on wetlands and drainages. Where it is necessary for access routes to go through a wetland or drainage feature, weight-dispersing mats will be placed to minimize soil disturbance. Off-pavement access routes can only be used if the soil is dry. Any ruts or furrows caused by operations shall be raked by hand back to match existing surrounding ground surface. Access routes will be restored as closely as possible to preconstruction contours and elevations. This will be done prior to leaving current area of operation.

WTR-MM-11: Temporary fills will be removed in their entirety, and the affected areas returned to preconstruction elevations. The affected areas will be revegetated as appropriate.

WTR-MM-12: Motor vehicles and equipment will only be fueled and serviced in designated service areas. All fueling and maintenance of vehicles and other equipment will occur at least 250 feet from any wetland/ drainage habitat or water body, or on impervious surfaces to the maximum extent practicable. Prior to the onset of work, Beale AFB or its contractors will prepare a plan to allow a prompt and effective response to any accidental spills. Workers will be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.

WTR-MM-13: A Spill Prevention Control and Countermeasure Plan will be prepared prior to the project implementation. All machinery will be properly maintained and cleaned to prevent spills and leaks. Any spills or leaks from the equipment will be reported and cleaned up in accordance with applicable local, state and federal regulations. All parked vehicles will have drip pans situated below potential leak sites.

WTR-MM-14: All upland vegetated areas disturbed by construction will be revegetated with a Beale AFB approved native seed mix. Exposed soil will be hydro-seeded and depending on slope, covered with a biodegradable geotextile to prevent sediments from entering waterways. Reseeded areas will be monitored and maintained by the contractor as needed until there is 70% perennial vegetation cover in the seeded area.

GEN-MM: The construction period at Beale AFB is limited to the dry season (May through October). No work will be conducted within 100 feet of streams or wetlands between 1 November and 1 May, unless specifically approved by the Beale AFB Natural Resources Manager. Any dredging will be conducted after the TRBL nesting season, but prior to 15 October. Spillway or low-level water releases would not occur during or immediately after dredging operations to ensure turbid water settles prior to release.

5. Please review the enclosed document, and contact Ms. Tamara Gallentine at (530) 634-2738 or tamara.gallentine.2@us.af.mil if you have comments or need additional information.

Jules Riley

JULIA L. RILEY, GS-13, DAF
Acting Environmental Element Chief
9th Civil Engineer Squadron

Attachment:
Habitat Restoration Plan for the Tricolored Blackbird, Phase I, Beale Air Force Base, Yuba County, California

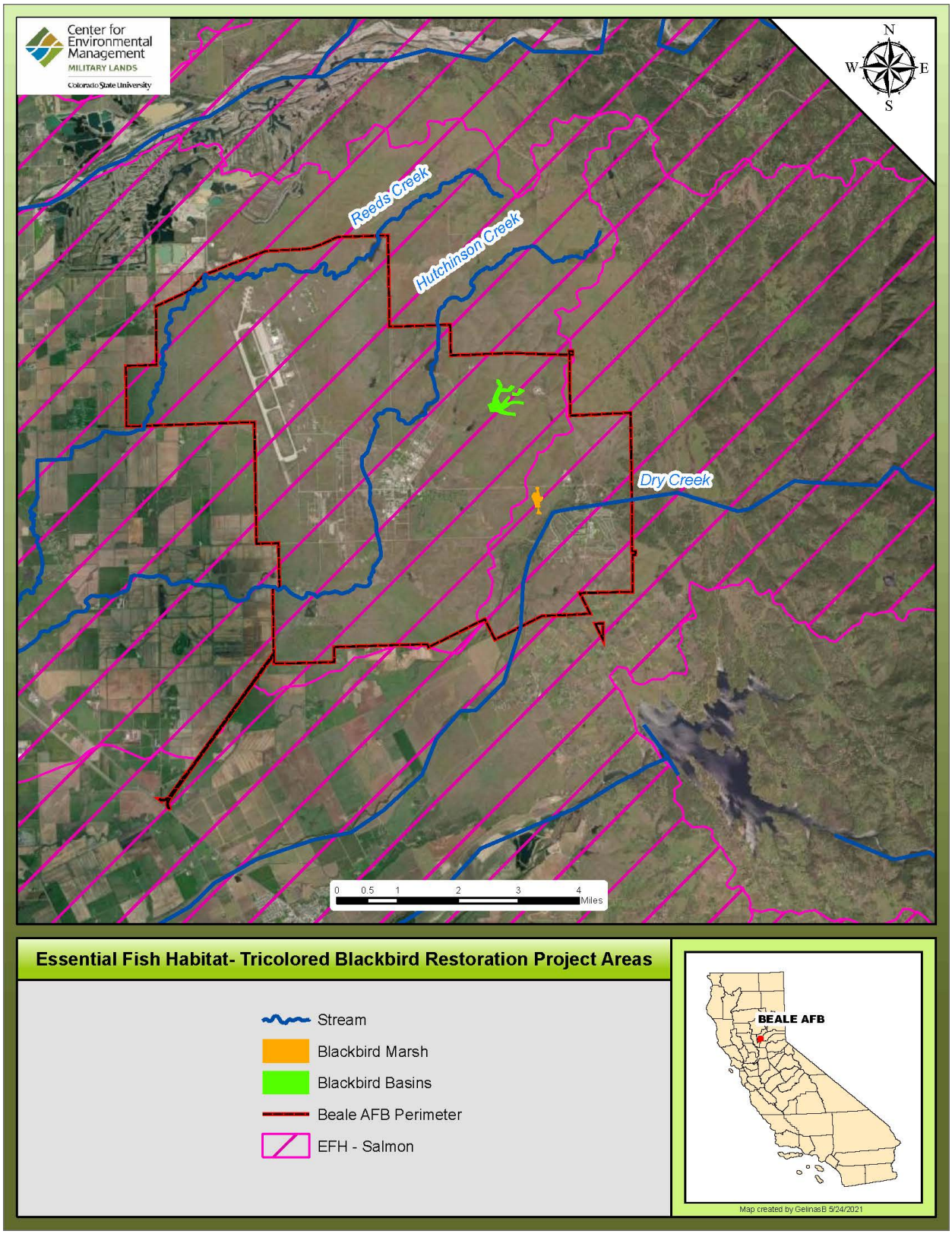

Figure 1. Essential Fish Habitat for Beale AFB

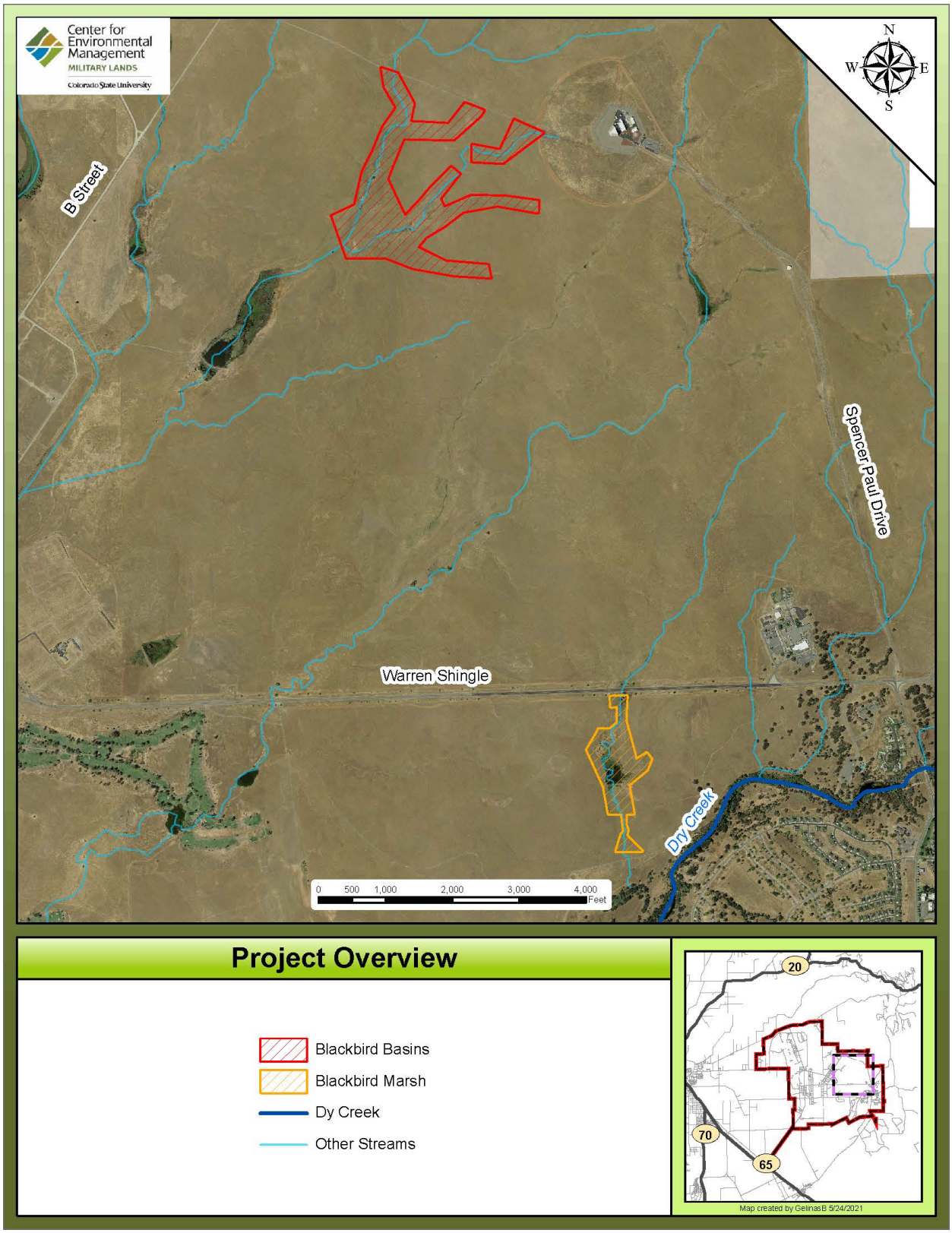

Figure 2. Overview of Tricolored Blackbird Habitat Restoration Project Sites

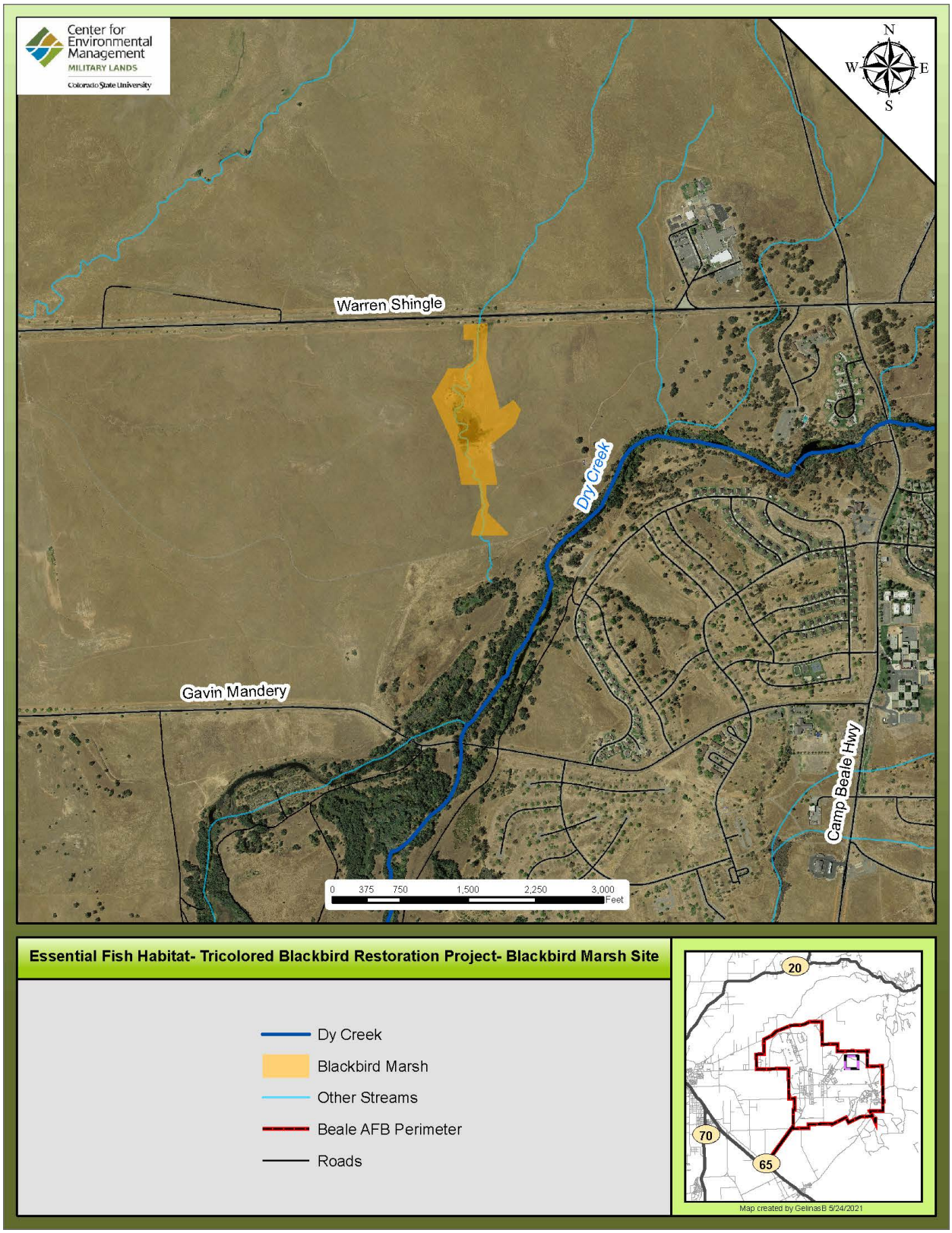

Figure 3. Blackbird Marsh Site for Tricolored Blackbird Habitat Restoration Project

HABITAT RESTORATION PLAN FOR THE TRICOLORED BLACKBIRD, PHASE 1

BEALE AIR FORCE BASE, YUBA COUNTY, CALIFORNIA

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May 2021

Colorado State University. 2021. *Habitat Restoration Plan for the Tricolored Blackbird Phase 1*. May 2021. Beale Air Force Base, Yuba County, California. Prepared by Kleinfelder / Garcia and Associates, Auburn, California.

Contents

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Beale Air Force Base
Habitat Restoration Plan for Tricolored Blackbird
Phase 1

Summary

Breeding colonies of tricolored blackbird (*Agelaius tricolor*) in California historically attracted tens or hundreds of thousands of adults, but the species has been in decline in recent years due to crop-harvesting activities, insufficient insect resources, and habitat loss resulting from conversion of rangeland to vineyards, nut orchards, other agricultural crops, and urban development (Beedy et al. 2018).

This Habitat Restoration Plan for Tricolored Blackbird (Plan) intends to identify alternative opportunities to create and/or enhance nesting habitat with adjacent suitable foraging habitat for tricolored blackbirds on Beale Air Force Base (AFB), while avoiding conflicts with AFB operations. Tricolored blackbirds require the following habitat components to produce successful nesting colonies (Beedy 2008):

1. Open, accessible water[1]
2. Protected nesting substrate, including either flooded or thorny/spiny vegetation
3. Suitable foraging space[2] that provides adequate insect prey within a few kilometers of the nesting colony

The conceptual designs presented in this Plan aim to maximize integration of required habitat components into a diverse matrix that will ultimately be successfully occupied by large tricolored blackbird colonies. Two potential design enhancement options are proposed to provide habitat restoration/creation and enhancement opportunities, including (1) expansion/creation of wetland foraging habitat at the Blackbird Basins, and (2) expansion of nesting habitat at Blackbird Marsh.

Several methods may be used to create or enhance nesting and foraging habitats at Blackbird Marsh and the Blackbird Basins. Grading, dam improvements, and augmented water supply will be used to increase the area of shallow inundation at Blackbird Marsh to promote growth of cattails (*Typha* spp.) that can provide necessary nesting substrate. In addition, planting of desirable vegetation and installation of experimental artificial nesting structures will be used to provide attractive nesting substrates. Grading and repair of weirs may be used in the upstream tributaries of the Hutchinson

[1] Open water areas are required for drinking and bathing, and could include a stock pond, open canal, or marsh with open water at least at the edges. Examples of unsuitable water sources include dense, overgrown freshwater marshes with no exposed water, shaded riparian areas, and stagnant puddles with no source of freshwater input (Beedy, pers. comm. 2018).

[2] Suitable foraging space would include a relatively flat or gently sloping open pasture or grassland with moderate grazing and moist soil and low vegetation (i.e., less than 10 inches) of at least ~2,000 acres within 5 miles of the colony site (the closer the better). Examples of unsuitable foraging habitats include steep areas where water does not accumulate, ungrazed grasslands with tall vegetation, row crops, vineyards, orchards, and riparian habitats (Beedy, pers. comm. 2018).

Creek system, southwest of PAVE PAWS to enlarge adjacent seasonal wetlands to provide more foraging habitat (Blackbird Basins). Grazing will be maintained and managed in the adjacent uplands at both sites to enhance upland foraging habitat; however, nesting areas will be fenced to avoid destruction by cattle.

1.0 Introduction

The tricolored blackbird is currently listed as threatened under the California Endangered Species Act (CDFW 2018). Breeding colonies in California historically attracted tens or hundreds of thousands of adults, but the species has been in decline in recent years due to crop-harvesting activities, insufficient insect resources, and habitat loss resulting from conversion of rangeland to vineyards, nut orchards, other agricultural crops, and urban development (Beedy et al. 2018).

1.1 Purpose and Need

The purpose of this Beale AFB Plan is to create and/or enhance potential nesting habitat and adjacent suitable foraging habitat to benefit tricolored blackbird at Beale AFB at a distance of at least two miles from the AFB runway, to maintain safe flying operations.

1.1.1 Function and Value of Impacted Habitat

Approximately 12 acres of occupied nesting habitat composed of Himalayan blackberry (*Rubus armeniacus*) shrubs on the western side of Beale AFB was removed due to flight safety risks. The nesting habitat was located along Reed's Creek, approximately one mile from the main runway, the proximity of which posed a reoccurring hazard to normal flight operations.

