DRAFT FINDING OF NO SIGNIFICANT IMPACT (FONSI)

ENVIRONMENTAL ASSESSMENT FOR THE DESERT SURVIVAL, EVASION, RESISTANCE, AND ESCAPE TRAINING FAIRCHILD AIR FORCE BASE, GRANT COUNTY, WASHINGTON

Pursuant to provisions of the National Environmental Policy Act (NEPA), Title 42 *United States Code* §§ 4321–4370; Council on Environmental Quality (CEQ) regulations at Title 40 *Code of Federal Regulations* (CFR) Parts 1500–1508; and 32 CFR Part 989, *Environmental Impact Analysis Process (EIAP)*, the United States (US) Air Force (Air Force) prepared this Environmental Assessment (EA) as part of its land use permit renewal process to evaluate the potential environmental impacts of the continued operation of its Desert Survival, Evasion, Resistance, and Escape (SERE) Specialist training in compliance with the *National Environmental Policy Act of 1969* (NEPA).

Purpose and Need

The purpose of the Proposed Action is to continue to provide desert SERE training opportunities for the 336th Training Group at Fairchild Air Force Base (AFB), which is the Air Force's sole unit responsible for training SERE Specialists. To adequately train SERE Specialists, the Air Force needs a biome-specific training area to meet the desert SERE Specialist training requirements in a true-to-life environment.

Description of Proposed Action and Alternatives

Desert survival training, taught as part of SERE Specialist Training (Course S-V81-A), would continue to occur in Grant County, WA, on approximately 243 acres of land covered with sagebrush and sand dunes. The training location is part of 3,000 acres owned by the Washington Department of Fish and Wildlife (WDFW). The instructor base camp would be located on adjacent private land.

The proposed project area includes the location for camp sites, a walking trail, and two potential locations for the instructor base camp. Activities would occur in various sagebrush and dunes situated along the ridgeline. The proposed acreage of the camp/activity locations (including sagebrush and dunes) and the proposed instructor base camps is 231 acres. Assuming a 20-foot buffer along the walking trail, the proposed area associated with those trails is 12 acres.

Within the camp/activities location, the desert SERE students would complete various tasks, such as using natural materials to construct shelters, making fires for making ground-to-air signals (flares); procuring water and food in conjunction with taking fish and wildlife game; and conducting navigation training and evasion training. Shelters would be built using piled sand or dug grave shelters to get above or below ground surface, respectively, to allow SERE students to mitigate the desert temperatures. Solar stills and insect pit traps would be dug in the dune area for water and food. Any digging would not exceed 36 inches in depth. Digging would occur for "cat hole" (single-use) latrines. Outside of the camp/activity sites, students would follow the walking trail.

The area anticipated to be used for the instructor base camp is a gravel-covered lot and is not publicly accessible. No ground-disturbing activities would occur at the instructor camp; it is a site where instructors camp and can keep their gear behind a locked gate on private property. All camping at this location would occur on previously disturbed land. Figure 2-1 also identifies an alternate instructor camp. This site would be used if the original instructor camp is not available during a training exercise.

The training would require a maximum of 14 support vehicles and 10 utility vehicles. Vehicle use would be restricted to Old Vantage Highway (approximately 4.5 miles long) and a 0.7-mile-long gravel road leading to the instructor camp/forward operating location. If necessary, small all-terrain vehicles (ATVs) would drive established trails. ATVs would not travel on the sand dunes or the trail between private and WDFW land for any reason.

Helicopters would be used for 1 day during each training session and would originate from Fairchild AFB. The training would generate approximately two sorties[1] per training event. Helicopters would be on site for up to 3 hours for hoist, vectoring (including night vectors), radio contact, and sound vectoring over trainees' positioning. Jumps from helicopters could occur, but only during daylight hours. The area around the project site is a low-fly area for the Naval Air Station at Whidbey Island, WA. The camp/activity area would serve as both a helicopter landing zone (HLZ) and a parachute drop zone (DZ).

For each training session, a maximum of 86 personnel would attend, including students, instructors, and support staff. The full training sessions would take place twice annually for 5 days. Visual site inspections of the HLZs, DZs, and camp areas would be completed prior to each training event, and the sites would be restored to their natural condition when the training event concludes.

No Action Alternative

Under the No Action Alternative, the Desert SERE School would experience mission stoppage for the SERE Specialist Training (Course S-V81-A). With no other permitted location that meets the requirements for this training, the syllabus for the course would be reworked to exclude desert survival training.

Summary of Findings

Potentially affected environmental resources were identified through communications with state and federal agencies and review of past environmental documentation. Specific environmental resources with the potential for environmental consequences include land use; geological resources; water resources; noise; safety; air quality; biological resources; water resources; air quality; noise; biological resources; cultural resources; recreation and visual resources; waste management; safety; and environmental justice and protection of children.

The activities under the Proposed Action are similar to other outdoor recreational activities (i.e., camping, hiking) that currently occur in the area. The activities would occur in two separate, short-duration (5-day) training sessions per calendar year. These activities would not change or interfere with any land use on adjacent properties such as agriculture or recreational activity. Further, the activities would be consistent with current land use, would not alter any land use, or affect land use on surrounding properties. Therefore, no impacts to land use would be anticipated to occur with implementation of the Proposed Action.

There is no training activity in the Proposed Action that would damage any geological feature of the area. Because the individual training activities that would disturb soil would be relatively small and would be backfilled when completed, the potential for soil erosion would be negligible. Restricting vehicles and ATVs to existing roads and trails would prevent creation of additional disturbed areas subject to erosion. None of the soils in the SERE training area is classified as prime farmland. Therefore, impacts to geology or soils would not be anticipated to occur or would be negligible with implementation of the Proposed Action.

No surface waters or wetlands occur in the main desert SERE camp/activity area. No desert SERE training activities would occur within a FEMA-designated floodplain. Other training activities would occur along the walking trail above camp on the rimrock area that passes near several water ponds and associated wetlands. No activity would physically alter any surface-water feature. SERE training activities would comply with EO 11990, Protection of Wetlands, and would not disrupt, degrade, or change the characteristics of wetlands present in the project area.

The air emissions associated with the Proposed Action would be de minimus, with no impact to air quality in the region. Estimated total annual emissions would not exceed the Prevention of Significant Deterioration permitting threshold for any criteria pollutant or precursor. Therefore, impacts from the Proposed Action on regional air quality would be expected to be minor, and no adverse impacts would be expected to occur. The net change in emissions associated with this project are anticipated to be negligible.

Noise generated from general training activities would be short-term and negligible. Vehicles and ATVs

[1] A sortie is defined as a single military aircraft flight from initial takeoff through final landing.

would be used to transport personnel, which would generate typical vehicle and ATV noise; however, vehicle and ATV use would be infrequent and would not be expected to exceed the sound of the existing environment, which includes public access to the area by vehicle. Helicopter operation would result in short-term, negligible-to-minor, adverse impacts on the noise environment, and helicopters taking off and landing at the HLZ would generate the highest noise levels. Noise generated from the helicopter taking off and landing would only be slightly more than the noise generated from a garbage truck. However, these events would be infrequent enough to only be considered a minor annoyance to people, including recreation users.

Camping and training activities such as making shelters from natural materials and digging cat hole latrines, could cause minor minimal impacts to vegetation. Activities on the dunes, such as construction of solar stills, insect pitfall traps, or grave shelters, would occur in areas that are devoid of vegetation. No training activity would affect cliff and talus slope habitats.

The presence of SERE training participants may temporarily cause larger animals, such as mule deer, coyotes, and bobcats, to avoid the area. Training sessions would be 5 days long, so any avoidance behavior would be short term and negligible. As part of survival training, participants practice food procurement through the take of wildlife. Because the take of any wildlife is managed by permit through the WDFW, impacts to native animal populations are anticipated to be negligible.

No federally listed threatened or endangered species have been observed in the desert SERE training area, nor does critical habitat exist within the training area. The activities under the Proposed Action would be similar to other outdoor recreational activities (i.e., camping, hiking) that currently occur in the area. The Proposed Action would not adversely affect any federally threatened or endangered species or their habitat. The Air Force has determined that the Proposed Action would have "no effect" on the gray wolf (*Canis lupus*) and the monarch butterfly (*Danaus plexippus*). The Air Force has determined that the Proposed Action "may affect, but not likely to adversely affect" the bull trout (*Salvelinus confluentus*) and the yellow-billed cuckoo (*Coccyzus americanus*).

Protected aquatic species in the adjacent Columbia River system would not be affected by any activity under the Proposed Action. Any known threatened or endangered species would be released if caught while fishing. Impacts to biological resources would not be anticipated to occur or would be negligible with implementation of the Proposed Action.

Field work performed in 2020 and 2021 documented 14 archaeological sites within the student activity area. Because the SERE training activities would be similar to other outdoor recreational activities such as hiking and camping and would be limited to two 5-day time periods, potential impacts on cultural resources in the Region of Influence would be anticipated to be negligible with implementation of the Proposed Action.

SERE training activities are primarily focused on desert survival skills and are conducted during the hottest part of year, June through early September, outside the primary spring and fall climbing seasons. Because the SERE training activities would be similar to other outdoor recreational activities such as hiking and camping, would occur during the hottest time of the year, and would be limited to two 5-day time periods, potential impacts on recreational or visual resources in the area are expected to be negligible.

SERE training activities do not use hazardous materials; however, minor quantities of fuel or oils could be released to the environment during a vehicle or ATV breakdown. Onsite refueling of ATVs would use spill containment materials to prevent accidental release. Refueling of vehicles and helicopters would occur off site. Therefore, impacts from hazardous materials on the SERE training area or Air Force personnel using the training area would not be anticipated under implementation of the Proposed Action.

No impacts on public safety would be expected as there would be no live-fire weapons under the Proposed Action, and all training would be related to survival training and recreational in nature with the exception of helicopter operations. Training activities would occur during the week and during the hottest time of year, when members of the public are less likely to use the area. Air Force guidelines and protocols, including AFI 13- 217, Drop Zone and Landing Zone Operations, would be observed for standoff distances during landing zone use to ensure safety to the public. In addition, authorization under a WDFW permit to land a

helicopter on the jeep trail that runs through the western edge of the Desert DZ and if required, boat launch parking area for training activities that include hoists, vectors, and parachute jumps. The parking area will be barricaded off with safety cones and staffed with SERE instructors during the landing activities to protect the public.

The SERE training activities would occur on public land, isolated (i.e., not visible) from private lands and residences. The nearest residences are rural farms more than 2 miles east and 500–700 feet higher in elevation. Most of the helicopter exercises likely would be shielded by local topography from the nearest residences. Therefore, disproportionate impacts on minority, low-income, and youth populations would not be anticipated to occur with implementation of the Proposed Action.

Cumulative Impacts

The EA considered cumulative impacts that could result from the incremental impact of the Proposed Action when added to other past, present, or reasonably foreseeable future actions. No potentially significant cumulative impacts were identified.

Mitigation

The EA analysis concluded that the Proposed Action would not result in significant environmental impacts; therefore, no mitigation measures are required. Best management practices are described and recommended in the EA where applicable.

Conclusion

Finding of No Significant Impact*.* After review of the EA prepared in accordance with the requirements of NEPA, CEQ regulations, and 32 CFR Part 989*,* and which is hereby incorporated by reference, I have determined that the proposed activities would not have a significant impact on the quality of the human or natural environment. Accordingly, an Environmental Impact Statement will not be prepared. This decision was made after considering all submitted information, including a review of agency comments submitted during the 30-day public comment period, and considering a full range of practical alternatives that meet project requirements and are within the legal authority of the US Air Force.

_____ _____

TBD DATE

Draft
Environmental Assessment
Desert Survival, Evasion, Resistance, and Escape Training
Fairchild Air Force Base, Grant County, Washington

May 2024

Prepared For
United States Air Force
336th Training Group

Fairchild Air Force Base, Washington

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 CFR Parts 1500–1508), and 32 CFR Part 989, *Environmental Impact Analysis Process (EIAP)*.

The EIAP 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 the 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.

ACCESSIBILITY NOTICE

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.

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COVER SHEET
Draft Environment Assessment
Desert Survival, Evasion, Resistance, and Escape Training
Fairchild Air Force Base, Washington

a. *Responsible Agency:* United States Air Force (Air Force)

b. *Location:* Fairchild Air Force Base

c. *Designation: Draft EA*

d. *Point of Contact:* Mr. Joshua Potter, 92 Civil Engineering Squadron, Environmental Compliance, (509) 247-8139, joshua.potter.2@us.af.mil

Abstract:

Survival, Evasion, Resistance, and Escape (SERE) is a program that provides United States (US) military personnel with training in both evading capture and honing survival skills. The SERE Specialist Training Course, which is taught at the US Air Force (Air Force) SERE school located at Fairchild Air Force Base (AFB), is the sole three-level awarding technical school for SERE Specialists in the Air Force. The course is conducted twice annually and consists of approximately 11 phases of training.

The Air Force conducts SERE Specialist Training Course in Grant County, Washington, on approximately 243 acres of land covered with sagebrush and sand dunes. The training location is within 3,000 acres of land owned by the Washington Department of Fish and Wildlife (WDFW). Under the Proposed Action, the instructor base camp would be relocated to private land adjacent to the WDFW land. Permits from both land-owning parties would be required for continued desert SERE training.

The purpose of the Proposed Action is to continue to provide desert SERE training opportunities for the 336th Training Group at Fairchild AFB. The Proposed Action is needed to adequately train SERE Specialists in a biome-specific training area to meet the desert SERE training requirements in a true-to-life environment.

Fairchild AFB prepared this Environmental Assessment as part of its land use permit renewal process to evaluate the potential environmental impacts of its Proposed Action of continuing operation of its SERE Specialist Training Course in compliance with the *National Environmental Policy Act of 1969*.

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LIST OF ACRONYMS AND ABBREVIATIONS

ACAM	Air Conformity Applicability Model
AFB	Air Force Base
Air Force	United States Air Force
DAFI	Department Air Force Instruction
ATV	all-terrain vehicle
BASH	bird/wildlife aircraft strike hazard
BGEPA	Bald and Golden Eagle Protection Act of 1940
dBA	A-weighted decibel
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CWA	Clean Water Act of 1972
DoD	United States Department of Defense
DNL	Day-Night Sound Level
DZ	drop zone
EA	Environmental Assessment
EAS	Environmental Assessment Services, LLC
EIAP	Environmental Impact Analysis Process
EIS	Environmental Impact Statement
EO	Executive Order
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FONSI	Finding of No Significant Impact
FPPA	Farmland Protection Policy Act of 1981
GHG	greenhouse gas
HAZMAT	hazardous materials
HLZ	helicopter landing zone
I-90	Interstate 90
MBTA	Migratory Bird Treaty Act
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NOAA	National Oceanic and Atmospheric Administration
NRHP	National Register of Historic Places
OSHA	Occupational Safety and Health Act
PMx	particulate matter less than or equal to x microns in diameter
PSD	Prevention of Significant Deterioration
RCRA	Resource Conservation and Recovery Act
ROI	Region of Influence
SERE	Survival, Evasion, Resistance, and Escape
SHPO	State Historic Preservation Office
TCP	Traditional Cultural Property
tpy	ton per year
US	United States
USC	United States Code
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
WA	Washington
WDFW	Washington Department of Fish and Wildlife
WNHP	Washington Natural Heritage Program

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CHAPTER 1 PURPOSE AND NEED FOR ACTION

The United States (US) Air Force (Air Force), Fairchild Air Force Base (AFB), prepared this Environmental Assessment (EA) to evaluate the potential environmental impacts associated with proposed desert survival training in compliance with the *National Environmental Policy Act of 1969* (NEPA), as amended (42 *United States Code* [USC] §§ 4321–4347), the Council on Environmental Quality (CEQ) NEPA regulations (40 *Code of Federal Regulations* [CFR] Parts 1500–1508), and the Air Force NEPA regulations at 32 CFR Part 989, *Environmental Impact Analysis Process (EIAP)*. This EA also considers other pertinent environmental statutes, regulations, and compliance requirements and addresses these authorities in various sections when relevant to particular environmental resources and conditions.

1.1 INTRODUCTION

Survival, Evasion, Resistance, and Escape (SERE) is a program that provides US military personnel with training in both evading capture and honing survival skills. The SERE Specialist Training Course, which is taught at the Air Force SERE school located at Fairchild AFB, is the sole three-level awarding technical school for SERE Specialists in the Air Force. The course is conducted twice annually and consists of approximately 11 phases of training. This EA discusses the impacts of the desert training portion of the course, conducted in Grant County, Washington (WA) **(Figure 1-1)**. As part of the Proposed Action, the Air Force, which has conducted the SERE training in this area since the 1980s, is renewing permits held with the Washington Department of Fish and Wildlife (WDFW).

The SERE Specialist Training Course is located on approximately 243 acres of land covered with sagebrush and sand dunes. The training location is within 3,000 acres owned by the WDFW. A separate instructor base camp would be located on private land adjacent to the WDFW land. Permits from both land-owning parties would be required for this phase of training. As shown in **Figure 1-1**, the closest town, Vantage, is located in Kittitas County, WA, just under 5 miles to the south of the proposed training course. Wanapum, WA, is located approximately 5.5 miles to the north.

1.2 PURPOSE OF THE ACTION

The purpose of the Proposed Action is to provide desert SERE training opportunities for the 336th Training Group at Fairchild AFB, which is the Air Force's sole unit responsible for training SERE Specialists.

1.3 NEED FOR THE ACTION

To adequately train SERE Specialists, the Air Force needs a biome-specific training area to meet the desert SERE training requirements in a true-to-life environment.

1.4 SCOPE OF THE ENVIRONMENTAL ANALYSIS

This EA analyzes the potential environmental consequences associated with the Proposed Action and Alternatives. This EA has been prepared in accordance with NEPA, CEQ regulations, and Air Force implementing procedures. NEPA is the basic national requirement for identifying environmental consequences of federal decisions. NEPA ensures that environmental information, including the anticipated environmental consequences of a proposed action, is available to the public, federal and state agencies, and the decision-maker before decisions are made and before actions are taken.

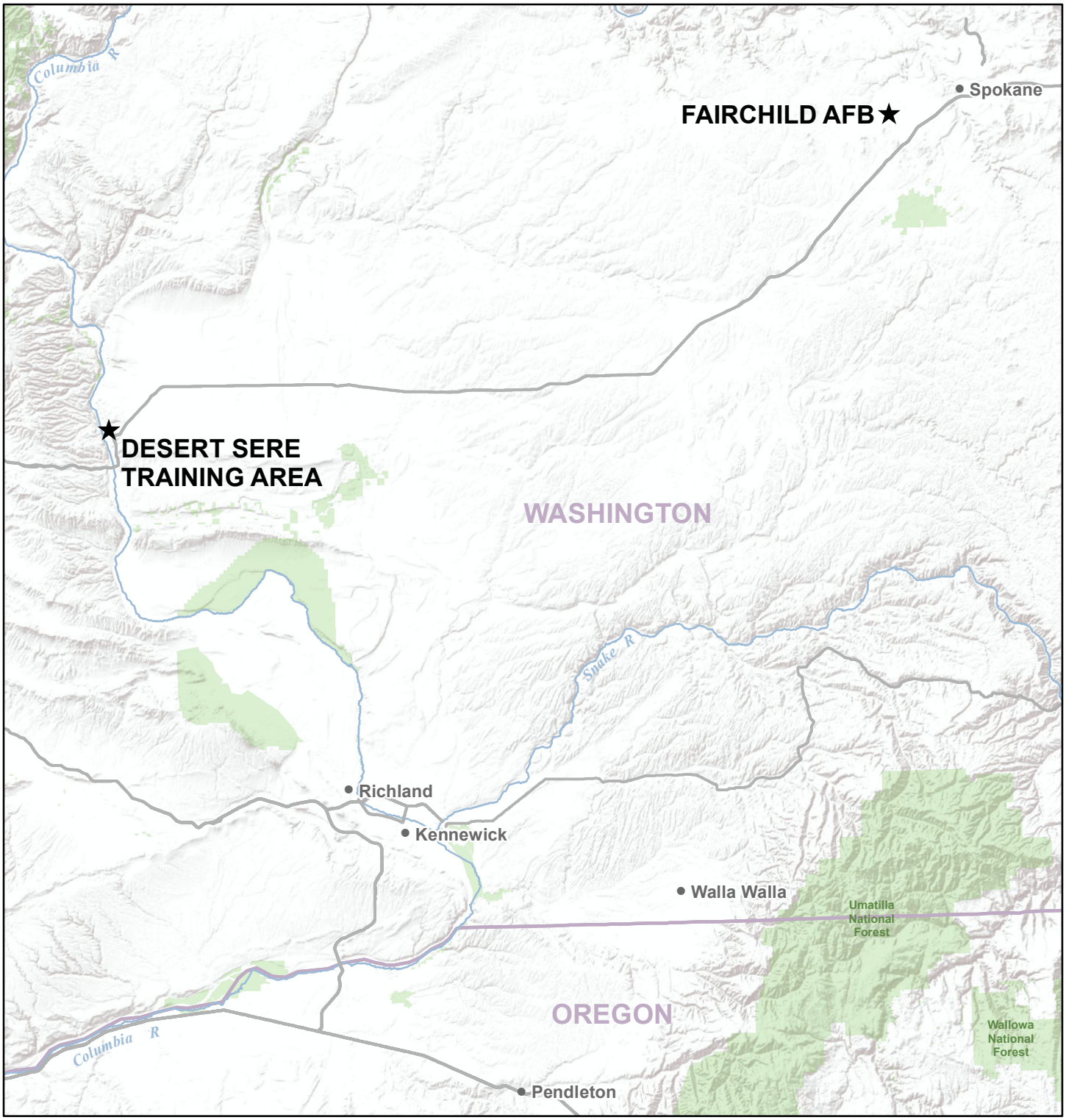


FIGURE 1-1
Fairchild AFB and Desert SERE Training Area
Regional Overview

- City
- River
- State Boundary

N

0 20 Mile

Imagery: ESRI, 2022.
Coordinate System: WGS 1984 UTM Zone 11N

Consistent with the CEQ regulations, the EA is organized into the following sections:

- Chapter 1, Purpose and Need for Action, includes an introduction, location, purpose and need statements, scope of environmental analysis, decision to be made, interagency and intergovernmental coordination and consultations, applicable laws and environmental regulations, and a description of public and agency review of the EA.
- Chapter 2, Description of the Proposed Action and Alternatives, includes a description of the Proposed Action, alternative selection standards, analysis of alternatives, alternatives eliminated from further consideration, a description of the selected alternatives, summary of potential environmental consequences, and mitigation and environmental commitments.
- Chapter 3, Affected Environment and Environmental Consequences, includes a description of the natural and man-made environments within and surrounding project site that may be affected under the Proposed Action and Alternatives. This chapter also includes a discussion of direct, indirect, and cumulative impacts.
- Chapter 4, List of Preparers, provides a list of the preparers of this PEA.
- Chapter 5, References, contains references for studies, data, and other resources used in the preparation of this PEA.
- Appendices, as required, provide relevant correspondence, studies, modeling results, and public review information.

NEPA, which is implemented through the CEQ regulations, requires federal agencies to consider alternatives to the Proposed Action and to analyze potential impacts of alternative actions. Potential impacts of the Proposed Action and Alternatives described in this EA will be assessed in accordance with the CEQ regulations, which require that federal agencies analyze the potentially affected environment and degree of the effects of the action. To help the public and decision-makers understand the implications of potential impacts, this EA describes potential impacts in the short, long term, and cumulatively.

1.5 DECISION TO BE MADE

This EA analyzes the potential environmental consequences of the Proposed Action and Alternatives. Based on the analysis in this EA, the Air Force will make one of three decisions regarding the Proposed Action and Alternatives:

1. Choose the Proposed Action and sign a Finding of No Significant Impact (FONSI), allowing implementation of the preferred alternative;
2. Initiate preparation of an Environmental Impact Statement (EIS) if it is determined that significant impacts would occur through implementation of the Proposed Action or Alternatives; or
3. Select the No Action Alternative, whereby the Proposed Action and Alternatives would not be implemented.

As required by NEPA and its implementing regulations, preparation of an environmental document must precede final decisions regarding the proposed project and be available to inform decision-makers of the potential environmental impacts.

1.6 INTERGOVERNMENTAL COORDINATION, PUBLIC AND AGENCY PARTICIPATION

The EIAP, in compliance with NEPA guidance, includes public and agency review of information pertinent to proposed actions and alternatives. The Air Force's compliance with the requirement for intergovernmental coordination and agency participation begins with the scoping[1] process (40 CFR § 1501.9). Accordingly, and per Executive Order (EO) 12372, *Intergovernmental Review of Federal*

[1] Scoping is a process for determining the extent of issues to be addressed and analyzed in a NEPA document.

Programs, the Air Force notified federal, state, and local agencies and tribal governments that could potentially be affected by the Proposed Action and Alternatives via written correspondence throughout development of this EA.

The Air Force invites the public and other interested stakeholders to review and comment on this EA. Accordingly, a notice of availability of the Draft EA and Draft FONSI was published in the following local newspapers to commence a 30-day public comment period:

- Spokesman-Review
- Columbia basin Herald

The public comment period of the Draft EA and FONSI concludes on 16 June 2024. During the public comment period, the Draft EA and Draft FONSI are available online for view or download at https://www.fairchild.af.mil/Information/Environmental-Resources/.

The Final EA will address all substantive comments received on the Draft EA and Draft FONSI; written comments will be included as an appendix to the Final EA. If appropriate, the Air Force will subsequently issue a Final (signed) FONSI to comply with NEPA.

1.6.1 Agency Consultation and Coordination

Implementation of the Proposed Action or Alternatives involves coordination with several organizations and agencies. Compliance with Section 7 of the *Endangered Species Act of 1973,* as amended (16 USC § 1531 et seq.) (ESA), and implementing regulations (50 CFR Part 402) requires communication with the US Fish and Wildlife Service (USFWS) and/or National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service in cases where a federal action could affect listed threatened or endangered species, species proposed for listing, or candidate species for listing. The primary focus of this consultation is to request a determination of whether any of these species occurs in the project area. If any protected species is present, a determination would be made of any potential adverse effects on the species. No additional consultation is required if the Proposed Action or Alternatives do not affect protected species. The Air Force is currently consulting with the appropriate USFWS office and relevant state agencies informing them of the proposal and requesting data regarding applicable protected species.

The Air Force is coordinating with the appropriate state government agencies and planning districts. Compliance with Section 106 of the *National Historic Preservation Act* (54 USC § 300101) (NHPA) and implementing regulations (36 CFR Part 800) will be accomplished through the Washington State Historic Preservation Office (SHPO).

1.6.2 Government to Government Consultation

The NHPA and its regulations at 36 CFR Part 800 direct federal agencies to consult with Indian tribes when a proposed action or alternatives may have an effect on tribal lands or on properties of religious and cultural significance to a tribe. Consistent with the NHPA, the *Native American Graves and Protection and Repatriation Act* (25 USC § 3001 et seq.) (NAGPRA), Department of Defense (DoD) Instruction 4710.02, *DoD Interactions with Federally Recognized Tribes*, and Department of the Air Force Instruction (DAFI) 90-2002, *Air Force Interaction with Federally Recognized Tribes*, federally recognized tribes that are historically affiliated with lands in the vicinity of the Proposed Action and Alternatives have been 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 consultation process is distinct from NEPA consultation or the interagency coordination process, and it requires separate notification to all relevant tribes. The timelines for tribal consultation are also distinct from those of other consultations. The point of contact for consultation with the Tribal Historic Preservation Officer and the Advisory Council on Historic Preservation is the Fairchild AFB Installation Tribal Liaison Officer. Copies of government-to-government consultation correspondence will be included in **Appendix A**.

1.7 APPLICABLE LAWS AND ENVIRONMENTAL REGULATIONS

Implementation of the Proposed Action or Alternatives would involve coordination with several organizations and agencies. The following is a brief summary of NEPA and the EIAP. **Chapter 3** provides a detailed analysis of the requirements of specific laws, regulations, best management practices, and necessary permits.

1.7.1 National Environmental Policy Act

NEPA requires that federal agencies consider potential environmental consequences of proposed actions. The law's intent is to protect, restore, or enhance the environment through well-informed federal decisions. The CEQ was established under NEPA for the purpose of implementing and overseeing federal policies as they relate to this process. In 1978, the CEQ issued Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act (40 CFR § 1500–1508 [CEQ 1978]). These regulations specify that an EA be prepared to

- briefly provide sufficient analysis and evidence for determining whether to prepare an EIS or a FONSI;
- aid in an agency's compliance with NEPA when no EIS is necessary; and
- facilitate preparation of an EIS when one is necessary.

Further, to comply with other relevant environmental requirements (e.g., the ESA and NHPA) in addition to NEPA and to assess potential environmental impacts, the EIAP and decision-making process for the proposed and alternative actions involves a thorough examination of environmental issues potentially affected by government actions subject to NEPA.

1.7.2 The Environmental Impact Analysis Process

The EIAP is the process by which the Air Force facilitates compliance with environmental regulations (32 CFR § 989, *Environmental Impact Analysis Process*), including NEPA, which is primary legislation affecting the agency's decision-making process.

In addition to those listed above, laws and regulations applicable to the Proposed Action include, but are not limited to:

- *Clean Water Act of 1972* (33 USC § 1251 et seq.) (CWA)
- *Resource Conservation and Recovery Act* (42 USC § 6901 et seq.) (RCRA)
- *Comprehensive Environmental Response, Compensation, and Liability Act* (42 USC § 9601 et seq.) CERCLA
- *Clean Air Act* (42 USC § 7401 et seq., as amended) (CAA)
- *Migratory Bird Treaty Act* (16 USC § 703–712) (MBTA)
- *Bald and Golden Eagle Protection Act* (16 USC §§ 668–668c) (BGEPA)
- *Toxic Substances Control Act* (15 USC § 2601 et seq.)
- EO 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (1994)
- EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks* (1997), as amended by EO 13296 (2003)
- EO 14096, *Revitalizing Our Nation's Commitment to Environmental Justice for All* (2023)

Public and Agency Review of Environmental Assessment

CHAPTER 2 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

2.1 PROPOSED ACTION

Under the Proposed Action, desert survival training, taught as part of SERE Specialist Training (Course S-V81-A), would continue to occur in Grant County, WA, on approximately 243 acres of land covered with sagebrush and sand dunes (**Figure 2-1**). The training location is within 3,000 acres owned by the WDFW (**Figure 2-2**). A proposed instructor base camp would be located on adjacent private land.

As shown in **Figure 2-1**, the proposed project area covers a total of 243 acres and includes the location for camp sites, a walking trail, and two potential locations for the instructor base camp. Activities would occur in various sagebrush and dunes situated along the ridgeline. Approximately 231 acres of the proposed project area would consist of the camp/activity locations (including sagebrush and dunes) and the proposed instructor base camps. Assuming a 20-foot buffer along the walking trail, the proposed area associated with those trails is 12 acres, resulting in a total proposed project area of 243 acres.

Within the camp/activities location, the desert SERE students would complete various tasks, such as using natural materials to construct shelters, starting fires for making ground-to-air signals (flares); procuring water and food in conjunction with taking fish and wildlife game; and conducting navigation training and evasion training. Shelters would be built using piled sand or dug grave shelters to get above or below ground surface, respectively, to allow SERE students to mitigate the desert temperatures. Solar stills and insect pit traps would be dug in the dune area for water and food. Any digging would not exceed 36 inches in depth. Digging would occur for “cat hole” (single-use) latrines. Outside of the camp/activity sites, students would follow the walking trail identified in **Figure 2-1**.

The area anticipated to be used for the instructor base camp is a gravel-covered lot and is not publicly accessible (**Figure 2-1**). No ground-disturbing activities would occur at the instructor camp; it is a site where instructors would camp and keep their gear behind a locked gate on private property. All camping at this location would occur on previously disturbed land. **Figure 2-1** also identifies an alternate instructor camp. This site would be used if the preferred instructor camp location is not available during a training exercise. The alternate instructor camp is a publicly available campground, accessible from the main access road, with nearby parking and minimal vegetation.

The training would require a maximum of 14 support vehicles and 10 utility vehicles. Vehicle use would be restricted to Old Vantage Highway (approximately 4.5 miles long) and a 0.7-mile-long gravel road leading to the instructor camp/forward operating location (**Figure 2-1**). If necessary, small all-terrain vehicles (ATVs) would drive established trails. ATVs would not travel on the sand dunes or the trail between private and WDFW land for any reason.

Helicopters would be used for 1 day during each training session and would originate from Fairchild AFB. The training would generate approximately two sorties[2] per training event. Helicopters would be on site for up to 3 hours for hoist, vectoring (including night vectors), radio contact, and sound vectoring over trainees’ positioning. Jumps from helicopters could occur, but only during daylight hours. The area around the project site is a low-fly area for the Naval Air Station at Whidbey Island, WA. The camp/activity area would serve as both a helicopter landing zone (HLZ) and a parachute drop zone (DZ).

For each training session, a maximum of 86 personnel would attend, including students, instructors, and support staff. The full training sessions would take place twice annually for 5 days. Visual site inspections of the HLZs, DZs, and camp areas would be completed prior to each training event, and the sites would be restored to their natural condition when the training event concludes.

[2] A sortie is defined as a single military aircraft flight from initial takeoff through final landing.

FIGURE 2-1
Location of Project Activities

Existing Roads
Highway
Walking Trails
Desert SERE Training Area

N
0
0.5 Mile

Imagery: ESRI, 2022.
Coordinate System: WGS 1984 UTM Zone 11N

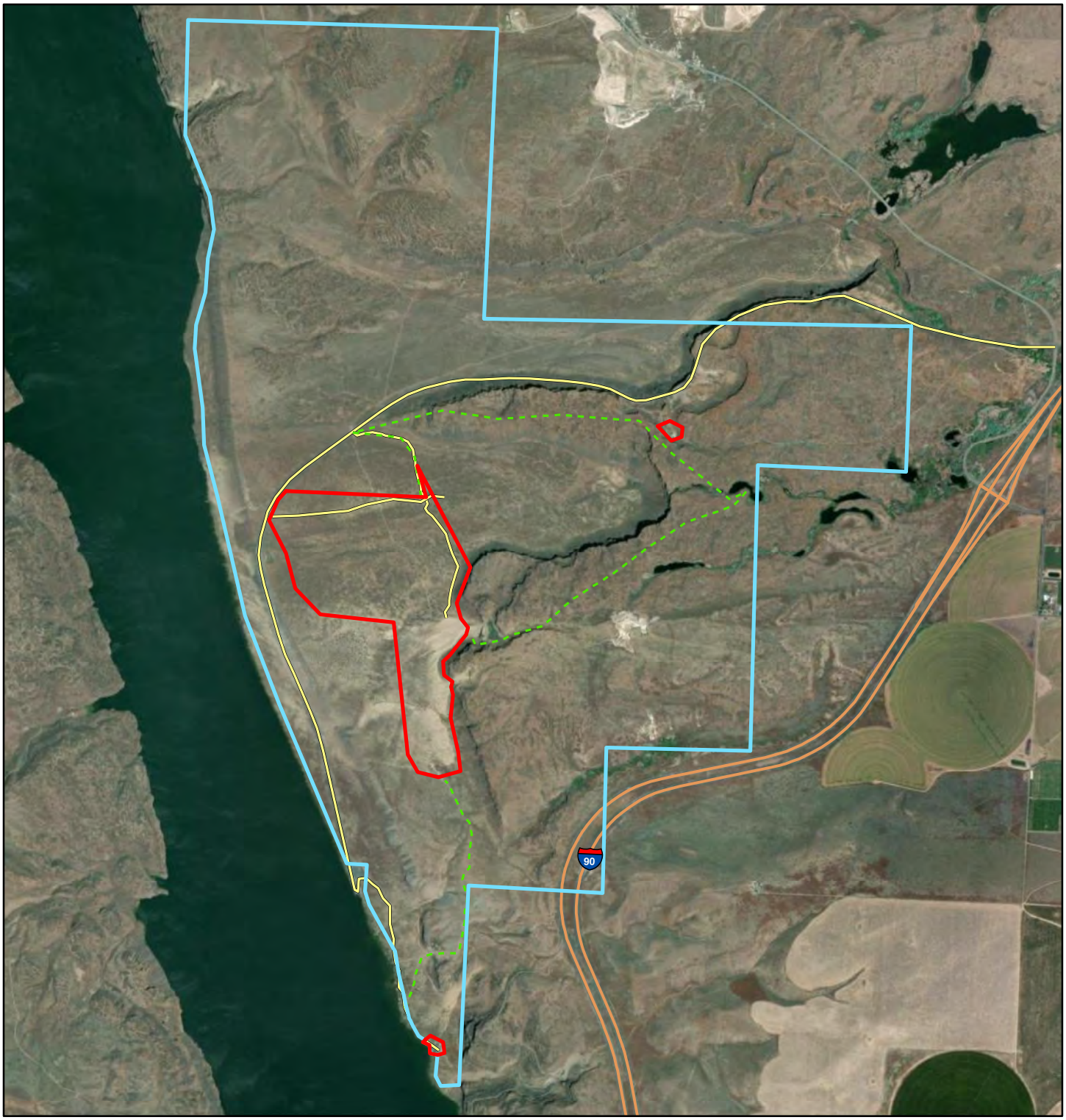


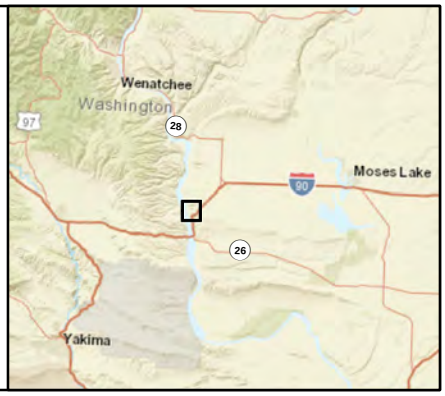
FIGURE 2-2
WDFW Boundary

Existing Roads
Highway
Walking Trails
Desert SERE Training Area
WDFW Boundary

N

0 0.5 Mile

Imagery: ESRI, 2022.
Coordinate System: WGS 1984 UTM Zone 11N



2.2 SELECTION STANDARDS

As discussed in **Section 1.2**, the purpose of the Proposed Action is to provide continued desert SERE training opportunities for the 336th Training Group at Fairchild AFB. In order to meet this purpose, the Proposed Action and Alternatives must meet the following selection standards:

1. The training area must be within a 4-hour drive of Fairchild AFB.
2. The location must be a desert environment with sagebrush and sand dunes.
3. The training area must be able to support a forward operating location for 6 to 10 support vehicles, multiple tents, and a maximum of 86 individuals.
4. The location must be able to support the use of naturally occurring materials for survival purposes, including fires, shelters, air-to-ground signaling, water, and food procurement.
5. The location must be able to support a minimum of one HLZ and land parachute DZ requirements for static line and military freefall demonstration jumps from a helicopter.
6. The location must give priority to this training and not be subject to cancellation or delay due to other military activities.