1.1.2 Tricolored Blackbird Habitat Requirements

Historically, most tricolored blackbird colonies were located in freshwater marshes dominated by dense stands of cattails (*Typha* spp.) or tules (*Schoenoplectus* spp.); however, in recent decades and due to a decline in this preferred habitat, an increasing number of colonies have been reported to nest in Himalayan blackberry, nettles (*Urtica* spp.), and thistles (*Cirsium* spp.) (Beedy 2008). Ideal foraging conditions within nearby grasslands or agricultural fields are created when shallow flood-irrigation, mowing, or grazing keeps vegetation at an optimal height (less than 6 inches).

Tricolored blackbirds require the following habitat components to produce successful nesting colonies (Beedy 2008):

- Open, accessible water[3]
- Protected nesting substrate, including either flooded or thorny/spiny vegetation

[3]Open water areas are required for drinking and bathing, and could include a stock pond, open canal, or marsh with open water at least at the edges. Examples of unsuitable water sources include dense, overgrown freshwater marshes with no exposed water, shaded riparian areas, and stagnant puddles with no source of freshwater input (Beedy, pers. comm. 2018).

- Suitable foraging space[4] that provides adequate insect prey within a few kilometers of the nesting colony

Open water within 500 meters of nesting substrate is a requirement for colony settlement (Hamilton 2004). Prior to breeding, food sources in the spring generally include grains associated with dairy feedlots, cracked corn, sprouting rice, ripening oats, and milk barley (Skorupa et al. 1980, as cited in Hamilton 2004). During the breeding season, the tricolored blackbird diet shifts to insect prey, including grasshoppers, beetles, weevils, caddis fly larvae, moth and butterfly larvae, dragonfly larvae, and lakeshore midges (Skorupa et al. 1980, as cited in Hamilton 2004). After the breeding season, forage includes seeds from pasture grassland and weeds, and animal matter as available (Hamilton 2004).

Preferred foraging sites include crops such as rice, alfalfa, irrigated pastures, and ripening or cut grain fields, as well as annual grasslands, cattle feedlots, dairies, vernal pools, other seasonal wetlands, riparian scrub habitats, and open marsh borders (Beedy 2008). Proximity to suitable foraging habitat is essential for the successful colonization of a site (Airola et al. 2018; Beedy et al. 2018).

Though the greatest threat to the species is habitat loss and degradation from human activities, predators such as black-crowned night-herons (*Nycticorax nycticorax*), common ravens (*Corvus corax*), raccoons (*Procyon lotor*), and coyotes (*Canis latrans*) can cause major losses to individual colonies (Beedy 2008); however, tricolored blackbird colonies typically select breeding habitats that provide some degree of predator protection (CDFW 2018). Therefore, nesting areas must be inaccessible or protected from predation, either by the presence of standing water or naturally armored vegetation. In areas where cattle graze, it may be necessary to protect the nesting substrate from disturbance by cattle with fencing. Cattail stands must be at least 50 feet wide to support successful nesting habitat, and young, vigorous growth is most attractive to nesting birds (Meese and Beedy 2015).

1.2 Goals and Objectives

This Plan intends to identify alternative opportunities to create and/or enhance nesting habitat with adjacent suitable foraging habitat for tricolored blackbirds on Beale AFB, while avoiding conflicts with AFB flight operations (Figures 1 and 2). Within the aquatic component, the target will be to achieve an approximate 50:50 ratio of open water to suitable nesting vegetation.

1.2.1 Function and Value of Habitat to be Created and/or Enhanced

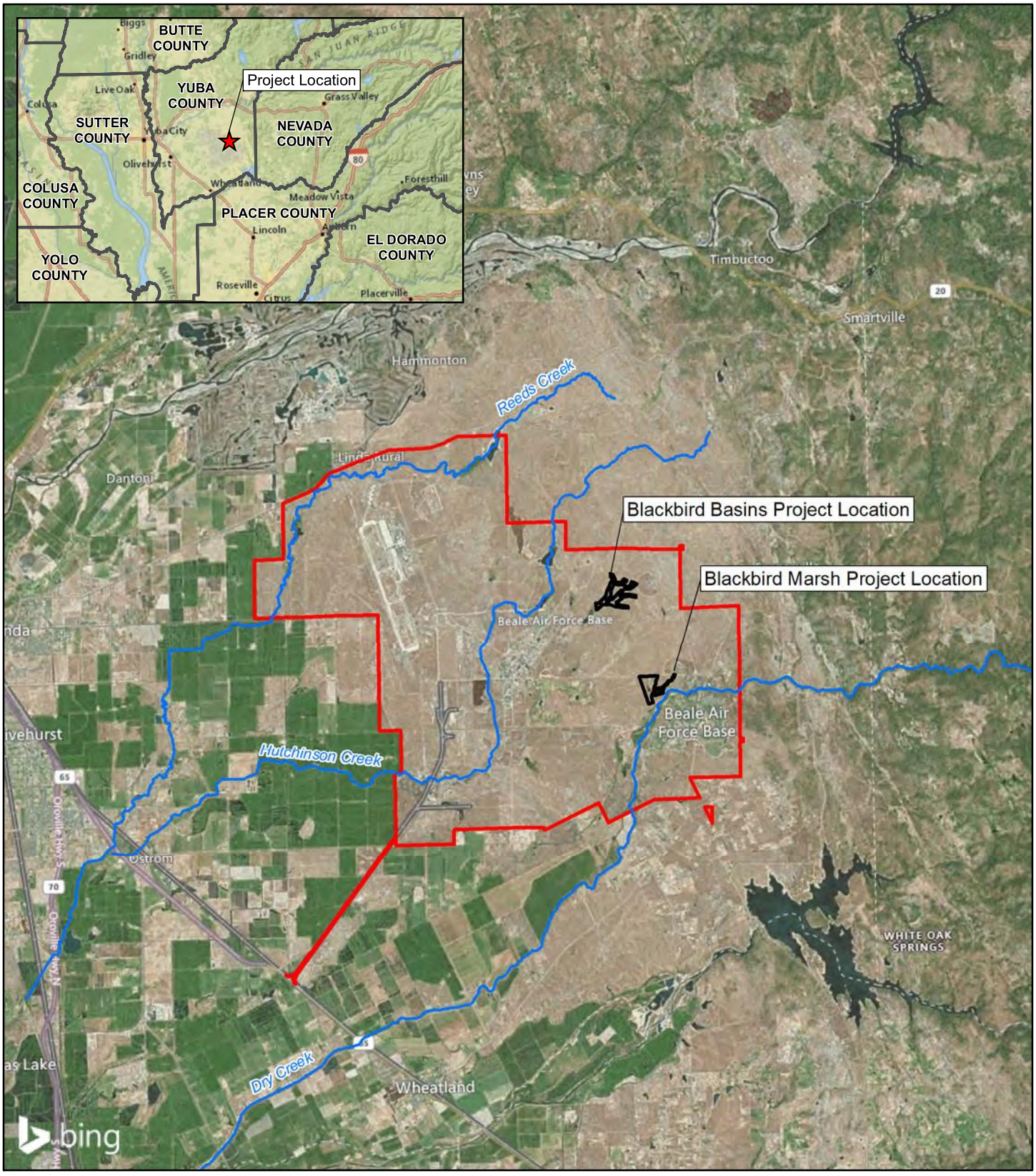
The alternatives presented below aim to maximize integration of required habitat components into a diverse matrix of existing ponds and grazed grasslands at Beale AFB that will ultimately be successfully utilized by large tricolored blackbird colonies. Two site locations are proposed under this Plan:

[4] Suitable foraging space would include a relatively flat or gently sloping open pasture or grassland with moderate grazing and moist soil and low vegetation (i.e., less than 10 inches) of at least ~2,000 acres within 5 miles of the colony site (the closer the better). Examples of unsuitable foraging habitats include steep areas where water does not accumulate, ungrazed grasslands with tall vegetation, row crops, vineyards, orchards, and riparian habitats (Beedy, pers. comm. 2018).

1. The upstream (tributary) drainages of the Hutchinson's Creek system, southwest of PAVE PAWS are presented as areas for potential enhancement of foraging habitat (Blackbird Basins)
2. Blackbird Marsh (at the area also known as Clinic Pond or Hospital Pond) is presented as a location to support expansion of nesting habitat and foraging habitat

The goals of this Plan will be to provide additional areas of open water, protected nesting substrate, and high-quality foraging areas on Beale AFB.

Aquatic areas at the Blackbird Marsh site will include both open water and shallow areas with emergent vegetation and collectively will be referred to as the zone of inundation throughout this Plan. Open water will provide drinking, bathing, and foraging areas free of emergent vegetation. Emergent vegetation, such as cattails, generally cannot persist in sustained water depths over 3 to 4 feet; therefore, design depths greater than or equal to 4 feet will be considered open water. The areas between the maximum surface water level (defined here by the approximate invert of the spillway) up to 3 to 4 feet in depth will be considered as shallow bench zones suitable to support growth of cattails. The width of cattail benches will be maximized to provide a protective buffer around nesting substrate from adjacent upland areas where predators may access a colony. Areas adjacent to and up to 2 feet in elevation above the zone of inundation will be planted with a variety of species that may provide protective, armored nesting substrate and/or deter terrestrial predators. Uplands and seasonal wetlands adjacent to the nesting areas at Blackbird Marsh and in the Blackbird Basins will be enhanced and managed to provide habitat for large insect prey species.



Beale Air Force Base

Project Location

N

0 1 2 Miles

0 1.5 3 Kilometers

Figure 1.
Regional Vicinity Map
Habitat Restoration for the
Tricolored Blackbird, Phase 1
Beale AFB, Yuba County, CA
May 2021

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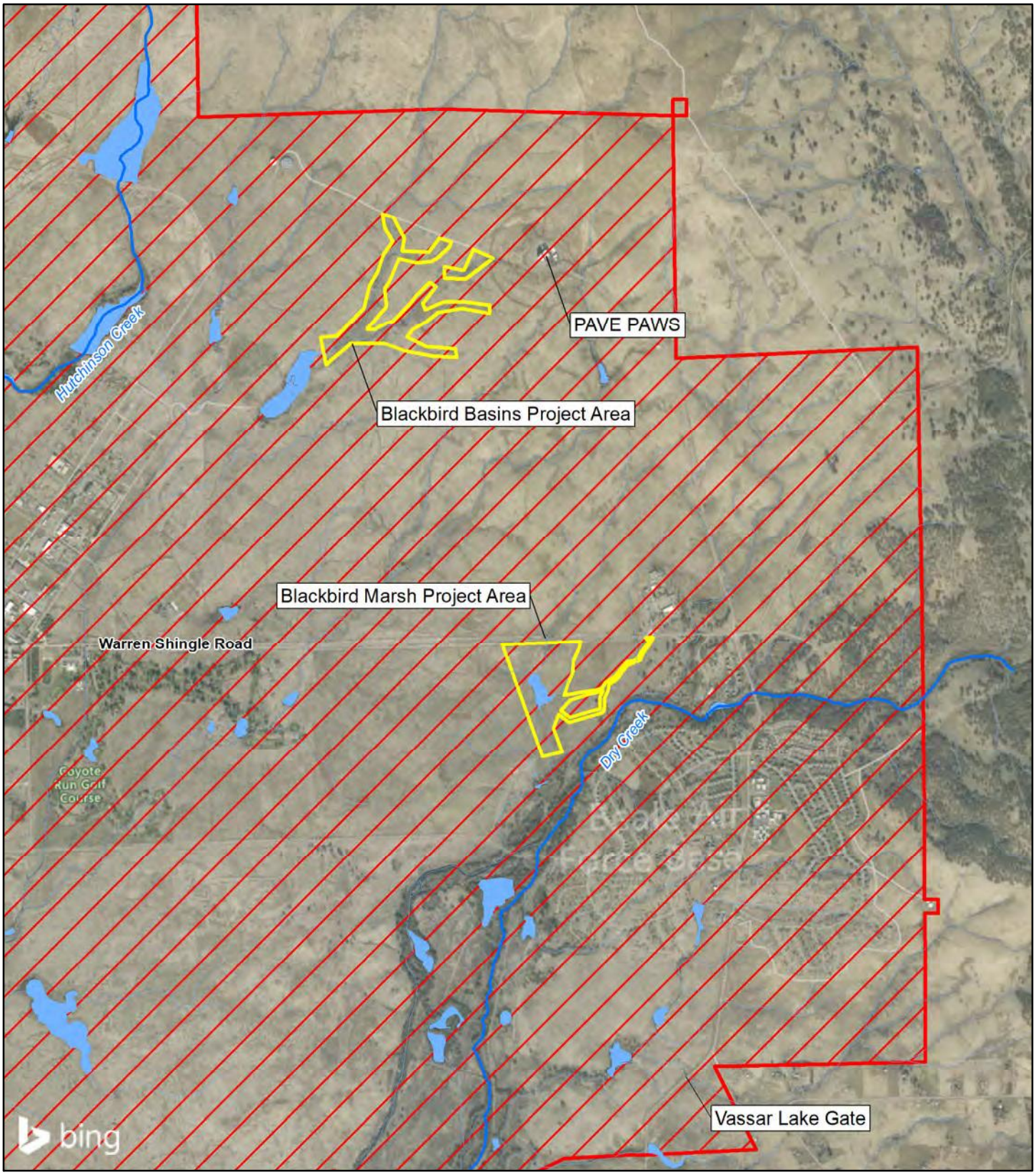

Project Location

Beale Air Force Base

N

0 1,500 3,000 Feet

0 500 1,000 Meters

Figure 2.
Project Location Map
Habitat Restoration for the
Tricolored Blackbird, Phase 1
Beale AFB, Yuba County, CA
May 2021

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2.0 Project Description

Two locations are proposed to be restored, which together will meet the project goals of creating high-quality tricolored blackbird nesting and foraging habitat: (1) seasonal wetland and drainage enhancements at the Blackbird Basins, and (2) nesting habitat expansion at Blackbird Marsh. The restoration approach at both locations will rely on a combination of habitat enhancement methods, as described herein, with the majority of improvements applicable to the Blackbird Marsh site. Actual design specifications will vary depending on field conditions and will be determined during the detailed design phase. Improvements at the Blackbird Basins will focus on repairing existing weirs and augmenting the hydroperiod of the upstream drainages. Expansion of nesting habitats in association with Frisky Lake are addressed under a separate Phase 2 Plan.

Blackbird Basins Existing Conditions

The Blackbird Basins are located within the northeastern portion of Beale AFB, approximately one mile southwest of the PAVE PAWS facility (Figure 3). The area is characterized by two main intermittent or ephemeral drainages with four small existing weirs supporting small ponds with herbaceous seasonal wetlands. The upland habitats around the Blackbird Basins are characterized by lightly grazed, non-native annual grasses. Approximately 40 adult tricolored blackbirds were observed south of the area, at Frisky Lake in 2015, but the nesting status there was not confirmed (Tricolored Blackbird Portal 2018). However, the seasonal wetlands in the tributaries and grazed upland areas adjacent to the Blackbird Basins appear to provide suitable foraging habitat.

Blackbird Basins Summary of Proposed Restoration Activities

Proposed restoration efforts at the Blackbird Basins in this Phase 1 Plan will focus on enhancement of the foraging habitats within the intermittent drainages. Enhancement of wetland ponds and drainages and installation of potentially suitable experimental nesting structures is proposed at the Blackbird Basins through grading, repair or resizing of weirs, augmentation of water supply, planting, installation of artificial nesting structures, and modifying of the current grazing areas. A subsequent project (Phase 2, addressed separately) aims to provide additional acreage of open water and shallowly inundated nesting areas downstream.

Blackbird Marsh Existing Conditions

Blackbird Marsh is located within the eastern portion of Beale AFB in the Dry Creek watershed, approximately 0.7 mile southwest of the Beale AFB hospital (Figure 2). There is an existing dam with a crest height of 175 feet (10 to 12 feet above the downstream toe) that supports a maximum of 19 acre-feet storage (USACE 2019) (approximately 4.7 acres of surface water at maximum capacity). The dam has been rated in poor condition but low hazard (USACE 2019). There is an open channel spillway at the left abutment with the entrance approximately 2 feet below the top of the dam (elevation 173 feet). There is no outlet control system and the spillway is eroding at the invert and downstream where concrete blocks and slabs have been placed (USACE 2016). Average summer low water surface area from aerial images appears to be approximately one acre. Two main intermittent or ephemeral drainages flow into the lake, with some downcutting evident in the main (northern) tributary. The upland habitats around Blackbird Marsh are characterized by lightly grazed, non-native annual grasses. Willows have established along the length of the dam and in patches in and around the lake. Small stands of cattails are present on the lake margins.

Approximately 900 female and juvenile tricolored blackbirds were observed nesting at Blackbird Marsh in 2020 (Lipschutz, pers. comm. 2020). The birds were utilizing all available substrates for nesting including Himalayan blackberry and the large willows.

Blackbird Marsh Summary of Proposed Restoration Activities

Enhancement of suitable foraging habitat and installation of potentially suitable experimental nesting structures is proposed at Blackbird Marsh through grading, repair or resizing of the dam and outlet, augmentation of water supply, planting, installation of artificial nesting structures, and modification of current grazing areas. Proposed restoration efforts at Blackbird Marsh will focus on expansion of potential nesting habitats in and around the lake, repair of the dam and spillway, rehabilitation of downcutting and other erosional issues in the drainage channels above and below the lake, and expansion of high-quality seasonal wetland foraging habitat. Ideally, portions of the existing habitats at the south end of the lake will not be significantly altered during construction (i.e., little to no vegetation removal or grading if possible) to ensure there is not a temporal loss of suitable nesting habitat during expansion of the lake. The intent is to expand the nesting habitats at the lake, primarily on the eastern side, while preserving the known previously occupied nesting substrates along the dam and current lake margins to the greatest extent feasible. Vegetation removal along the dam and other suitable nesting habitats will be limited to necessary disturbances only, and avoided and minimized as much as possible. Construction will ideally be timed to occur after nesting has occurred.

2.1 Habitat Enhancement Methods

Several methods may be used to create or enhance habitat values around Blackbird Marsh, including grading, dam improvements, and water pumping, which will be used to increase the area of shallow inundation to promote growth of cattails. Planting of desirable vegetation and installation of experimental artificial nesting structures (see Section 2.1.6) will be used to provide attractive nesting substrates for tricolored blackbird. Grading may be used to repair the currently incised channels above and below Blackbird Marsh and to create adjacent seasonal wetlands to provide more foraging habitat. Grazing will be maintained and managed in the adjacent uplands to enhance upland foraging habitat at both sites.