2.3 ANALYSIS OF ALTERNATIVES

The Air Force identified the following three alternatives for evaluation:

- Alternative 1: This alternative is the Proposed Action as described in **Section 2.1**. Desert survival training would occur in Grant County, WA, on approximately 243 acres of land with sagebrush and sand dunes.
- Alternative 2: Training would be conducted at Joint Base Lewis-McChord, Yakima Training Center, WA, a DoD base with a similar environment. Training activities would remain the same as described in Alternative 1.
- Alternative 3: Training would be conducted at Nellis AFB, located outside of Las Vegas, Nevada. Nellis AFB's location meets the necessary environmental characteristics and all training requirements. Training activities would remain the same as described in Alternative 1.

Application of the screening criteria to the alternatives is presented in **Table 2-1**.

2.4 ALTERNATIVE ACTIONS ELIMINATED FROM FURTHER CONSIDERATION

The following alternatives presented in Section 2.3 were eliminated from further consideration:

Alternative 2 does not meet selection standards 2, 3, 5, or 6. While the proximity of the Yakima Training Center to Fairchild AFB would be adequate, the Training Center does not have sand dunes and does not authorize fires or flares. The range area also could be reserved by other DoD entities, causing conflicts with desert SERE training.

Alternative 3 does not meet selection standards 1 and 6. Nellis AFB’s location meets the necessary environmental characteristics and all training requirements. However, the training area is not located within 4 hours of Fairchild AFB, requiring the shipment of equipment and personnel twice a year. The range area also could be reserved by other DoD entities, causing conflicts with desert SERE training.

Table 2-1
Comparison of Selection Standards

Alternative Descriptions	Selection Standards					
	Training area within a 4-hour drive of Fairchild AFB.	Located in a desert environment with sagebrush and sand dunes.	Ability to support a forward operating location of 6 to 10 support vehicles, tents, and a maximum of 86 individuals.	Ability to support the use of naturally occurring materials for survival purposes.	Ability to support a minimum of one helicopter land zone and land parachute drop zone requirements for static line and military freefall demonstration jumps from a helicopter.	Located where desert SERE training is a priority.
	(1)	(2)	(3)	(4)	(5)	(6)
Alternative 1	Yes	Yes	Yes	Yes	Yes	Yes
Alternative 2	Yes	No	No	Yes	No	No
Alternative 3	No	Yes	Yes	Yes	Yes	No

2.5 Alternative Actions Retained for Detailed Analysis

NEPA and the CEQ regulations mandate the consideration of reasonable alternatives to a proposed action. "Reasonable alternatives" are those that also could be utilized to meet the purpose of and need for the Proposed Action. The NEPA process is intended to support flexible, informed decision-making; the analysis provided by this EA and feedback from the public and other agencies will inform decisions made about whether, when, and how to execute the Proposed Action.

2.6 Preferred Alternative

The Proposed Action as described in **Section 2.1** represents the Air Force's Preferred Alternative. No other alternatives met the purpose of and need for the action or the selection standards.

2.7 No Action Alternative

Under the No Action Alternative, the Desert SERE School would experience mission stoppage for the SERE Specialist Training (Course S-V81-A). With no other permitted location that meets the requirements for this training, the syllabus for the course would be reworked to exclude desert survival training.

While the No Action Alternative would not satisfy the purpose of and need for the Proposed Action, this alternative is retained to provide a comparative baseline against which to analyze the effects of the Proposed Action, as required under the CEQ regulations (40 CFR § 1502.14(c)). The No Action Alternative

reflects the status quo and serves as a benchmark against which the effects of the Proposed Action can be evaluated.

2.8 SUMMARY OF POTENTIAL ENVIRONMENTAL CONSEQUENCES

Table 2-2 summarizes the potential impacts from the Proposed Action and the No Action Alternative. The summary is based on information discussed in detail in **Chapter 3** of this EA and includes a concise statement of the potential environmental impacts associated with the Proposed Action and Alternatives.

Table 2-2
Summary of Potential Environmental Consequences

Resource Area	Proposed Action	No Action Alternative
Land Use	No significant impacts to land use	No changes to existing land use
Geological Resources	No significant impacts to geological resources	No changes to geological resources
Water Resources	No significant impacts to water resources	No changes to water resources
Air Quality	No significant impacts to air quality	No changes to air quality
Noise	No significant impacts to noise	No changes to noise
Biological Resources	No significant impacts to biological resources	No changes to biological resources
Cultural Resources	No significant impacts to cultural resources	No changes to geological resources
Recreation and Visual Resources	No significant impacts to recreation and visual resources	No changes to recreation and visual resources
Hazardous Materials and Wastes	No significant impacts to hazardous materials and wastes	No changes to hazardous materials and wastes
Safety	No significant impacts to ground, explosive, or flight safety	No changes to safety
Environmental Justice and Protection of Children	No disproportionate impact to communities with environmental justice concerns or children	No changes to communities with environmental justice concerns or protection of children

CHAPTER 3 EXISTING CONDITIONS AND ENVIRONMENTAL CONSEQUENCES

3.1 FRAMEWORK FOR ANALYSIS

To provide a framework for the analyses in this EA, the Air Force defined a study area specific to each resource or sub-resource area. Referred to as a Region of Influence (ROI), these areas delineate a boundary where possible effects from the considered alternatives would have a reasonable likelihood to occur. Beyond these ROIs, potential adverse effects on resources would not be anticipated. For the purposes of analysis, potential effects are described as follows:

- **Beneficial –** positive effects that improve or enhance resource conditions
- **Adverse –** negative or harmful results
- **Negligible –** effects likely to occur but at levels not readily observable by evaluation
- **Minor –** observable, measurable, tangible effects qualified as below one or more significance threshold(s)
- **Moderate –** tangible effects that are readily apparent, qualified as below one or more significance threshold(s)
- **Significant –** obvious, observable, verifiable effects qualified as above one or more significance threshold(s); not mitigable to below significance

When relevant to the analyses in this EA, potential effects are further defined as direct or indirect; short or long term; and temporary, intermittent, or permanent.

To determine the potential for "significant" effects under the Proposed Action, the Air Force defined impact thresholds to support the analyses in this EA. Based upon the nature of the Proposed Action and the affected environment, both qualitative and quantitative thresholds were used as benchmarks to qualify effects. Further, each resource analysis section (i.e., **Sections 3.4–3.14**) concludes with a cumulative effects analysis considering the Proposed Action in conjunction with other past, present, and reasonably foreseeable environmental trends and planned actions at Fairchild AFB. **Table 3-1** summarizes past, present, and reasonably foreseeable planned actions at Fairchild AFB considered in the cumulative effects evaluation. The Air Force has been using the WDFW property for SERE training for over 30 years. Besides the Proposed Action, the Air Force has no planned future activities at the project location or surrounding region.

Table 3-1
Past, Present, and Reasonably Foreseeable Environmental Trends and Planned Actions

Project Name	Description	Timeframe	Relevance to Proposed Action	Interaction with Resources
SERE Training on the WDFW Property	Previous SERE training conducted by the Air Force on the WDFW property.	1990s	Use of the same location for SERE training	Land use, recreation, safety, noise, cultural resources, air quality
WDFW Property Recreation Usage	3,000-acre WDFW property is currently open to the public and used as a recreation area.	Ongoing	Use of the same location as the proposed SERE training	Land use, recreation

WDFW = Washington Department of Fish and Wildlife

3.2 Resources Carried Forward for Detailed Analysis

Based on the results of internal and external scoping (see **Section 1.5**), the following resources were carried forward for analysis: land use; air quality and climate change; geological, water, biological, cultural, recreation, and visual resources; noise; hazardous materials and waste, toxic substances, and contaminated sites; infrastructure, including transportation and utilities; safety and occupational health; socioeconomics; and environmental justice and protection of children.

3.3 Resources Eliminated from Detailed Analysis

Because the Proposed Action and Alternatives would not involve construction of permanent structures, there is no potential for impacts to infrastructure, transportation, or utilities at the training site. Further, implementation of the Proposed Action or Alternatives would not affect personnel, local expenditures, or otherwise change the socioeconomic aspects of the area. Thus, these resources were eliminated from detailed analysis.

3.4 Land Use

3.4.1 Definition of the Resource

Land use refers to real property classifications that indicate either natural conditions or the types of human activity occurring on a parcel. In many cases, land use descriptions are codified in local zoning laws; however, no nationally recognized convention or uniform terminology has been adopted for describing land use categories. As a result, the meanings of various land use descriptions, labels, and definitions vary among jurisdictions.

The foremost factor affecting a proposed action in terms of land use is its compliance with any applicable land use or zoning regulations. Other relevant factors include existing land use at the project site, the types of land use on adjacent properties and their proximity to a proposed action, the duration of a proposed activity, and its "permanence."

The ROI for land use is the desert SERE training area shown in **Figure 2-1**.

3.4.2 Existing Conditions

The SERE training site encompasses approximately 243 acres of land within a 3,000-acre part of the Quincy Lakes Unit of the Columbia Basin Wildlife Area (WDFW, 2006) (see **Figure 2-2** above). As shown in the Grant County Land Parcel Interactive Map, the land is designated as Rural Remote by Grant County and is managed by WDFW, with some portions of the land owned by WDFW.[3] The WDFW manages the Columbia Basin Wildlife Area, including the Quincy Lakes Unit, to preserve habitat and species diversity for both fish and wildlife resources, maintain healthy populations of game and non-game species, protect and restore native plant communities, and provide recreational opportunities for the public including wildlife viewing, hiking, camping, and hunting. The land is rural and undeveloped. The SERE training site is bounded by the Columbia River on the west side (**Figure 2-1**). Interstate 90 (I-90) and privately owned irrigated agricultural lands are to the east.

[3] https://grantcountywa.maps.arcgis.com/apps/webappviewer/index.html?id=f493cf3b971746609b4588893299dd55

3.4.3 Environmental Consequences

3.4.3.1 Evaluation Criteria

Potential impacts on land use are based on the level of land use sensitivity in areas potentially affected by a proposed action as well as compatibility of the action with existing conditions. In general, a land use impact would be considered adverse if it meets at least one of the following:

- inconsistent or noncompliant with existing land use plans or policies;
- precludes the viability of existing land use;
- precludes continued use or occupation of an area;
- incompatible with adjacent land use to the extent that public health or safety is threatened; or
- conflicts with planning criteria established to ensure the safety and protection of human life and property.

3.4.3.2 Proposed Action

The activities under the Proposed Action are similar to other outdoor recreational activities (i.e., camping, hiking) that currently occur in the area. The activities would occur in two separate, short-duration (5-day) training sessions per calendar year. These activities would not change or interfere with any land use on adjacent properties such as agriculture or recreational activity. Further, the activities would be consistent with current land use, would not alter any land use, or affect land use on surrounding properties. Therefore, no impacts to land use would be anticipated to occur with implementation of the Proposed Action.

3.4.3.3 Cumulative Impacts

The Proposed Action would not change land use, would be consistent with existing land use, and would not affect future adjacent land use. The Proposed Action would not interfere with public use of the WDFW property, as listed in **Table 3-1**. When considered in conjunction with other past, present, and reasonably foreseeable environmental trends and planned actions in the ROI, no significant cumulative effects to land use would be anticipated to occur with implementation of the Proposed Action.

3.4.3.4 No Action Alternative

Under the No Action Alternative, SERE training activities would not occur. Land use would not change from current conditions, and no impacts to land use would occur. The Air Force's Desert SERE School would have to rework the training course to exclude desert survival training. Troop readiness would be affected by the lack of training in a true-to-life environment.

3.5 GEOLOGICAL RESOURCES

3.5.1 Definition of the Resource

Geological resources consist of surface and subsurface materials and their properties.

Soils are the unconsolidated materials overlying bedrock or other parent material. Soils typically are described in terms of their complex type, slope, and physical characteristics. Differences among soil types in terms of their structure, elasticity, strength, shrink-swell potential, and erosion potential affect their abilities to support certain applications or uses. In appropriate cases, soil properties must be examined for their compatibility with construction activities or types of land use.

Topography is the change in elevation over the surface of a land area and is influenced by factors including human activity, underlying geologic material, seismic activity, climatic conditions, and erosion.

Prime farmland is protected under the *Farmland Protection Policy Act of 1981* (7 USC § 4201, et seq) (FPPA) and is defined as land that has the best combination of physical and chemical characteristics for producing food, feed, forage, giver, and oilseed crops, and is also available for these uses. The intent of the FPPA is to minimize the extent that federal programs contribute to the unnecessary conversion of farmland to non-agricultural uses. The FPPA also ensures that federal programs are administered in a manner that, to the extent practicable, will be compatible with private, state, and local government programs and policies to protect farmland. The implementing procedures of the FPPA require federal agencies to evaluate the adverse effects (direct and indirect) of their activities on prime and unique farmland and farmland of statewide and local importance, and to consider alternative actions that could avoid adverse effects.

The ROI for geological resources is the desert SERE training area shown in **Figure 2-1**.

3.5.2 Existing Conditions

3.5.2.1 Regional Geology

The desert SERE training area is in the Columbia Basin in central Washington state and is underlain by Miocene Columbia River Basalt Group rocks and interbedded terrestrial sediments. The area is characterized by steep river canyons, extensive plateaus, and, in places, tall and sinuous ridges. The region is overlain with loess blown in by the wind and deposits from cataclysmic glacial floods, and underlain by thousands of feet of Columbia River Basalt Group lava flows. These flows and most of the sediment above are deformed by the regional Yakima fold and thrust belt (WDNR, 2021).

3.5.2.2 Local Topography

The local topography in and surrounding the desert SERE training area has been shaped by volcanic flood basalt flows and large glacial ice age floods. This has formed a complex topography of coulees, buttes, mesas, dry waterfalls, hanging valleys, and giant ripples along the east side of the Columbia River (**Figure 3-1**). The SERE training area consists of benches, hillslopes, sand dunes, basalt cliffs, and ridgetops. Closer to the Columbia River, the elevation of the student activity area is 650 feet; along the ridgetop, the elevation is approximately 1,100 feet.

3.5.2.3 Soils

The desert SERE training area is predominantly covered by two soil types: 1) Burbank very cobbly loamy sand on 0- to 15-percent slopes, covering approximately 60 percent of the site; and 2) Quincy sand on 5- to 25-percent slopes, covering approximately 25 percent of the site. Burbank very cobbly loamy sand soils are very deep, excessively drained, and typically form on outwash terraces. The Quincy sand soil is a very deep, excessively drained soil on active dunes and is often barren of vegetation (United States Department of Agriculture [USDA], 1984). As displayed in the Natural Resources Conservation Services web soil survey, Ephrata-Malaga complex on 0- to 5-percent slopes occurs north of the area, including the access road. Rubble land-rock outcrop complex forms the cliffs to the east of the training site, with Schawana complex on 0- to 15-percent slopes and Starbuck-Bakeoven-Rock outcrop complex on 0- to 45-percent slopes above the cliffs.[4] None of the soils in Grant County listed as “prime farmland if irrigated” exists on the SERE training site (USDA, 1984).

[4] https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx

Figure 3-1 Photograph from the Project Area (facing east)

3.5.3 Environmental Consequences

3.5.3.1 Evaluation Criteria

Protection of soils is considered when evaluating potential impacts of a proposed action. Effects on soils would be considered adverse if a proposed action alters the soil composition, structure, or function of the soil. The degree of adverse effects depends on the quantity of material deposited locally, stability of the residual components, the soil chemical conditions, and the sensitivity of the environment to chemicals of concern.

3.5.3.2 Proposed Action

As part of the desert SERE training activities, students would learn and complete such tasks as digging grave shelters, solar stills for water purification, insect pitfall traps, and single-use cat hole latrines. These activities would occur in the main SERE camping/activity area including the dunes. These disturbances would be relatively small and, in some cases, conducted on active dune areas that are void of vegetation. Digging would not exceed 36 inches in depth, and all diggings would be backfilled. Vehicles and ATVs would be restricted to existing roads or trails as specified in the Special Conditions in the WDFW permit for the Proposed Action that restrict vehicle use to the Old Vantage Highway and a gravel road leading to the instructors' camp. ATVs are prohibited on the sand dunes and unauthorized trails connecting WDFW lands with adjacent private property. No training activity associated with the Proposed Action would have the potential to damage any geological feature of the area. Because the individual training activities that would disturb soil would be relatively small (less than 36 square feet) and would be backfilled when completed,

the potential for soil erosion would be negligible. Restricting vehicles and ATVs to existing roads and trails would prevent creation of additional disturbed areas subject to erosion. None of the soils in the desert SERE training area is classified as prime farmland. Also, the alternative instructor camp site is an existing campsite that is available for public use and has been previously disturbed. Therefore, potential impacts to geology or soils would be negligible under implementation of the Proposed Action.

3.5.3.3 Cumulative Impacts

The Proposed Action would not impact geological resources. When considered in conjunction with other past, present, and reasonably foreseeable environmental trends and planned actions in the ROI, no significant cumulative effects to geological resources would be anticipated to occur with implementation of the Proposed Action.

3.5.3.4 No Action Alternative

Under the No Action Alternative, SERE training activities would not occur. The Air Force's Desert SERE School would have to rework the training course to exclude desert survival training. Troop readiness would be affected by the lack of training in a true-to-life environment. Geological resources in the desert SERE training area would not change from current conditions, and no impacts to geological resources would occur.

3.6 WATER RESOURCES

3.6.1 Definition of the Resource

Water resources are vulnerable to contamination and quality degradation. For this reason, the CWA was enacted to protect these valuable, irreplaceable resources. The CWA set the national policy objective to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters." The CWA provides the authority to establish water quality standards, control discharges into surface and subsurface waters (including groundwater), develop waste treatment management plans and practices, and issue permits for discharges. A National Pollutant Discharge Elimination System permit under Section 402 of the CWA is required for discharges into navigable waters. The United States Environmental Protection Agency (USEPA) oversees the issuance of these permits at federal facilities as well as water quality regulations (CWA Section 401) for both surface- and groundwater.

The ROI for water resources is the desert SERE training area show in **Figure 2-1**.

3.6.1.1 Surface Water

The USEPA defines surface waters as waters of the US, primarily lakes, rivers, estuaries, coastal waters, and wetlands. Jurisdictional waters, including surface water resources, as defined in 33 CFR § 328.3, are regulated under Sections 401 and 404 of the CWA and Section 10 of the *Rivers and Harbors Act*. Man-made features not directly associated with a natural drainage, such as upland stock ponds and irrigation canals, are generally not considered jurisdictional waters.

3.6.1.2 Floodplains

Floodplains are areas of low-level ground along rivers, stream channels, or coastal waters that provide a broad area to inundate and temporarily store floodwaters. In their natural vegetated state, floodplains slow the rate at which the incoming overland flow reaches the main waterbody. Floodplains are subject to periodic or infrequent inundation due to rain or melting snow. Risk of flooding typically hinges on local topography, the frequency of precipitation events, and the size of the watershed above the floodplain.

The Federal Emergency Management Agency (FEMA) evaluates and maps flood potential, which defines the 100-year (regulatory) floodplain. The 100-year floodplain is the area that has a 1-percent chance of

inundation by a flood event in a given year. Federal, state, and local regulations often limit floodplain development to passive uses, such as recreational and preservation activities, to reduce the risks to human health and safety.