2.1.1 Dam Improvements at Blackbird Marsh

Blackbird Marsh (also referred to in reference documents as Clinic Pond and Hospital Pond) was created by the installation of a man-made earth and rock dam many years ago. The dam at Blackbird Marsh presents a low risk of flood hazard but has been rated in poor/fair condition due to root intrusion, seepage, and erosion of the spillway. Maintenance recommendations from recent inspections include complete and continual vegetation removal (USACE 2016), which would result in a loss of nesting substrate known to support recent occupation by tricolored blackbirds.

The dam crest is at an elevation of 175 feet above mean seas level (amsl) and is approximately 250 feet in length and 10 feet wide. The height is 10 to 12 feet above the downstream toe, and the spillway entrance is approximately two feet below the dam crest (USACE 2016). Concrete blocks and slabs have been placed in the spillway and are contributing to erosion (USACE 2016). Willows are rooted within the entire length of the dam which is generally an undesirable condition, as root channels can

create seepage paths that could lead to internal erosion. However, tricolored blackbird utilized the willows along the dam for nesting in 2020 (Lipschutz, pers. comm. 2020). One objective of the dam improvements will be to avoid temporal loss of nesting habitat while maintaining dam safety.

In summary of and per section 1.6 of the Engineering and Design Safety of Dams Policy and Procedures (USACE 2014), a USACE-recognized dam is an artificial barrier that is either 25-feet high or has an impounding capacity at maximum water storage elevation (dam crest, not spillway elevation) of 50 acre-feet or more. Any such barrier under six feet regardless of storage capacity, or that has a storage capacity at maximum water elevation not in excess of 15 acre-feet regardless of height is not considered a dam.

The Federal Emergency Management Agency (FEMA) categorizes dams solely by downstream hazard potential, regardless of condition. The Department of Water Resources (DWR) maintains a list of dams within the State of California (DWR 2017). The dam at Blackbird Marsh (referred to as “Clinic Pond” or Hospital Pond in other references) is not listed in the State dam inventory (DWR 2017).

The dam currently supports an approximate storage volume of 19 acre-feet and is classified as a low hazard, in poor to fair condition (USACE 2016). To avoid reclassification of the dam as a USACE-recognized impoundment, the dam will not be significantly raised and the maximum water storage capacity will be kept below 50 acre-feet. During the detailed design phase, engineering alternatives will be reviewed to determine the best approach to maintain safety of the dam while allowing for the continued expansion of tricolored blackbird nesting habitat.

In order to improve the safety of the dam and eliminate the need for vegetation removal, the spillway may be rebuilt at a lower elevation and/or an outlet control structure may be installed to allow for management of lake levels during winter storms. The bathymetry of the lake is unknown. A detailed topographic/bathymetric survey will need to be produced and the condition of the dam will need to be assessed by a civil engineer during the detailed design phase of the project to determine the specific options for repairing the dam.

2.1.2 Grading

Blackbird Marsh

Grading is proposed to produce suitable conditions for the growth and maintenance of preferred plant species for nesting, including cattails. The floodplain of the existing pond will be expanded by removing soil primarily from the eastern edge of Blackbird Marsh. In order to produce areas that are suitable for colonization by cattails, graded areas will provide shallow slopes and areas with average water depths from 0 to 3 feet (management of water depths of 6 to 18 inches will be maximized), with open water areas greater than 3 to 4 feet deep. Moats of deep water will be incorporated in some areas to protect nesting substrates from predators. Seasonal wetlands will be excavated along the channels flowing into and out of Blackbird Marsh to provide habitat for large insect prey species, and the channels will be reconfigured to address incision.

Shallow bench habitats will be increased by 2.5 acres at Blackbird Marsh (from approximately 2 acres existing to 4.5 acres; Figure 4). The total maximum storage volume of the lake will be maintained below 50 acre-feet (built condition may increase storage volume to 30 to 40 acre-feet). The downcutting in the northern tributary and outlet channel south of the lake will be repaired.

Approximately 1.5 acres of additional off-channel wetlands will be installed/enhanced along the drainage.

Existing environmentally sensitive areas (ESAs), such as vernal pools, wetlands, and archaeological sites will be identified and avoided prior to commencement of any restoration activities. Excavation equipment will be cleaned to remove any soil or potential weed seed prior to mobilization. Topsoil will be carefully removed by an experienced operator using a dragline, excavator, scraper, or dozer and will be stockpiled on site. Stockpiled topsoil will be clearly labeled on construction plans and flagged during restoration site construction. Restoration areas will be over-excavated by approximately 6 inches to allow for reapplication of topsoil to reach final grades in the planting areas. The topsoil layer will serve to increase the soil's organic matter content and overall productivity of the restoration sites. The exact depth of over-excavation and topsoil reapplication will be determined during the detailed design phase. If there is a significant lag between topsoil salvage and final grading, topsoil stockpiles will be stabilized by spraying with a tackifier (soil stabilizer) or covered with a permeable natural material, such as jute or coconut fiber blankets, consistent with Stormwater Pollution Prevention Plan (SWPPP) directives, if required. To minimize compaction, no equipment will be allowed to travel over or park on the salvaged soil stockpiles. Subsoil will be used for dam improvements or buried in the uplands adjacent to the site and/or hauled to an appropriate location on Beale AFB. If excess subsoils are deposited on site, the topsoil at the deposition location will be salvaged and placed over the subsoil to promote rapid recolonization of vegetation.

Though not anticipated, if soils are stockpiled for extended periods, establishment of a cover crop of perennial native grasses and forbs will be considered to help maintain the viability of soil fungi and microbial communities. Soil stockpiles will be monitored for weeds and weeds will be removed if present in accordance with Beale AFB management guidelines. Once stockpiled, topsoil will not be disturbed until it is re-spread to initiate revegetation of disturbed areas.

Blackbird Basins

The wetlands associated with the small impoundments at the Blackbird Basins may be expanded by superficial grading to increase the extent of high-quality foraging habitat. Grading will increase the flooded areas and soil saturation in the areas behind the weirs to increase the amount of high-quality foraging habitat. Soils in the drainages are shallow and bedrock is often exposed or near the surface which will limit the opportunities for grading. If grading cannot be used to achieve expansion of the impounded areas behind the weirs, the weirs may be raised to achieve larger areas of saturation/inundation.

2.1.3 Blackbird Basin Weirs

The four existing weirs may be raised and/or repaired. The intent of the weir raising and/or repairs is to increase the size of small seasonal wetlands adjacent to grazed annual grassland habitat, which will improve highly productive tricolored blackbird foraging areas that are suitable to support populations of large insect prey adjacent to the constructed nesting habitat. The repair of damaged weirs and upgrades to others will provide greater seasonal longevity of highly productive wetlands habitats.

2.1.4 Augmented Water Supply

Water supply may need to be artificially augmented to maintain desired water levels in Blackbird Marsh and in the Blackbird Basins during the nesting season (generally mid-March through September; Beedy 2008). Based on well depth information provided by Beale AFB from a nearby well, groundwater near the Blackbird Basins is 8 to 23 feet below ground surface (bgs). Borings near Blackbird Marsh encountered groundwater at 23-45 feet bgs. Installation of groundwater wells are the preferred method for establishing an artificial water supply. Main water lines are located upstream and northeast of the Blackbird Basins and north of Blackbird Marsh. These potable water supply lines may be tapped and dechlorinated to provide irrigation of the restoration sites and seasonal flow augmentation.

Maintaining saturated and shallowly inundated soils will be key to establishment and maintenance of desirable nesting vegetation species. In addition, standing water can inhibit the ability of terrestrial predators to access the colony. Ideally, water will be pumped into the tributaries upstream of Blackbird Marsh and the Blackbird Basins to increase the hydroperiod of these features and provide enhanced habitat for prey insects upstream of the lakes (Figures 3 and 4).

A hydrology study will be conducted during the detailed design phase to determine the extent of water supply augmentation and equipment required to meet design objectives. Water supply requirements will also vary based on annual precipitation. It is anticipated that water supply augmentation will be required during late spring and summer, at a minimum.

Blackbird Basins Water Supply

Water will be pumped into the Blackbird Basins tributaries to augment the natural hydroperiod and to control hydrology during and after nesting. Groundwater will be pumped into the tributary channel(s) or a connection will be developed from a main water line at this location. Water supply augmentation in concert with repair or expansion of existing weirs will increase areas of low-growing herbaceous seasonal wetland habitat and provide additional high-quality foraging habitat. There is one existing well (BWL003PZ) in the area, located southwest of the Blackbird Basins (Figure 3). Depth to groundwater in the area has been recently (2017) documented at 7.99 feet below ground surface (Christopherson, pers. comm. 2018). This existing well or a new well may be utilized to pump groundwater into the tributary channels. An additional solar-powered well could be installed at one of the upstream tributaries. Water from the well or a main line connection will also be used for temporary irrigation of container plants and to fill troughs or provide another suitable water source for cattle outside of the riparian pasture. If a connection to the main water line is the selected water source, a de-chlorination method will be developed prior to water use at the restoration site.

Blackbird Marsh Water Supply

Water will be pumped into the Blackbird Marsh north tributary to augment the natural hydroperiod and to control hydrology during and after nesting. Groundwater will be pumped into the tributary channel upstream of Blackbird Marsh or a connection will be developed from a main water line at Warren Shingle Road. Water from the well or main line connection will also be used for temporary irrigation of container plants and to fill troughs or provide another suitable water source for cattle outside of the riparian pasture. If a connection to the main water line is the selected water source, a de-chlorination method will be developed prior to use of the water in the restoration site.

2.1.5 Planting

Planting will be used to ensure target species become established at the restoration sites. Planting may include the use of seeds, container plants or vegetative propagation, or by encouraging natural recruitment of desired species (native cattails, primarily). Container plants may be installed in association with experimental nesting structures, along the lake margin at Blackbird Marsh, and within the new or expanded seasonal wetland areas. Tables 1 and 2 present key species to be planted and the potential source of the materials. Stinging nettle (*Urtica dioica*) and non-native Himalayan blackberry and thistles (*Cirsium* spp., *Silybum marianum*) may be allowed to recruit naturally. Additional native species, such as sedges (*Carex* spp.) and rushes (*Eleocharis* spp., *Juncus* spp.) or other locally occurring mesic grasses and forbs, may be introduced in foraging areas. Upland areas disturbed by grading may be seeded with a mix of native grasses and forbs. Total seed application rates should include a minimum of 25 to 30 pounds pure live seed (PLS) per acre, but specific rates will be determined at the time of seeding. To promote diversity and site stabilization, mixes should have no fewer than 5 to 10 species. Naturalized (non-native) cattle forage species, such as soft chess (*Bromus hordeaceus*), Italian ryegrass (*Festuca perennis*), and wild oats (*Avena fatua* and *A. barbata*) will be allowed to colonize disturbed areas.

Table 1: Key Plant Species for Tricolored Blackbird Habitat Structure

Common Name	Scientific Name	Planting Zone	Purpose	Potential Material Source
California mugwort	*Artemisia douglasiana*	Upland fringe (0–2 feet above normal pool)	Nesting substrate	Container plants, seed
California rose	*Rosa californica*	Upland fringe (0–2 feet above normal pool)	Nesting substrate	Container plants
California blackberry	*Rubus ursinus*	Upland fringe (0–2 feet above normal pool)	Nesting substrate	Container plants
cattail	*Typha angustifolia** (not rated by Cal-IPC), *T. domingensis, T. latifolia*	Shallow bench (0–3 feet deep)	Nesting substrate	Seed, rhizomes, container plants, natural recruitment
California grape	*Vitis californica*	Upland fringe (0–2 feet above normal pool)	Nesting substrate	Container plants

* Non-native species; Source: Cal-IPC 2018

Table 2: Key Plant Species for Seasonal Wetland and Upland Seeding

Common Name	Scientific Name	Life Form	Potential Seeding Rate (PLS lbs/ac)*
Upland Seed Mix			
Yarrow	*Achillea millefolium*	perennial	0.5-2
American bird's foot trefoil	*Acmispon americanus*	annual	2-5
Prairie three awn	*Aristida oligantha*	annual	5-10
Woolypod milkweed	*Asclepias eriocarpa*	perennial	2-6
Narrow leaf milkweed	*Asclepias fascicularis*	perennial	2-6
Showy milkweed	*Asclepias speciosa*	perennial	2-6
California brome	*Bromus carinatus var. carinatus*	perennial	10-12
Spikeweed	*Centromadia fitchii*	annual	1-2
Annual hairgrass	*Deschampsia danthonioides*	annual	1-2
Big squirreltail grass	*Elymus multisetus*	perennial	4-6
Blue wildrye	*Elymus glaucus*	perennial	10-12
Willow herb	*Epilobium densiflorum*	annual	0.25-0.5
Naked buckwheat	*Eriogonum nudum*	perennial	0.5-1.5
California poppy	*Eschscholzia californica*	annual/perennial	2-3
Small fescue	*Festuca microstachys*	annual	3-6
Hayfield tarweed	*Hemizonia congesta*	annual	1-2
Goldfields	*Lasthenia californica*	annual	1-2
Lupine	*Lupinus bicolor*	annual/perennial	3-5

Common Name	Scientific Name	Life Form	Potential Seeding Rate (PLS lbs/ac)*
California melic	*Melica californica*	perennial	4-6
Deergrass	*Muhlenbergia rigens*	perennial	1-3
Purple needlegrass	*Stipa pulchra*	perennial	8-12
Small head clover	*Trifolium microcephalum*	annual	2-4
Seasonal Wetland Mix			
Spike bentgrass	*Agrostis exarata*	perennial	3-6
California mugwort	*Artemisia douglasiana*	perennial	0.25-0.5
Valley sedge	*Carex barbarae*	perennial	2-4
Field sedge	*Carex praegracilis*	perennial	2-4
Spike rush	*Eleocharis macrostachya*	perennial	4-6
Beardless wild rye	*Elymus triticoides*	perennial	4-6
Yellow monkey flower	*Erythranthe guttata*	perennial	0.1-0.25
Meadow barley	*Hordeum brachyantherum*	perennial	10-12
Common bog rush	*Juncus effusus*	perennial	1-1.5
Iris leaved rush	*Juncus xiphioides*	perennial	1-1.5
Western witch grass	*Panicum acuminatum*	perennial	1-2

* PLS = pure live seed, lbs = pounds, ac = acre

Seed

Availability of local seed varies annually in response to weather patterns. Seed for direct seeding and container plant production (if used) will be sourced as locally as possible. Seed may be obtained from on-site seed collection or from commercial vendors.

For seed that is collected within Beale AFB, care will be taken to minimize collection sites in areas occupied by dense populations of invasive plant species with Cal-IPC Ratings of High or Moderate (Cal-IPC 2018). The specific number and distribution of collection sites will vary according to size, density, continuity of populations, as well as the desired quantity of seed to be obtained. Seed for species such as cattail may be collected on site and distributed immediately within planting areas.

Close monitoring is required in order to match the timing of seed collection activities to the distribution of seed maturation. Multiple trips to a site may be required to determine when the seed is mature and thus, suitable for collecting. Collecting at multiple times throughout the maturation period can help prevent inadvertent selection against either early or late maturing genotypes.

Seed not collected on Beale AFB will be obtained from a native plant nursery or native seed supplier with documented local source information. Seed collected from within the region will yield the best results for seeding and nursery stock production.

Following grading activities, a biologist with experience in habitat restoration will recommend seed mixes, seeding rates, and application methods, in consultation with Beale AFB and other biologists, as appropriate. Seeding mixes and rates will be developed based on site conditions and potential for natural recruitment; therefore, seed mixes and rates will be site-specific.

Container Plants

Nursery-produced container plants may be used for certain species and in association with experimental nesting structures (Figures 5 and 6). Stem or root cuttings may also be utilized from donor populations of cattails if available for direct planting or production of container plants. The size and shape of the containers should match the plant's rooting strategy (i.e., deep-rooted plants should be grown in tall pots to encourage more root development, while fibrous-rooted plants can be grown in shorter pots or as plugs). The number, species, size, and spacing of container plants, if used, will be determined in conjunction with the development of site-specific seed mixes and seeding approach. Container plants would be installed between October and March to take advantage of natural precipitation during the typical period of plant establishment.

Container stock installation in upland areas will require an associated irrigation method to supply ample water through the first year, at a minimum. If used, surface irrigation will be installed and tested prior to container plant installation and may include use of flood bubblers or drip emitters.

Planting holes will be excavated to diameters approximately twice that of the root ball, but not deeper than the root ball, to avoid settling. Planting holes will be thoroughly moistened by irrigation prior to placement of container plants. During installation of container stock, care will be taken to minimize disturbance of the root system while extracting the plants from their containers. The plants will be placed in the holes and loose native soil will be backfilled into the hole around the plant and firmly hand-packed around the root ball to eliminate any air pockets. For deep pots, soil will be backfilled and packed in lifts of a few inches at a time to discourage settling of plants. Berms or basins may be constructed to aid in irrigation, but special care will be taken to avoid pooling of water around plant stems or settling of the stem/root union below grade. Plants will be watered immediately after installation.

Natural Recruitment

The key target species (e.g., cattails) typically recruit successfully on their own. If there is a sufficient local propagule source, certain actions may be taken to facilitate recruitment of volunteer plants. For cattails, recruitment from seed occurs during the dry season and may be facilitated through managed hydrology (see Sections 2.3.2 and 2.3.3).

2.1.6 Experimental Nesting Structures

As discussed above, tricolored blackbirds require secure nesting areas. In the foothills of the Sierra Nevada and adjacent portions of the Central Valley, Himalayan blackberry is frequently used as a nesting substrate for the species (Airola et al. 2018; Beedy et al. 2018). However, fabricated nesting structures may be utilized experimentally to provide artificial nesting areas or structural support for less-robust native vegetation (such as native California blackberry [*Rubus ursinus*] or California wild rose [*Rosa californica*], which do not grow as densely as Himalayan blackberry, and have smaller spines/prickles and stems). Nesting structures may be located in limited areas throughout the restoration areas and made from rebar/metal, welded wire fencing, lumber, piled branches, or other materials (Figures 6 and 7). Native plants will be installed among the structures to encourage trellising since the species (on their own) do not generally provide a suitable nesting substrate.