EO 11988, *Floodplain Management*, provides guidelines that agencies should carry out as part of their decision-making process on projects that have potential impacts to or within the floodplain. This EO requires that federal agencies avoid, to the extent possible, the long- and short-term adverse impacts associated with the occupancy and modification of floodplains and avoid direct and indirect support of floodplain development wherever there is a practicable alternative.

3.6.1.3 Wetlands

The CWA regulates discharges of pollutants in surface waters of the US. Section 404 of the CWA established a program to regulate the discharge of dredged and fill material into waters of the US, including wetlands. The US Army Corps of Engineers defines wetlands as "those areas that are inundated or saturated with ground or surface water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted to life in saturated soil conditions" (Environmental Laboratory, 1987). Wetlands generally include swamps, marshes, bogs, and similar areas (33 CFR Part 328).

Federal protection of wetlands is also covered under EO 11990, *Protection of Wetlands*, the purpose of which is to reduce adverse impacts from the destruction or modification of wetlands. This EO directs federal agencies to provide leadership in minimizing the destruction, loss, or degradation of wetlands.

3.6.2 Existing Conditions

3.6.2.1 Surface Water

The desert SERE training area is located within the Columbia River Basin and adjacent to the Columbia River, which forms its western boundary. No surface waters are present within the main training camp/activity area, or either instructor training camp location (i.e., preferred and alternate). Surface water resources, such as ponds and connecting stream/wetland channels, occur along or near the walking trail on the ridgetop above the main camp area. The source of water for these ponds and associated wetlands is likely irrigation seepage from upgradient farm fields, which are part of the Quincy-Columbia Basin irrigation district (WDFW, 2021).

3.6.2.2 Floodplains

FEMA floodplain maps indicate that the desert SERE training area is located in Zone X (areas of minimal flood hazards). The SERE training camp/activity site is approximately 300 feet above and approximately 1,000 feet east of the Columbia River shoreline, which is classified as Zone A (within the 100-year floodplain with a 1-percent chance of inundation by a flood event in any given year).[5]

3.6.2.3 Wetlands

No wetlands are present in the main SERE camping and activity area (**Figure 2-1**). As discussed in **Section 3.6.2.1**, several ponds and connecting streams/wetland areas occur on the ridgetop or uplands above the main desert SERE camping area along a walking trail that would be used for some training activities. As can be seen in the USFWS online wetlands inventory, wetlands occur on the perimeter of these ponds and in the channels that connect a series of small ponds.[6] Approximately 5 acres of wetlands are located near

[5] https://hazards-fema.maps.arcgis.com/apps/webappviewer/index.html?id=8b0adb51996444d4879338b5529aa9cd
[6] https://www.fws.gov/wetlands/data/mapper.html

the walking trail and include wetlands classified as “palustrine unconsolidated bottom semi-permanently flooded” and “palustrine unconsolidated shore seasonally flooded.”

3.6.2.4 Groundwater

The Proposed Action and Alternatives would not include activities that would impact groundwater. Therefore, groundwater is not evaluated in this EA.

3.6.2.5 Stormwater

The Proposed Action and Alternatives would not include activities that would impact stormwater. Therefore, stormwater is not evaluated in this EA.

3.6.3 Environmental Consequences

3.6.3.1 Evaluation Criteria

Potential impacts to water resources considers use or consumption of water, physical alteration of surface water features, and discharges into the water (i.e., water quality).

3.6.3.2 Proposed Action

Surface Water

No surface waters or wetlands occur in the main desert SERE camp/activity area. Other training activities would occur along the walking trail above camp on the rimrock area that passes near several ponds and associated wetlands. No activity would physically alter any surface water feature. A minimal amount of water could be collected to use in solar stills for the purification of water. Single-use latrines would not be constructed in the vicinity of any wetland area or surface water and be sufficiently deep to prevent water erosion. No impacts to surface waters resources would occur with implementation of the Proposed Action.

Floodplains

No desert SERE training activity would occur within a FEMA-designated floodplain. Therefore, SERE training activities would comply with EO 11988, *Floodplain Management*, and would not disrupt, degrade, or change the characteristics of any floodplain in the project area. No impacts to floodplains would be anticipated to occur with implementation of the Proposed Action.

Wetlands

No wetlands occur in the main desert SERE camp/activity area. Other training activities would occur along the walking trail above the camp on the rimrock area that passes near several ponds and associated wetlands. SERE training activities would comply with EO 11990, *Protection of Wetlands*, and would not disrupt, degrade, or change the characteristics of wetlands present in the project area. No impacts to wetlands would be anticipated to occur with implementation of the Proposed Action.

3.6.3.3 Cumulative Impacts

The Proposed Action would have no impact on water resources. When considered in conjunction with other past, present, and reasonably foreseeable environmental trends and planned actions in the ROI, no significant cumulative effects to water resources would be anticipated to occur with implementation of the Proposed Action.

3.6.3.4 No Action Alternative

Under the No Action Alternative, SERE training activities would not occur. The Air Force’s Desert SERE School would have to rework the training course to exclude desert survival training. Troop readiness would

be affected by the lack of training in a true-to-life environment. Water resources in the desert SERE training area would not change from current conditions, and no impacts to water resources would occur.

3.7 AIR QUALITY

3.7.1 Definition of the Resource

Air pollution is a threat to human health and damages trees, crops, other plants, waterbodies, and animals. It creates haze or smog that reduces visibility in national parks and cities and interferes with aviation. To improve air quality and reduce air pollution, Congress passed the CAA and its amendments in 1970 and 1990, which set regulatory limits on air pollutants and help to ensure basic health and environmental protection from air pollution.

The USEPA has divided the country into geographical regions known as Air Quality Control Regions to evaluate compliance with the National Ambient Air Quality Standards (NAAQS). The desert SERE training area is in Grant County within the New Mexico Southern Border Intrastate Air Quality Control Region (40 CFR § 81.99), which serves as the ROI.

3.7.1.1 Criteria Pollutants

In accordance with CAA requirements, air quality in each region is measured by the concentration of various pollutants in the atmosphere. Measurements of these "criteria pollutants" in ambient air are expressed in units of parts per million (ppm) or in units of micrograms per cubic meter ($\mu g/m^3$).

The CAA directs the USEPA to develop, implement, and enforce environmental regulations that would ensure clean and healthy ambient air quality. To protect public health and welfare, the USEPA developed numerical concentration-based standards (i.e., NAAQS) for pollutants that have been determined to impact human health and the environment and established both primary and secondary NAAQS under the provisions of the CAA (**Table 3-2**). The primary NAAQS represent maximum levels of background air pollution that are considered safe, with an adequate margin of safety to protect public health. Secondary NAAQS represent the maximum pollutant concentration necessary to protect vegetation, crops, and other public resources in addition to maintaining visibility standards.

Ozone is not emitted directly into the air but is formed in the atmosphere by photochemical reactions involving sunlight and previously emitted pollutants, or "ozone precursors." These ozone precursors consist primarily of nitrogen oxides and volatile organic compounds that are directly emitted from a wide range of emission sources. For this reason, regulatory agencies limit atmospheric ozone concentrations by controlling volatile organic compound pollutants (also identified as reactive organic gases) and nitrogen oxides.

3.7.1.2 Greenhouse Gas Emissions

Greenhouse gases (GHGs) are gases that trap heat in the atmosphere. These emissions are generated by both natural processes and human activities. The accumulation of GHGs in the atmosphere helps regulate the earth's temperature and contribute to global climate change. Primary GHGs include water vapor, methane, nitrogen oxides, hydrofluorocarbons, and chlorofluorocarbons. Each GHG has an estimated global warming potential, which is a function of its atmospheric lifetime and its ability to absorb and radiate infrared energy emitted from the earth's surface. The global warming potential of a particular gas provides a relative basis for calculating its carbon dioxide equivalent (CO_2e) or the amount of CO_2e to the emissions of that gas. Carbon dioxide has a global warming potential of 1 and is, therefore, the standard by which all other GHGs are measured. The GHGs are multiplied by their global warming potential, and the resulting values are added together to estimate the total CO_2e.

Table 3-2
National Ambient Air Quality Standards

Pollutant	Primary/ Secondary[a,b]	Averaging Time	Level[c]	Form
Carbon monoxide	primary	8 hours	9 ppm	Not to be exceeded more than once per year
		1 hour	35 ppm	
Lead	Primary and secondary	Rolling 3-month average	0.15 µg/m^3	Not to be exceeded
Nitrogen dioxide	primary	1 hour	100 ppb	98th percentile of 1-hour daily maximum concentrations, averaged over 3 years
	primary and secondary	1 year	53 ppb	Annual Mean
Ozone	primary and secondary	8 hours	0.070 ppm	Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years
Particle pollution ($PM_{2.5}$)	primary	1 year	12 µg/m^3	annual mean, averaged over 3 years
	secondary	1 year	15 µg/m^3	annual mean, averaged over 3 years
	primary and secondary	24 hours	35 µg/m^3	98th percentile, averaged over 3 years
Particle pollution (PM_{10})	primary and secondary	24 hours	150 µg/m^3	Not to be exceeded more than once per year on average over 3 years
Sulfur dioxide	primary	1 hour	75 ppb	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
	secondary	3 hours	0.5 ppm	Not to be exceeded more than once per year

Source: USEPA NAAQS table
µg/m^3 = micrograms per cubic meter; NAAQS = National Ambient Air Quality Standards; $PM_{2.5}$ = particulate matter less than or equal to 2.5 microns in diameter; PM_{10} = particulate matter less than or equal to 10 microns in diameter; ppb = parts per billion; ppm = parts per million; USEPA = US Environmental Protection Agency
Notes:
a. Primary Standards: the levels of air quality necessary, with an adequate margin of safety to protect the public health. Each state must attain the primary standards no later than three years after that state's implementation plan is approved by the USEPA.
b. Secondary Standards: the levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
c. Concentrations are expressed first in units in which they were promulgated.
   (1) In areas designated nonattainment for the lead standards prior to the promulgation of the current (2008) standards, and for which implementation plans to attain or maintain the current (2008) standards have not been submitted and approved, the previous standards (1.5 µg/m^3 as a calendar quarter average) also remain in effect.
   (2) The level of the annual nitrogen dioxide standard is 0.053 ppm. It is shown here in terms of ppb for the purposes of clearer comparison to the 1-hour standard level.
   (3) Final rule signed October 1, 2015, and effective December 28, 2015. The previous (2008) ozone standards are not revoked and remain in effect for designated areas. Additionally, some areas may have certain continuing implementation obligations under the prior revoked 1-hour (1979) and 8-hour (1997) ozone standards.
   (4) The previous sulfur dioxide standards (0.14 ppm 24-hour and 0.03 ppm annual) will additionally remain in effect in certain areas: (1) any area for which it is not yet 1 year since the effective date of designation under the current (2010) standards, and (2) any area for which an implementation plan providing for attainment of the current (2010) standard has not been submitted and approved and which is designated nonattainment under the previous sulfur dioxide standards or is not meeting the requirements of a state implementation plan call under the previous sulfur dioxide standards (40 CFR § 50.4(3)). A state implementation plan call is a USEPA action requiring a state to resubmit all or part of its state implementation plan to demonstrate attainment of the required NAAQS.

The USEPA regulates GHG primarily through a permitting program known as the GHG Tailoring Rule. This rule applies to GHG emissions from larger stationary sources. Additionally, the USEPA promulgated a rule for large GHG emission stationary sources, fuel and industrial gas suppliers, and carbon dioxide injection sites if they emit 25,000 metric tons or more of CO_2e per year (40 CFR § 98.2(a)(2)).

3.7.2 Existing Conditions

3.7.2.1 Meteorology

The climate of the region is characterized by hot summers and cool winters (NOAA, 2021a). Average daily high temperatures in June, July, and August are 83.8 degrees Fahrenheit (°F), 92.9°F, and 91.7°F, with average low temperatures of 54.5°F, 59.2°F, and 57.5°F, respectively. Winter temperatures (December, January, and February) average 39.6°F, 40.4°F, and 48.0°F for highs and 25.7°F, 25.5°F, and 27.6°F for lows, respectively. Temperature data are from the weather station in Smyrna, WA, approximately 19 miles southeast of the desert SERE training area. Annual precipitation is approximately 7 inches with most of the precipitation occurring during the winter and spring months (NOAA, 2021b). Summer is the driest period, with an average of about 0.8 inch of rainfall between June and August. Precipitation data are from the weather station in Quincy, WA, approximately 16 miles north-northeast of the desert SERE training area.

3.7.2.2 Air Quality

Grant County is in attainment for all NAAQS criteria air pollutants (USEPA, 2021). Vehicle emissions are the primary source of air pollutants in the desert SERE training area. These emissions are limited to vehicles accessing the area for recreational purposes.

3.7.3 Environmental Consequences

3.7.3.1 Evaluation Criteria

The Prevention of Significant Deterioration (PSD) value is used as a threshold for all criteria pollutants other than lead. Due to the toxicity of lead, the use of the PSD threshold as an indicator of potential air quality impact insignificance is not protective of human health or the environment. Therefore, the *de minimis* value is used instead. When the ROI is in attainment for all NAAQS, the project air quality analysis uses the USEPA's PSD permitting threshold of 250 tons per year (tpy) as an initial indicator of the local significance of potential impacts to air quality. These indicators only provide a clue to the potential impacts to air quality. The PSD permitting threshold represents the level of potential new emissions below which a new or existing minor, non-listed stationary source may acceptably emit without triggering the requirement to obtain a permit. Thus, if the intensity of any net emissions increase for the Proposed Action or Alternative is below 250 tpy in the context of an attainment criteria pollutant (or 25 tpy for lead), the air quality impacts would not be significant for that pollutant.

The environmental impact methodology for air quality impacts presented in this EA is derived from Air Force Manual 32-7002, *Environmental Compliance and Pollution Prevention* (February 2020). Data regarding the Proposed Action are input into the Air Force's Air Conformity Applicability Model (ACAM), which models emissions based on the inputs and estimates air emissions for each specific criteria and precursor pollutant, as defined in the NAAQS. Assumptions of the model, methods, and detailed and summary results are provided in **Appendix B** of this EA.

3.7.3.2 Proposed Action

Sources of air emissions would include a maximum of 14 support and 10 utility SERE training vehicles. Small ATVs would also be driven on established trails. Campfires as part of the training program would also emit air emissions. UH-1 helicopters would be used during each training session to practice evacuation and rescue operations. **Table 3-3** provides annual emissions of helicopter and vehicle usage under the Proposed Action.

Table 3-3
Annual Air Emissions

Pollutant	Action Emissions (ton/year)	General Conformity Threshold (ton/yr)
Volatile organic compounds	0.042	250
Nitrous oxides	0.058	250
Carbon monoxide	0.245	250
Sulfur oxides	0.009	250
PM_{10}	0.004	250
$PM_{2.5}$	0.003	250
Lead	0.000	25
Ammonia	0.001	250
Carbon dioxide equivalent	35.4	N/A

$PM_{2.5}$ = particulate matter less than or equal to 2.5 microns in diameter; PM_{10} = particulate matter less than or equal to 10 microns in diameter

As indicated in **Table 3-3**, estimated total annual emissions would not exceed the PSD permitting threshold of 250 tpy for any criteria pollutant or precursor. Therefore, impacts from the Proposed Action on regional air quality would be negligible, and no adverse impacts would be expected to occur. Based on the ACAM modeling, the net change in emissions associated with this project would be negligible.

Emissions for CO_2e do not have a regulatory threshold; however, estimated emissions for CO_2e are presented to demonstrate that CO_2e emissions also would be low when compared to GHG emissions of 25,000 metric tons or more associated with large GHG sources.[7]

Impacts to air quality would not be anticipated to occur with implementation of the Proposed Action.

3.7.3.3 Cumulative Impacts

The Proposed Action would result in a negligible increase in emissions. No major sources of emissions were identified for the projects listed in **Table 3-1**. When considered in conjunction with other past, present, and reasonably foreseeable environmental trends and planned actions in the ROI, no significant cumulative effects to air quality would be anticipated to occur with implementation of the Proposed Action.

3.7.3.4 No Action Alternative

Under the No Action Alternative, SERE training activities would not occur. The Air Force's Desert SERE School would have to rework the training course to exclude desert survival training. Troop readiness would be affected by the lack of training in a true-to-life environment. Air quality in the desert SERE training area would not change from current conditions, and no impacts to air quality would occur.

3.8 NOISE

3.8.1 Definition of the Resource

Noise is unwanted sound that disrupts normal activities or diminishes the quality of the environment. The most common measurement of sound and environmental noise is the A-weighted decibel scale (dBA). This is a logarithmic scale that ranges from 0 dBA to about 140 dBA and approximates the range of human hearing. The threshold of human hearing is about 0 dBA; less than 30 dBA is very quiet; 30–60 dBA is quiet; 60–90 dBA is moderately loud; 90–110 dBA is very loud; and 110–130 dBA is uncomfortably loud. Because few sounds are constant, sound level equivalents (L_{eq}) are used to measure time-varying sound levels over various periods of time. The A-weighted Day-Night Sound Level (DNL) is a 24-hour sound level

[7] https://www.epa.gov/nsr/clean-air-act-permitting-greenhouse-gases

equivalent to a 10-decibel penalty added to nighttime levels (i.e., 10 pm–7 am). Most people are exposed to sound levels of DNL 50 to 55 dBA or higher daily.

The ROI for noise is the desert SERE training area shown in **Figure 2-1**.

3.8.2 Existing Conditions

Sound levels in the desert SERE training area are typical of a rural, outdoor setting. Wilderness areas can have sound levels as low as 30–40 dBA (Engineering Toolbox, 2021). However, vehicle access to the area for outdoor recreation, occasional use of ATVs, and motorboats on the Columbia River likely would increase the overall sound level. Vehicle traffic on I-90 is approximately 0.5 mile away at the nearest point, but the SERE training site is largely shielded from I-90 by the topography. Outdoor recreation users (e.g., campers, hikers, rock climbers, hunters) are the only noise-sensitive receptors in the vicinity of the SERE training area.

3.8.3 Environmental Consequences

3.8.3.1 Evaluation Criteria

The evaluation of noise effects considers whether: 1) sound levels generated by training and operations are higher than the ambient sound levels; 2) whether the sound is an annoyance and/or causes hearing loss; and 3) the proximity of noise-sensitive receptors to the sound source. Impacts would be considered significant if the activities resulted in increased exposure to unacceptable noise levels or increased the ambient sound level for an extended time.

3.8.3.2 Proposed Action

General Training Activities

Noise generated from general training activities would be short term and negligible. Vehicles and ATVs would be used to transport personnel, which would generate typical vehicle and ATV noise; however, vehicle and ATV use would be infrequent and would not be expected to exceed the sound of the existing environment, which includes public access to the area by vehicle. Therefore, no impacts from noise would be anticipated to occur with implementation of the Proposed Action.

Helicopter Operations

UH-1 helicopters would be used for one day during each training session and would originate from Fairchild AFB. The training would generate approximately two sorties per training event, where a sortie is defined as a single military aircraft flight from initial takeoff through final landing. Helicopters would be on site for up to 3 hours for hoist, vectoring including night vectors, radio contact, and sound vectoring over trainees positioning. Helicopter operations would result in short-term, negligible-to-minor, adverse impacts on the noise environment, and helicopters taking off and landing at the HLZ would generate the highest noise levels. Noise generated from the helicopter taking off and landing would be slightly more than the noise generated from a garbage truck; these events would be infrequent and considered a minor annoyance to people, including recreation users (USEPA, 1974; US Army Reserve Command, 2010). Therefore, impacts from helicopter operations would be negligible with implementation of the Proposed Action.