Two conceptual nesting structure designs have been developed as part of this Plan (Figures 5 and 6). Each design represents single units that will be repeated and grouped into larger blocks of varying overall size. These conceptual designs are intended to mimic the structural function of the commonly used nesting substrate Himalayan blackberry. Because Himalayan blackberry is an invasive, exotic species, planting of this species is not proposed under this Plan. Instead, artificial nesting structures will be placed throughout the habitat restoration areas. These structures will provide nesting habitat by allowing native plant species to grow up around the structures, and barbed wire will be incorporated for protection against predation. The barbed wire is intended to function similarly to the spines of the Himalayan blackberry. The details of the structures shown in Figures 5 and 6 will vary based on actual installation and maintenance requirements. Gates or breaks in wire will be needed for larger blocks so that irrigation lines can be repaired, dead plants can be replaced, and weeds can be removed as-needed from under/within the structures.

Conceptual locations of the nesting structures are shown on Figure 3 and Figure 4; however, the exact size and locations of the structures will be determined once final grades have been planned to ensure suitable soil moisture to aid plant establishment and ease of access for tricolored blackbirds to open water. Structures may be placed directly adjacent to other suitable nesting vegetation to encourage their use and to provide additional protection to previously used nesting substrate.

Tricolored blackbird usage of each structure will be compared to the use of Himalayan blackberry stands for nesting colony sites during annual monitoring (described below). In addition to testing at least two structural designs, the experimental design will also include testing different sizes of nesting structure blocks, different shapes (square versus rectangular), adjacency to other suitable nesting substrate (i.e., blocks placed up against cattail versus blocks situated wholly within uplands), and plant species (rose only, California blackberry only, mix of both, addition of other climbing natives, such as California grape [*Vitis californica*], etc.). The number of treatments and types will be pre-determined during the detailed design phase to ensure robust results; however, a minimum of 12–24 structures may be installed between the two restoration sites.

2.1.7 Grazing Management

Grazing will be used in upland areas to reduce thatch of non-native grasses and to provide manure to attract insect prey. Grazing maintains grasses in a short stature (less than 15 inches), which is preferred by foraging blackbirds, and cattle manure attracts large insects, the preferred prey of nesting tricolored blackbirds. Cattle also disturb insect prey as they graze, making them more available to foraging birds (Meese and Beedy 2015). New fencing will be installed in accordance with existing best management practices for grazing infrastructure on Beale AFB including installation of t-posts outside of all wetland features and a minimum of 12.5 feet from potential branchiopod habitat.

Blackbird Basins

The areas around the Blackbird Basins are currently grazed (Figure 7; Pasture Unit C-1, Hopkinson 2017). Cattle grazing will continue on 2,553 acres of adjacent upland habitat within approximately 2.5 miles of the Blackbird Basins. Fencing will be installed to exclude livestock from the wetland areas; conceptual fence layout is shown on Figure 3.

Blackbird Marsh

The areas around Blackbird Marsh are currently grazed (Figure 7, Hopkinson 2017). Cattle grazing will continue on 5,800 acres of adjacent upland habitat within approximately 2.5 miles of Blackbird Marsh. Fencing will be installed to exclude livestock from the wetland areas; conceptual fence layout is shown on Figure 4.

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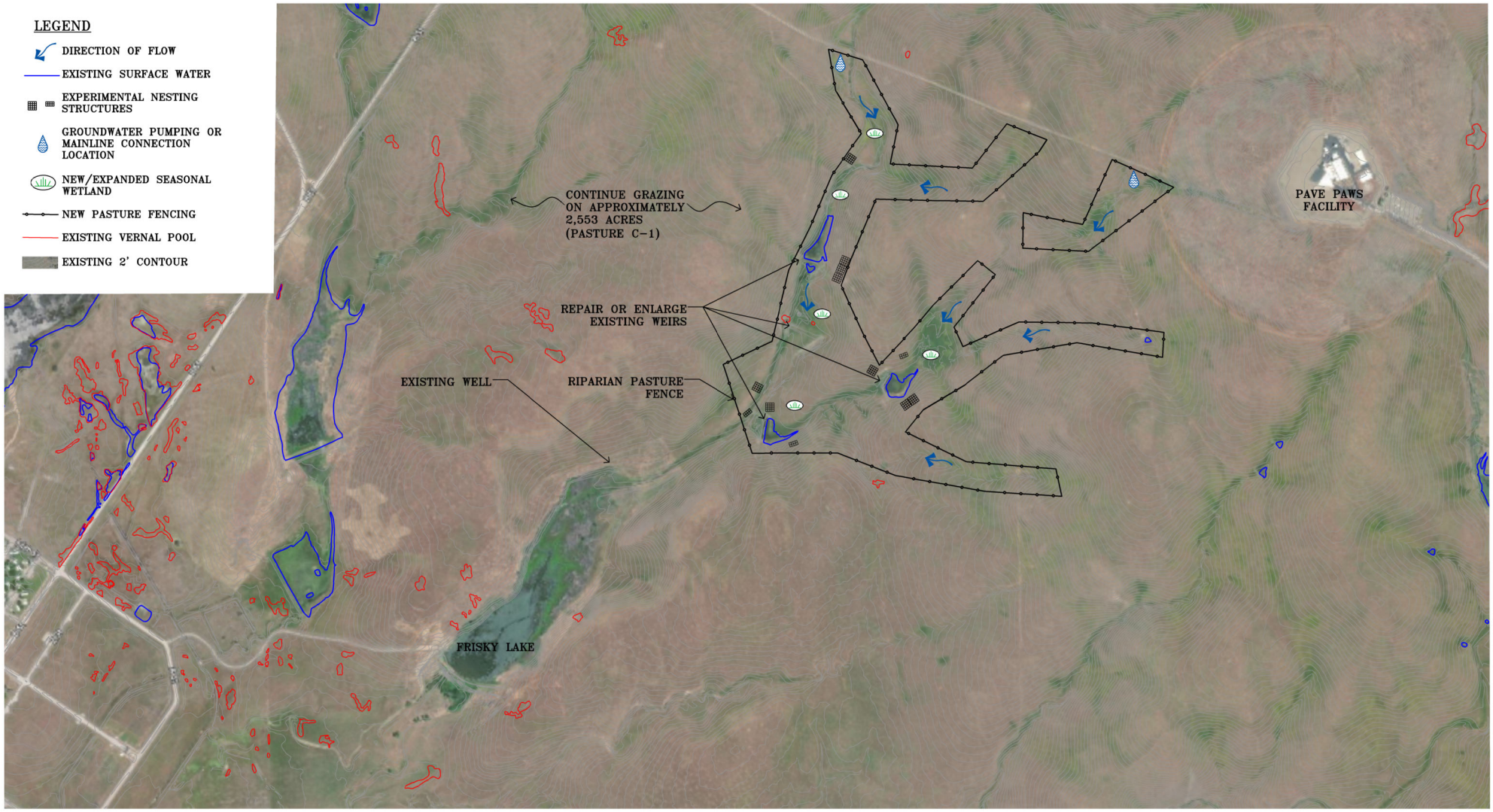

CONCEPTUAL RESTORATION PLAN

(NOT FOR CONSTRUCTION)

KLEINFELDER
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GANDA
GARCIA and ASSOCIATES

N

GRAPHIC SCALE
0 200 400 600 800 1000
(IN FEET)

Figure 3
HABITAT RESTORATION PLAN FOR THE TRICOLORED BLACKBIRD, PHASE 1
BLACKBIRD BASINS

Beale Air Force Base, Yuba County, CA
May 2021

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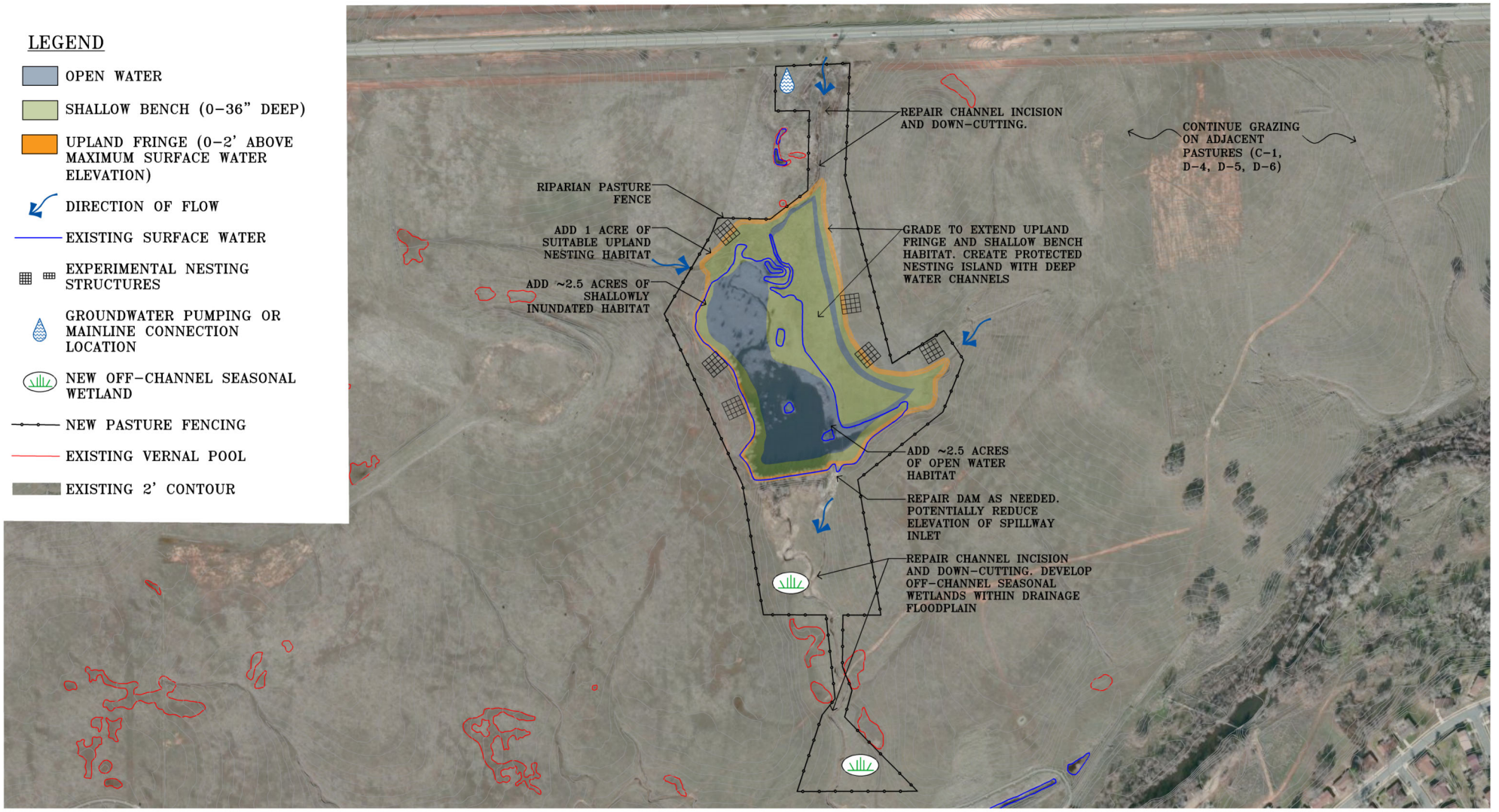

CONCEPTUAL RESTORATION PLAN
(NOT FOR CONSTRUCTION)

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GRAPHIC SCALE
0 100 200 300 400 500
(IN FEET)

Figure 4
HABITAT RESTORATION PLAN FOR THE TRICOLORED BLACKBIRD, PHASE 1
BLACKBIRD MARSH

Beale Air Force Base, Yuba County, CA
May 2021

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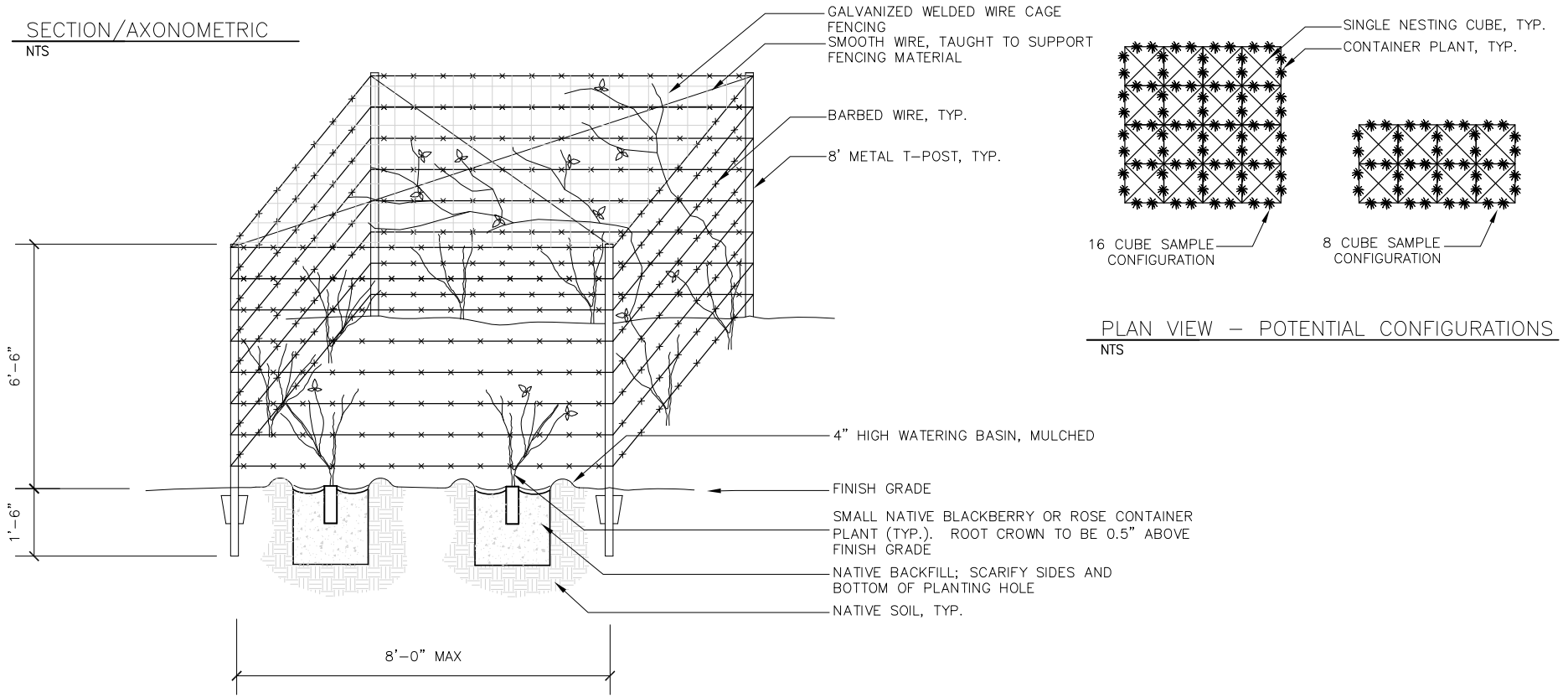

NOTES:
1. TYPICAL NESTING CUBE BLOCKS WILL BE GROUPED INTO UNITS WITH A MINIMUM OF SIX BLOCKS.
2. BLOCKS MAY BE ARRANGED IN LINEAR, SQUARE, RECTANGULAR, OR OTHER FORMATION AS SITE CONDITIONS AND EXPERIMENTAL OBJECTIVES DICTATE.
3. OVERALL HEIGHT OF STRUCTURES MAY VARY BASED ON EXPERIMENTAL DESIGN.
4. BREAKS IN WIRE OR ACCESS POINTS WILL BE INSTALLED TO ALLOW FOR MAINTENANCE UNDER CUBES.

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CONCEPTUAL NESTING CUBE (DESIGN A)
(NOT FOR CONSTRUCTION)

Figure 5
HABITAT RESTORATION PLAN FOR THE TRICOLORED BLACKBIRD
EXPERIMENTAL NESTING STRUCTURE DESIGN A

Beale Air Force Base, Yuba County, CA
May 2021

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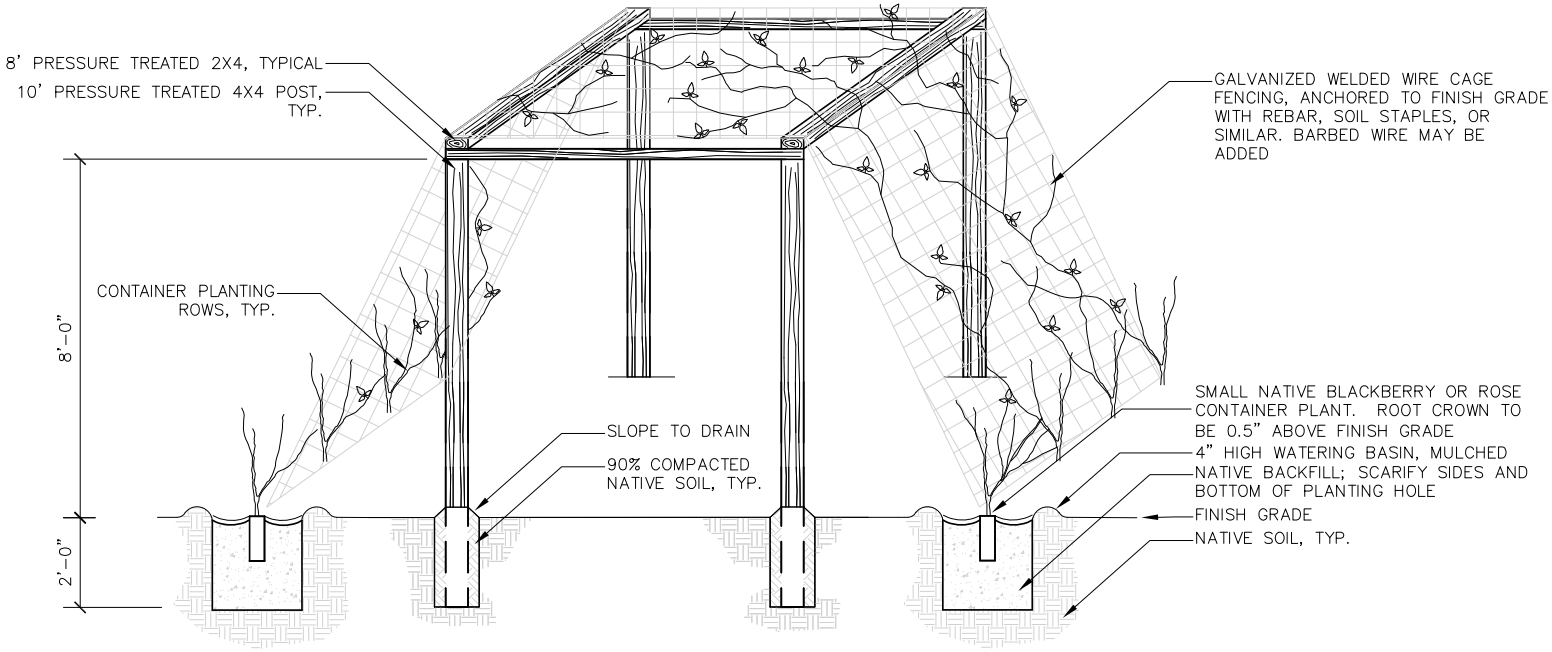

NOTES:

1. TYPICAL NESTING TRELLIS BLOCKS WILL BE GROUPED INTO UNITS WITH A MINIMUM OF FOUR BLOCKS. SEE FIGURE 5 FOR PLAN VIEW OF POTENTIAL BLOCK CONFIGURATIONS.
2. BLOCKS MAY BE ARRANGED IN LINEAR, SQUARE, RECTANGULAR, OR OTHER FORMATION AS SITE CONDITIONS AND EXPERIMENTAL OBJECTIVES DICTATE.
3. THOUGH NOT SHOWN, GALVANIZED FENCING MATERIAL AND CONTAINER PLANTINGS WILL BE INSTALLED ON ALL SIDES OF EACH BLOCK, WITH VERTICAL FENCING SUPPORTING PLANTING ROWS BETWEEN ADJOINING BLOCKS.
4. OVERALL HEIGHT OF STRUCTURES MAY VARY BASED ON EXPERIMENTAL DESIGN.

SECTION/AXONOMETRIC
NTS

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CONCEPTUAL NESTING TRELLIS (DESIGN B)
(NOT FOR CONSTRUCTION)

Figure 6
HABITAT RESTORATION PLAN FOR THE TRICOLORED BLACKBIRD
EXPERIMENTAL NESTING STRUCTURE DESIGN B

Beale Air Force Base, Yuba County, CA
May 2021

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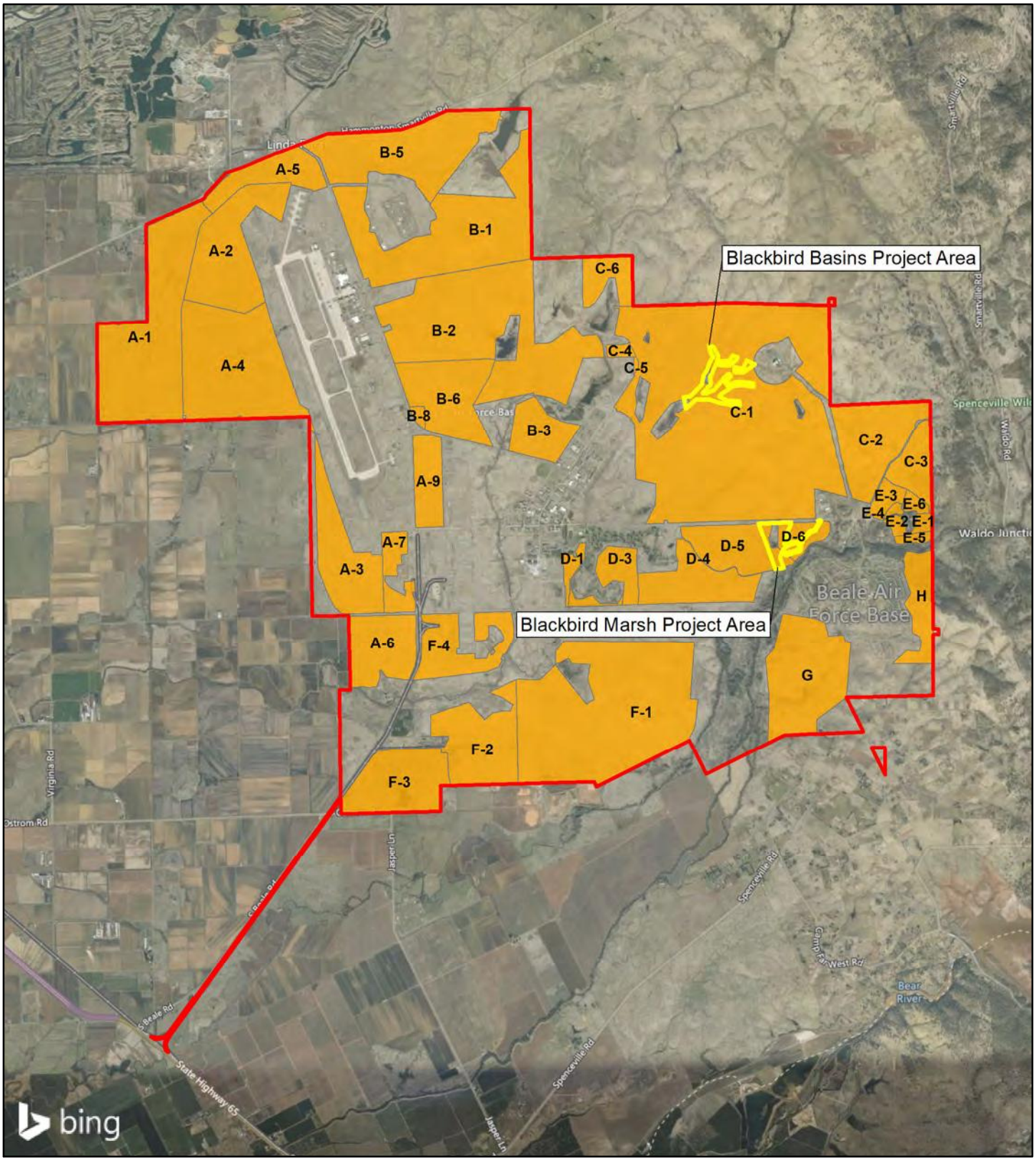

Project Location

Beale Air Force Base

Grazing Area

N

0 0.5 1 Miles

Figure 7.
Grazing Areas
Habitat Restoration for the
Tricolored Blackbird, Phase 1
Beale AFB, Yuba County, CA
May 2021

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2.2 Maintenance

Management of each site will be required to maintain suitable habitat conditions (open water, protected nesting substrate, and suitable foraging areas). The primary maintenance activities anticipated to maintain these conditions include removal of vegetation, removal of sediment, manipulation of hydrologic conditions, maintaining stable soils, and control of invasive species.

2.2.1 Riparian Vegetation Removal

Woody riparian vegetation may provide suitable nesting and perch habitat for tricolored blackbird predators and may encroach on desired nesting substrates. However, tricolored blackbirds were observed in 2020 at Blackbird Marsh on Beale AFB utilizing large willows for nesting (Lipschutz, pers. comm. 2020). If deemed appropriate, the restoration site will be managed to discourage establishment of woody riparian vegetation. Woody riparian vegetation may be periodically removed through mechanical treatment if it is believed to be encouraging the presence of avian predators, encroaching upon more suitable nesting substrates, or otherwise proving detrimental to the nesting success of tricolored blackbirds.

2.2.2 Removal of Sediment

Sediment is expected to accumulate over time within the open water channels and shallowly inundated areas. If a significant loss of open water and shallow bench habitat or protected nesting island occurs due to sedimentation of the deep-water moats and subsequent encroachment of vegetation, affected areas will be dredged to maintain design depths. At the end of the tricolored blackbird nesting season (as determined by a qualified biologist) but prior to October 15, water level in Blackbird Marsh or Blackbird Basins will be drawn down by natural means (groundwater pumping will cease), or active dewatering through a low-level release valve (if installed in the dam at Blackbird Marsh during dam upgrade) or pumping through the spillway. A backhoe or similar piece of heavy equipment will be used to remove accumulated sediment.

If there are areas of Blackbird Marsh that cannot be reached by a bucket arm of equipment staged outside the lakebed, or if the dewatered lakebed is not suitable to accommodate access of a tracked vehicle for sediment removal, the lake level may be raised to facilitate use of a suction or cutter-suction type floating dredge. Spillway or low-level releases would not occur during or immediately after dredging operations to ensure turbid water settles prior to release.

Excavated soils should be tested for contamination before they are moved from a site. Once determined to be clean, the soil would be used on the Base as fill for other projects or removed from the Base to an approved landfill.

2.2.3 Cattail Management

Cattail rhizomes store carbohydrates and allow the plant to reproduce asexually. Rhizomes begin to elongate in early summer, and start to form the next year's stems during midsummer with subsequent shoot growth in the late winter or early spring (Sojda and Solberg 1993). Cattails can produce seeds and contribute to the seed bank at all stages of hydrology, but recruitment from seed occurs only during the dry stage. Cattails do not germinate under more than 0.5-inch deep water, but can

germinate under a wide range of soil-surface temperatures if the soil is saturated generally from early to midsummer (Sojda and Solberg 1993). For initial establishment of cattails, water levels will be raised in midsummer to saturate soils, then drawn down after seeding has occurred. Once established, cattails will be managed to be a minimum of four feet high by May 1 annually, and they will remain flooded throughout site occupation by tricolored blackbird. For maintenance of established cattails, summer drawdowns (after nesting) will be used to stimulate additional germination. If cattails begin to encroach on open water habitats, they may be manually removed or controlled by increasing water depth. Because tricolored blackbirds prefer new, dense growth, old dead stems will need to be removed regularly through burning in late-fall (preferred method), cutting, grazing, disking, or masticating (Meese and Beedy 2015).

The Tricolored Blackbird Working Group (TBWG) produced habitat management recommendations that include rotation of vegetation management to maintain available habitat while regenerating new growth (TBWG 2016). Some vegetation maintenance and management recommendations include:

- Keeping a minimum of 20-30% of vegetation in 2-year-old stage to support annual nesting.
- Burning over water every 3 to 5 years (January to early March) to promote new growth (alternative options include disking, cutting, grazing, or masticating).
- Burning in late fall or early winter or burning with 2-3 inches of standing water in mid-winter, avoiding hot fires that may destroy tubers or seedbank.
- Flooding wetlands mid-February through June or July; early flooding (January to February) with fluctuating water levels (2-12 inches) encourages vegetation growth.

2.2.4 Erosion Control

Areas disturbed during construction will be monitored for erosion in accordance with the SWPPP for the project, if required. Any erosion issues observed during the plant establishment period, prior to site stabilization, will be brought to the attention of Beale AFB biologists. If erosion issues occur after the SWPPP has been closed out, then the restoration contractor will be responsible for stabilizing restoration sites. Site stabilization may involve recontouring, installation of biodegradable fiber rolls and/or blanket materials, and potentially reseeding.

2.2.5 Invasive Species

Invasive plant species of management concern already known within the vicinity of the Blackbird Basins and Blackbird Marsh include barbed goatgrass (*Aegilops triuncialis*), black mustard (*Brassica nigra*), Italian thistle (*Carduus pycnocephalus*), yellow star thistle (*Centaurea solstitialis*), rush skeletonweed (*Chondrilla juncea*), medusahead (*Elymus caput-medusae*), common fig (*Ficus carica*), St. John's wort (*Hypericum perforatum*), Himalayan blackberry, blessed milk thistle (*Silybum marianum*), and seashore vervain (*Verbena litoralis*), in addition to potential aquatic weeds (H.T. Harvey & Associates 2015, as cited in Hopkinson et al. 2017).The strategy for and principal methods of weed control are discussed in the *Updated Invasive Plant Species Management Guidelines Beale Air Force Base, California* (IPMG) (Hopkinson et al. 2017). Currently, methods used at Beale AFB and potentially proposed for this project include prevention, physical weed removal (hand pulling or mowing), grazing, prescribed burning, and herbicide application. For the purpose of habitat restoration and maintenance, weed prevalence will be evaluated prior to construction, during construction, and

during site stabilization. Following site stabilization, sites will be surveyed and maintained in accordance with the IPMG.

Physical removal of weeds will be the preferred means of maintaining restoration and revegetation sites and will be employed according to guidelines in the IPMG. Herbicide application will be reserved for the more difficult and aggressive invasive species not readily removed by physical methods, or for areas where repeated mechanical treatment fails to produce the desired reduction of invasive species. Since Himalayan blackberry is a desired species for tricolored blackbird nesting substrate, this species will be exempted from treatment at the restoration site and will be allowed to expand in some areas.

2.3 Monitoring

As described herein, monitoring will be used to assess habitat structure and occupation status.

2.3.1 Success Criteria

The restoration activities will be considered successful according to the Tier levels below. Success shall be measured/monitored within the pond/wetland area restored at Blackbird Marsh as well as the surrounding uplands/foraging habitats. Tier II and Tier III will be targeted; however, should none of the tiers be met, additional restoration/preservation is not required.

- Tier I Minimal Success: Additional area becomes suitable habitat for tricolored blackbird use.
- Tier II Progress: Supports tricolored blackbird roosting and foraging activities across expanded wetland and upland habitat.
- Tier III Successful: Supports tricolored blackbird nesting once/occasionally.
- Tier IV Fully Successful Off-Set of 12-Acre Beale Impact: Reliable nesting habitat across multiple years for tricolored blackbirds.

2.3.2 Monitoring Methods

Monitoring will begin the first spring/summer after restoration and continue annually to assess whether the success criteria have been achieved and whether corrective measures need to be employed. To ensure successful establishment of the site, monitoring may be conducted more frequently as deemed appropriate by Beale AFB biologists and during the initial establishment period. Restoration sites will be monitored for no fewer than 5 years, or until suitable tricolored nesting habitat has become established (whichever is greater). Monitoring will include an assessment of the progress and identification of potential problems with the restoration sites. If necessary, remedial action, such as additional planting, weeding, supplemental watering, or erosion control, will be taken during the initial establishment period.

Data collection and analysis will include assessment of the physical development of habitat parameters. Aerial photography and field observations will be used to estimate the size and condition of open water, nesting, and terrestrial foraging habitats. Standardized data sheets will be developed to record qualitative and quantitative attributes of site hydrology, plant community conditions, erosion, invasive species, and occupation status throughout the breeding season (March through July/August).

Permanent photo stations will be established to monitor site development over time. A minimum of four monitoring visits will be completed each year in April, May, June, and July/August (Table 3).

Table 3: Annual Monitoring Schedule and Parameters to be Evaluated

Parameter for Evaluation	April	May	June	July / early August
Evaluate hydrology	X	X	X	X
Assess site stability (erosion)	X			
Assess ratio of open water to nesting substrate/development of site			X	X
Monitor container plant growth and mortality; assess need for replanting, irrigation or invasive species management (during plant establishment period, approximately years 1–3 post-installation)			X	
Conduct photo monitoring (with GIS locations): one photo at each nesting structure (12–24); representative photos of shallow bench and blackberry fringe planting areas (number will vary); series of photos (to create panorama) from each side of restoration site (4: north, south, east, west with 2–3 photos each); photos of each existing weir and associated wetland (3–6); photos of any occupied nesting area (number will vary)			X	
Assess presence/absence of tricolored blackbirds at each nesting structure and all other suitable nesting areas (cattail marsh, willow stands, Himalayan blackberry patches)	X	X	X	X
Assess average height of vegetation in at least 20 predetermined sampling (1-meter quadrat) locations within grazed areas 1-mile from nesting areas		X		

2.3.3 Reporting

Annual reports will be prepared within 90 days after completion of monitoring. Each report will include results of quantitative and qualitative monitoring efforts, and address success standards and measures to correct issues, as needed.

The monitoring reports will include, but may not be limited to, the following information:

- Total acreage by community;
- Identification of maintenance issues or necessary adaptive management measures;

- Dates and descriptions of maintenance and monitoring activities conducted during the reporting period, including the timing and frequency of data collection, weed control, and maintenance activities;
- Description of the general health and vigor of the target plant species;
- Presentation of monitoring data and discussion of whether success criteria were met or if the site is progressing as desired;
- Photo documentation; and
- If it is determined that the restoration has not been successful, then the suspected causes of failure and identification of any adaptive management measures necessary for the success of the restoration effort will be noted and remedial, corrective actions would be identified and implemented.

3.0 References Cited

Airola, D. A., C. W. Swarth, J. Harris, E. C. Beedy, G. Woods, K. Smith, D. Ross, and D Lasprugato. 2018. “Breeding status of the Tricolored Blackbird in the foothill grasslands of the Sierra Nevada, California.” *Central Valley Bird Club Bulletin* 21:1-24.

Beedy, E. C. 2008. "Tricolored Blackbird (*Agelaius tricolor*)." In *California bird species of special concern*, edited by W. D. Shuford and T. Gardali, 437-443. Studies of West. Birds.

Beedy, E. C. 2018. Personal communication (in-person conversation) regarding open water areas and foraging space for tricolored blackbirds. October 5, 2018.

Beedy, E. C., W. J. Hamilton, III, R. J. Meese, D. A. Airola, and P. Pyle. 2018. Tricolored Blackbird (Agelaius tricolor), version 3.1. In *The Birds of North America (*P. G. Rodewald, Editor). Ithaca, NY: Cornell Lab of Ornithology. https://doi.org/10.2173/bna.tribla.03.1

California Department of Fish and Wildlife (CDFW). 2018. Status Review of the Tricolored Blackbird in California. February.

Cal-IPC (California Invasive Plant Council). 2018. Cal-IPC Inventory. Accessed October 2, 2018. https://www.cal-ipc.org/plants/inventory/

Christopherson, K.E. 2018. Personal communication (email) with K.E. Christopherson regarding the depth to groundwater in the Blackbird Basins area. October 4, 2018.

Department of Water Resources (DWR). 2017. Dams within the Jurisdiction of the State of California. State of California, California Natural Resources Agency, Division of Safety of Dams.

Hamilton, W. J. 2004. Tricolored Blackbird (*Agelaius tricolor*). In *The Riparian Bird Conservation Plan: a strategy for reversing the decline of riparian-associated birds in California*. California Partners in Flight. http://www.prbo.org/calpif/htmldocs/riparian_v-2.html

Hopkinson, P. 2017. *Grazing Management Guidelines Beale Air Force Base, California*. Fort Collins, CO: Center for Environmental Management of Military Lands, Colorado State. Revised September 2017.

Hopkinson, P. et al. 2017. *Updated Invasive Plant Species Management Guidelines Beale Air Force Base, California*. Fort Collins, CO: Center for Environmental Management of Military Lands, Colorado State. Revised November 2017.

Lipschutz, M. 2020. Personal communication (field meeting) with Maia Lipschutz at Clinic Pond, Beale AFB regarding tricolored blackbird nesting observations on Beale AFB during 2020 nesting season. July 22, 2020.

Meese, R. J. and E. C. Beedy. 2015. “Managing nesting and foraging habitats to benefit breeding Tricolored Blackbirds.” *Central Valley Bird Club Bulletin* 17 (No. 2-4):79-96.

Monroe, M. Mitch. Personal communication (phone call) regarding the existing Frisky Lake dam. December 9, 2019.

Sojda, R. S. and K. L. Solberg. 1993. “Management and Control of Cattails.” *Waterfowl Management Handbook*. U.S. Department of the Interior Fish and Wildlife Service Leaflet 13.4.13.

Tricolored Blackbird Portal. 2018. University of California, Davis. Accessed August 2018. https://tricolor.ice.ucdavis.edu/location/friskey-lake

Tricolored Blackbird Working Group (TBWG). 2016. *Tricolored Blackbird Habitat Management Recommendations Matrix*.

U.S. Army Corps of Engineers (USACE). 2016. *Hospital Pond Dam Beale Air Force Base, California Inspection*. April 2016.

USACE. 2014. Engineering and Design Safety of Dams – Policy and Procedures. Regulation No. 1110-2-1156. Department of the Army. March 31.

USACE. 2019. Comprehensive Hydraulic Modeling Study for Beale Air Force Base. Sacramento District. February 1.

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Appendix I

Native American Consultations

Native American Contact Log

Native American Contact Log
Habitation Restoration Project for the Tricolored Blackbird Project

Name	Affiliation, per NAHC	Date Contacted				Confirmation of Letter Received? (medium/date)	Letter or Verbal Response Received?		Comments
		1. Letter (sender's name)	2. Phone (caller's name)	3. Phone (caller's name)	Letter emailed		If yes, Date	If Letter, Post-mark Date	
Estom Yumeka Maidu Tribe of the Enterprise Rancheria Ms. Glenda Nelson, Chairperson 2133 Monte Vista Avenue Oroville, CA 95966 530-532-9214 530-532-1768 Fax info@enterpriserancheria.org	Maidu	Dated and sent on 07/14/21	07/27/2021, 1:25 PM, DC	08/06/2021, 1:30 PM, DC	07/19/2021, 3:15 PM, via email with mail receipt				07/19/2021, 3:15 PM, DC sent letter and map attachment via email. Sent to office email address. 07/27/2021, 1:25 PM, DC called and left a message via Ms. Nelson's voicemail. 08/06/2021, 1:30 PM, DC called and reached the front desk. DC was told Ms. Nelson was not in and Mr. Franklin does not work out of that office. He was directed to Mr. Craig Martin who is involved in Section 106 consultation. DC left a message via voicemail.
Estom Yumeka Maidu Tribe of the Enterprise Rancheria Mr. Reno Franklin, THPO 2133 Monte Vista Avenue Oroville, CA 95966 530-532-9214 info@enterpriserancheria.org	Maidu	Dated and sent on 07/14/21	07/27/2021, 1:30 PM, DC	08/06/2021, 2:40 PM, DC	07/19/2021, 3:15 PM, via email with mail receipt				07/19/2021, 3:15 PM, DC sent letter and map attachment via email. Sent to office email addressed to Mr. Franklin. 07/27/2021, 1:30 PM, DC called and was unable to reach Mr. Franklin or his voicemail. 08/06/2021, 2:40 PM, DC called and left a message via voicemail.
Shingle Springs Band of Miwok Indians, Shingle Springs Rancheria Ms. Regina Cuellar, Chairperson PO Box 1340 Shingle Springs CA 95682 530-676-8010 office 530-676-8033 fax	Miwok, Maidu	Dated and sent on 07/14/21	07/27/2021, 1:40 PM, DC	08/06/2021, 1:40 PM, DC					07/19/2021, 3:25 PM, No email for Ms. Cuellar. DC sent letter and attachments via email to Mr. Fonseca. 07/27/2021, 1:40 PM, DC called the office and left a message on the office voicemail for Ms. Cuellar and Ms. Jones. 08/06/2021, 1:40 PM, DC called the office and left a message on the office voicemail for Ms. Cuellar and Ms. Jones.
Shingle Springs Band of Miwok Indians, Shingle Springs Rancheria Ms. Annie Jones, Vice Chairperson PO Box 1340 Shingle Springs CA 95682	Miwok, Maidu	Dated and sent on 07/14/21	07/27/2021, 1:40 PM, DC	08/06/2021, 1:40 PM, DC					07/19/2021, 3:25 PM, No email for Ms. Jones. DC sent letter and attachments via email to Mr. Fonseca. 07/27/2021, 1:40 PM, DC called the office and left a message on the office voicemail for Ms. Jones and Ms. Cuellar. 08/06/2021, 1:40 PM, DC called the office and left a message on the office voicemail for Ms. Cuellar and Ms. Jones.
Shingle Springs Band of Miwok Indians, Shingle Springs Rancheria Mr. Daniel Fonseca, Director Language Preservation/THPO PO Box 1340 Shingle Springs CA 95682 530-698-1460 dfonseca@ssband.org	Miwok, Maidu	Dated and sent on 07/14/21	07/27/2021, 1:45 PM, DC	08/06/2021, 1:45 PM, DC	07/19/2021, 3:20 PM, via email with read receipt				07/19/2021, 3:25 PM, DC sent letter and attachments to Shingle Springs Band of Miwok Indians via email addressed to Mr. Fonseca. 07/27/2021, 1:45 PM, DC called and left a message via voicemail. 08/06/2021, 1:45 PM, DC called and left a message via voicemail.
Berry Creek Rancheria of Maidu Indians Mr. Francis Steele, Chairperson 5 Tyme Way Oroville, CA 95966 530-534-3859 530-534-1151 Fax fsteele@berrycreekrancheria.com	Maidu	Dated and sent on 07/14/2021	07/27/2021, 1:50 PM, DC	08/06/2021, 1:50 PM, DC	07/19/2021, 2:50 PM, via email with read receipt	Confirmation by read receipt, 07/26/2021, 11:17 AM			07/19/2021, 2:50 PM, DC sent letter and map attachment via email. 07/26/2021, 11:15 AM, DC received notification that the email to Mr. Steele had been read. 07/27/2021, 1:50 PM, DC called and left a message via voicemail. 08/06/2021, 1:50 PM, DC called and left a message via voicemail.

Native American Contact Log
Habitation Restoration Project for the Tricolored Blackbird Project

Name	Affiliation, per NAHC	Date Contacted				Confirmation of Letter Received? (medium/date)	Letter or Verbal Response Received?		Comments
		1. Letter (sender's name)	2. Phone (caller's name)	3. Phone (caller's name)	Letter emailed		If yes, Date	If Letter, Post-mark Date	
Mooretown Rancheria of Maidu Indians Mr. Benjamin Clark, Chairperson #1 Alverda Drive Oroville, CA 95966 530-533-3625 office 530-533-3680 Fax frontdesk@mooretown.org	Maidu, KonKow/ Concow	Dated and sent on 07/14/21	07/27/2021, 1:55 PM, DC	08/06/2021, 2:00 PM, DC	07/19/2021, 3:30 PM, via email with read receipt				07/19/2021, 3:30 PM, DC sent letter and map attachment via email. 07/19/2021, 3:35 PM, DC received notification that email to frontdesk@mooretown.org was undeliverable. 07/27/2021, 1:55 PM, DC called and reached the front desk attendant, who said Mr. Clark was not available and directed him to Mr. Hatcher for Section 106 inquiries. Front desk also said the email was operational. 08/06/2021, 2:00 PM, DC called and left a message for Mr. Clark or Mr. Hatcher via voicemail.
Mooretown Rancheria of Maidu Indians Mr. Matthew Hatcher, THPO #1 Alverda Drive Oroville, CA 95966 530-533-3625 office matthew.hatcher@mooretown.org	Maidu, KonKow/ Concow	Dated and sent on 07/14/21	07/27/2021, 1:55 PM, DC	08/06/2021, 2:00 PM, DC	07/19/2021, 3:35 PM, via email with read receipt	Confirmation by letter, 08/26/2021, 12:50 PM	Yes, 08/26/2021	08/09/2021	07/19/2021, 3:35 PM, DC sent letter and map attachment via email. 07/20/2021, 10:35 AM, DC sent an email to Mr. Hatcher asking about the email address on record for Mr. Clark. 07/27/2021, DC called the office and was directed to Mr. Hatcher's voicemail. DC left a message via voicemail. 08/06/2021, 2:00 PM, DC called and left a message for Mr. Clark or Mr. Hatcher via voicemail. 08/26/2021, TG received letter from Mr. Hatcher from Mooretown Rancheria, dated 08/09/2021. The letter states that they are unaware of any cultural resources at the proposed work site. They also stated that they would like to be updated if resources are identified during work.
United Auburn Indian Community of the Auburn Rancheria Tribal Historic Preservation Dept 10720 Indian Hill Road Auburn, CA 95603 (530) 883-2320 https://auburnrancheria.com/programs-services/tribal-preservation/submit-agency-notification	Maidu Miwok	No hardcopy sent.	07/27/2021, 2:05 PM, DC	08/06/2021, 2:10 PM, DC	No email, 07/19/2021, 2:40 PM via online notification system	Confirmation by email, 07/22/2021, 7:25 AM	Email, 07/27/2021		07/19/2021, 2:20 PM, DC completed online notification system form and attached letter and map. 07/22/2021 7:25 AM, Ms. Cheng sent an email to Mr. Norton confirming receiving the project information. She stated there was some sensitivity with the Project location and asked to receive shapefiles to look at the area with more accuracy. 07/26/2021 7:55 AM, Mr. Norton responded to Ms. Cheng that her request would be forwarded to TG. 07/26/2021 10:05 AM, TG emailed the requested GIS files to Ms. Cheng. 07/27/2021 1:25 PM, Ms. Cheng sent an email confirming receipt of files. 07/27/2021 2:05 PM, DC called Mr. Moore's office number but was unable to leave a message. DC called the cell phone number and left a message via voicemail. 07/27/2021 2:10 PM, Ms. Starkey emailed TG and stated she would like to consult in regard to the habitat. She stated that they have nothing to add to the cultural resource avoidance and protection measures that are currently in place. She stated if Mr. Moore has no concerns or comments then they would have no issues. 08/06/2021, 2:10 PM, DC called Mr. Moore's office number but was unable to leave a message. DC called the cell phone number and left a message via voicemail. 08/25/2021, 12:45 PM, Ms. Starkey emailed TG about arrival time and meeting location for Blackbird Basin project site visits. 08/25/2021, 3:30 PM, TG sent an email with the base access information and an itinerary for the site visits. 09/02/2021, 5:45 PM, TG sent an email to Ms. Starkey thanking UAIC for their visit and input on August 27, 20201. TG summarized the meeting by stating the project was acceptable and meets tribal goals and that UAIC would review the grading plan and that a cultural resource monitor would be on hand during earth disturbing activities. TG also stated that avoidance and minimization efforts will be incorporated into the EA and will be available to review and comment on prior to grading activities.
Konkow Valley Band of Maidu Ms. Jessica Lopez, Chairperson 2136 Meyers Street Oroville, CA 95966 530-777-8094 jessica@konkowmaidu.org	Konkow Maidu	Dated and sent on 07/14/2021	07/27/2021, 2:10 PM, DC		07/19/2021, 3:40 PM, via email with read receipt	Confirmation by phone call, 07/27/2021, 2:10 PM	Verbal, 07/27/2021		07/19/2021, 3:40 PM, DC sent letter and map attachment via email. 07/27/2021, 2:10 PM, DC called and reached Ms. Lopez. She stated she received the letter and that they were still reviewing it. Also, she was planning on rescheduling the meeting with Beale AFB in order to tour the planned Blackbird Basin area.

Native American Contact Log
Habitation Restoration Project for the Tricolored Blackbird Project

Name	Affiliation, per NAHC	Date Contacted				Confirmation of Letter Received? (medium/date)	Letter or Verbal Response Received?		Comments
		1. Letter (sender's name)	2. Phone (caller's name)	3. Phone (caller's name)	Letter emailed		If yes, Date	If Letter, Post-mark Date	
Pakan'yani Maidu of Strawberry Valley Rancheria Ms. Tina Goodwin Chairperson 916-501-4472 tinagoodwin@washoetanf.org	Maidu Miwok	No hardcopy sent.	07/27/2021, 2:25 PM, DC	08/06/2021, 2:15 PM, DC	07/19/2021, 3:40 PM, via email with read receipt	Confirmation by read receipt, 07/19/2021, 3:45 PM			07/19/2021, 3:40 PM, DC sent letter and map attachment via email. 07/19/2021, 3:45 PM, DC received read receipt email. 07/27/2021, 2:25 PM, DC called and left a message via voicemail. 08/06/2021, 2:15 PM, DC called and left a message via voicemail.
Pakan'yani Maidu of Strawberry Valley Rancheria Mr. Scott Dinsmore Tribal Chair Members 617-417-2166 sdinsmore@strawberryvalleymaidu.org	Maidu Miwok	No hardcopy sent	07/27/2021, 2:45 PM, DC	08/06/2021, 2:20 PM, DC	07/19/2021, 3:45 PM, via email with read receipt				07/19/2021, 3:45 PM, DC sent letter and map attachment via email. 07/27/2021, 2:45 PM, DC called and left a message via voicemail. 08/06/2021, 2:20 PM, DC called and left a message via voicemail.
Colfax-Todds Valley Consolidated Tribe Ms. Pamela Cubbler, Treasurer PO Box 4884 Auburn, CA 95604 pcubbler@colfaxrancheria.com	Miwok Maidu	Dated and sent on 07/14/21	07/27/2021, 2:45 PM, DC	08/06/2021, 2:25 PM, DC	07/19/2021, 3:45 PM, via email with read receipt	Confirmation by phone call, 08/06/2021, 2:25 PM			07/19/2021, 3:45 PM, DC sent letter and map attachment via email. 07/27/2021, 2:45 PM, DC called and left a message via voicemail. 08/06/2021, 2:25 PM, DC called the office number but was unable to leave a message. DC called the home number and reached Ms. Cubbler. Ms. Cubbler stated that she had received the material, but she did not have time to look at it. She was interested in the project location and exactly what type of work was necessary. DC stated that the best person to talk to regarding the type of work would be TG. He offered her TG contact information, but she stated she already had it.
Colfax-Todds Valley Consolidated Tribe Mr. Clyde Prout, Chairperson PO Box 4884 Auburn, CA 95604 miwokmaidu@yahoo.com	Miwok Maidu	Dated and sent on 07/14/2021	07/27/2021, 2:50 PM, DC	08/06/2021, 2:30 PM, DC	07/19/2021, 3:05 PM, via email with read receipt				07/19/2021, 3:05 PM, DC sent letter and map attachment via email. 07/27/2021, 2:50 PM, DC called and left a message via voicemail.
Butte Tribal Council Ren Reynolds, Chairperson 1671 Mt. Ida Rd. Oroville, CA 95966		Dated and sent on 07/14/21			07/19/2021, 3:00 PM, via email with mail receipt	Confirmation by email reply, 07/19/2021, 4:15 PM	Email, 07/19/2021		07/19/2021, 3:00 PM, DC sent letter and map attachment via email. 07/19/2021, 4:15 PM, DC received email reply from Mr. Reynolds that they have no issues with the project. He also stated we should check with Enterprise Rancheria. 07/20/2021, 10:40 AM, DC sent an email to Mr. Reynolds thanking him for his response. I also stated that Enterprise Rancheria has been notified and is part of the contact list.

DC = Derrick Cole, Jacobs Engineering Group
TG = Tamara Gallentine, Beale AFB

Native American Consultations

Certified Mail Tracking Sheet

Organization/Tribe	Name of contact	Title	Street address	City	Zip code	Certified Numbers	Date dropped in out going mail box (headshed)	Received/Delivery Date
Enterprise Rancheria	Ms. Glenda Nelson	Chairperson	2133 Monte Vista Ave	Oroville	CA 95966	7020-0640-0001-5324-8675 7020-0640-0001-5324-8682	5/6/2021	Your item was delivered to the front desk, reception area, or mail room at 11:36 am on May 10, 2021 in OROVILLE, CA 95966.
Enterprise Rancheria	Mr. Reno Franklin	THPO	2133 Monte Vista Ave	Oroville	CA 95966			Your item was delivered to the front desk, reception area, or mail room at 11:36 am on May 10, 2021 in OROVILLE, CA 95966.
Shingle Springs Rancheria	Ms. Regina Cuellar	Chairperson	PO Box 1340	Shingle Springs	CA 95682	7020-0640-0001-5324-8637 7020-0640-0001-5324-8460 7020-0640-0001-5324-8620	6-May-21	Your item was picked up at a postal facility at 8:21 am on May 11, 2021 in SHINGLE SPRINGS, CA 95682.
Shingle Springs Rancheria	Ms. Annie Jones	Vice Chairperson	PO Box 1340	Shingle Springs	CA 95682			Your item was picked up at a postal facility at 8:21 am on May 11, 2021 in SHINGLE SPRINGS, CA 95682.
Shingle Springs Rancheria	Mr. Daniel Fonseca	Cultural Resources Director/THPO	PO Box 1340	Shingle Springs	CA 95682			Your item was picked up at a postal facility at 8:21 am on May 11, 2021 in SHINGLE SPRINGS, CA 95682.
Berry Creek Rancheria	Mr. Francis Steele	Chairperson	5 Tyme Way	Oroville	CA 95966	7020-0640-0001-5324-8569	5/6/2021	Your item was delivered to an individual at the address at 2:32 pm on May 10, 2021 in OROVILLE, CA 95966.
Mooretown Rancheria	Benjamin Clark	Chairperson	#1 Alverda Dr.	Oroville	CA 95966	7020-0640-0001-5324-8651 7020-0640-0001-5324-8644	5/6/2021	Your item was delivered to an individual at the address at 12:49 pm on May 10, 2021 in OROVILLE, CA 95966.
Mooretown Rancheria	Matthew Hatcher	THPO	#1 Alverda Dr.	Oroville	CA 95966			Your item was delivered to an individual at the address at 12:49 pm on May 10, 2021 in OROVILLE, CA 95966.
United Auburn Indian Community	Mr. Gene Whitehouse	Chairperson	10720 Indian Hill Rd	Auburn	CA 95603	Hard copy not needed, only electronic submittal		
	Mr. Matthew Moore	THPO	10720 Indian Hill Rd	Auburn	CA 95603			
Konkow Valley Band of Maidu	Ms. Jessica Lopez	Chairperson	2136 Meyers Street	Oroville	CA 95966	7020-0640-0001-5324-8668	5/6/2021	Your item is being held at the OROVILLE, CA 95966 post office at 8:34 am on May 10, 2021. This is at the request of the customer.
Strawberry Valley Rancheria	Ms. Tina Goodwin	Chairperson	PO Box 984	Marysville	CA 95901	Hard copy not needed, only electronic submittal		
Strawberry Valley Rancheria	Scott Dinsmore	Tribal Chair Member	PO Box 984	Marysville	CA 95901			
Colfax-Todds Valley Consolidated Tribe	Ms. Pamela Cubbler	Treasurer	PO Box 4884	Auburn	CA 95604	7020-0640-0001-5324-8613 7020-0640-0001-5324-8590	5/6/2021	Your item arrived at the AUBURN, CA 95604 post office at 7:55 am on May 10, 2021 and is ready for pickup.
Colfax-Todds Valley Consolidated Tribe	Mr. Clyde Prout	Chairperson	PO Box 4884	Auburn	CA 95604			Your item arrived at the AUBURN, CA 95604 post office at 7:55 am on May 10, 2021 and is ready for pickup.
Butte Tribal Council	Mr. Ren Reynolds	Chairperson	1671 Mt. Ida Rd	Oroville	CA 95966	7020-0640-0001-5324-8552	5/6/2021	Your item was delivered to an individual at the address at 12:10 pm on May 10, 2021 in OROVILLE, CA 95966.