3.8.4 Cumulative Impacts

Activities within the ROI would cause a temporary, minor sound increase for helicopter operations during the twice-yearly training exercise; however, this increase would be expected to be negligible compared to current conditions. When considered in conjunction with other past, present, and reasonably foreseeable environmental trends and planned actions in the ROI, negligible cumulative effects to noise would be anticipated to occur with implementation of the Proposed Action.

3.8.5 No Action Alternative

Under the No Action Alternative, SERE training activities would not occur. The Air Force's Desert SERE School would have to rework the training course to exclude desert survival training. Troop readiness would be affected by the lack of training in a true-to-life environment. The sound environment would not change from current conditions, and no noise impacts would occur.

3.9 BIOLOGICAL RESOURCES

3.9.1 Definition of the Resource

Biological resources include native or invasive plants and animals; sensitive and protected floral and faunal species; and the habitats, such as wetlands, forests, and grasslands, in which they exist. Habitat can be defined as the resources and conditions in an area that support a defined suite of organisms. The ROI for biological resources is the desert SERE training area shown in **Figure 2-1**.

The following federal statutes form the regulatory framework for the evaluation of biological resources.

3.9.1.1 Endangered Species Act

The ESA established protection over and conservation of threatened and endangered species and the ecosystems upon which they depend. Sensitive and protected biological resources include plant and animal species listed as threatened, endangered, or special status by USFWS. Under the ESA, an "endangered species" is defined as any species in danger of extinction throughout all, or a large portion, of its range. A "threatened species" is defined as any species likely to become an endangered species in the foreseeable future. USFWS maintains a list of species considered to be candidates for possible listing under the ESA. The ESA also allows the designation of geographic areas as critical habitat for threatened or endangered species. Although candidate species receive no statutory protection under the ESA, USFWS has attempted to advise government agencies, industry, and the public that these species are at risk and may warrant protection under the ESA.

3.9.1.2 Migratory Bird Treaty Act

The MBTA makes it unlawful for anyone to take individual birds, their nest, and eggs, or parts (e.g., feathers) unless permitted to do so by regulations. Per the MBTA, "take" is defined as "pursue, hunt, shoot, wound, kill, trap, capture, or collect" (50 CFR § 10.12). Birds protected under the MBTA include nearly all species in the US with the exception of non-native/human-introduced species and some game birds.

EO 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds*, requires all federal agencies to follow a prescribed set of actions to further implement MBTA. EO 13186 directs federal agencies to develop a Memorandum of Understanding with USFWS that promotes the conservation of migratory birds.

The *National Defense Authorization Act for Fiscal Year 2003* (Public Law 107-314, 116 Stat. 2458) provides the Armed Forces certain exemptions from the incidental take of migratory birds during authorized military readiness activities. Congress defined military readiness activities as all training and operations of the US Armed Forces that relate to combat and the adequate and realistic testing of military equipment, vehicles, weapons, and sensors for proper operation and suitability for combat use. Further, in October 2012, the "Authorization of Take Incidental to Military Readiness Activities" was published in the *Federal Register* (in accordance with 50 CFR § 21.15), authorizing incidental take during military readiness activities unless such activities may result in significant adverse effects on a population of a migratory bird species.

In December 2017, the US Department of the Interior issued M-Opinion 37050, which concluded that the take of migratory birds from an activity is not prohibited by the MBTA when the underlying purpose of that activity is not the take of a migratory birds, eggs, or nests. On 11 August 2020, the US District Court,

Southern District of New York, vacated M-37050. Thus, incidental take of migratory birds is again prohibited. The interpretation of the MBTA remains in flux, and additional court proceedings are expected.

3.9.1.3 Bald and Golden Eagle Protection Act

The BGEPA prohibits actions to “take, possess, sell, purchase, barter, offer to sell, purchase or barter, transport, export or import, at any time or any manner, any bald eagle [or any golden eagle], alive or dead, or any part, nest, or egg thereof.” Further, the BGEPA defines “take” as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb," and “disturb” is defined as “to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, injury to an eagle, a decrease in productivity by substantially interfering with the eagle’s normal breeding, feeding or sheltering behavior, or nest abandonment by substantially interfering with the eagle’s normal breeding, feeding, or sheltering behavior.” The BGEPA also prohibits activities around an active or inactive nest site that could result in disturbance to returning eagles.

Ecological resources include natural landscape components such as vegetation and animals and other physical landscape features that provide habitat for plants and animals. Ecological resources are typically divided into terrestrial (on land) and aquatic (in water or seasonally wet areas) resources. Of special concern are plant and animal species that have regulatory protection such as threatened or endangered species.

The Air Force recently conducted biological surveys on the desert SERE training area and surrounding area. These included a survey for wildlife and habitat and a rare plants survey (Environmental Assessment Services, LLC [EAS], 2021a, 2021b). The following sections contain summary information from those surveys as well as other sources as noted.

3.9.2 Existing Conditions

3.9.2.1 Terrestrial Resources

Vegetation and Other Priority Habitats

WDFW has identified the vegetation and habitat types in the desert SERE training area and surrounding area as priority habitats (WDFW, 2022a).[8]. A priority habitat is one that has been identified for management and conservation. In the SERE training area, priority habitats include shrub-steppe vegetation, cliffs, talus or scree slopes, inland dunes, and wetlands (**Figure 3-2**). These are described in the following sections except for wetlands, which are described in **Section 3.6.2.3**.

Shrub-Steppe

Most of the desert SERE training area is shrub-steppe vegetation dominated by species of sagebrush (*Artemisia* spp.) and other shrubs such as saltbush (*Atriplex* spp.), antelope bitterbrush (*Purshia tridentata*), and rabbitbrush (*Ericameria* spp.) (EAS, 2021a; Washington Natural Heritage Program [WNHP], 2016). Common understory species include bunchgrasses such as Sandberg bluegrass (*Poa secunda*), Indian rice grass (*Achnatherum hymenoides*), and needle grass (*Hesperostipa comata*). Cheatgrass (*Bromus tectorum*), an invasive grass species, is also present in some areas. Shrub-steppe vegetation with big sagebrush (*Artemisia tridentata*) is best developed in the main SERE training camp/activity area and surrounding areas on deeper soils on the bench terrace between the Columbia River and the basalt cliffs. In the uplands along the walking trail above the basalt cliffs, the vegetation is more characteristic of Columbia Basin scabland shrubland that occurs on basalt deposits with shallow soils and poor drainage (WNHP, 2016). Scabland sagebrush (*Artemisia rigida*) is more common and often co-dominant with buckwheat species (*Eriogonum* spp.).

[8] https://geodataservices.wdfw.wa.gov/hp/phs/

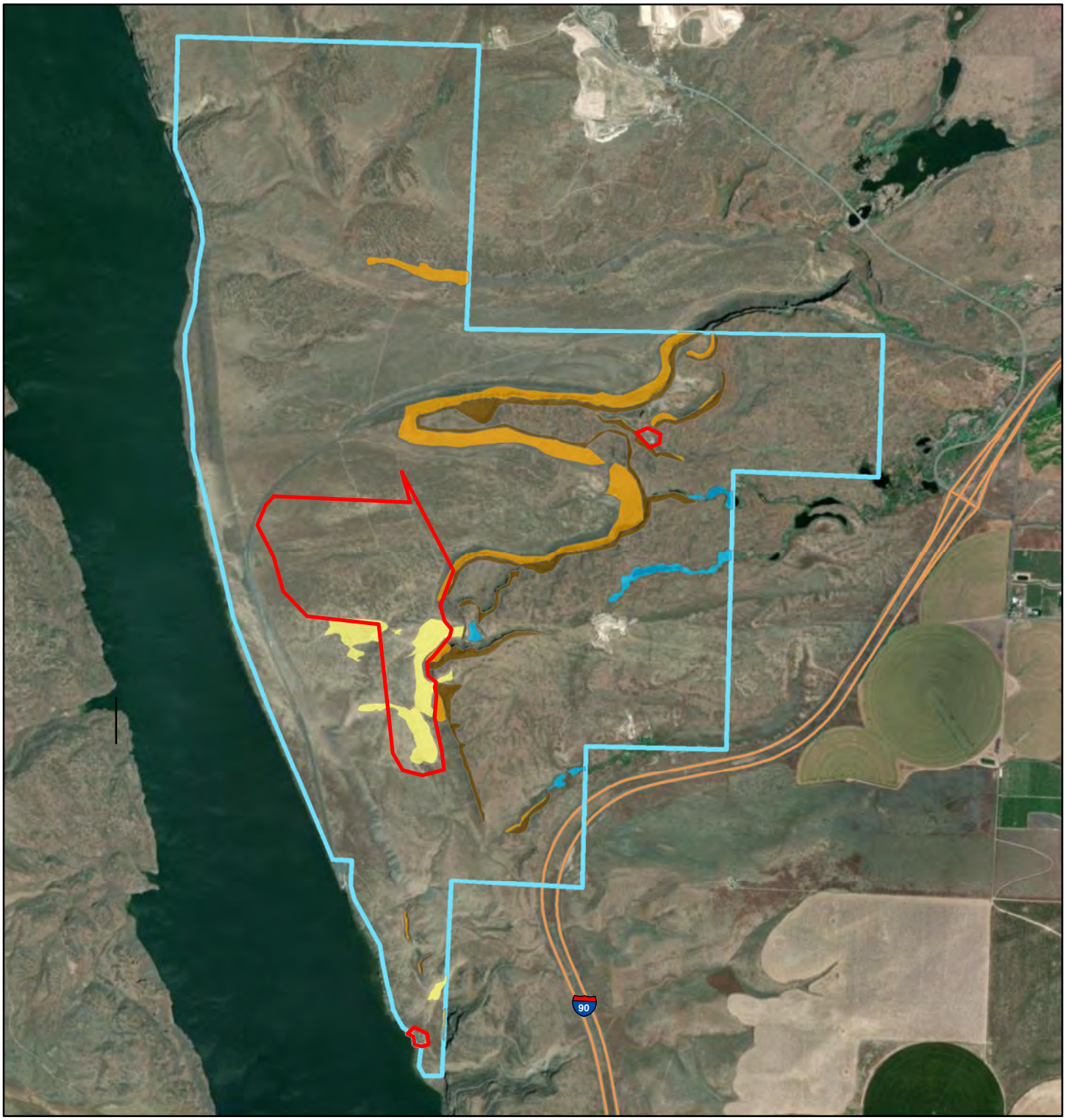


FIGURE 3-2
Priority Habitat Types

- Desert SERE Training Area
- WDFW Boundary
- Cliff
- Inland Dune
- Talus
- Wetland

N

0 0.5 Mile

Imagery: ESRI, 2022.
Coordinate System: WGS 1984 UTM Zone 11N

Note: Shrub-steppe communities were not mapped but represent most of the surrounding area.

Cliffs and Talus Slopes

Ice Age floods shaped the geography of the Columbia Basin leaving erosional features such as basalt cliffs (**Figure 3-2**). Unlike other priority habitats, which are characterized by distinctive vegetation, cliff habitats and associated talus or scree slopes that form at the base of cliffs are considered priority habitats because they provide nesting and roosting habitat for raptors such as the ferruginous hawk and golden eagle among others. Voids and fissures in cliffs and talus provide denning, roosting, and nesting habitat for a variety of mammals, including bats, and a variety of bird species, such cliff swallows (*Aeronautes saxatalis*) and white-throated swifts (*Petrochelidon pyrrhonota*) (WDFW, 2006).

Inland Dunes

Inland dunes are present at the base of the cliffs in the southern end of the main SERE camp/activity area (e.g., Frenchman Coulee dunes) (Hallock et al., 2007). These dunes are classified as climbing dunes because they are being pushed up the base of the cliff face. A portion of the dunes is considered active dunes, where winds shift sands, and are mostly unvegetated but have patches of grasses or shrubs (**Figure 3-2**). Other portions of the dune area are not readily visible and have been stabilized by grasses and shrubs.

Wildlife

The Air Force conducted surveys on the desert SERE training area and surrounding area to document the presence of animal species occurring in the region, including birds, mammals, reptile/amphibians, and invertebrates (EAS, 2021a).

Birds

In a survey conducted in 2020, 28 bird species were documented by direct observation or sign (EAS, 2021a) (**Table 3-4**). Sage or sagebrush sparrows (*Amphispiza belli*), which are dependent on high-quality shrub-steppe communities, were abundant in the project area and were actively singing during the surveys. Several raptor species, including American kestrel (*Falco sparverius*), northern harrier (*Circus cyaneus*), osprey (*Pandion haliaetus*), prairie falcon (*Falco mexicanus*), red-tailed hawk (*Buteo jamaicensis*), and turkey vulture (*Cathartes aura*), were observed in the area. One red-tail hawk, one osprey (along the river), one American kestrel, and one prairie falcon nest were found in the vicinity of the desert SERE training area but outside the main camping/activity area. Gamebirds observed included the chukar (*Alectoris chukar*) and California quail (*Callipepla californica*).

Mammals

Eleven mammal species were documented by direct observation or sign during the 2020 survey (EAS, 2021a) (**Table 3-5**). Mule deer (*Odocoileus hemionus*) were common in the survey area. Mammalian predators present in the desert SERE training area include coyotes (*Canis latrans*) and American badger (*Taxidea taxidea*). A variety of small mammal species occurs throughout the area, including Great Basin pocket mouse (*Perognathus parvus*), deer mouse (*Peromyscus maniculatus*), Ord's kangaroo rat (*Dipodomys ordii*), northern pocket gopher (*Thomomys talpoides*), and northern grasshopper mouse (*Onychomys leucogaster*). Ord's kangaroo rat was documented with night camera video in the main SERE camping/activity area on sandy areas of inland dune habitat. This extends the known range of this species to the north by approximately 13 miles (EAS, 2021a).

Reptiles and Amphibians

Surveyors observed northern Pacific rattlesnakes (*Crotalus oreganus*), gopher snakes (*Pituophis catenifer*), and common side-blotched lizards (*Uta stansburiana*) in the desert SERE training area during the 2020 survey. The habitat is suitable for sagebrush lizard (*Sceloporus graciosus)* and pygmy short-horned lizard *(Phrynosoma douglassii);* these and other species likely occur at the site, but they were not directly observed during the survey.

Invertebrates

Although the survey was not designed to document the wide variety of invertebrate species that likely occur in the area, observations were made of darkling beetles (*Eleodes* spp.), twelve-spotted skimmer (*Libellula pulchella*), and yellow bumblebees (*Bombus fervidus*). A large colony (ant mound approximately 3 feet tall) of western thatching ants (*Formica obscuripes*) was observed near the alternate instructor camp location.

Table 3-4
Birds Documented in the Project Area during Wildlife Surveys

Birds	Observation Type	Status
American white pelican	Direct observation	State threatened
Loggerhead shrike	Direct observation	State candidate
Sagebrush sparrow	Direct observation	State candidate
American kestrel	Nest and direct observation	MBTA
American robin	Direct observation	MBTA
Black-crowned night-heron	Direct observation	MBTA
Bullock's oriole	Direct observation	MBTA
California quail	Direct observation	MBTA
Chuckar	Predated nest	Gamebird
Common nighthawk	Direct observation	MBTA
Common raven	Nest and direct observation	MBTA
Eastern kingbird	Direct observation	MBTA
European starling	Direct observation	Invasive
Great blue heron	Direct observation	MBTA
House finch	Direct observation	MBTA
Lark sparrow	Direct observation	MBTA
Northern harrier	Direct observation	MBTA
Osprey	Nest and direct observation	MBTA
Prairie falcon	Nest and direct observation	MBTA
Red-tailed hawk	Direct observation	MBTA
Redwing blackbird	Direct observation	MBTA
Ring-necked duck	Direct observation	MBTA
Rock wren	Direct observation	MBTA
Say's phoebe	Direct observation	MBTA
Song sparrow	Direct observation	MBTA
Turkey vulture	Direct observation	MBTA
Violet-green swallow	Nest and direct observation	MBTA
Western kingbird	Nest and direct observation	MBTA

MBTA = Migratory Bird Treaty Act
Source: EAS, 2021a

Table 3-5
Mammals Documented in the Project Area during Wildlife Surveys

Common Name	Observation Type	Status
Nuttall's cottontail	scat	NA
Great Basin pocket mouse	burrows	NA
Deer mouse	burrows	NA
Coyote	scat	NA
Mule deer	direct observation	NA
Yellow-bellied marmot	direct observation	NA
American beaver	herbivory	NA
Black-tailed jackrabbit	scat	State candidate
Ord's kangaroo rat	burrows, video	NA
American badger	burrows	NA
Northern pocket gopher	winter castings	NA

NA = not applicable
Source: EAS, 2021a

Threatened or Endangered Species and Other Protected Terrestrial Species

Through its Information for Planning and Consultation website, the USFWS, on 13 March 2024, identified the following species as potentially affected by activities at the desert SERE training area: the gray wolf (*Canis lupus*), the yellow billed cuckoo (*Coccyzus americans*), and the monarch butterfly (*Danaus plexippus*), a candidate species (**Table 3-6**). There is no critical habitat for any threatened or endangered species in the SERE training area or surrounding area.

The striped whipsnake (*Masticophis taeniatus*), a state candidate species, is known to occur on the Quincy unit of the Columbia Basin Wildlife Management Area but is difficult to find (WDFW 2022a, 2022b). The striped whipsnake is near the northern limit of its geographic range in Washington and evidence suggests it was never common in the state (**Table 3-6**). T

Table 3-6
Federal- and State-Protected Species with the Potential to Occur Within the ROI

Common Name	Status
Gray Wolf	Federal endangered
Yellow-billed Cuckoo	Federal threatened
Bull trout	Federal threatened
Monarch Butterfly	Federal candidate
Striped whipsnake	State candidate
American white pelican	State threatened
Loggerhead shrike	State candidate
Sagebrush sparrow	State candidate
Black-tailed jackrabbit	State candidate
Hairy Bugseed	State sensitive
Gray Stickweed	State sensitive
Geyers milkvetch	State threatened
Gray cryptantha	State threatened

Most birds observed or likely to occur in the desert SERE training area are protected under the MBTA. Some birds observed or likely to occur in the area are managed as gamebirds or migratory waterfowl. Of the bird species observed during surveys, the European starling (*Sturnus vulgaris*) is the only species not protected. Bald and golden eagles are protected under the BGEPA. Neither species was observed during the biological surveys, but both species likely occur in the region at least seasonally if not year-round.

A rare plant survey also was conducted in the desert SERE training area and surrounding area in 2020 to identify any rare or protected plant species that may occur in the area (EAS, 2021b). No federally listed plant species was observed or is known to occur in the survey area. Several state-listed species and species of state conservation concern were found during the survey (**Table 3-6**). **Figure 3-3** shows the location of all rare plant species mapped within or in the immediate vicinity of the SERE training area.

Four species with state status were found in the desert SERE training area. On the inland dune habitat, hairy bugseed (*Corispermum villosum*) plants were seen throughout much of the active dune area (see **Figure 3-3**). This species is listed as sensitive and had previously been collected from the site in 2015. Hallock et al. (2007) recognized a bugseed community type on active dunes. Specimens of gray stickweed (*Hackelia cinerea*) were found on stabilized sandy talus above the active dune. It was noted that more than one species of *Hackelia* may be present. Specimens of Geyer's milkvetch (*Astragalus geyeri var. geyeri*) and gray cryptantha (*Cryptantha leucophaea*), both listed as threatened by WDFW, were found along the rimrock near the walking trail, east and upslope from the main SERE camp/activity area.

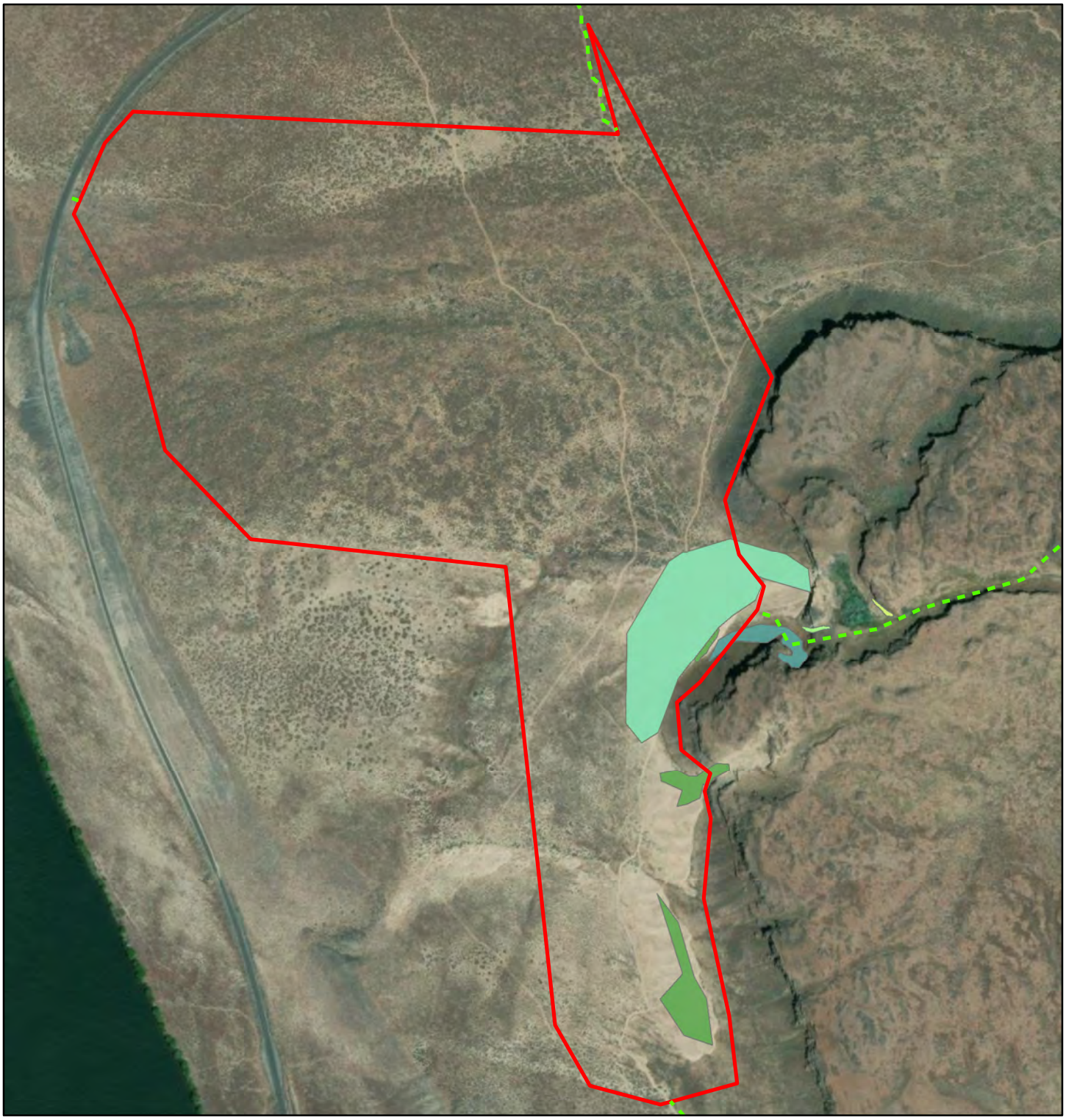


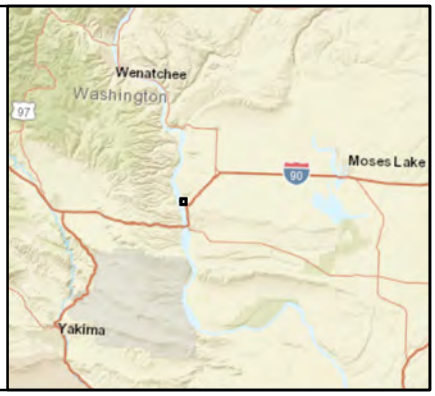
FIGURE 3-3
Rare Plant Locations

- Walking Trails
- Desert SERE Training Area
- Astragalus geyeri
- Corispermum villosum
- Cryptantha leucophaea
- Elymus lanceolatus ssp. psammophilis
- Hackelia cinerea

N

0 0.25 Mile

Imagery: ESRI, 2022.
Coordinate System: WGS 1984 UTM Zone 11N



3.9.2.2 Aquatic Resources

Aquatic Habitats and Species

Aquatic habitats in the vicinity of the desert SERE training area include the Columbia River on the west side and several ponds and associated wetland areas in the uplands near the walking trails. There are no aquatic habitats in the main SERE camp/activity area on the bench terrace between the Columbia River and the cliffs forming the uplands. The upland wetland and pond areas provide potential habitat for the tiger salamander (*Ambystoma tigrinum*). The Columbia River provides a wide variety of game and non-game fish, including steelhead (*Oncorhynchus mykiss*) and several species of salmon (*Oncorhynchus* ssp.) (EAS, 2021a; WDFW, 2015).

Threatened or Endangered Species and Other Protected Aquatic Species

No threatened or endangered aquatic species is known to occur in the desert SERE training area. Through its Information for Planning and Consultation website, the USFWS, on 13 March 2024, identified the bull trout (*Salvelinus confluentus*) as potentially affected in the adjacent Columbia River system.

3.9.3 Environmental Consequences

3.9.3.1 Evaluation Criteria

The level of impact on biological resources is based on the following:

- importance (i.e., legal, commercial, recreational, ecological, or scientific) of the resource;
- proportion of the resource that would be affected relative to its occurrence in the region;
- sensitivity of the resource to the proposed activities; and
- duration of potential ecological ramifications.

The potential impacts on biological resources would be considered adverse if species or habitats of high concern would be negatively affected over relatively large areas. Impacts would also be considered adverse if estimated disturbances cause reductions in population size or distribution of a species of high concern.

As a requirement under the ESA, federal agencies must provide documentation that ensures that the agency's Proposed Actions would not adversely affect the existence of any threatened or endangered species. The ESA requires that all federal agencies avoid "taking" federally threatened or endangered species (which includes jeopardizing the habitat of threatened or endangered species). Section 7 of the ESA establishes a consultation process with USFWS that ends with USFWS concurrence of no effect or a determination of the risk of jeopardy from a federal agency's proposed project.

3.9.3.2 Terrestrial Resources

Vegetation and Other Priority Habitats

Camping and training activities, such as making shelters from natural materials and digging cat hole latrines, could cause minor minimal impacts to vegetation. Activities on the dunes, such as construction of solar stills, insect pitfall traps, or grave shelters, would occur in areas that are devoid of vegetation. No training activity would affect cliff and talus slope habitats.

Students would make fires for ground-to-air signals (flares), which would have the potential to cause wildland fires. Safety impacts related to fires are further discussed in **Section 4.10**.

Wildlife

The presence of SERE training participants may temporarily cause larger animals, such as mule deer, coyotes, and bobcats, to avoid the area. Training sessions would be 5 days long, so any avoidance behavior would be short term and negligible. As part of survival training, participants practice food procurement

through the take of wildlife. Take of wildlife would be conducted under permit issued by the WDFW to the Air Force Air Education and Training Command at Fairchild AFB. Hunting of large wildlife (e.g., mule deer) is not allowed. Small wildlife (e.g., snakes or rodents) could be hunted for consumption except as discussed in **Section 3.9.3.4**. Previous permits for SERE training at the location have allowed the take of 30 Western rattlesnakes (*Crotalus viridis*) per year (as a source of food), or a maximum of 75 rattlesnakes in 5 years. Photographs and a report of all wildlife taken must be provided to WDFW following completion of SERE training activities. Because the take of any wildlife is managed by permit through the WDFW, impacts to native animal populations would be anticipated to be negligible.

Threatened or Endangered and Other Protected Terrestrial Species

No federally listed threatened or endangered species have been observed in the desert SERE training area, nor does critical habitat exist within the training area (EAS 2021a). The activities under the Proposed Action would be similar to other outdoor recreational activities (i.e., camping, hiking) that currently occur in the area. The Proposed Action would not adversely affect any federally threatened or endangered species or their habitat. The Air Force has determined that the Proposed Action would have "no effect" on the gray wolf (*Canis lupus*) and the monarch butterfly (*Danaus plexippus*). The Air Force has determined that the Proposed Action "may affect, but not likely to adversely affect" the yellow-billed cuckoo (*Coccyzus americanus*).

The take of any state- or federally threatened or endangered species would be prohibited by permit from the WDFW. T Take of any protected species would be prohibited under the WDFW permit. Take of striped whip snake (*Masticophis taeniatus*), a state candidate species, would be prohibited by permit. The SERE training area is in a watershed with known occurrence of the striped whip snake (WDFW, 2015, 2022b). The SERE training activities would not alter or damage any habitat of any protected species.

Various species of raptors (e.g., red-tailed hawk, prairie falcon, and osprey) nest on the cliffs or in trees along the Columbia River. Known nest sites are outside but near the desert SERE training area and should be avoided if birds are present. Training would be restricted to two 5-day periods between 1 May and 10 September, so most raptor species would have fledged their young prior to training activities. Bald eagles are unlikely to occur in the vicinity during the summer. Golden eagles may occur in the area but would be unlikely to be affected by the training activity, which is similar to other outdoor recreation in the region. Take of migratory birds (including eggs) would be prohibited by the MBTA. No impacts to any threatened, endangered, or other protected species would be anticipated.

No federally threatened or endangered plant species is known to occur in the desert SERE training area. Three plant species listed as state threatened in Washington were found near the main SERE camping/activity area. Gray stickseed is relatively abundant on sandy talus and side slopes adjacent to the dune area. A lower portion of the walking trail crosses part of the area with gray stickseed. Training participants would stay on the existing trail to avoid this area. Activities in the dune area would largely occur in active areas of the dune that are void of vegetation. Geyer's milkvetch and gray cryptantha are located above the main SERE training area on the rimrock near the walking trail. Because these three species occur outside the main SERE training area and hiking would only occur along existing trails, impacts to these species would be negligible. The hairy bugseed, considered a sensitive species by the WDFW, was found throughout much of the unstable dune area. Any impacts to this species would be avoided by using open, non-vegetated portions of the dunes for activities that require digging. Training participants would not uproot plants on the dunes to avoid potential impacts to these species.

3.9.3.3 Aquatic Resources

Aquatic Species and Habitats

No aquatic species or habitats is known to occur in the vicinity of the main desert SERE training area. Several ponds and associated wetlands occur near the walking trail on the rimrock above the main camp. Some training activities may occur along the walking trail, but no activity would damage wetland areas or affect water quality in the ponds.

Threatened or Endangered and Other Protected Aquatic Species

No threatened or endangered and other protected aquatic species are known to occur in the desert SERE training area. Protected aquatic species in the adjacent Columbia River system would not be significantly affected by any activity under the Proposed Action. The Air Force has determined that the Proposed Action would have "not likely to adversely affect" on the federally listed threatened species bull trout (*Salvelinus confluentus*). Any known threatened or endangered species would be released if caught while fishing.

Impacts to biological resources would not be anticipated to occur with implementation of the Proposed Action.

3.9.3.4 Cumulative Impacts

The Proposed Action would be similar to past, present, and reasonably foreseeable future actions within the ROI. The Proposed Action would result in minimal increases in wildfire risk and noise disturbance to wildlife. Take of wildlife would be conducted under a current WDFW permit issued to the Air Force Air Education and Training Command at Fairchild AFB. Under the permit, hunting of large wildlife (e.g., mule deer) is not allowed; small, common wildlife, such as snakes and rodents, may be hunted for consumption. The Proposed Action would not be expected to result in any adverse effects on threatened and endangered species. When considered in conjunction with other past, present, and reasonably foreseeable environmental trends and planned actions in the ROI, negligible-to-minimal cumulative effects to biological resources would be anticipated to occur with implementation of the Proposed Action.

3.9.3.5 No Action Alternative

Under the No Action Alternative, SERE training activities would not occur. The Air Force's Desert SERE School would have to rework the training course to exclude desert survival training. Troop readiness would be affected by the lack of training in a true-to-life environment. The ecological environment would not change from current conditions, and no impacts would occur.

3.10 CULTURAL RESOURCES

3.10.1 Definition of the Resource

Cultural resources are any prehistoric or historic district, site, building, structure, or object considered important to a culture or community for scientific, traditional, religious, or other purposes. These resources are protected and identified under several federal laws and EOs. Cultural resources include the following subcategories:

- Archaeological (i.e., prehistoric or historic sites where human activity has left physical evidence of that activity, but no structures remain standing);
- Architectural (i.e., buildings, structures, groups of structures, or designed landscapes that are of historic or aesthetic significance); and
- Traditional Cultural Properties (TCPs) (i.e., resources of traditional, religious, or cultural significance to Native American tribes).

Significant cultural resources are those that have been listed on the *National Register of Historic Places* (NRHP) or determined to be eligible for listing. To be eligible for the NRHP, properties must be 50 years old and have national, state, or local significance in American history, architecture, archaeology, engineering, or culture. They must possess sufficient integrity of location, design, setting, materials, workmanship, feeling, and association to convey their historical significance, and meet at least one of four criteria for evaluation:

- Associated with events that have made a significant contribution to the broad patterns of our history (Criterion A);

- Associated with the lives of persons significant in our past (Criterion B);
- Embody distinctive characteristics of a type, period, method of construction, represent the work of a master, possess high artistic values, or represent a significant and distinguishable entity whose components may lack individual distinction (Criterion C); and/or
- Have yielded or be likely to yield information important in prehistory or history (Criterion D).

Properties that are less than 50 years old can be considered eligible for the NRHP under Criteria Consideration G if they possess exceptional historical importance. Those properties must also retain historic integrity and meet at least one of the four NRHP criteria (Criteria A, B, C, or D). The term "historic property" refers to National Historic Landmarks and NRHP-listed or NRHP-eligible cultural resources.

Federal laws protecting cultural resources include the *Archaeological and Historic Preservation Act of 1960*, as amended (16 USC § 469), *American Indian Religious Freedom Act of 1978* (42 USC § 1996), *Archaeological Resources Protection Act of 1979*, as amended (16 USC §§ 470aa–470mm), NAGPRA, NHPA, and associated regulations (36 CFR Part 800). NHPA requires federal agencies to consider effects of federal undertakings on historic properties prior to making a decision or taking an action and integrate historic preservation values into their decision-making process. Federal agencies fulfill this requirement by completing the NHPA Section 106 consultation process, as set forth in 36 CFR Part 800. NHPA Section 106 also requires agencies to consult with federally recognized American Indian tribes with a vested interest in the undertaking. NHPA Section 106 requires all federal agencies to seek to avoid, minimize, or mitigate adverse effects to historic properties (36 CFR § 800.1(a)).

The ROI for cultural resources is the desert SERE training area shown in **Figure 2-1**. The Project APE for the SERE student activities (labeled Student Camps/Activities in **Figure 2-1**) contains approximately 98 ha (243 acres) in Grant County, in Sections: 19 and 28-32, Township: 18 North, Range: 23 East and Section 6, Township 17 North, Range 23 East, of the Evergreen Ridge WA. 7.5' USGS.

3.10.2 Existing Conditions

The proposed project area is within the lands ceded by the Confederated Tribes and Bands of the Yakama Nation and is part of the traditional territory of the Mid-Columbia Salish speakers, whose descendants are now members of the Confederated Tribes of the Colville Reservation. This language group traditionally occupied the area from near the mouth of the Wenatchee River south to Priest Rapids and included the Lakes, Kalispel, Coeur d'Alene, Spokane, Colville, Chewelah, Sanpoil, Nespelem, Southern Okanogan, Methow, Chelan, Wenatchi, and Columbia bands and tribes. Several of their villages extended from Rock Island to Crab Creek. One village (qwĭlqwĭnátku) was located at the mouth of Whiskey Dick Canyon, across the Columbia River from the project area (Walker, 1998; Ellis, 2010).

Many of these tribes relied on the Columbia Plateau and its major tributaries as residential and year-round subsistence areas and as primary movement corridors. Other tribes made seasonal use of the region for resource procurement, trade, and inter-tribal relations. Territorial boundaries were generally delineated by geography, but were crossed regularly for hunting, fishing, gathering, and trading activities (Churchill and Griffin, 2003).

During the ethnographic period, residents relied on a pattern of seasonal rounds that included semi-permanent residences in villages along major waterways, floodplains, and terraces of the river. Residences were often located at the base of ridges and bluffs for protection from high winds and easy access to riverine resources. Winter residences generally took place from November through March (DeBoer et al., 2002). With the arrival of spring and the completion of ceremonies such as First Salmon and First Food feasts, small groups would travel into the canyons and river valleys to gather roots, living in temporary habitation areas. Seasonal habitation areas were utilized in the interior of the Columbia Plateau during the spring and early summer months. By late summer or early fall, seasonal rounds focused on ripening berries in the mountains. It was this time of the year when the acquisition of food came to an end and families returned to the winter villages (DeBoer et al., 2002; Chatters, 1980).

Cultural resources surveys performed for this EA in 2020 and 2021 documented 14 archaeological sites and 4 isolates within the desert SERE training area (**Table 3-7)**. Most of the sites are lithic scatters primarily consisting of local cryptocrystalline silicate materials (indicative of arrow heads). Debitage, i.e., debris indicating use of stone tools, was identified both on the surface and in buried contexts.

Table 3-7
NRHP-Eligible Cultural Sites within the Desert SERE Training Area

Temporary Site Number	Temporal Category	Site Type
FC1	Precontact	Lithic scatter
FC2	Precontact	Lithic scatter
FC5	Precontact	Lithic scatter
FC6	Precontact	Lithic scatter
FC7	Precontact	Lithic scatter
FC8	Precontact	Lithic scatter
FC9/10	Precontact	Lithic scatter
FC11	Precontact	Lithic scatter
FC13	Precontact	Lithic scatter
FC14	Multicomponent	Lithic scatter/historic-era road/can scatter
FC31	Unknown	Stacked rock feature
FC15	Unknown	Stacked rock feature
FC53	Precontact	Lithic concentration
FC54	Precontact	Lithic scatter

Source: EAS, 2023

3.10.3 Environmental Consequences

3.10.3.1 Evaluation Criteria

Adverse impacts on cultural resources might include physically altering, damaging, or destroying all or part of a resource; altering characteristics of the surrounding environment that contribute to the resource's significance; introducing visual or audible elements that are out of character with the property or alter its setting; neglecting the resource to the extent that it deteriorates or is destroyed; or the sale, transfer, or lease of the property out of agency ownership (or control) without adequate enforceable restrictions or conditions to ensure preservation of the property's historic significance. For the purposes of this EA, an impact is considered major if it alters the integrity of an NRHP-listed resource or potentially impacts TCPs.