Native American Consultation Letters

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 9TH RECONNAISSANCE WING (ACC)
BEALE AIR FORCE BASE, CALIFORNIA

Mr. Calvin G. Hendrix
Deputy Base Civil Engineer
9 CES/CD
6425 B Street, Bldg. 25390
Beale AFB, CA 95903-1708

JUL 14 2021

Mr. Gene Whitehouse
Chairperson
United Auburn Indian Community
10720 Indian Hill Road
Auburn, CA 95603

Dear Mr. Whitehouse,

The U.S Air Force (USAF), Beale Air Force Base (AFB), in accordance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, and 36 Code of Federal Regulations (CFR) Part 800, *Protection of Historic Properties,* is writing to ask for your assistance in identifying historic properties of religious and cultural significance to your tribe, for the "*Habitat Restoration Project for the Tricolored Blackbird*" located at Beale AFB, in Yuba County, California (undertaking). Beale AFB is situated on the eastern margin of the Sacramento Valley, approximately 35 miles north-northeast of Sacramento (Attachment 1). The Base is more than 23,000 acres in size and is located in the Southern Maidu (Nisenan) culture area. Today Beale AFB is home to the 9th Reconnaissance Wing, which maintains and monitors feedback from fleets of manned and unmanned surveillance aircraft.

The undertaking includes two Area of Potential Effects (APE) locations where proposed restorations would occur, which together would meet the project goals of creating high-quality tricolored blackbird nesting and foraging habitat: (1) seasonal wetland and drainage enhancements at the Blackbird Basins (Attachment 2), and (2) nesting habitat expansion at Blackbird Marsh (Attachment 3). The restoration approach at both locations would rely on a combination of habitat enhancement methods, as described herein, with the majority of improvements applicable to the Blackbird Marsh site.

Blackbird Basins APE

This area is characterized by two main intermittent or ephemeral drainages with four small existing weirs supporting small ponds with herbaceous seasonal wetlands. The weirs are currently in disrepair and marginally functional. Improvements at the Blackbird Basins APE

would focus on repairing existing weirs and augmenting the hydroperiod of the upstream drainages by superficial grading (making broad shallow areas) or raising the weir height to achieve greater inundation area. Additional water would seasonally be pumped into the drainages to extend the hydroperiod. Water would come from existing facilities, or a new well may be developed and utilized. Plantings of native species would occur that promote tricolor blackbird nesting and insect foraging. Artificial nesting structures (low frames with barbed wire plaiting) would be installed in order to provide protection from predation. Permanent fencing would be erected outlining the APE to exclude livestock from the wetlands.

Blackbird Marsh APE

A small seasonal pond was created at Blackbird Marsh ca. 1999 via construction of an earthen dam. Two main intermittent or ephemeral drainages flow into the existing pond, with some downcutting evident in the main (northern) tributary. Additionally, the spillway/overflow channel from the impoundment has experienced severe incising. Proposed restoration efforts at Blackbird Marsh would focus on expansion of potential nesting habitat in and around the pond, repair of the dam and spillway, rehabilitation of downcutting and other erosional issues in the drainage channels above and below the pond, and expansion of high-quality seasonal wetland foraging habitat. Planting of desirable vegetation and installation of experimental artificial nesting structures (described above) would be used to provide attractive nesting features for the tricolored blackbird. Grading may be used to repair the currently incised channels above and below Blackbird Marsh and to create adjacent seasonal shallow wetlands to provide more foraging habitat. An addition of 2.5 acres of shallow wetlands is anticipated. Supplemental water would be used to extend the hydroperiod, to be supplied via existing facilities, or a new well.

All of the APE has been recently inspected for cultural resources. At the Blackbird Marsh APE, a ranching-era fence line (P-58-2798) and dirt road (P-58-3351) and a military-era graded road (P-58-2792) were located. At the Blackbird Basins APE, earthen weirs that created livestock ponds (part of P-58-3329) and a fence line (P-58-2938) constitute the historic resources, and three indigenous period properties (CA-YUB-1266, CA-YUB-1269, CA-YUB-1277) are present. An additional indigenous site, CA-YUB-1268, occurs immediately adjacent to the Blackbird Basins APE. All of the indigenous sites are being managed as eligible for the NRHP, and effects to these properties would be avoided by project design: 1) the resource boundaries would be delineated with temporary fencing (i.e., orange construction fencing) and no project work would occur within the boundaries of the indigenous sites; 2) construction personnel would be provided awareness training; 3) monitoring of ground disturbance would occur near these sites; and 4) personnel would be required to follow standard operating procedures in regards to inadvertent discoveries.

At this time, we respectfully request your comments and input under the NHPA for the undertaking. It would not affect the handling or disposition of human remains, funerary objects, sacred objects, or objects of cultural patrimony under the Native American Graves Protection and Repatriation Act. In the event such items are discovered, we would contact you regarding their handling and disposition.

If you have any questions or desire additional information, please contact Ms. Tamara Gallentine, Cultural Resources Manager, 9 CES/CEIE, 6425 B St., Bldg. 25390, Beale AFB, CA 95903-1708, tamara.gallentine.2@us.af.mil, (530) 913-2975 or Cultural Resources Specialist, Mr. William Norton at (707) 424-8629, william.norton.9.ctr@us.af.mil. Please refer to the *"Habitat Restoration Project for the Tricolored Blackbird"* in any correspondence.

Sincerely,

CALVIN G. HENDRIX, GS-14, DAF
Deputy Base Civil Engineer

Attachments:
1. Beale AFB Habitat Restoration Project for Tricolored Blackbird, Vicinity Map
2. Beale AFB Habitat Restoration Project for Tricolored Blackbird, Blackbird Basins APE Map
3. Beale AFB Habitat Restoration Project for Tricolored Blackbird, Blackbird Marsh APE Map

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 9TH RECONNAISSANCE WING (ACC)
BEALE AIR FORCE BASE, CALIFORNIA

Mr. Calvin G. Hendrix
Deputy Base Civil Engineer
9 CES/CD
6425 B Street, Bldg. 25390
Beale AFB, CA 95903-1708

JUL 14 2021

Mr. Francis Steele
Chairperson
Berry Creek Rancheria
5 Tyme Way
Oroville, CA 95966

Dear Mr. Steele,

The U.S Air Force (USAF), Beale Air Force Base (AFB), in accordance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, and 36 Code of Federal Regulations (CFR) Part 800, *Protection of Historic Properties,* is writing to ask for your assistance in identifying historic properties of religious and cultural significance to your tribe, for the "*Habitat Restoration Project for the Tricolored Blackbird*" located at Beale AFB, in Yuba County, California (undertaking). Beale AFB is situated on the eastern margin of the Sacramento Valley, approximately 35 miles north-northeast of Sacramento (Attachment 1). The Base is more than 23,000 acres in size and is located in the Southern Maidu (Nisenan) culture area. Today Beale AFB is home to the 9th Reconnaissance Wing, which maintains and monitors feedback from fleets of manned and unmanned surveillance aircraft.

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Sincerely,

CALVIN G. HENDRIX, GS-14, DAF
Deputy Base Civil Engineer

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DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 9TH RECONNAISSANCE WING (ACC)
BEALE AIR FORCE BASE, CALIFORNIA

Mr. Calvin G. Hendrix
Deputy Base Civil Engineer
9 CES/CD
6425 B Street, Bldg. 25390
Beale AFB, CA 95903-1708

JUL 14 2021

Mr. Ren Reynolds
Chairperson
Butte Tribal Council
1671 Mt. Ida Road
Oroville, CA 95966

Dear Mr. Reynolds,

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DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 9TH RECONNAISSANCE WING (ACC)
BEALE AIR FORCE BASE, CALIFORNIA

Mr. Calvin G. Hendrix
Deputy Base Civil Engineer
9 CES/CD
6425 B Street, Bldg. 25390
Beale AFB, CA 95903-1708

JUL 14 2021

Mr. Clyde Prout
Chairperson
Colfax-Todds Valley Consolidated Tribe
PO Box 4884
Auburn, CA 95604

Dear Mr. Prout,

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HEADQUARTERS 9TH RECONNAISSANCE WING (ACC)
BEALE AIR FORCE BASE, CALIFORNIA

Mr. Calvin G. Hendrix
Deputy Base Civil Engineer
9 CES/CD
6425 B Street, Bldg. 25390
Beale AFB, CA 95903-1708

JUL 14 2021

Ms. Glenda Nelson
Chairperson
Enterprise Rancheria
2133 Monte Vista Avenue
Oroville, CA 95966

Dear Ms. Nelson,

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HEADQUARTERS 9TH RECONNAISSANCE WING (ACC)
BEALE AIR FORCE BASE, CALIFORNIA

Mr. Calvin G. Hendrix
Deputy Base Civil Engineer
9 CES/CD
6425 B Street, Bldg. 25390
Beale AFB, CA 95903-1708

JUL 14 2021

Mr. Matthew Moore
THPO
United Auburn Indian Community
10720 Indian Hill Road
Auburn, CA 95603

Dear Mr. Moore,

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BEALE AIR FORCE BASE, CALIFORNIA

Mr. Calvin G. Hendrix
Deputy Base Civil Engineer
9 CES/CD
6425 B Street, Bldg. 25390
Beale AFB, CA 95903-1708

JUL 14 2021

Ms. Jessica Lopez
Chairperson
Konkow Valley Band of Maidu
2136 Meyers Street
Oroville, CA 95966

Dear Ms. Lopez,

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CALVIN G. HENDRIX, GS-14, DAF
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DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 9TH RECONNAISSANCE WING (ACC)
BEALE AIR FORCE BASE, CALIFORNIA

Mr. Calvin G. Hendrix
Deputy Base Civil Engineer
9 CES/CD
6425 B Street, Bldg. 25390
Beale AFB, CA 95903-1708

JUL 14 2021

Ms. Annie Jones
Vice Chairperson
Shingle Springs Rancheria
PO Box 1340
Shingle Springs, CA 95682

Dear Ms. Jones,

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DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 9TH RECONNAISSANCE WING (ACC)
BEALE AIR FORCE BASE, CALIFORNIA

Mr. Calvin G. Hendrix
Deputy Base Civil Engineer
9 CES/CD
6425 B Street, Bldg. 25390
Beale AFB, CA 95903-1708

JUL 14 2021

Mr. Matthew Hatcher
THPO
Mooretown Rancheria
#1 Alverda Drive
Oroville, CA 95966

Dear Mr. Hatcher,

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HEADQUARTERS 9TH RECONNAISSANCE WING (ACC)
BEALE AIR FORCE BASE, CALIFORNIA

Mr. Calvin G. Hendrix
Deputy Base Civil Engineer
9 CES/CD
6425 B Street, Bldg. 25390
Beale AFB, CA 95903-1708

Ms. Tina Goodwin
Chairperson
Strawberry Valley Rancheria
PO Box 984
Marysville, CA 95901

JUL 14 2021

Dear Ms. Goodwin,

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BEALE AIR FORCE BASE, CALIFORNIA

Mr. Calvin G. Hendrix
Deputy Base Civil Engineer
9 CES/CD
6425 B Street, Bldg. 25390
Beale AFB, CA 95903-1708

Mr. Reno Franklin
THPO
Enterprise Rancheria
2133 Monte Vista Avenue
Oroville, CA 95966

JUL 14 2021

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Mr. Calvin G. Hendrix
Deputy Base Civil Engineer
9 CES/CD
6425 B Street, Bldg. 25390
Beale AFB, CA 95903-1708

JUL 14 2021

Mr. Daniel Fonseca
Cultural Resources Director/THPO
Shingle Springs Rancheria
PO Box 1340
Shingle Springs, CA 95682

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Sincerely,

CALVIN G. HENDRIX, GS-14, DAF
Deputy Base Civil Engineer

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DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 9TH RECONNAISSANCE WING (ACC)
BEALE AIR FORCE BASE, CALIFORNIA

Mr. Calvin G. Hendrix
Deputy Base Civil Engineer
9 CES/CD
6425 B Street, Bldg. 25390
Beale AFB, CA 95903-1708

JUL 14 2021

Mr. Scott Dinsmore
Tribal Chair Member
Strawberry Valley Rancheria
PO Box 984
Marysville, CA 95901

Dear Mr. Dinsmore,

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Deputy Base Civil Engineer

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DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 9TH RECONNAISSANCE WING (ACC)
BEALE AIR FORCE BASE, CALIFORNIA

Mr. Calvin G. Hendrix
Deputy Base Civil Engineer
9 CES/CD
6425 B Street, Bldg. 25390
Beale AFB, CA 95903-1708

JUL 14 2021

Ms. Regina Cuellar
Chairperson
Shingle Springs Rancheria
PO Box 1340
Shingle Springs, CA 95682

Dear Ms. Cuellar,

The U.S Air Force (USAF), Beale Air Force Base (AFB), in accordance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, and 36 Code of Federal Regulations (CFR) Part 800, *Protection of Historic Properties,* is writing to ask for your assistance in identifying historic properties of religious and cultural significance to your tribe, for the "*Habitat Restoration Project for the Tricolored Blackbird*" located at Beale AFB, in Yuba County, California (undertaking). Beale AFB is situated on the eastern margin of the Sacramento Valley, approximately 35 miles north-northeast of Sacramento (Attachment 1). The Base is more than 23,000 acres in size and is located in the Southern Maidu (Nisenan) culture area. Today Beale AFB is home to the 9th Reconnaissance Wing, which maintains and monitors feedback from fleets of manned and unmanned surveillance aircraft.

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Deputy Base Civil Engineer

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BEALE AIR FORCE BASE, CALIFORNIA

Mr. Calvin G. Hendrix
Deputy Base Civil Engineer
9 CES/CD
6425 B Street, Bldg. 25390
Beale AFB, CA 95903-1708

JUL 14 2021

Ms. Pamela Cubbler
Treasurer
Colfax-Todds Valley Consolidated Tribe
PO Box 4884
Auburn, CA 95604

Dear Ms. Cubbler,

The U.S Air Force (USAF), Beale Air Force Base (AFB), in accordance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, and 36 Code of Federal Regulations (CFR) Part 800, *Protection of Historic Properties,* is writing to ask for your assistance in identifying historic properties of religious and cultural significance to your tribe, for the "*Habitat Restoration Project for the Tricolored Blackbird*" located at Beale AFB, in Yuba County, California (undertaking). Beale AFB is situated on the eastern margin of the Sacramento Valley, approximately 35 miles north-northeast of Sacramento (Attachment 1). The Base is more than 23,000 acres in size and is located in the Southern Maidu (Nisenan) culture area. Today Beale AFB is home to the 9th Reconnaissance Wing, which maintains and monitors feedback from fleets of manned and unmanned surveillance aircraft.

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BEALE AIR FORCE BASE, CALIFORNIA

Mr. Calvin G. Hendrix
Deputy Base Civil Engineer
9 CES/CD
6425 B Street, Bldg. 25390
Beale AFB, CA 95903-1708

JUL 14 2021

Mr. Benjamin Clark
Chairperson
Mooretown Rancheria
#1 Alverda Drive
Oroville, CA 95966

Dear Mr. Clark,

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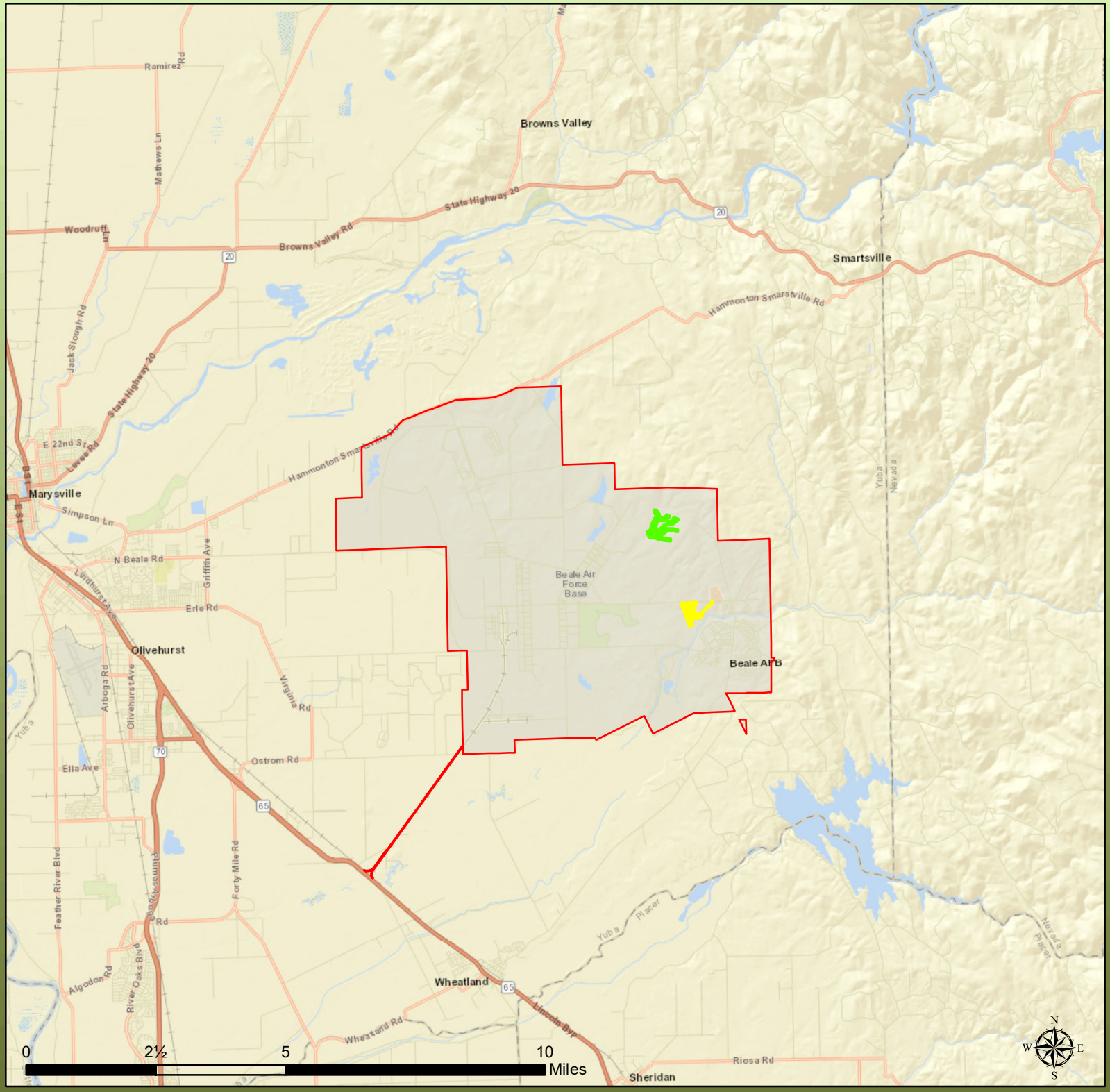
Beale AFB Habitat Restoration Project for Tricolored Blackbird,

ATTACHMENTS 1-3



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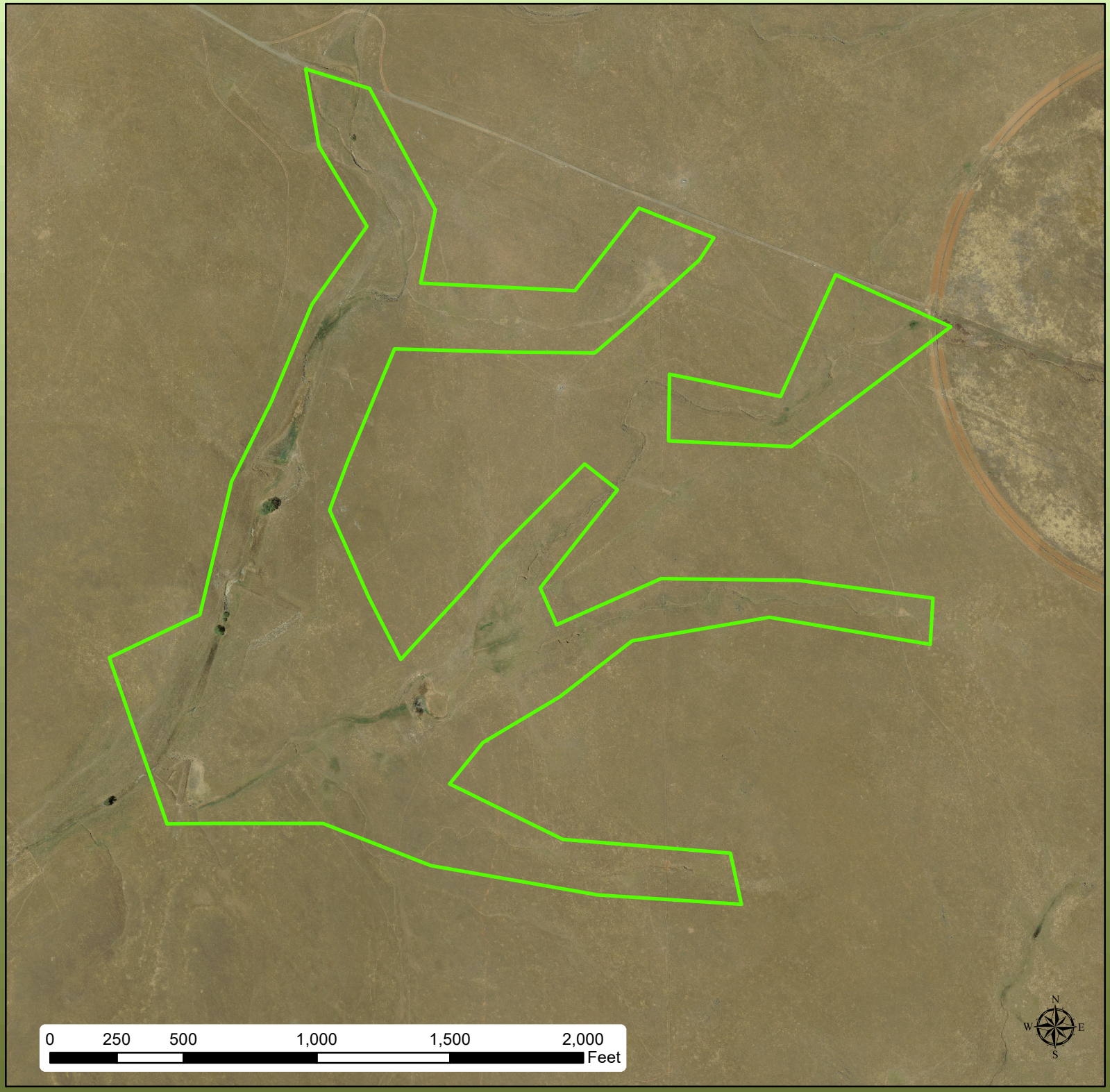
Blackbird Basins APE

Blackbird Marsh APE

Beale Air Force Base

Map created by GeinasD 4/13/2021



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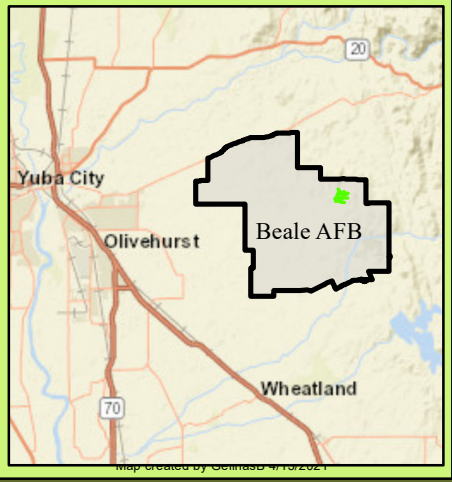
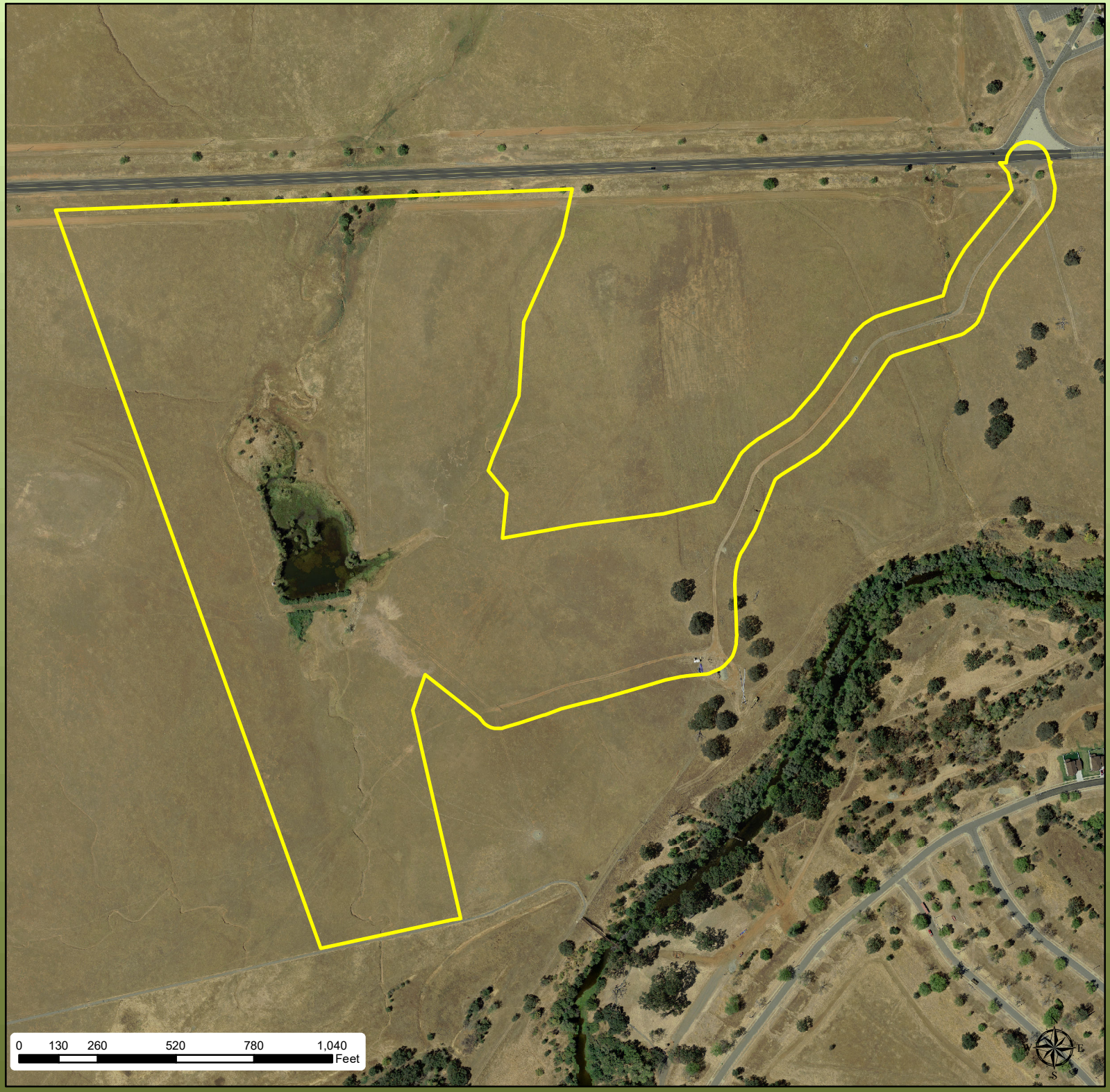


Map created by GeinasD 4/19/2021



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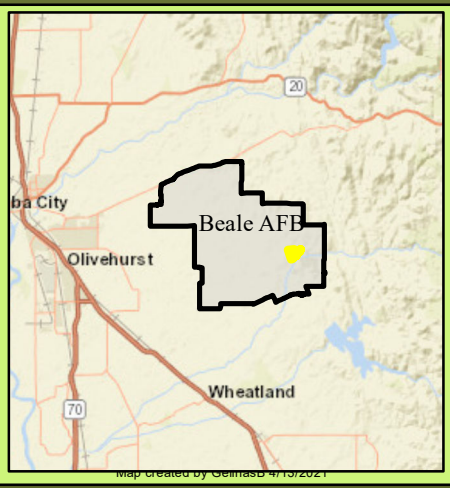

Map created by GeimasB 4/15/2021

Mooretown Rancheria
Response to National Historic Preservation Act
Section 106 Consultation

Mooretown Rancheria
#1 Alverda Drive
Oroville, CA 95966
(530) 533-3625 Office
(530) 533-3680 Fax

May 20, 2021

Ms. Tamara Gallentine
CRM/Archaeologist
USAF
CES/CEIE, 6425 B Street, Bldg. 25390
Beale AFB, CA 95903-1708

Re: Proposed (Frisky Lake, Clinic Pond Tricolored Blackbird Habitat) Project – Beale AFB, Yuba Co, CA

Dear Ms. Gallentine:

Thank you for your letter dated, May 10, 2021, seeking information regarding the proposed Tri Colored Blackbird Habitat project in Yuba County, California. Based on the information provided, the Mooretown Rancheria is not aware of any known cultural resources on this site. However, as the project progresses, if any new information or human remains are found, we do have a process to protect such important and sacred artifacts (especially near rivers or streams).

Please contact the following individuals if tribal cultural items or Native American human remains are found:

THPO
Mooretown Rancheria
1 Alverda Drive
Oroville, CA 95966
(530) 533-3625 Office
(530) 533-3680 Fax
E-mail: matthew.hatcher@mooretown.org

Thank you for providing us with this notice and opportunity to comment.

Sincerely,

Matthew Hatcher
Tribal Historic Preservation Officer

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Appendix J

California State Historic Preservation Office Concurrence Letter

S ornia • Natural Resources Agency
Gavin Newsom, *Governor*

DEPARTMENT OF PARKS AND RECREATION
OFFICE OF HISTORIC PRESERVATION
Armando Quintero, *Director*

Julianne Polanco, State Historic Preservation Officer
1725 23rd Street, Suite 100, Sacramento, CA 95816-7100
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October 14, 2021

Reply in Reference To: USAF_2021_0716_001

VIA ELECTRONIC MAIL

Mr. Calvin G. Hendrix
Deputy Base Civil Engineer
9 CES/CD
6425 B Street, Bldg. 25390
Beale AFB, CA 95903-1708

Re: Section 106 Consultation for the Habitat Restoration Project for the Tricolored Blackbird, Beale AFB (USAF's letter of July 14, 2021 and email of October 05, 2021)

Dear Mr. Hendrix:

The United States Air Force (USAF) is initiating consultation with the State Historic Preservation Officer (SHPO) on the above-cited undertaking in accordance with Section 106 of the National Historic Preservation Act of 1966 (54 U.S.C. § 306108), as amended, and its implementing regulation found at 36 CFR Part 800.

The purpose of the proposed undertaking is to create and enhance potential nesting habitat and adjacent suitable foraging habitat to benefit tricolored blackbird at Beale AFB (BAFB) at a safe distance from the airstrip to maintain safe flying operations. The proposed undertaking has been described adequately in your submission and the area of potential effects (APE) consists of two discontiguous parcels – the Blackbird Basins and the Blackbird Marsh. Access to the APE will be via existing roads.

A records review of the BAFB's cultural resources records identified that nine cultural resources are located within or adjacent to the APE. The BAFB has determined the status of those sites as follows:

Resource	Location	Eligibility status of site
CA-YUB-1266 (lithic scatter) CA-YUB-1269 (BRM, quarry, and rock art features) CA-YUB-1277 (BRM feature)	Within APE	Assumed eligible for purposes of this undertaking. The BAFB is not requesting the SHPO to review and comment on this determination.

P-58-3329 (earthen dam and weirs) P-58-2797 (graded road) P-58-2798 (fence line) P-58-2938 (fence line) P-58-3351 (dirt road)	Within APE	Recommended not eligible and requests SHPO to review and comment on these determinations.
CA-YUB-1268 (BRM features and lithic scatter.	Adjacent to APE	Will not be affected by the proposed undertaking.

A pedestrian survey of the APE was conducted on January 27 and 31, 2020 and March 17 and 20, 2020, which identified only an additional segment of fence line for P-58-2938.

On July 14, 2021, the BAFB sent request for comments letters to 15 Native American tribes or tribal groups. As of today, the BAFB has received the following responses:

- Mooretown Rancheria of Maidu Indians – on 08/26/2021, the tribe was not aware of any cultural resources located within the APE, but did request to be notified if cultural resources are identified;
- United Auburn Indian Community (UAIC) – on 07/27/21, the tribe stated that it had no concerns about the mitigation measures proposed by BAFB; on 08/25/2021, the tribe and BAFB conducted a site visit; and on 08/27/2021, the tribe requested that tribal monitors be present during ground disturbing activities;
- Konkow Valley Band of Maidu Indians – 07/27/2021, the tribe said that it intends to submit comments to BAFB about the proposed undertaking; and
- Colfax-Todds Valley Consolidated Tribe – on 08/06/2021, the tribe acknowledged receipt of the letter but had not been able to review it at that time.

The BAFB had determined that the proposed undertaking will be implemented pursuant to the following mitigation measures:

MM-CUL-1 – Prevent project impacts
MM-CUL-2 – Cultural resources awareness training
MM-CUL-3 – Archaeological monitor for archaeological resources
MM-CUL-4 – Tribal monitors
MM-CUL-5 – Inadvertent discovery of archaeological resources and the BAFB's *Integrated Cultural Resources Management Plan.*

The BAFB has determined that the above mitigation measures will ensure that none of the three sites assumed eligible will be affected by the proposed undertaking.

Based on the records review, the pedestrian surveys, the mitigation measures, and the on-going tribal consultation, the USAF has determined that a finding of No Historic Properties Affected is appropriate for this proposed undertaking. The BAFB has requested the SHPO to review and comment on that finding, the identification of the APE, and the determination that the five sites described above are not eligible for listing on the National Register of Historic Places (NRHP).

After reviewing the information submitted by the BAFB, the SHPO has the following comments:

1) The SHPO has no objections to your identification and delineation of the area of potential effects pursuant to 36 CFR Parts 800.4 (a)(1) and 800.16(d);
2) If the BAFB does receive any comments and/or concerns from the tribes in the future, please provide those comments/concerns to the SHPO;
3) The SHPO does not object to your determination that P-58-2797, P-58-2798, P-58-2938, P-58-3329, and P-58-3351 are not eligible for listing on the NRHP under Criteria A-D; and
4) The SHPO does not object to your finding of No Historic Properties Affected, as described above.

Be advised that under certain circumstances, such as an unanticipated discovery or a change in project description, the USAF may have additional future responsibilities for this undertaking under 36 CFR Part 800. Should cultural artifacts be encountered during ground disturbing activities, please halt all work until a qualified archaeologist can be consulted on the nature and significance of such artifacts.

If you have any questions or concerns, please contact Ed Carroll of my staff at (916) 445-7006 or Ed.Carroll@parks.ca.gov.

Sincerely,

Julianne Polanco
State Historic Preservation Officer