3.10.3.2 Proposed Action

The majority of activity related to the Proposed Action would be similar in nature to recreational usage of the land that occurs on an ongoing basis. Training participants would hike and camp in a manner similar to the general public. Most ground-disturbing activities are related to camping and would typically occur in the sand dunes near the eastern ridgeline. No archaeological or cultural sites were found in those dunes during the cultural resources surveys (EAS, 2023). Visual site inspections of the HLZs, DZs, and camp areas would be completed prior to each training event, and the sites would be restored to their natural condition at the conclusion of each training.

As part of the Section 106 process related to the EA and cultural surveys, Fairchild AFB provided the cultural survey report for the 2020 and 2021 surveys via letter and e-mail on November 8, 2023 to the following tribes for review: the Confederated Tribes of the Colville Reservation, the Nez Perce Tribe, and the Yakama Nation. In an e-mail dated November 21, 2023, the Confederated Tribes of the Colville Reservation recommended that the Air Force and WDFW enter into a Memorandum of Agreement (MOA) and jointly prepare a cultural resource management plan that would memorialize consideration of short, long-term, as well as other impacts to cultural resources. The MOA will be included with the next lease

agreement (expected July 2025) between Fairchild AFB and WDFW. The SHPO to date has not made a determination on the status of the cultural sites listed in Table 3-7.

Because the SERE training activities,similar to other outdoor recreational activities on the property, would be limited to two 5-day training periods per year with land disturbing activities primarily occurring in the dunes, potential impacts on cultural resources in the ROI would be anticipated to be negligible. Therefore, it is anticipated that the Proposed Action would have “no effect” on cultural or historic properties.

3.10.3.3 Cumulative Impacts

The Proposed Action, in addition to past, present, and reasonably foreseeable future actions within the ROI, would not be anticipated to result in cumulative impacts to cultural resources, archaeological resources, historic resources, or Native American TCPs.

The Proposed Action would not be anticipated to affect archaeological, architectural, or TCP resources. The Proposed Action would not interfere with public use of the WDFW property, as listed in **Table 3-1**. Findings from the cultural resource survey would not be made public to avoid looting of those sites by the general public. When considered in conjunction with other past, present, and reasonably foreseeable environmental trends and planned actions in the ROI, no significant cumulative effects to cultural resources would be anticipated to occur with implementation of the Proposed Action.

3.10.3.4 No Action Alternative

Under the No Action Alternative, SERE training activities would not occur. The Air Force’s Desert SERE School would have to rework the training course to exclude desert survival training. Troop readiness would be affected by the lack of training in a true-to-life environment.

Cultural resources would not change from current conditions, and no impacts would occur.

3.11 Recreation and Visual Resources

3.11.1 Definition of the Resource

Recreation resources in the context of this EA refer to facilities and landscape features in the vicinity of the Proposed Action that offer opportunities for the public to pursue outdoor recreational activities. Visual resources are natural and man-made features that give an environment its aesthetic qualities. Scenic quality of views is a measure of the overall impression or appeal of an area based on physical features such as landforms, vegetation, water, color, surroundings, and uniqueness and man-made features such as roads, bridges, agricultural patterns, and other built elements.

The ROI for recreation and visual resources is the desert SERE training area shown in **Figure 2-1**.

3.11.2 Existing Conditions

The desert SERE training area is located on the southern end of the Quincy Lakes Unit of the Columbia Basin Wildlife Area. The Quincy Lakes Unit offers a wide variety of outdoor recreational activities, such as fishing, hunting (waterfowl, upland gamebirds, and mule deer), wildlife viewing, hiking, biking, horseback riding, geocaching, rock climbing, and camping (WDFW, 2021a). A boat launch is located approximately 0.5 mile southwest of the SERE training area, where Old Vantage Highway meets Wanapum Lake. Several restroom facilities are in the vicinity of the training area. Rock climbing is a popular recreational activity in the Echo Basin and Frenchman Coulee area. The prime climbing season is the spring and fall because of the mild weather conditions. Recreational hunting seasons occur in the fall starting in September. The area is open year-round for other activities such as wildlife viewing, hiking, and camping.

Scenic values throughout the Columbia Basin are typically of high quality with views of shrub-steppe or rural agriculture settings with backdrops of mountain ranges or the Columbia River. Near the desert SERE training area, views include the Columbia River with backdrops of mountains in the distance and unique geological features created by the past glacial flood erosion of basalt lava formations. The area is dominated by natural features with minimal human-built features. A scenic overview with views of the Columbia River is located along I-90 approximately 2.75 miles south of the training area.

3.11.3 Environmental Consequences

3.11.3.1 Evaluation Criteria

The Quincy Lakes Unit of the Columbia Basin Wildlife Area offers a variety of outdoor recreational opportunities. Impacts on recreational resources were evaluated based on whether the Proposed Action would be consistent with the existing recreational activities, prevent or exclude other recreational opportunities, and/or diminish the recreational experience of other users.

Impacts on visual resources were evaluated based on whether existing visual or scenic values of the area would be diminished or altered.

3.11.3.2 Proposed Action

SERE training activities would continue to focus on desert survival skills and be conducted during the hottest part of year—June through early September. The training activities would be similar to the existing hiking and camping that occurs in the area. Rock climbing occurs primarily in Echo Basin and Frenchman Coulee, which are adjacent to and northeast-east of the main SERE camping/activity area. The walking trail to be used for training activity would continue to be located on the rimrock above the climbing routes on the cliff faces. Training activities would occur outside the primary spring and fall climbing seasons. Because the SERE training activities would be similar to other outdoor recreational activities such as hiking and camping, would occur during the hottest time of the year (i.e., presumably during periods of reduced public use), and would be limited to two 5-day time periods, potential impacts on recreational resources in the ROI would be anticipated to be negligible. The majority of the site would remain accessible to the public during training activities. Air Force guidelines and protocols, including DAFI 13- 217, *Drop Zone and Landing Zone Operations*, would be observed for standoff distances during landing zone use to ensure safety to the public. In addition, authorization under the renewed WDFW permit to land a helicopter on a jeep trail and, if required, a boat launch parking area would include provisions to protect the public, including extending the helicopter landing area to the edge of the DZ, using barricades and safety cones in the boat launch parking area, and staffing all areas with SERE instructors during landing activities.

Because the SERE training activities would be similar to current outdoor recreational activities in the area and involve no lasting effect on the landscape, no impacts to visual resources would be anticipated to occur with implementation of the Proposed Action.

3.11.3.3 Cumulative Impacts

Areas proposed for SERE training exercises are natural areas open to the public and used by recreationalists for camping, hiking, hunting, and other activities. Training activities would not restrict public usage of the WDFW property. The majority of the site would remain accessible to the public during training activities. When considered in conjunction with other past, present, and reasonably foreseeable environmental trends and planned actions in the ROI, no significant cumulative effects to recreational activities or visual resources would be anticipated to occur with implementation of the Proposed Action.

3.11.3.4 No Action Alternative

Under the No Action Alternative, SERE training activities would not occur. The Air Force's Desert SERE School would have to rework the training course to exclude desert survival training. Troop readiness would

be affected by the lack of training in a true-to-life environment. Recreational and visual resources would not change from current conditions, and no impacts would occur.

3.12 HAZARDOUS MATERIALS AND WASTES

3.12.1 Definition of the Resource

CERCLA, as amended by the *Superfund Amendments and Reauthorization Act* and the *Toxic Substances Control Act* (as implemented by 40 CFR Part 761), defines hazardous materials (HAZMAT) as any substance with physical properties of ignitability, corrosivity, reactivity, or toxicity that might cause an increase in mortality, serious irreversible illness, and incapacitating reversible illness, or that might pose a substantial threat to human health or the environment. The Occupational Safety and Health Administration (OSHA) is responsible for the enforcement and implementation of federal laws and regulations pertaining to worker health and safety under 29 CFR Part 1910. OSHA also regulates HAZMAT in the workplace and ensures appropriate training in their handling.

The *Solid Waste Disposal Act*, as amended by RCRA, which was further amended by the *Hazardous and Solid Waste Amendments of 1984*, defines hazardous wastes as any solid, liquid, contained gaseous, or semi-solid waste, or any combination of wastes, that pose a substantial present or potential hazard to human health or the environment. In general, both HAZMAT and hazardous wastes include substances that, because of their quantity, concentration, physical, chemical, or infectious characteristics, might present substantial danger to public health and welfare or the environment when released or otherwise improperly managed.

Under Air Force Policy Directive 32-70, *Environmental Considerations in Air Force Programs and Activities*, the Air Force is committed to performing the following actions:

- cleaning up environmental damage resulting from its past activities,
- meeting all environmental standards applicable to its present operations,
- planning its future activities to minimize environmental impacts,
- responsibly managing the irreplaceable natural and cultural resources it holds in public trust, and
- eliminating pollution from its activities wherever possible.

Air Force Manual 32-7002, *Environmental Compliance and Pollution Prevention*, establishes procedures and standards that govern management of HAZMAT throughout the Air Force. This manual applies to all Air Force personnel who authorize, procure, issue, use, or dispose of HAZMAT, and to those who manage, monitor, or track any associated activities.

Waste in the context of this EA includes only solid waste that may be generated by training activities and could be disposed of in a permitted, solid waste landfill. The ROI for waste management is the desert SERE training area shown in **Figure 2-1**.

3.12.2 Existing Conditions

Review of site inspections, aerial photography, and interviews in the *2019 Environmental Baseline Survey* of the desert SERE training area indicate no apparent contamination from HAZMAT, petroleum products, hazardous waste, or petroleum waste (Air Force, 2019).

3.12.3 Environmental Consequences

3.12.3.1 Evaluation Criteria

Impacts to waste management are considered adverse if a proposed action results in non-compliance with applicable federal and state regulations or increases the amounts of HAZMAT and hazardous wastes generated or procured beyond current waste management procedures and capacities.

3.12.3.2 Proposed Action

SERE training activities do not use HAZMAT; however, minor quantities of fuel or oils could be released to the environment during a vehicle or ATV breakdown. Onsite refueling of ATVs would be conducted using spill containment methods to prevent accidental release. Refueling of vehicles and helicopters would occur on Fairchild AFB and would follow Base best management practices. Therefore, impacts from HAZMAT and hazardous wastes on the desert SERE training area or to Air Force personnel using the training area would not be anticipated with implementation of the Proposed Action.

Single-use “cat hole” latrines for sanitary waste would be dug as part of desert SERE training. Due to training requirements, any other solid waste generated would be packed out and disposed of offsite. Therefore, impacts from solid waste would not be anticipated to occur with implementation of the Proposed Action.

3.12.3.3 Cumulative Impacts

The Proposed Action would have no impact on HAZMAT or hazardous waste. When considered in conjunction with other past, present, and reasonably foreseeable environmental trends and planned actions in the ROI, no significant cumulative effects to HAZMAT or hazardous waste would be anticipated to occur with implementation of the Proposed Action.

3.12.3.4 No Action Alternative

Under the No Action Alternative, the land use permit would not be renewed. The Air Force’s Desert SERE School would have to rework the training course to exclude desert survival training. Troop readiness would be affected by the lack of training in a true-to-life environment. HAZMAT and hazardous waste activities would not change from current conditions, and no impacts would occur.

3.13 SAFETY

This section addresses both occupational safety (i.e., safety of SERE training participants) and public health and safety (i.e., risks to members of the public) associated with the Proposed Action.

3.13.1 Definition of the Resource

This section discusses safety and occupational health concerns associated with training activities for both Air Force personnel and the public. This section also discusses the safety of personnel on the ground that may be placed at risk from helicopter operations in the vicinity of the training area and the public’s exposure to areas where there is a higher accident potential.

The ROI for safety is the desert SERE training area shown in **Figure 2-1**.

3.13.2 Existing Conditions

The desert SERE training area is an undeveloped natural landscape without human-built amenities. The nearest medical center is approximately 20 miles from the site. High temperatures during the summer

average above 90°F and can often exceed 100°F. These conditions create occupational risks for sunburn, dehydration, and heat illness (i.e., cramps, stress, or stroke). Venomous rattlesnakes pose a risk from snake bites. The rocky terrain and cliffs create hazards from trips, slips, and falls. Cuts or lacerations from climbing tools, knives, or spiny vegetation are possible.

The region has low precipitation, typically averaging about 7 inches per year. Vegetation can be very dry and pose a risk for wildland fires. Winters with above-normal precipitation can create heavy growth of vegetation and create large fuel loads on the landscape. The most recent wildland fire within the desert SERE training area occurred in 2017 (unrelated to Air Force activities), which significantly burned the southern portion of the SERE training area that has since grown back (Air Force, 2019).

The Air Force practices operational risk management, per DAFI 90-802, *Operational Risk Management*, which outlines a five-step risk management process: 1) identify risks, 2) assess hazards, 3) develop controls and make decisions, 4) implement controls, and 5) supervise and evaluate.

3.13.3 Environmental Consequences

3.13.3.1 Evaluation Criteria

Impacts on safety are assessed according to the potential to increase or decrease safety risks on personnel, the public, and property. An impact on safety would be considered significant if it causes the following:

- substantially increases risks associated with the safety of construction personnel, contractors, military personnel, or the local community;
- substantially hinders the ability to respond to an emergency; or
- introduces a new health or safety risk for which the Base is not prepared or does not have adequate management and response plans in place.

3.13.3.2 Proposed Action

Occupational Safety

SERE training activities would expose Air Force personnel to remote outdoor conditions with increased chances of mechanical (e.g., slips, trips, and falls), health (e.g., dehydration, blisters), and biological hazards (e.g., animal bites and stings). These conditions are intended to simulate real-life conditions that military personnel may experience during their service careers. A major training goal is to teach service men and women skills to survive in these types of environments and minimize risks to their health and safety. Training would result in military personnel being better prepared for deployment, which would result in a long-term, beneficial impact on military personnel safety. Therefore, exposure to short-term, adverse safety risks under the Proposed Action would have long-term beneficial impacts on military personnel safety.

Public Health and Safety

Areas proposed for SERE training exercises are natural areas open to the public and used by recreationalists for camping, hiking, hunting, and other activities. No impacts on public safety would be anticipated under the Proposed Action as there would be no live-fire weapons discharged during the training sessions, and, with the exception of helicopter operations, all training would be related to survival training in a nature setting. Training activities would occur on weekdays (i.e. not the weekend) and during the hottest time of year, when members of the public are less likely to use the area. Air Force guidelines and protocols, including DAFI 13- 217, would be observed for standoff distances during landing zone use to ensure safety to the public. In addition, authorization under the renewed WDFW permit to land a helicopter on a jeep trail and, if required, a boat launch parking area would include provisions to protect the public, including extending the helicopter landing area to the edge of the DZ, using barricades and safety cones in the boat launch parking area, and staffing all areas with SERE instructors during landing activities.

Small, handheld flares would be used during both training events per year if weather and wind conditions do not pose a fire risk. Because these flares would only be used during appropriate weather conditions, no threat to public safety would be anticipated to occur. Holes dug for training activities would be filled after use to prevent potential injury to recreationists. Therefore, adverse impacts on public health and safety would not be anticipated to occur with implementation of the Proposed Action.

3.13.3.3 Cumulative Impacts

The Proposed Action would cause short-term, adverse, but long-term, beneficial impacts to occupational safety. When considered in conjunction with other past, present, and reasonably foreseeable environmental trends and planned actions in the ROI, no significant cumulative effects to occupational or public health and safety would be anticipated to occur with implementation of the Proposed Action.

3.13.3.4 No Action Alternative

Under the No Action Alternative, SERE desert survival training activities.would not be conducted. The Air Force's Desert SERE School would have to rework the training course to exclude desert survival training. Troop readiness would be affected by the lack of training in a true-to-life environment. While no impacts to the general public would occur, long- term, moderate, adverse impacts on Air Force personnel safety would be expected because Air Force personnel would not be properly trained in desert survival skills.

3.14 Environmental Justice and Protection of Children

3.14.1 Definition of the Resource

Several EOs direct federal agencies to address disproportionate environmental and human health effects in minority and low-income populations and to identify and assess environmental health and safety risks to children.

EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations,* pertains to environmental justice issues and relates to various socioeconomic groups and disproportionate impacts that could be imposed on them. This 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. EO 12898 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.

EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks,* states that each federal agency "(a) shall make it a high priority to identify and assess environmental health risks and safety risks that may disproportionately affect children; and (b) shall ensure that its policies, programs, activities, and standards address disproportionate risks to children that result from environmental health risks or safety risks."

EO 14096, *Revitalizing Our Nation's Commitment to Environmental Justice for All*, signed 21 April 2023, builds on and supplements the foundational efforts of EO 12898. It broadens the definition of environmental justice to include income, race, color, national origin, tribal affiliation, or disability. EO 14096 was enacted to strengthen the Federal Government's commitment to deliver environmental justice to all communities in the US via an ambitious approach that utilizes scientific research, high-quality data, meaningful federal engagement, and that makes use of the tools available to the Federal Government, including enforcement of civil rights and environmental laws.

For the purposes of this analysis, minority populations are defined as Alaska Natives and American Indians, Asians, Blacks or African Americans, Native Hawaiians, and Pacific Islanders or persons of Hispanic origin

(of any race); low-income populations include persons living below the poverty threshold as determined by the United States Census Bureau; and youth populations are children under the age of 18 years.

Minority, low-income, and youth populations that could be disproportionately impacted by the Proposed Action are addressed by comparing Grant County as the ROI with the state of Washington and the US.

3.14.2 Existing Conditions

The population of Grant County, WA, is 97,733 (Census Reporter, 2019). The county is largely rural comprising 10–12 communities. Irrigated or dryland agriculture is a primary industry with much of the remaining land being open rangeland. Approximately 54 percent of the population is White/Caucasian and 42 percent is Hispanic. Other ethnic groups, such as Black, Native American, and Pacific Islander, comprise about 4 percent of the population. The proportion of Hispanics in Grant County is more than double the proportion in the state of Washington (13 percent) and the US (18.2 percent). The proportion of children in the local population is about 17 percent, higher than the state average of 13 percent but lower than the US average of 22.4 percent. The per-capita income in Grant County is $24,522, or about 60 percent of the state per-capita income of $41,521. About 14.8 percent of the population in Grant County lives below poverty level. This is 1.5 times higher than the state rate of 9.8 percent and 2 points higher than the US rate of 12.8 percent. Approximately 22 percent of the children live below poverty level, or nearly double the state rate of 12 percent. Based on Census Tracts 107 and 114.04 for Grant County, no minority, low-income, and youth populations were identified near the boundary of the of the WDFW property (Census Reporter, 2019)

3.14.3 Environmental Consequences

3.14.3.1 Evaluation Criteria

Environmental justice analysis applies to potential disproportionate and adverse effects on minority, low-income, elderly, and youth populations. Environmental justice issues could occur if an adverse environmental or socioeconomic consequence to the human population fell disproportionately on these populations.

Environmental justice analysis applies to potential disproportionately and adverse effects on minority, low-income, and youth populations. Environmental justice issues could occur if an adverse environmental or socioeconomic consequence to the human population fell disproportionately upon minority, low-income, or youth populations. See **Section 3.10** for a comparison of the local ethnicity and poverty status to state and national data, which was used to determine if the Proposed Action could disproportionately affect these populations.

3.14.3.2 Proposed Action

SERE training activities under the Proposed Action would be of short duration (two 5-day training sessions per calendar year) in a remote location with no residents within a 2-mile radius. The SERE training activities would occur on public land, isolated (i.e., not visible) from residences. Noise associated with helicopter flights would be limited to two sorties on one day per training session during daylight hours. The nearest residences are rural farms more than 2 miles east and 500–700 feet higher in elevation. Most of the helicopter exercises likely would be shielded by local topography from the nearest residences. Therefore, disproportionate impacts on minority, low-income, and youth populations would not be anticipated to occur with implementation of the Proposed Action.

3.14.3.3 Cumulative Impacts

The Proposed Action would not affect communities with environmental justice concerns or children. When considered in conjunction with other past, present, and reasonably foreseeable environmental trends and

planned actions in the ROI, no significant cumulative effects to environmental justice would be anticipated to occur with implementation of the Proposed Action.

3.14.3.4 No Action Alternative

Under the No Action Alternative, SERE desert survival training activities.would not be conducted. The Air Force's Desert SERE School would have to rework the training course to exclude desert survival training. Troop readiness would be affected by the lack of training in a true-to-life environment. Conditions for communities with environmental justice concerns and children would not change from current conditions, and no impacts would be anticipated to occur.

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CHAPTER 5 REFERENCES

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APPENDIX A.
INTERGOVERNMENTAL COORDINATION, PUBLIC AND AGENCY PARTICIPATION

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A.2 Interagency and Intergovernmental Coordination for Environmental Planning – Coordination Letters and Attachments

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Washington Fish And Wildlife Office
510 Desmond Drive Se, Suite 102
Lacey, WA 98503-1263
Phone: (360) 753-9440 Fax: (360) 753-9405

In Reply Refer To: 03/13/2024 20:14:48 UTC
Project Code: 2024-0062585
Project Name: SERE EA

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological

evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts, see https://www.fws.gov/program/migratory-bird-permit/what-we-do.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures, see https://www.fws.gov/library/collections/threats-birds.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/partner/council-conservation-migratory-birds.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Washington Fish And Wildlife Office
510 Desmond Drive Se, Suite 102
Lacey, WA 98503-1263
(360) 753-9440

PROJECT SUMMARY

Project Code: 2024-0062585
Project Name: SERE EA
Project Type: Military Maneuvers
Project Description: SERE training for the Air Force.
Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@47.0109852,-119.98834675900753,14z

Counties: Grant County, Washington

ENDANGERED SPECIES ACT SPECIES

There is a total of 4 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Gray Wolf *Canis lupus* Population: U.S.A.: All of AL, AR, CA, CO, CT, DE, FL, GA, IA, IN, IL, KS, KY, LA, MA, MD, ME, MI, MO, MS, NC, ND, NE, NH, NJ, NV, NY, OH, OK, PA, RI, SC, SD, TN, TX, VA, VT, WI, and WV; and portions of AZ, NM, OR, UT, and WA. Mexico. There is **final** critical habitat for this species. Species profile: https://ecos.fws.gov/ecp/species/4488	Endangered

BIRDS

NAME	STATUS
Yellow-billed Cuckoo *Coccyzus americanus* Population: Western U.S. DPS There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3911	Threatened

FISHES

NAME	STATUS
Bull Trout *Salvelinus confluentus* Population: U.S.A., coterminous, lower 48 states There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8212	Threatened

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

IPAC USER CONTACT INFORMATION

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APPENDIX B.
AIR CONFORMITY ANALYSIS

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AIR CONFORMITY APPLICABILITY MODEL REPORT
RECORD OF AIR ANALYSIS (ROAA)

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: FAIRCHILD AFB
State: Washington
County(s): Grant
Regulatory Area(s): NOT IN A REGULATORY AREA

b. Action Title: Desert Survival, Evasion, Resistance, and Escape Training, Fairchild Air Force Base, Washington

c. Project Number/s (if applicable):

d. Projected Action Start Date: 4 / 2022

e. Action Description:

To adequately train SERE Specialists, the Air Force needs a biome-specific training area to meet the Desert SERE training requirements in a true-to-life environment.

The proposed project area includes the location for camp sites, a walking trail, and two potential locations for the instructor base camp. Activities would occur in various sagebrush and dunes situated along the ridgeline. The proposed acreage of the camp/activity locations (including sagebrush and dunes) and the proposed instructor base camps is 231 acres. Assuming a 20-foot buffer along the walking trail, the proposed area associated with those trails is 12 acres.

Within the camp/activities location, the Desert SERE students would complete tasks such as: using natural materials to construct shelters, making fires, making ground to air signals (flares); water and food procurement in conjunction with fish and wildlife game take; navigation training; and evasion training. Shelters would be built using piled sand or dug grave shelters to get above or below ground surface, respectively, to allow SERE students to mitigate the desert temperatures. Solar stills and insect pit traps would also be dug in the dune area for water and food. Some digging would occur but would not exceed 36 inches in depth. Digging would occur for "cat hole" (single use) latrines. Outside of the camp/activity sites, students would follow the walking trail.

The area used for the instructor base camp, located on private land, is a gravel covered lot and is not publicly accessible. No ground disturbing activities would occur at the instructor camp; it is a site where instructors camp and can keep their gear behind a locked gate on private property. All camping at this location would occur on previously disturbed land.

The training would require a maximum of fourteen support vehicles and ten utility vehicles. Vehicle use would be restricted to Old Vantage Hwy (approximately 4.5 miles in length) and a gravel road leading to the Instructor's Camp/forward operating location (approximately 0.7 miles in length). If necessary, small all-terrain vehicles (ATV's) would drive established trails. ATVs would not travel on the sand dunes or the trail between private and WDFW land for any reason.

Helicopters would be used for one day during each training session and would originate from Fairchild AFB. The training would generate approximately two sorties per training event. A sortie is defined as a single military aircraft flight from initial takeoff through final landing. Helicopters would be on site for up to three (3) hours for hoist, vectoring including night vectors, radio contact, and sound vectoring over trainees positioning. Jumps

could occur, but there would be no jumps at night. The area around the project site is a low fly area for the Naval Air Station at Whidbey Island, WA. The camp/activity area would serve as both a helicopter Landing Zone (HLZ) and a parachute Drop Zone (DZ).

For each training session, a maximum of 86 personnel would attend, including students, instructors, and support staff. The full training sessions would take place twice annually for five (5) days. Visual site inspections of the HLZs/DZs/camp areas would be completed prior to each training event, and the sites would be restored to their natural condition when the training event concludes.

f. Point of Contact:

Name: Ryan Sauter
Title: Senior Scientist
Organization: Environmental Assessment Services, LLC
Email: ryan.sauter@easbio.com
Phone Number: 651.341.9955

2. Air Impact Analysis: Based on the attainment status at the action location, the requirements of the General Conformity Rule are:

_____ applicable
__X__ not applicable

Total net direct and indirect emissions associated with the action were estimated through ACAM on a calendar-year basis for the start of the action through achieving "steady state" (i.e., net gain/loss upon action fully implemented) emissions. The ACAM analysis used the latest and most accurate emission estimation techniques available; all algorithms, emission factors, and methodologies used are described in detail in the USAF Air Emissions Guide for Air Force Stationary Sources, the USAF Air Emissions Guide for Air Force Mobile Sources, and the USAF Air Emissions Guide for Air Force Transitory Sources.

"Insignificance Indicators" were used in the analysis to provide an indication of the significance of potential impacts to air quality based on current ambient air quality relative to the National Ambient Air Quality Standards (NAAQSs). These insignificance indicators are the 250 ton/yr Prevention of Significant Deterioration (PSD) major source threshold for actions occurring in areas that are "Clearly Attainment" (i.e., not within 5% of any NAAQS) and the GCR de minimis values (25 ton/yr for lead and 100 ton/yr for all other criteria pollutants) for actions occurring in areas that are "Near Nonattainment" (i.e., within 5% of any NAAQS). These indicators do not define a significant impact; however, they do provide a threshold to identify actions that are insignificant. Any action with net emissions below the insignificance indicators for all criteria pollutant is considered so insignificant that the action will not cause or contribute to an exceedance on one or more NAAQSs. For further detail on insignificance indicators see chapter 4 of the Air Force Air Quality Environmental Impact Analysis Process (EIAP) Guide, Volume II - Advanced Assessments.

The action's net emissions for every year through achieving steady state were compared against the Insignificance Indicator and are summarized below.

Analysis Summary:

2022

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	0.031	250	No
NOx	0.043	250	No
CO	0.184	250	No
SOx	0.007	250	No
PM 10	0.003	250	No
PM 2.5	0.003	250	No
Pb	0.000	25	No
NH3	0.000	250	No
CO2e	26.6		

2023 - (Steady State)

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	0.042	250	No
NOx	0.058	250	No
CO	0.245	250	No
SOx	0.009	250	No
PM 10	0.004	250	No
PM 2.5	0.003	250	No
Pb	0.000	25	No
NH3	0.001	250	No
CO2e	35.4		

None of estimated annual net emissions associated with this action are above the insignificance indicators, indicating no significant impact to air quality.Therefore, the action will not cause or contribute to an exceedance on one or more NAAQSs.No further air assessment is needed.

_____ _____

Ryan Sauter, Senior Scientist DATE

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

1. General Information

- Action Location
Base: FAIRCHILD AFB
State: Washington
County(s): Grant
Regulatory Area(s): NOT IN A REGULATORY AREA

- Action Title: Desert Survival, Evasion, Resistance, and Escape Training, Fairchild Air Force Base, Washington

- Project Number/s (if applicable):

- Projected Action Start Date: 4 / 2022

- Action Purpose and Need:
The purpose of the Proposed Action is to provide Desert SERE training opportunities for the 336 Training Group at Fairchild AFB, which is the Air Force's sole unit responsible for training SERE specialists.

To adequately train SERE Specialists, the Air Force needs a biome-specific training area to meet the Desert SERE training requirements in a true-to-life environment.

- Action Description:
To adequately train SERE Specialists, the Air Force needs a biome-specific training area to meet the Desert SERE training requirements in a true-to-life environment.

The proposed project area includes the location for camp sites, a walking trail, and two potential locations for the instructor base camp. Activities would occur in various sagebrush and dunes situated along the ridgeline. The proposed acreage of the camp/activity locations (including sagebrush and dunes) and the proposed instructor base camps is 231 acres. Assuming a 20-foot buffer along the walking trail, the proposed area associated with those trails is 12 acres.

Within the camp/activities location, the Desert SERE students would complete tasks such as: using natural materials to construct shelters, making fires, making ground to air signals (flares); water and food procurement in conjunction with fish and wildlife game take; navigation training; and evasion training. Shelters would be built using piled sand or dug grave shelters to get above or below ground surface, respectively, to allow SERE students to mitigate the desert temperatures. Solar stills and insect pit traps would also be dug in the dune area for water and food. Some digging would occur but would not exceed 36 inches in depth. Digging would occur for “cat hole” (single use) latrines. Outside of the camp/activity sites, students would follow the walking trail.

The area used for the instructor base camp, located on private land, is a gravel covered lot and is not publicly accessible. No ground disturbing activities would occur at the instructor camp; it is a site where instructors camp and can keep their gear behind a locked gate on private property. All camping at this location would occur on previously disturbed land.

The training would require a maximum of fourteen support vehicles and ten utility vehicles. Vehicle use would be restricted to Old Vantage Hwy (approximately 4.5 miles in length) and a gravel road leading to the Instructor’s Camp/forward operating location (approximately 0.7 miles in length). If necessary, small all-terrain vehicles (ATV's) would drive established trails. ATVs would not travel on the sand dunes or the trail between private and WDFW land for any reason.

Helicopters would be used for one day during each training session and would originate from Fairchild AFB. The training would generate approximately two sorties per training event. A sortie is defined as a single military

aircraft flight from initial takeoff through final landing. Helicopters would be on site for up to three (3) hours for hoist, vectoring including night vectors, radio contact, and sound vectoring over trainees positioning. Jumps could occur, but there would be no jumps at night. The area around the project site is a low fly area for the Naval Air Station at Whidbey Island, WA. The camp/activity area would serve as both a helicopter Landing Zone (HLZ) and a parachute Drop Zone (DZ).

For each training session, a maximum of 86 personnel would attend, including students, instructors, and support staff. The full training sessions would take place twice annually for five (5) days. Visual site inspections of the HLZs/DZs/camp areas would be completed prior to each training event, and the sites would be restored to their natural condition when the training event concludes.

- Point of Contact

Name: Ryan Sauter
Title: Senior Scientist
Organization: Environmental Assessment Services, LLC
Email: ryan.sauter@easbio.com
Phone Number: 651.341.9955

- Activity List:

Activity Type		Activity Title
2.	Aircraft	Supporting Helicopter Activity
3.	Personnel	Personnel Inputs

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. Aircraft

2.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

- Activity Location

County: Grant
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: Supporting Helicopter Activity

- Activity Description:

Helicopters would be used for one day during each training session and would originate from Fairchild AFB. The training would generate approximately two sorties per training event. A sortie is defined as a single military aircraft flight from initial takeoff through final landing. Helicopters would be on site for up to three (3) hours for hoist, vectoring including night vectors, radio contact, and sound vectoring over trainees positioning. Jumps could occur, but there would be no jumps at night.

- Activity Start Date

Start Month: 4
Start Year: 2022

- Activity End Date

Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	0.033298
SO_x	0.008877
NO_x	0.050079
CO	0.148916
PM 10	0.003613

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.003250
Pb	0.000000
NH_3	0.000000
CO_2e	26.8

- Activity Emissions [Flight Operations (includes Trim Test & APU) part]:

Pollutant	Emissions Per Year (TONs)
VOC	0.033298
SO_x	0.008877
NO_x	0.050079
CO	0.148916
PM 10	0.003613

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.003250
Pb	0.000000
NH_3	0.000000
CO_2e	26.8

2.2 Aircraft & Engines

2.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine

Aircraft Designation: C-23B
Engine Model: PT6A-65AR
Primary Function: General - Turboprop
Aircraft has After burn: No
Number of Engines: 2

- Aircraft & Engine Surrogate

Is Aircraft & Engine a Surrogate? Yes
Original Aircraft Name: UH-1N Iroquois
Original Engine Name: T400-CP-400

2.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)

	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e
Idle	131.43	53.66	1.07	1.89	166.43	1.23	1.11	3234
Approach	339.89	3.31	1.07	4.59	20.86	0.74	0.67	3234
Intermediate	570.64	0.72	1.07	6.69	6.72	0.29	0.26	3234
Military	633.06	0.53	1.07	7.08	5.36	0.26	0.23	3234
After Burn	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3234

2.3 Flight Operations

2.3.1 Flight Operations Assumptions

- Flight Operations

Number of Aircraft: 1
Number of Annual LTOs (Landing and Take-off) cycles for all Aircraft: 2
Number of Annual TGOs (Touch-and-Go) cycles for all Aircraft: 0
Number of Annual Trim Test(s) per Aircraft: 12

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi/Idle Out [Idle] (mins):	19
Takeoff [Military] (mins):	0.5
Takeoff [After Burn] (mins):	0
Climb Out [Intermediate] (mins):	180
Approach [Approach] (mins):	4.5
Taxi/Idle In [Idle] (mins):	7

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins):	12
Approach (mins):	27
Intermediate (mins):	9
Military (mins):	12
AfterBurn (mins):	0

2.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for LTOs per Year

$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * LTO / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
LTO: Number of Landing and Take-off Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for LTOs per Year

$AE_{LTO} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{LTO}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for TGOs per Year

$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * TGO / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
TGO: Number of Touch-and-Go Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for TGOs per Year

$AE_{TGO} = AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{TGO}: Aircraft Emissions (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year

$AEPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000$

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year

$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

2.4 Auxiliary Power Unit (APU)

2.4.1 Auxiliary Power Unit (APU) Assumptions

- Default Settings Used: Yes

- Auxiliary Power Unit (APU) (default)

Number of APU per Aircraft	Operation Hours for Each LTO	Exempt Source?	Designation	Manufacturer

2.4.2 Auxiliary Power Unit (APU) Emission Factor(s)

- Auxiliary Power Unit (APU) Emission Factor (lb/hr)

Designation	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CO_2e

2.4.3 Auxiliary Power Unit (APU) Formula(s)

- Auxiliary Power Unit (APU) Emissions per Year
$APU_{POL} = APU * OH * LTO * EF_{POL} / 2000$

APU_{POL}: Auxiliary Power Unit (APU) Emissions per Pollutant (TONs)
APU: Number of Auxiliary Power Units
OH: Operation Hours for Each LTO (hour)
LTO: Number of LTOs
EF_{POL}: Emission Factor for Pollutant (lb/hr)
2000: Conversion Factor pounds to tons

3. Personnel

3.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

- Activity Location
County: Grant
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: Personnel Inputs

- Activity Description:
For each training session, a maximum of 86 personnel would attend, including students, instructors, and support staff. The full training sessions would take place twice annually for five (5) days.

- Activity Start Date
Start Month: 4
Start Year: 2022

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	0.008218
SO_x	0.000060
NO_x	0.007488
CO	0.096454
PM 10	0.000219

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.000195
Pb	0.000000
NH_3	0.000550
CO_2e	8.6

3.2 Personnel Assumptions

- Number of Personnel
Active Duty Personnel: 86
Civilian Personnel: 0
Support Contractor Personnel: 0
Air National Guard (ANG) Personnel: 0
Reserve Personnel: 0

- Default Settings Used: No

- Average Personnel Round Trip Commute (mile): 20

- Personnel Work Schedule

Active Duty Personnel:	1 Days Per Month
Civilian Personnel:	5 Days Per Week
Support Contractor Personnel:	5 Days Per Week
Air National Guard (ANG) Personnel:	4 Days Per Week
Reserve Personnel:	4 Days Per Month

3.3 Personnel On Road Vehicle Mixture

- On Road Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	37.55	60.32	0	0.03	0.2	0	1.9
GOVs	54.49	37.73	4.67	0	0	3.11	0

3.4 Personnel Emission Factor(s)

- On Road Vehicle Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.278	000.002	000.219	003.276	000.008	000.007		000.023	00320.329
LDGT	000.351	000.003	000.382	004.545	000.010	000.009		000.024	00414.211
HDGV	000.705	000.005	001.074	015.763	000.025	000.022		000.045	00763.488
LDDV	000.122	000.003	000.133	002.396	000.004	000.004		000.008	00309.634
LDDT	000.266	000.004	000.384	004.133	000.007	000.007		000.008	00440.653
HDDV	000.498	000.013	005.110	001.743	000.169	000.156		000.028	01479.227
MC	002.339	000.003	000.821	013.581	000.029	000.025		000.054	00399.711

3.5 Personnel Formula(s)

- Personnel Vehicle Miles Travel for Work Days per Year

$VMT_P = NP * WD * AC$

VMT_P: Personnel Vehicle Miles Travel (miles/year)
NP: Number of Personnel
WD: Work Days per Year
AC: Average Commute (miles)

- Total Vehicle Miles Travel per Year

$VMT_{Total} = VMT_{AD} + VMT_C + VMT_{SC} + VMT_{ANG} + VMT_{AFRC}$

VMT_{Total}: Total Vehicle Miles Travel (miles)
VMT_{AD}: Active Duty Personnel Vehicle Miles Travel (miles)
VMT_C: Civilian Personnel Vehicle Miles Travel (miles)
VMT_{SC}: Support Contractor Personnel Vehicle Miles Travel (miles)
VMT_{ANG}: Air National Guard Personnel Vehicle Miles Travel (miles)
VMT_{AFRC}: Reserve Personnel Vehicle Miles Travel (miles)

- Vehicle Emissions per Year

$V_{POL} = (VMT_{Total} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{Total}: Total Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds

EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Personnel On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons