

Final Environmental Assessment for
Proposed Airspace Changes for
Paradise East and Paradise West
Military Operations Areas (MOAs) at
Mountain Home Air Force Base
(MHAFB) Idaho



29 March 2010

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FINDING OF NO SIGNIFICANT IMPACT

1.0 NAME OF THE PROPOSED ACTION

Proposed Airspace Changes for Paradise East and Paradise West Military Operations Areas (MOAs) at Mountain Home Air Force Base (MHAFB), ID.

2.0 DESCRIPTION OF THE PROPOSED ACTION

Based on the analysis in the draft Environmental Assessment (EA), the US Air Force is proposing Alternative B as the Proposed Action.

The PA is to reconfigure (expand) the lateral and vertical boundaries of Paradise East and Paradise West MOAs. The floor of the MOAs would be lowered from 14,500 feet above mean sea level (MSL) to 10,000 feet MSL or 3,000 feet above ground level, whichever is higher, and would add approximately 16,985 cubic nautical miles of training airspace. MHAFB would seek corresponding lateral boundaries for air traffic control-assigned airspace with the new MOA boundaries. The proposed boundaries are as follows:

Paradise West MOA: Beginning at lat. 42°45'00"N, long. 117°00'00"W;
to lat. 42°45'00"N, long. 117°14'00"W;
to lat. 42°30'00"N, long. 117°40'00"W;
to lat. 41°20'00"N, long. 117°50'00"W;
to lat. 41°20'00"N, long. 117°00'00"W;
to the point of beginning.

Paradise East MOA: Beginning at lat. 42°00'00"N, long. 115°02'00"W;
to lat. 42°00'00"N, long. 117°00'00"W;
to lat. 41°20'00"N, long. 117°00'00"W;
to lat. 41°20'00"N, long. 115°35'00"W.;
to the point of beginning.

Owyhee MOA: Beginning at lat. 42°00'00"N, long. 117°00'00"W;
to lat. 42°45'00"N, long. 117°00'00"W;
to lat. 42°45'00"N, long. 116°00'00"W;
to lat. 42°00'00"N, long. 116°00'00"W;
to the point of beginning.

The proposed Paradise MOAs would be charted and communicated to airspace users but could also be internally subdivided into separate operating areas (sectors). These sectors would be transparent to airspace users but would allow Salt Lake Air Route Traffic Control Center more flexibility in activating or deactivating sectors in order to respond to situations such as diverting nonmilitary aircraft through portions of the MOA complex to avoid adverse weather. Sectors could be activated separately or jointly to accommodate training requirements.

The Proposed Action would provide improved aircrew training, which is directly related to combat readiness. If training can better simulate combat conditions, the gained aircrew experience will limit attrition in actual combat. To maximize combat capability and preserve

valuable combat resources, fighting units must have access to a realistic combat training environment on a regular and frequent basis. An expanded airspace allows fighter aircrews the opportunity to train in realistic conditions and maximizes the full potential of their aircraft's capabilities.

Expanding the airspace would provide sufficient special use airspace to meet 366th Fighter Wing requirements to train fighter aircrews in offensive and defensive operations. Practicing in an improved training environment would provide multi-role fighter crews with realistic training scenarios to maximize the effectiveness of the aerial combat and air superiority mission experience.

3.0 SUMMARY OF ENVIRONMENTAL CONSEQUENCES

The EA analyzes the potential environmental impacts from the Proposed Action or Alternatives. According to the analysis in this EA, implementation of the Proposed Action would not result in significant impacts to any resource category or significantly affect existing conditions within the Mountain Home Range Complex, or the area underlying the proposed airspace expansion area. The following summarizes and highlights the results of the analysis by resource category.

Airspace Management and Use. The Proposed Action will deconflict airspace use and spread operations over a wider area. No significant impacts would occur from the proposed airspace expansion.

Noise. Empirical modeling was conducted in 2002, using nearly 24,000 hours of noise-monitoring data from 1,141 instrument days at eight sites in the Jarbidge and Owyhee MOAs. Noise values in A-weighted decibels (dB) within the proposed expansion area range from 45.0 to 47.5 dB. Average noise levels would increase to levels of 45.0 to 45.8 dB with implementation of the Proposed Action. Day-Night Average sound levels (L_{dn}) would decrease slightly in Owyhee and Jarbidge MOAs, and increase slightly in Paradise West and Paradise East MOAs. The average L_{dn} for Paradise East and West MOAs is 44.7 dB and would change to 45.2 dB under the Proposed Action. Therefore, except for periodic direct overpasses or a sonic boom, the average noise level would not change significantly.

Air Quality. Air emissions from aircraft will result in an insignificant increase in air pollutants in the expansion area. Air emissions will decrease within the current boundaries of the MOAs. No significant impacts would occur.

Hazardous Materials, Hazardous Waste and Solid Waste. No significant impacts would occur from the proposed airspace expansion.

Biological Resources. Noise will increase slightly throughout the MOA and expansion area, but the increase would be insignificant. No significant impacts to biological resources would occur from the proposed airspace expansion.

Safety, Light Emissions and Energy Supply. No significant impacts would occur from the proposed airspace expansion.

Environmental Justice. No disproportionate or significant impacts to children, economically disadvantaged, or minority populations would occur from the proposed airspace expansion.

Land Management Use, and Visual & Recreational Resources. No changes to land use would occur; and no significant impacts to visual and recreational resources would occur. Noise increases are expected over the Santa Rosa-Paradise Peak and Jarbidge Wilderness Areas; but the effects would be insignificant.

Cultural Resources. No significant impacts to cultural resources would occur from the proposed airspace expansion.

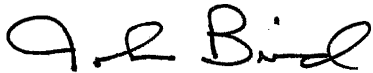
Water Resources and Hydrology. No significant change from current conditions would occur.

Earth Resources. No significant change from current conditions would occur.

Socioeconomics and Physical Resources. No significant impacts would occur from the proposed airspace expansion.

3.0 CONCLUSION

On the basis of the analysis provided in the EA, which has been conducted in accordance with the National Environmental Policy Act, the Council on Environmental Quality regulations and 32 CFR Part 989, implementing the Proposed Action would not result in significant impacts to human health or the natural environment. Therefore, a Finding of No Significant Impact is warranted and further analysis under an Environmental Impact Statement is not required.



JOHN D. BIRD II, Colonel, USAF
Commander, 366th Fighter Wing

29 MAR 10

Date

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Executive Summary

This Environmental Assessment (EA) analyzes the potential environmental effects resulting from a United States Air Force (Air Force) proposal to expand Paradise East and Paradise West Military Operating Areas (MOAs) in Oregon and Nevada. This EA has been prepared in accordance with the Code of Federal Regulation Title Part 989, known as the Air Force Environmental Impact Analysis Process, and with the National Environmental Policy Act (NEPA), as amended (PL 91-190), and the Council on Environmental Quality regulations. The FAA has jurisdiction for establishing controlled and special use airspace within the U.S., and in accordance with 32 CFR 989 is a cooperating agency during this environmental analysis.

Purpose and Need for the Action

The purpose of expanding the airspace is to provide sufficient special use airspace to meet the 366th Fighter Wing requirement to train fighter aircrews in offensive and defensive operations including:

- Basic Fighter Maneuvers (BFM)
- Air Combat Maneuvers (ACM)
- Offensive and Defensive Counter-air (OCA/DCA)
- Dissimilar Air Combat Tactics (DACT)
- Surface Attack Tactics (SAT)
- Large Force Exercise (LFE)

An expanded training environment would provide multi-role fighter crews with realistic training scenarios to maximize the effectiveness of the aerial combat and air superiority mission experience.

The proposed airspace expansion is needed to provide effective training and is directly related to combat readiness. If the available training can better simulate combat conditions, the gained aircrew experience will limit attrition in actual combat.

To maximize combat capability and to preserve valuable combat resources, fighting units must have access to a realistic combat training environment on a regular and frequent basis. The ability to conduct unrestricted maneuvering during air-to-air training engagements is an important aspect of combat training. It allows fighter aircrews the opportunity to train in near-realistic conditions and maximizes the full potential of their aircraft's capabilities. A 90-NM engagement set-up allows aircrews to realistically search, track, and target adversaries, while a set-up of less than 90 NM introduces artificial parameters into the training scenario. The aircraft Radio Detection and Ranging (RADAR) equipment will automatically acquire targets when engagement set-ups are less than 90 NM, which does not provide aircrews with target acquisition training. The current configuration of the Paradise MOAs allows only one major engagement with a 60-NM set-up. In order for pilots to fully exploit the weapon system's true capability, additional lateral and vertical airspace

is required. The proposed project would afford greater accessibility to more airspace and provide greater flexibility in scheduling activities within the MHRC.

Proposed Action and Alternatives

No-Action Alternative: Alternative A

Under the No Action Alternative, training activities in the Paradise East and West MOAs would continue as currently authorized and implemented. The lateral and vertical boundaries would remain the same and aircraft would fly above 14,500 feet MSL. Operational deficiencies would continue to limit the effectiveness of flight training.

Proposed Action: Alternative B

The proposed action would expand the lateral and vertical boundaries of the Paradise East/West MOAs. The floor of the MOAs would be lowered from 14,500 feet above mean sea level (MSL) to 10,000 feet MSL or 3,000 feet above ground level (AGL), whichever is higher, and would add approximately 16,985 cubic nautical miles (NM) of training airspace for a total volume of 66,270 cubic NM. The lateral boundaries of air traffic control assigned airspace¹ (ATCAA) would correspond with the new MOA boundaries. Supersonic flight currently conducted in the ATCAA would be extended over the proposed MOA expansion in corresponding ATCAA airspace.

Alternative C

Alternative C would incorporate the lateral, but not the vertical expansion of the Paradise East/West MOAs described for the Proposed Action. Alternative C provides the same 29 percent increase in MOA area, but represents a more modest increase in MHRC airspace volume; by only about 26 percent more than provided in the No Action Alternative (compared with a 34 percent volume increase for the Proposed Action). Training activities would be enhanced compared to the No Action Alternative, but a number of operational deficiencies would remain.

Alternative D

Alternative D incorporates the vertical, but not the lateral expansion of the Paradise East/West MOAs described for the Proposed Action. This alternative, therefore, represents a more modest increase in MHRC vertical airspace volume by about 5.4 percent over the No Action Alternative (compared with a 34 percent volume increase with the Proposed Action and a 26 percent volume increase for Alternative C). Training activities under Alternative D would be enhanced compared to the No Action Alternative, but a number of operational deficiencies would remain.

¹ ATCAA is uncharted airspace that overlies the MOA, at altitudes from Flight Level (FL) 180 through FL 500 (approximately 18,000 feet to 50,000 feet MSL). Flight Levels are defined as altitudes (in hundreds of feet) based on a standardized aircraft altimeter setting of 29.92 inches of mercury.

Summary of Environmental Consequences

This section compares potential impacts among the alternatives. A comparison of potential impacts for proposed airspace changes are presented in Table ES.1. Resource areas for which impacts may occur include noise impacts to people and biological resources (wildlife). According to the analysis in this EA, implementing the Proposed Action or Alternatives would have a negligible, insignificant effect on the environment and human health.

TABLE ES.1
Alternatives Comparison of Potential Impacts for Proposed Airspace Changes of the MOAs at MHRC

Resource Area	Alternative A No Action	Alternative B Proposed Action	Alternative C	Alternative D
Airspace Management and Use	No change from current conditions	Highest potential for deconflicting airspace use and spreading operations over a wider area as compared to the No Action Alternative	Moderate potential for deconflicting airspace use and spreading operations over a wider area as compared to the No Action Alternative	Lowest potential for deconflicting airspace use and spreading operations over a wider area as compared to the No Action Alternative
Noise	No change from current conditions	Very small to no increase in average hourly noise levels over existing conditions	Very small to no increase in average hourly noise levels over existing conditions	Very small to no increase in average hourly noise levels over existing conditions
Biological Resources (Wildlife)	No documented effect	No effect	No effect	No effect

1.0 Purpose and Need for Action

1.1 Introduction

The U.S. Air Force (USAF) has proposed to change the boundaries and use of the current Military Operations Areas (MOAs) in the Mountain Home Range Complex (MHRC) for Mountain Home Air Force Base (MHAFB). The proposed project would result in a lateral expansion of the current Paradise MOA structures, and a vertical increase by modification of the altitude floors currently authorized for use in the existing, contiguous MOA. Figure 1 shows the project area and existing MOAs.

This Environmental Assessment (EA) has been prepared to evaluate the potential environmental effects from implementation of the Proposed Action or alternatives. The alternatives have been prepared in accordance with 32 CFR 989, Air Force Environmental Impact Analysis Process and with the National Environmental Policy Act (NEPA), as amended (PL 91-190). The FAA has jurisdiction for establishing controlled and special use airspace within the U.S., and in accordance with 32 CFR 989 is a cooperating agency during this environmental analysis.

This EA is organized into five chapters as follows:

- *Chapter 1, Purpose and Need for Action.* This chapter includes background information about the proposal, MHAFB and the MHRC MOA, and the purpose of and need for the project.
- *Chapter 2, Description of the Proposed Action and Alternatives.* This chapter provides a more detailed description of the Proposed Action and alternatives to the Proposed Action.
- *Chapter 3, Affected Environment.* This chapter describes the human and natural environments in the analysis area. It is organized by resource area.
- *Chapter 4, Environmental Consequences.* This chapter presents the environmental consequences of implementing the Proposed Action and alternatives, including direct, indirect, and cumulative effects.
- *Chapter 5, References.* This chapter presents references consulted during development of the EA.
- *Chapter 6, List of Contributors and Preparers.* This chapter outlines the list of professionals who participated in the creation of this document.

1.2 Background

Air Combat Command (ACC) requires fighter and bomber aircrews to train in offensive and defensive BFM, ACM, OCA/DCA, and DACT. The current MHAFB Paradise MOA configuration allows only one major engagement with a 60-NM set-up. An expanded configuration would permit three separate engagements with 50-NM set-ups, two

engagements with 75-NM set-ups, or one large engagement with an over 90-NM set-up. An expanded MOA complex providing an additional 16,985 cubic NM of airspace is desired to enable MHAFB to better achieve current mission requirements.

An expanded MOA complex would also provide more options in the event ARTCC needs to reroute civil air traffic over or through the MOAs. Incorporating sectors into the Paradise MOAs would allow the Paradise airspace to be activated incrementally by sector rather than the current all or nothing situation. It would also allow for more flexibility in scheduling the airspace with both military and civil airspace users.

Effective training and combat readiness are directly related. Unrestricted maneuvering during air-to-air training represents one important facet of realistic training. It allows fighter and bomber aircrews the opportunity to train realistically and realize the maximum potential of their aircraft's capabilities.

1.2.1 Mountain Home Air Force Base

MHAFB is located approximately 50 miles southeast of Boise, Idaho, and 8 miles southwest of Mountain Home, Idaho (Figure 1). MHAFB includes the base proper plus a Small Arms Range, the Rattlesnake Radar Station, Middle Marker, and C.J. Strike Dam Recreation Complex. The 6,844 acres of MHAFB includes all of Sections 20, 21, 22, 27, 28, 29, 32, 33, and 34, as well as 10 acres in Section 19 in Township 4 South (T4S), Range 5 East (R5E).

1.2.2 Mountain Home Range Complex

The Mountain Home Range Complex (MHRC) encompasses many properties in Owyhee County and one property in Twin Falls County. Saylor Creek Air Force Range (SCR) and Juniper Butte Range (JBR) are part of this complex (Figure 1).

SCR is located in Township 7 South, Range 7 East, Sections 1-36; Township 7 South, Range 8 East, Sections 1-36; Township 8 South, Range 7 East, Sections 1-5, 8-17, 20-29, and 32-36; Township 8 South, Range 8 East, Sections 1-36; Township 9 South, Range 7 East, Sections 1-5, 8-17, and portions of 24, 25, and 36; and Township 9 South, Range 8 East, Sections 1-18 and portions of 19, 20, 29, 30, 31, and 32. The public-use area of the 109,466-acre SCR is located in the relatively flat upland of the Inside Desert at an average elevation of 3,700 feet.

JBR is located approximately 25 miles southeast of SCR in Owyhee County, Idaho. JBR occupies portions of Sections 31, 32, and 33 in Township 12 South, Range 10 East; portions of Sections 35 and 36 in Township 12 South, Range 9 East; all of Sections 5, 6, 7, 8, 9, 16, 17, and 18, and portions of Sections 4, 19, 20, and 21 in Township 13 South, Range 10 East; all of Sections 1, 12, and 13, and portions of Sections 2, 11, 14, 23, and 24 in Township 13 South, Range 9 East.

Five no-drop targets, 20 quarter acre emitter sites, and 10 one-acre emitter sites exist in the Jarbidge MOA, Owyhee County, Idaho.

All MHRC properties are found within the boundaries of the Jarbidge MOA. No other MOAs contain training ranges, conventional targets, no-drop targets, emitter sites, or other on the ground assets.

1.3 Proposed Federal Action

The proposed action would expand the lateral and vertical boundaries of the Paradise East/West MOAs (Figure 2), and includes a small addition of airspace attached to the Owyhee MOA. The floor of the Paradise MOAs would be lowered from 14,500 feet above mean sea level (MSL) to 10,000 feet MSL or 3,000 feet above ground level (AGL), whichever is higher. 14,500 feet MSL in Paradise East MOA corresponds to 1,403-9,196 feet AGL depending on terrain. The current range of 14,500 feet MSL in Paradise West is between 4,000-8,664 feet AGL. The proposed changes would add approximately 16,985 cubic nautical miles (NM) of training airspace. The lateral boundaries of air traffic control assigned airspace¹ (ATCAA) would correspond with the new MOA boundaries. Supersonic flight currently conducted above the Paradise MOA in ATCAA airspace would be extended over the proposed MOA lateral expansion. The addition to the Owyhee MOA would be consistent with current Owyhee MOA parameters of operations at 100 feet AGL to 17,999 MSL. The proposed lateral boundaries of the MOAs would be as follows:

Paradise West MOA – Beginning at lat. 42°45'00"N, long. 117°00'00"W;
to lat. 42°45'00"N, long. 117°14'00"W;
to lat. 42°30'00"N, long. 117°40'00"W;
to lat. 41°20'00"N, long. 117°50'00"W;
to lat. 41°20'00"N, long. 117°00'00"W;
to the point of beginning.

Paradise East MOA – Beginning at lat. 42°00'00"N, long. 115°02'00"W;
to lat. 42°00'00"N, long. 117°00'00"W;
to lat. 41°20'00"N, long. 117°00'00"W;
to lat. 41°20'00"N, long. 115°35'00"W;
to the point of beginning.

Owyhee MOA – Beginning at lat. 42°00'00"N, long. 117°00'00"W;
to lat. 42°45'00"N, long. 117°00'00"W;
to lat. 42°45'00"N, long. 116°00'00"W;
to lat. 42°00'00"N, long. 116°00'00"W;
to the point of beginning.

No training ranges, conventional targets, no-drop targets, emitter sites, or other on-the-ground assets are part of this proposed action. No increase in the total number of aircraft operations is planned.

¹ ATCAA is uncharted airspace that overlies the MOA, at altitudes from Flight Level (FL) 180 through FL 500 (approximately 18,000 feet to 50,000 feet MSL). Flight Levels are defined as altitudes (in hundreds of feet) based on a standardized aircraft altimeter setting of 29.92 inches of mercury.

1.4 Purpose and Need

The **purpose** of expanding the airspace is to provide sufficient special use airspace to meet the 366th Fighter Wing requirement to train fighter aircrews in offensive and defensive operations including:

- Basic Fighter Maneuvers (BFM)
- Air Combat Maneuvers (ACM)
- Offensive and Defensive Counter-air (OCA/DCA)
- Dissimilar Air Combat Tactics (DACT)
- Surface Attack Tactics (SAT)
- Large Force Exercise (LFE)

An expanded airspace training environment would provide multi-role fighter crews with realistic training scenarios to maximize the effectiveness of the aerial combat and air superiority mission experience.

The proposed airspace expansion is **needed** to provide effective training and is directly related to combat readiness. If the available training can better simulate combat conditions, the gained aircrew experience will limit attrition in actual combat. To maximize combat capability and to preserve valuable combat resources, fighting units must have access to a realistic combat training environment on a regular and frequent basis. The ability to conduct unrestricted maneuvering during air-to-air training engagements is an important aspect of combat training. It allows fighter aircrews the opportunity to train in near-realistic conditions and maximizes the full potential of their aircraft's capabilities. A 90-NM engagement set-up allows aircrews to realistically search, track, and target adversaries, while a set-up of less than 90 NM introduces artificial parameters into the training scenario. The aircraft Radio Detection and Ranging (RADAR) equipment will automatically acquire targets when engagement set-ups are less than 90 NM, which does not provide aircrews with target acquisition training. The current configuration of the Paradise MOAs allows only one major engagement with a 60-NM set-up. In order for pilots to fully exploit the weapon system's true capability, additional lateral and vertical airspace is required. The proposed project would afford greater accessibility to more airspace and provide greater flexibility in scheduling activities within the MHRC.

The need for the proposed airspace expansion can be further characterized by the following specific operational limitations and deficiencies resulting from the constrained MOA airspace:

- The current Paradise MOA airspace boundaries cause "funneling" of aircraft because of the MOA boundary configurations (triangular shaped). This limitation is compounded when exercising large force exercise (LFE) formations where many aircraft must operate in increasingly confined space when approaching the MOA boundary. This containment minimizes the aircraft performance capabilities and training scenarios. Sufficient airspace to allow maximum aircraft performance is needed in order to train to obtain an "air superiority" environment.

- When restricted into either Paradise West or East (i.e., en-route traffic re-routing because of weather), aircrews lose an appreciable amount of airspace, which restricts the available lateral maneuvering area. Re-configuration/expansion would provide more options to activate and deactivate MOA sectors to continue mission training when the amount of available airspace is reduced due to ARTCC weather deviations of civilian or commercial air traffic.
- The current restricted and funneled configuration also results in a higher probability for “spill-out” (training aircraft inadvertently flies outside of the MOA). These events significantly increase the ARTCC/Military RADAR Unit (MRU) coordination workload to maintain separation of military training aircraft from nonparticipating aircraft.
- The airspace size is further constrained by a Settlement Agreement between the Shoshone-Paiute Tribes of the Duck Valley Reservation (DVR) and the United States. This Settlement Agreement restricts military training aircraft operations within its vertical and lateral boundaries. When combined with the DVR geographic location within the MOA complex, the available military aircraft operating area is significantly lessened, especially to the south and east in the Paradise East MOA.
- Vertical and lateral MOA enlargement would decrease potential conflict between training aircraft packages and enhance range safety margins. During LFEs, the opportunity to stratify the airspace would allow larger formations to perform required training with reduced interference from adjacent training packages, and improve training mission effectiveness.
- Larger airspace dimensions would allow better use of the daily flying window by accommodating concurrent training operations, which may result in a shorter flying window and fewer manpower requirements necessary to complete training. The expanded airspace would better accommodate LFEs, increasing the productivity of the airspace.

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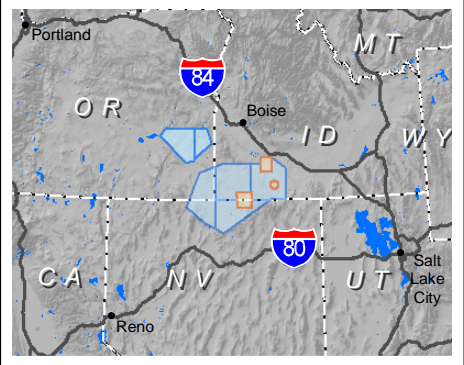
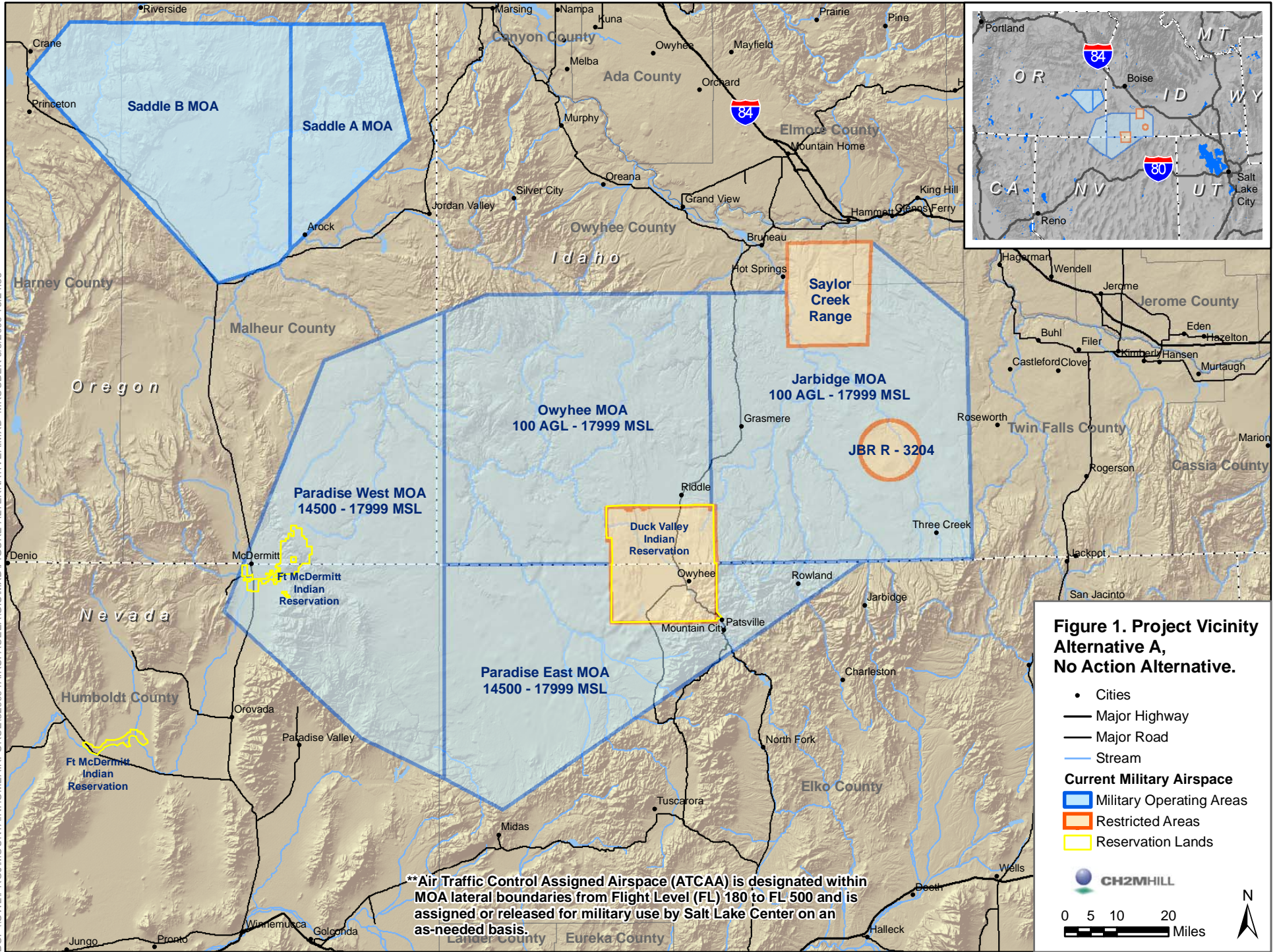


Figure 1. Project Vicinity Alternative A, No Action Alternative.

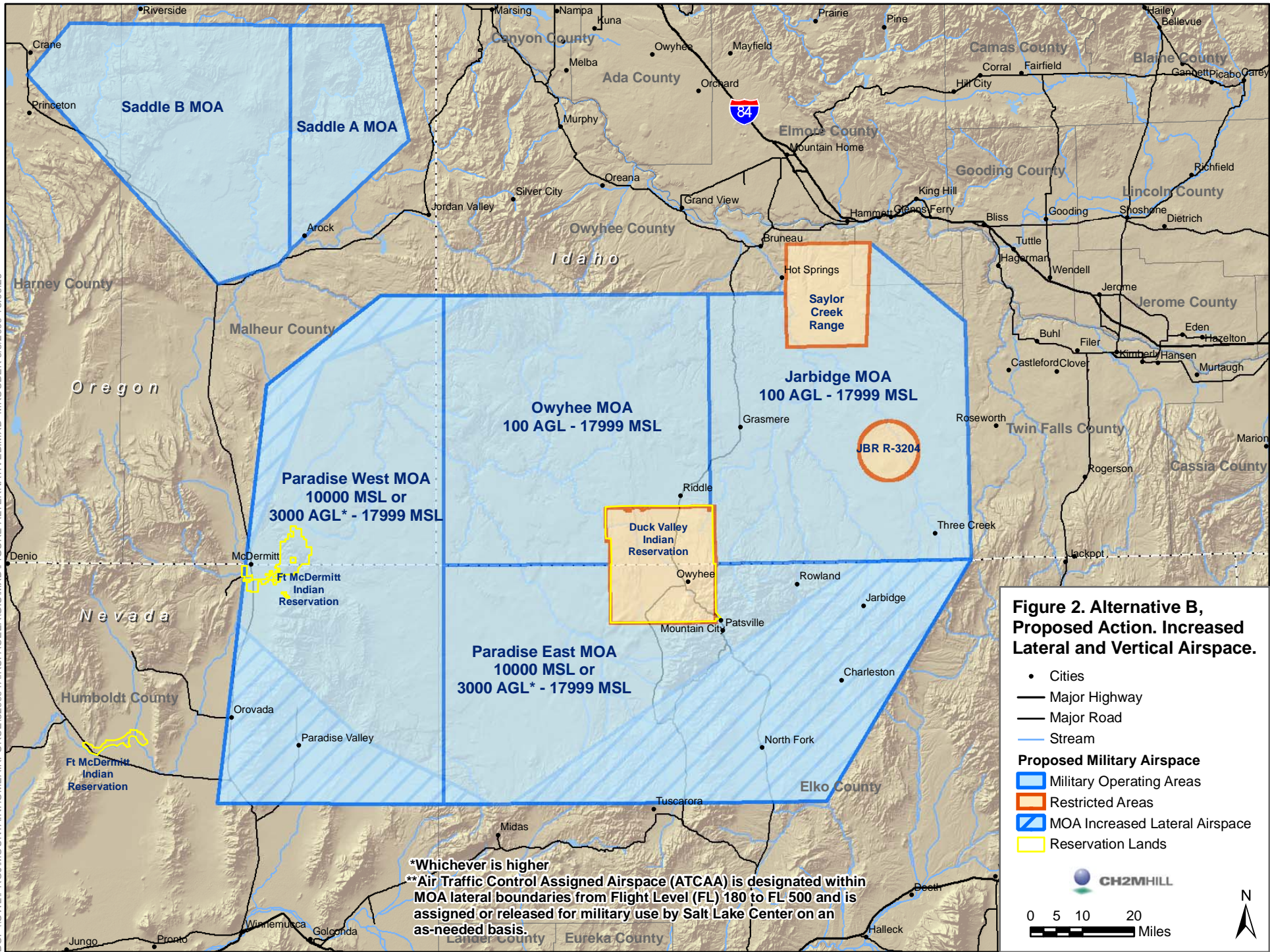
- Cities
- Major Highway
- Major Road
- Stream
- Current Military Airspace**
- Military Operating Areas
- Restricted Areas
- Reservation Lands

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2.0 Description of Proposed Action and Alternatives

2.1 Introduction

This chapter presents the No Action Alternative, Proposed Action, and other action alternatives. All alternatives are described in detail and a summary comparison is included.

Federal agencies are required by NEPA to evaluate a range of reasonable alternatives to the action being proposed. All alternatives evaluated must satisfy the purpose and need for the action.

2.2 Background and Airspace Review

MOAs are established by the Federal Aviation Administration (FAA) to separate military training operations such as air combat tactics, air intercepts, aerobatics, formation training, and low-altitude tactics from other aircraft operating under instrument flight rules (IFR). In addition, MOAs airspace is considered joint-use airspace; civil and commercial aircraft are not precluded from using MOAs. Aircraft operating under visual flight rules (VFR) are expected to exercise extreme caution while flying within a MOA when military activity is being conducted. MOA lateral and vertical limits are depicted on VFR and IFR aeronautical charts.

The Proposed Action and other action alternatives would involve changes to airspace boundaries and uses (except for the No Action Alternative, where no changes would occur). To understand the Proposed Action and alternatives it is necessary to have a basic understanding of the classification and use of airspace. The FAA has adopted the International Civil Aviation Organization (ICAO) classification¹ of controlled and uncontrolled airspace, with letter designators for different classes of airspace. The general intent of the five classes of controlled airspace is to protect IFR enroute operations and approaches to airports. In addition, there is one class of uncontrolled airspace where IFR operations are infrequent or not anticipated. A summary of airspace classes in the continental U.S. (with emphasis on operational considerations) is listed below, in the order of most restrictive to least restrictive airspace. Only airspace categories that may be affected or are in close proximity to the MOAs are discussed. For example, the proposal directly affects Classes A and G airspace and moves closer to Class E airspace. Classes B, C, and D are not discussed.

- **Class A.** This high altitude airspace begins at 18,000 feet MSL and extends up to and including flight level (FL) 600². VFR operations are prohibited in Class A airspace. All

¹ FAA airspace classifications are not entirely consistent with ICAO classifications, but are very similar, including the use of letter-based airspace classes. The descriptions of airspace in this EA are based on FAA regulations in Title 14 CFR, Part 71.

²FLs are defined as altitudes (in hundreds of feet) based on a standardized aircraft altimeter setting of 29.92 inches of mercury. For example, FL 300 is ±30,000 feet.

civil aircraft must operate under IFR flight plans (with assigned routes and altitudes). High altitude routes are established in this airspace as “Jet routes” (or J-routes), generally between ground-based radio navigation aids. This airspace and the associated J-routes are charted by the FAA on IFR enroute high altitude charts. Class A airspace is the only airspace class above 18,000 feet MSL.

- **Class E.** This broad class of controlled airspace contains the low altitude enroute airways used for IFR navigation as well as airspace that transitions from the enroute system to surface-based airspace at airports with instrument approaches. The key operational consideration for Class E airspace is that this airspace does not impose specific communication or navigation requirements on aircraft operators, but it does require higher VFR weather minimums (greater separation from clouds and greater visibility required for VFR aircraft), compared to uncontrolled airspace described below. Because IFR traffic operations are expected within Class E airspace, the higher weather minimums provide more opportunity for VFR traffic to see and avoid IFR traffic that may be operating in and out of clouds while enroute or approaching an airport. Unless designated at a lower altitude, Class E airspace begins at 14,500 feet MSL and extends up to the beginning of Class A airspace (FL 180). Ground-based Class E airspace is established around uncontrolled airports to contain instrument approaches, with the vertical airspace limit defined by any overlying controlled airspace. Transition Class E airspace generally begins at either 700 or 1,200 feet above ground level (AGL) and extends up to overlying controlled airspace and laterally to the enroute airway system. The low altitude enroute airways are numbered Federal Airways, also referred to as “Victor” airways (phonetic alphabet for “V”), because these airways are generally defined by VOR³ radio navigation aids. Victor airways are the primary enroute navigation system for IFR aircraft (slowly being replaced by direct point-to-point navigation systems such as Global Positioning Systems (GPS)). Victor airways are established by VOR radials, which define the centerline of each airway, with a nominal airway width of 4 NM on either side of the centerline. Enroute Class E airspace also includes controlled airspace in areas where the Victor airway system is absent or inadequate, but where IFR operations are expected to occur. Enroute Class E airspace generally begins at 1,200 feet AGL up to any overlying controlled airspace.
- **Class G.** Uncontrolled airspace that is not designated as Class A, B, C, D, or E (there is no Class F controlled airspace in the U.S.) extends from the ground surface to any overlying controlled airspace. IFR aircraft are generally not expected in this airspace because it is far from the enroute airway system and from airports with instrument approaches. IFR aircraft are not prohibited in this airspace; however, they are not likely to be found here because of the lack of ATC services. There are no communication requirements for aircraft operating in Class G airspace and the weather minimums are less restrictive than in controlled airspace.

In addition to the above classes of controlled and uncontrolled airspace, the FAA designates several categories of special use airspace, depicted graphically in Figure 3. Special use airspace confines activities that may be hazardous to aircraft or it imposes specific operating

³ VOR stands for very-high-frequency omnidirectional range, a ground-based navigation facility that transmits radio signals in 360 discrete degrees (radials) oriented to magnetic north. Aircraft navigation receivers can display the relationship of the aircraft to any of the 360 radials emanating from a VOR.

limitations on air space and aircraft (i.e., ATC has the option to reroute IFR traffic or take back MOA airspace when needed). The two categories of regulatory special use airspace (with operational restrictions established through the 14 CFR, Part 73 rulemaking process) include: Prohibited Areas and Restricted Areas. Non-regulatory special use airspace (with no operating restrictions beyond normal VFR and IFR rules) includes warning areas, alert areas, controlled firing areas, and MOAs. Although not categorized by the FAA as special use airspace, Military Training Routes (MTRs) and ATCAA are established for movement of high-performance military aircraft while outside other protected airspace. Only Restricted Areas, MOAs, MTRs, and ATCAA are found within the vicinity of the project area, so these categories of airspace are described below.

- **Restricted Area.** These areas contain unusual, often invisible hazards to aircraft such as artillery firing, aerial gunnery, or guided missiles. Penetration of Restricted Areas without authorization is extremely hazardous to an aircraft and its occupants. Each restricted area is charted with vertical and lateral dimensions, as well as the time of use and controlling agency. When this airspace is inactive and released to the controlling agency (normally Air Traffic Control [ATC]), aircraft may be allowed to transit the airspace. All non-participating aircraft desiring to transit a restricted area must contact the controlling agency to determine whether the area is active (“hot”), or inactive (“cold”), and must receive a clearance to enter the restricted area.
- **Military Operations Area.** The purpose of a MOA is to separate military training operations such as air combat tactics, air intercepts, aerobatics, formation training, and low-altitude tactics, from other aircraft operating under IFR. Within a MOA, the maximum vertical limit is 17,999 feet MSL. Within a MOA, military aircraft are exempt from regulatory prohibitions against aerobatic flight within controlled airspace and are allowed to exceed 250 knots below 10,000 feet⁴. If ATC can provide separation for non-participating IFR aircraft, these aircraft can be cleared through an active (hot) MOA. Otherwise, ATC will reroute or divert non-participating IFR traffic from the active MOA or take airspace as needed for moving the IFR traffic. VFR aircraft have no operating or communication requirements or restrictions within a MOA; they can operate within the MOA even if it is hot. However, VFR aircraft are encouraged to contact the MOA controlling agency to determine whether the MOA is hot or cold to be aware of potential military aircraft traffic. Military traffic within the MHRC MOAs is the responsibility of Cowboy Control Military Radar Unit (MRU).
- **Military Training Route.** Because of the need to train for low-level aerial combat, a joint venture between the FAA and Department of Defense resulted in the establishment of MTRs for low-level, high-speed training. MTRs are generally below 10,000 feet MSL and involve military aircraft operating in excess of 250 knots. Because of the maneuvering and high speeds of military aircraft in these routes, normal “see-and-avoid” VFR traffic scanning practices may not be adequate to avoid aircraft conflicts. Therefore, non-participating civil aircraft exercise extreme caution and vigilance in the vicinity of an MTR. MTR segments are identified and charted as either IR routes (IFR) or VR routes

⁴ 14 CFR Section 91.117 establishes aircraft speed restrictions. In general, below 10,000 feet MSL aircraft speed is restricted to below 250 knots indicated airspeed. In airspace underlying Class B airspace and within 4 NM of a primary Class C or Class D airport, aircraft cannot exceed 200 knots indicated airspeed.

(VFR), where IR routes can be used regardless of weather. MTRs are designated as one-way routes.

- **Air Traffic Control Assigned Airspace.** Outside of any other special use airspace, ATC may define airspace for the purpose of separating activities such as military training from non-participating IFR traffic. ATCAA is typically established through a letter of agreement between the controlling ATC facility and the cognizant military authority. Availability of ATCAA is dependent on weather and IFR traffic conditions.

The final airspace element within the MHRC MOAs is an uncharted airspace area overlying the DVR, located near the middle of the MOA complex. The airspace overlying the DVR, shown in Figure 1 (Chapter 1), is airspace with restrictions on military aircraft operations established through a 1996 Settlement Agreement between the United States and the Shoshone-Paiute Tribes and implemented by local MHAFB directives. The agreement states that MHAFB will not conduct training flights within the airspace overlying DVR below 15,000 feet AGL or over the town of Owyhee NV at any altitude. Under the Proposed Action and alternatives, the restrictions from the 1996 Settlement Agreement would still apply and remain in effect over the DVR.

The Proposed Action (Alternative B) and other alternatives are described below in terms of airspace configuration, proposed use, and relationships with airspace operation.

2.3 Alternative A—No Action Alternative

Under the No Action Alternative (Alternative A), training activities in the MHRC MOAs would continue as currently authorized and implemented. Consequently, the operational deficiencies identified in Section 1.3 (Chapter 1) would continue to limit the effectiveness of flight training.

2.3.1 Airspace Configuration

As shown in Figure 1 (Chapter 1), there are four MOAs within the existing MHRC. These include the Jarbidge MOA, Owyhee MOA, Paradise West MOA, and Paradise East MOA. The lateral boundaries of the existing MOAs are as follows:

Jarbidge MOA – Beginning at lat. 42-53'00"N, long. 115-24'15"W;
to lat. 42-53'00"N, long. 115-23'00"W;
to lat. 42-39'50"N, long. 115-02'00"W;
to lat. 42-00'00"N, long. 115-02'00"W;
to lat. 42-00'00"N, long. 116-00'00"W;
to lat. 42-45'00"N, long. 116-00'00"W;
to lat. 42-45'00"N, long. 115-42'20"W;
to lat. 42-36'00"N, long. 115-42'20"W;
to lat. 42-36'00"N, long. 115-24'15"W;
to the point of beginning.

50,000 Feet
Mean Sea Level
or Above

Air Traffic Control Assigned Airspace (ATCAA).

ATCAA is airspace controlled by the applicable FAA Air Route Traffic Control Center (ARTCC) that, if not required for other purposes, may be available for military use by Letter of Agreement. ATCAAs are structured and used to extend the horizontal and/or vertical boundaries of other Special Use Airspace such as MOAs and Restricted Areas.

Military Training Routes (MTRs).

MTRs are flight corridors used to practice high-speed, low-altitude training, generally below 10,000 feet MSL. They are described by a centerline, with defined horizontal limits

on either side of the centerline, and vertical limits expressed as minimum and maximum altitudes along the flight track.

Military Operations Areas (MOAs).

MOAs are established to separate or segregate certain military activities from Instrument Flight Rule (IFR) traffic and to identify for Visual Flight Rule (VFR) traffic where these military activities are conducted.

Restricted Areas (R-).

Restricted Areas support ground or flight activities that could be hazardous to non-participating aircraft. Saylor Creek Range and Juniper Butte Range, in Owyhee County, Idaho, are below restricted airspace. Entry into restricted airspace without approval from the using or controlling agency is prohibited.

Ground Level



Figure 3. Airspace

Owyhee MOA – Beginning at lat. 42°00'00"N, long. 117°00'00"W;
to lat. 42°42'10"N, long. 117°00'00"W;
to lat. 42°45'00"N, long. 116°50'00"W;
to lat. 42°45'00"N, long. 116°00'00"W;
to lat. 42°00'00"N, long. 116°00'00"W;
to the point of beginning.

Paradise East MOA – Beginning at lat. 42-00'00"N, long. 115-26'00"W;
to lat. 41-19'00"N, long. 116-47'00"W;
to lat. 41-24'10"N, long. 117-00'00"W;
to lat. 42-00'00"N, long. 117-00'00"W;
to the point of beginning.

Paradise West MOA – Beginning at lat. 42-42'10"N, long. 117-00'00"W;
to lat. 41-24'10"N, long. 117-00'00"W;
to lat. 41-31'00"N, long. 117-18'00"W;
to lat. 41-52'00"N, long. 117-49'00"W;
to lat. 42-34'00"N, long. 117-27'00"W;
to the point of beginning.

The training airspace would also include the ATCAA between FL 180 and 500 when it is made available by Salt Lake Center. Flight training restrictions from the Settlement Agreement would remain in effect over the DVR. The existing MOA airspace floor of 14,500 feet MSL for the Paradise East MOA (1,403-9,196 feet AGL) and Paradise West MOA (4,000 to 8,664 feet AGL) would continue to define the available vertical airspace for maneuvering. The MHRC would continue to contain about 7,501 square NM and a volume of approximately 49,285 cubic NM of training airspace. The current boundaries of the MOAs are as follows:

Military aircraft currently use established Military Training Routes (MTRs) for low level training in Paradise East and Paradise West MOAs, over the Jarbidge Wilderness and the Santa Rosa-Paradise Peak Wilderness. Instrument Route (IR) 300 and IR 313 exist over the Santa Rosa-Paradise Peak Wilderness, and IR 302 and IR 303 exist over the Jarbidge Wilderness. These MTRs are for high speed, low level aircraft training, and have an established use at 100 feet AGL. See Figures 4 and 5.

The Jarbidge Wilderness is overlain by the Elko Air Traffic Control Assigned Airspace (ATCAA) areas, and the Santa Rosa-Paradise Peak Wilderness is overlain by the Sodhouse ATCAA. Both Sodhouse and Elko have an operating altitude of 18,000 feet AGL to 28,000 feet AGL. Military aircraft regularly use this airspace by permission from Salt Lake Center for refueling and marshalling during Large Force Exercises. See Figure 4.

Four public and three private general aviation (GA) airports are located within the MOA complex (Table 2.1) in Class G, uncontrolled airspace. All of these airports are uncontrolled (no ATCT) and would remain within the lateral boundaries of the MOA complex.

TABLE 2.1
Airports Located Within the MOA Complex Uncontrolled Airspace

Airport	Identifier	Elevation (feet MSL)	Longest Runway (100 feet)
McDermitt State	26U	4478	59
Grasmere	U91	5134	27
Owyhee	10U	5374	67
Murphy Hot Springs	3U0	5829	52
I-L	Private	5368	52
Riddle	11ID	5331	31
Petan	NV08	5616	75

2.3.2 Operational Characteristics

The existing lateral dimensions of the MOA complex would continue to govern military training aircraft access to the available MOA airspace. The DVR Settlement Agreement flight restrictions, in combination with Juniper Butte (R-3204) and Saylor Creek (R-3202) Restricted Areas, would continue to confine access to the eastern portion of the Paradise East MOA to a very narrow access corridor south and east of the DVR. VFR traffic would continue to be able to operate within the MOA complex without communication or operations requirements or restrictions. IFR traffic would continue to be diverted from the MOA complex when it is active or take airspace as needed for moving the IFR traffic through the area, unless ATC can provide adequate aircraft separation. The existing limitations of the MHRC airspace would continue to constrain the numbers and quality of aircrew training that could be accomplished in the MHRC due to the following operational characteristics.

- The MHRC would continue to be limited to one LFE or two smaller air combat engagements at a time in an East/West engagement configuration, with a maximum initial separation distance between opposing forces of 60 to 70 NM. There is only airspace for two or three smaller North/South engagement configurations with an initial maximum separation between forces of 60 to 70 NM. This initial separation distance would continue to reduce the realism of aircrew training in target search, tracking, and acquisition, due in part to the DVR restrictions previously mentioned. The amount of vertical airspace currently available also directly impacts the quality of the ACM/BFM fight development in the Paradise MOAs.
- The geometry of the eastern portion of Paradise East MOA further constrains activity as this area “funnels” the movement to an area where the MOAs converge and reduces the airspace available for aircraft maneuvering during opposing force scenario set ups. The geometry described above makes this airspace unusable for any quality air-to-air training because of the MOA layout and the proximity to DVR.

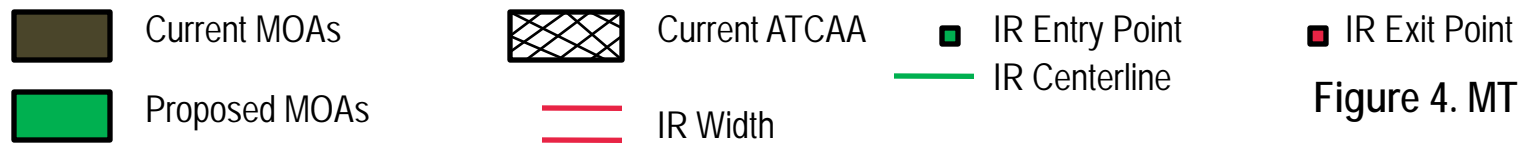
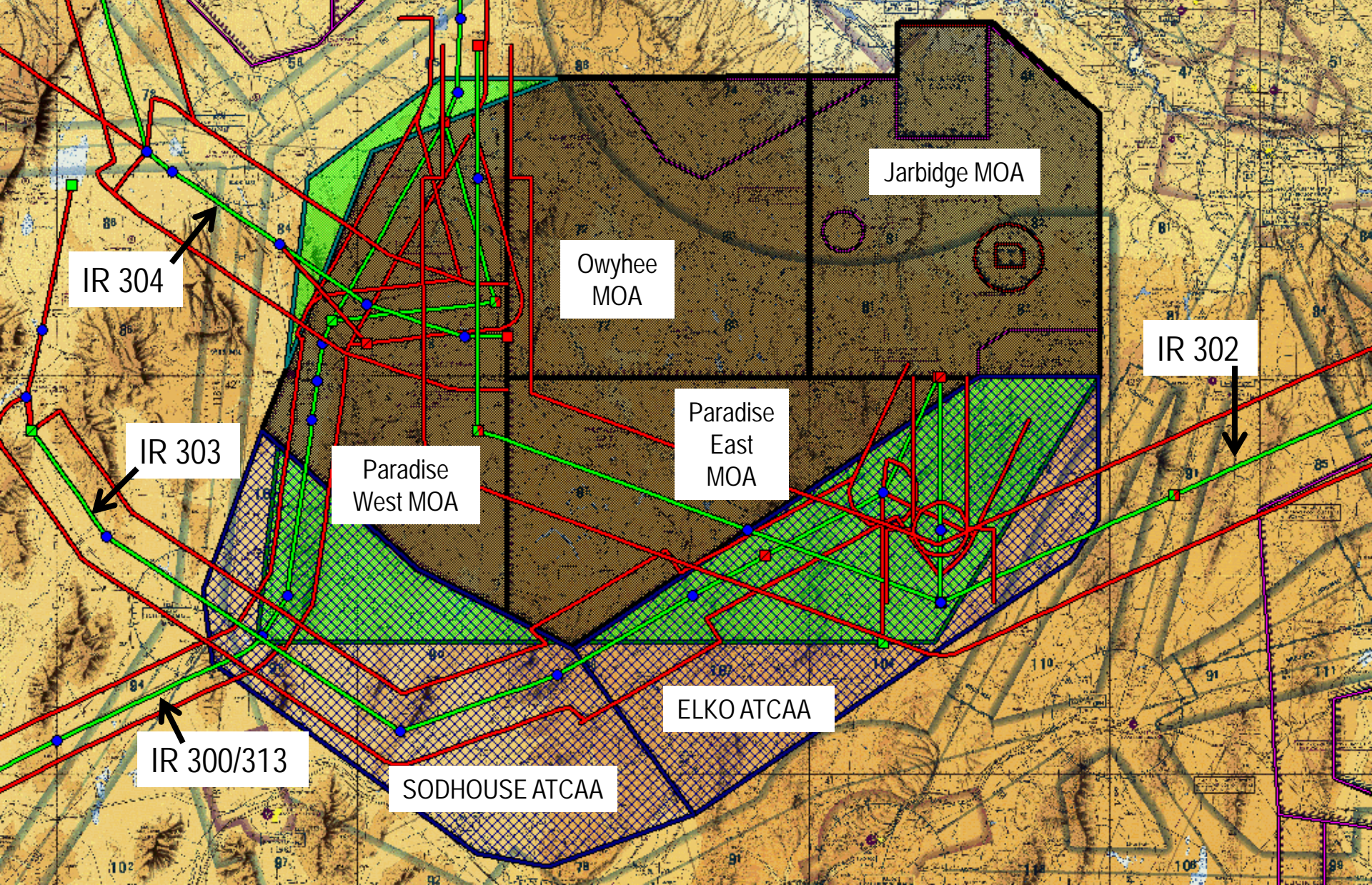


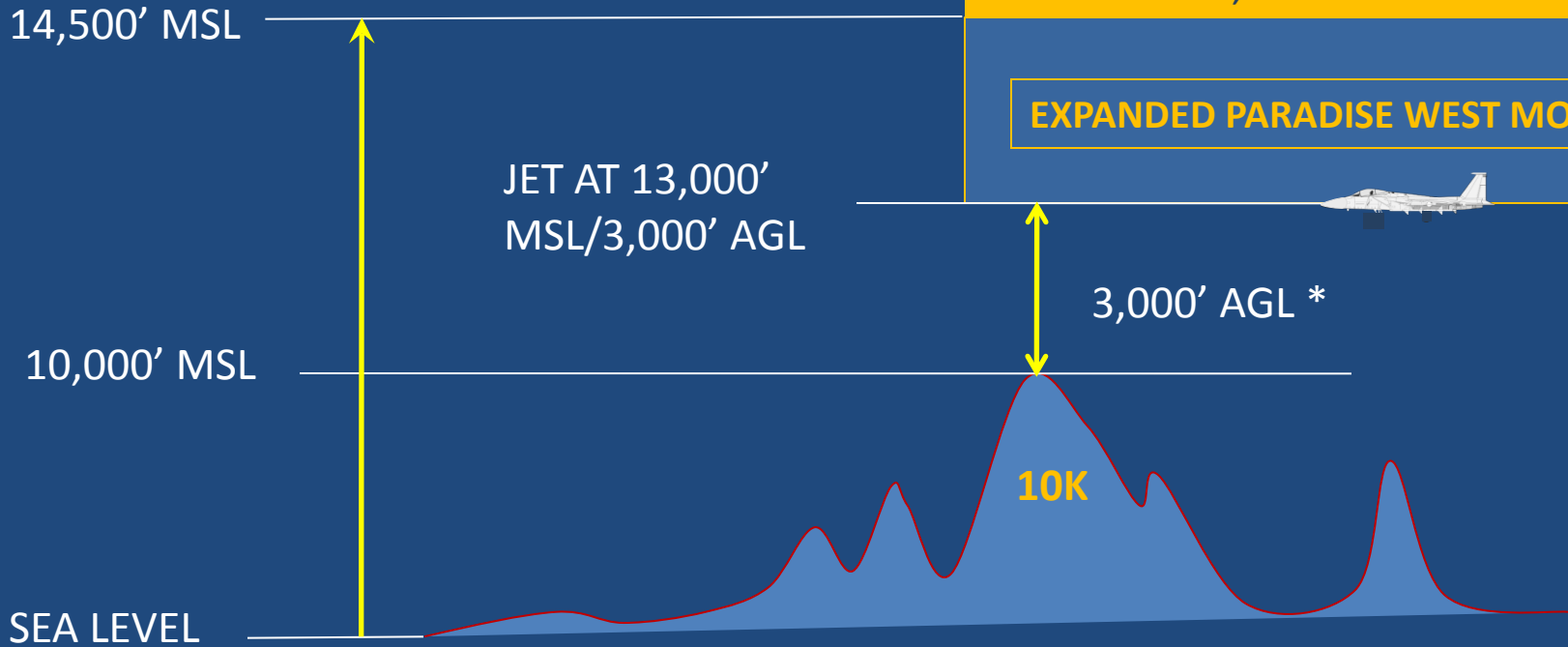
Figure 4. MTRs and ATCAA

**EXPANDED PARADISE WEST MOA
ALTITUDES TO 3,000' AGL OR 10,000' MSL
WHICHEVER IS HIGHER**

17,999 MSL CEILING

CURRENT PARADISE WEST MOA

14,500 MSL FLOOR



* NOTE: LOWEST TERRAIN ALTITUDE JET COULD WORK ABOVE IS 7,000; MSL

Figure 5. AGL/MSL Comparison

(NOT TO SCALE)

- Juniper Butte and Saylor Creek Restricted Areas further restrict maneuvering in the east side of the MHRC. The presence of aircraft using those Restricted Areas results in a de-conflicting requirement for the airspace by moving the air-to-air training to a higher altitude.
- When weather conditions or other IFR flight plans require diversion of IFR flights through the ATCAA/MOAs, the size of the MHRC limits the ability of ATC to allow uninterrupted/unimpeded mission training. Consequently, ATC denies use of all or part of the MHRC to safely accommodate the diverted flights into the airspace. When the ATCAA airspace is taken back for traffic weather deviations, the MOA airspace is the only operational airspace for training. Because of the limited vertical structure in these areas (17,999 feet MSL), the aircrews are not able to incorporate reasonable vertical maneuvering into the training scenarios, thus rendering the airspace unusable for BFM, ACM, or DCA/OCA training. The most likely situation is that the ARTCC will take the airspace back and will stop training entirely until the IFR traffic has transited (also discussed in Chapter 3).
- The limited airspace available for training potentially results in “spill-out” as described in Chapter 1. These events increase the ATC workload. Spill-outs are due, in part, to the maneuvering requirements for opposing force set-ups, where the aircrews are trying to get as much airspace between them as possible prior to beginning the fight scenario. The effect of having additional airspace is that it allows the aircrews to maneuver for the set-up with greater distances between aircraft and better utilization of the aircraft system’s RADAR capabilities without having to brush up against the airspace boundaries as is currently the case.
- Currently, supersonic operations are authorized above the Paradise MOAs at or above 30,000 feet MSL in the ATCAA airspace. Maintaining the existing MOA and overlying ATCAA configuration would not change the effect of supersonic operations on DVR or other identified noise-sensitive sites.
- Safety within the current airspace configuration periodically requires de-confliction due to the number of flights necessary to complete the training requirements. To accommodate the number of required training flights within the limited flying window, aircraft are scheduled into a smaller amount of airspace, which requires more frequent and restrictive de-confliction than might be expected with a larger training area.

Current airspace use, including RSAF aircraft, is expected to remain the same over all alternatives. Table 2.2 describes the annual number of sorties and sortie-operations under the No Action Alternative. A *sortie* is the flight of a single aircraft from takeoff through landing. A *sortie-operation* is defined as the use of one airspace unit by one aircraft.

TABLE 2.2
Annual Sorties and Sortie-Operations in each MOA under Alternative A—No Action Alternative

MOA	# of Sorties	# of Sortie-Operations	Average Duration in MOA (minutes)	Percent Time at Altitude (feet AGL)		
				500-2,000	2,000-10,000	> 10,000
Jarbidge+		10,827	38	19%	37%	44%
Owyhee		9,646	20	13%	17%	70%
Saddle		2,875	60	NA	NA	100%
						> 14,500
Paradise East		3,695	20	NA	NA	100%
Paradise West		4,756	20	NA	NA	100%
Total	10,264*	31,799				

+ Includes aircraft activity over Saylor Creek Range and Juniper Butte Range.

* Includes MHAFB based aircraft (9,570 sorties) and transients (694).

(Adapted from Air Force 2007)

2.3.3 Chaff and Flare Use

Chaff and flares are the principal defensive countermeasures dispensed by military aircraft to avoid detection or attack by enemy air defense systems. A bundle of chaff consists of approximately 0.5 to 5.6 million fibers smaller than the size of a hair that reflect radar signals and, when dispensed in sufficient quantities from aircraft, form a “cloud” that breaks the radar signal and temporarily hides the maneuvering aircraft from radar detection. Flares ejected from aircraft provide high-temperature heat sources that mislead heat-sensitive or heat-seeking targeting systems. Chaff and flares are used to keep aircraft from being successfully targeted by weapons such as surface-to-air missiles, anti-aircraft artillery, and other aircraft.

Chaff and flares are used in the current MOAs. In the baseline year 2005, MHAFB aircraft used approximately 91,942 bundles of chaff and 47,182 flares annually. After the 2005 BRAC Commission actions are fully implemented and the Republic of Singapore beddown occurs at MHAFB, the total number of chaff bundles expected to be used annually will be 74,519 and the number of flares will increase to 62,070 (Air Force 2007). Flares are deployed above 14,500 feet MSL in the Paradise East and Paradise West MOAs. Chaff and flares authorized for employment in Paradise MOAs must be in accordance with the current Air Force Instruction (AFI) 13-212 Volume 1, Air Combat Command Supplement, Mountain Home AFB Supplement, Addendum A. Flares must be self-protection flares. Chaff must be training chaff, unless otherwise authorized in advance. Chaff and flares are not authorized for release over manned sites, inhabited areas, or over the DVR at any altitude.

A voluntary mitigation measure for flares is employed by MHAFB during fire season when the BLM or MHAFB fire category rating for Jarbidge MOA is Category 4 or above, according to the MHAFB Wildland Fire Management Plan, signed 18 January 2008. The voluntary restriction in Category 4 states: Flares and Chaff will be dropped above 5000 feet on SCR, JBR, and in the MOAs. Chaff and flares are deployed above 5000’ AGL if fire Category 4 is issued by MHAFB or the BLM South Central Interagency Dispatch Center, Shoshone, Idaho.

2.4 Alternative B—Proposed Action

Under the Proposed Action (Alternative B), training activities in the MHRC would be enhanced by a 29 percent increase in the airspace surface area available for training. The overall increase in training airspace volume under the Proposed Action would be approximately 34 percent. This expansion would eliminate or reduce the operational deficiencies identified in Section 1.3 (Chapter 1).

No training ranges, conventional targets, no-drop targets, emitter sites, or other on-the-ground assets are part of this proposed action. No increase in the total number of aircraft operations is planned.

2.4.1 Airspace Configuration

The proposed action is to reconfigure (expand) the lateral and vertical boundaries of the Paradise East and Paradise West MOAs, as shown in Figure 2 (Chapter 1). The Jarbidge MOA dimensions would not change. The Owyhee MOA lateral boundary would only change slightly at the northwest corner to provide a straight transition to the expanded Paradise West MOA (an increase in area of approximately one-half percent [0.5%] or 10.4 square NM). The proposed lateral boundaries would be as follows:

Paradise West MOA – Beginning at lat. 42°45'00"N, long. 117°00'00"W;
to lat. 42°45'00"N, long. 117°14'00"W;
to lat. 42°30'00"N, long. 117°40'00"W;
to lat. 41°20'00"N, long. 117°50'00"W;
to lat. 41°20'00"N, long. 117°00'00"W;
to the point of beginning.

Paradise East MOA – Beginning at lat. 42°00'00"N, long. 115°02'00"W;
to lat. 42°00'00"N, long. 117°00'00"W;
to lat. 41°20'00"N, long. 117°00'00"W;
to lat. 41°20'00"N, long. 115°35'00"W;
to the point of beginning.

Owyhee MOA – Beginning at lat. 42°00'00"N, long. 117°00'00"W;
to lat. 42°45'00"N, long. 117°00'00"W;
to lat. 42°45'00"N, long. 116°00'00"W;
to lat. 42°00'00"N, long. 116°00'00"W;
to the point of beginning.

The two Restricted Areas associated with the MHRC MOAs, Saylor Creek Restricted Area (R-3202) and Juniper Butte Restricted Area (R-3204), would not change dimension or use. The floor of the Paradise East and Paradise West MOAs would be lowered from 14,500 feet MSL to 10,000 feet MSL or 3,000 feet AGL, whichever is higher. The Proposed Action would add approximately 2,179 square NM of training airspace within the two Paradise MOAs. The lateral boundaries of the ATCAA would change but not exceed the new MOA boundaries, while retaining the altitude range between FL 180 and FL 500. The Proposed Action would add approximately 16,985 cubic NM to the training airspace volume, for a total of 66,270 cubic NM.

ATCAA airspace over the expansion area would involve a larger area of Class A airspace and would expand the overlap with Jet route J523 to the west of the current MHRC by about 7 NM. Class C, D, or E airspace in the vicinity of the project would not change. However, the proposed new MOA complex boundaries would be relocated closer to several portions of Class E airspace associated with Victor airways. Specifically, the new boundaries would be relocated to within approximately 5 NM of the Class E edge of Victor airways segments V113 to the west and V293 to the southeast.

VFR non-participating traffic would continue to be able to operate within the MOA without communication or operations requirements or restrictions (IAW FAR, Part 91). All GA airports encompassed by this proposal are uncontrolled and lie within Class G uncontrolled airspace.

With the Proposed Action, one additional GA airport would fall under the expanded Paradise East MOA, in addition to the airports listed in Table 2.1. This private airport is uncontrolled and lies within uncontrolled airspace (Table 2.3). The Proposed Action would introduce military aircraft training activity at 10,000 feet MSL or 3,000 feet AGL, whichever is higher, above this airport where such activity does not currently exist.

TABLE 2.3
Additional GA Airport in Uncontrolled Airspace that Would Fall within the Expanded Paradise MOAs Lateral Boundaries

Airport	Identifier	Elevation (feet MSL)	Longest Runway (100 feet)
Stevens-Crosby	08U	6397	36

2.4.2 Operational Characteristics

The expanded lateral and vertical dimensions of the MOA complex under the Proposed Action would enhance the operational efficiency and training efficacy of the MHRC compared to the No Action Alternative, as follows.

- The expanded MOA complex could accommodate up to three simultaneous East/West maneuvering/engagement areas with set-up distances of up to 90 NM, and up to four simultaneous North/South set-ups of 60-70 NM. This represents an improvement over current conditions of up to two East/West and three North/South engagements. Six “full-up” BFM sortie areas requiring a 30 X 30 NM “box”, with 25,000 feet of vertical airspace could be accommodated under this alternative as well, compared with up to three “full-up” BFM sortie areas under the current configuration. The expanded MHRC would, therefore, increase the number of maneuvering areas by approximately 40 to 50 percent. Further, the increased lateral distance and available training altitudes would allow aircrews to search, track, and target adversaries more effectively and in a more realistic way.
- The two expanded Paradise MOAs would allow full vertical maneuvering throughout the MOAs, except as restricted by the Settlement Agreement in the airspace over the DVR. This additional lateral and vertical airspace would allow more flexibility in conducting LFE and BFM training compared to the No Action Alternative.

- The two expanded Paradise MOAs could also be internally subdivided into Special Use Airspace sub-areas (SUA sub-areas). These sectors would provide Salt Lake Center more flexibility to respond to situations such as weather deviation by non-participating IFR aircraft through the MOA complex. These sectors could be activated/deactivated separately or in combination by the ARTCC as needed to accommodate transient over-flights while maintaining the training environment.
- The Proposed Action would provide expanded airspace to reduce the potential of “spill-out” events that increases ATC workload. The available airspace for marshalling of forces would be greater, providing for longer set-ups and relieving the need to press against the airspace boundaries.
- Currently, supersonic operations are authorized above the Paradise MOAs at or above 30,000 feet MSL in the ATCAA airspace. Under the Proposed Action, supersonic operations would remain at or above 30,000 feet MSL in ATCAA airspace. There would be no changes to supersonic operations near DVR.
- Lateral expansion of the ATCAA boundaries above the Paradise MOAs would increase the separation of supersonic operations in the expanded ATCAA airspace by providing greater lateral separation from DVR and other noise-sensitive areas.

Current airspace use, including RSAF aircraft, is expected to remain the same over all alternatives. Table 2.4 describes the annual number of sorties and sortie-operations under Alternative B—Proposed Action. A *sortie* is the flight of a single aircraft from takeoff through landing. A *sortie-operation* is defined as the use of one airspace unit by one aircraft.

TABLE 2.4
Annual Sorties and Sortie-Operations in each MOA under Alternative B—Proposed Action

MOA	# of Sorties	# of Sortie-Operations	Average Duration in MOA (minutes)	Percent Time at Altitude (feet AGL)		
				500-2,000	2,000-10,000	> 10,000
Jarbidge+		10,827	38	19%	37%	44%
Owyhee		9,646	20	13%	17%	70%
Saddle		2,875	60	NA	NA	100%
					3,000-10,000	
Paradise East		3,695	20	NA	40%	60%
Paradise West		4,756	20	NA	40%	60%
Total	10,264*	31,799				

+ Includes aircraft activity over Saylor Creek Range and Juniper Butte Range.

* Includes MHAFB based aircraft (9,570 sorties) and transients (694).

(Adapted from Air Force 2007)

2.4.3 Chaff and Flare Use

Chaff and flares are the principal defensive countermeasures dispensed by military aircraft to avoid detection and keep aircraft from being successfully targeted by weapons such as

surface-to-air missiles, anti-aircraft artillery, and other aircraft. (See 2.3.3 for a description of chaff and flares.)

Chaff and flare use will extend into the proposed expansion area. In the baseline year 2005, MHAFB aircraft used approximately 91,942 bundles of chaff and 47,182 flares annually. After the 2005 BRAC Commission actions are fully implemented and the Republic of Singapore beddown occurs at MHAFB, the total number of chaff bundles expected to be used annually will be 74,519 and the number of flares will increase to 62,070 (Air Force 2007). A portion of the expected chaff and flare use will be in the expanded Paradise MOA. Flares would be used above 10,000 feet MSL, or 3,000 feet AGL, whichever is higher.

Chaff and flares authorized for employment in Paradise MOAs must be in accordance with the current Air Force Instruction (AFI) 13-212 Volume 1, Air Combat Command Supplement, Mountain Home AFB Supplement, Addendum A. Flares must be self-protection flares. Chaff must be training chaff, unless otherwise authorized in advance. Chaff and flares are not authorized for release over manned sites, inhabited areas, or over Duck Valley Reservation at any altitude.

A voluntary mitigation measure for flares would be employed during fire season when the BLM or MHAFB fire category rating for Jarbidge MOA is Category 4 or above, according to the MHAFB Wildland Fire Management Plan, signed 18 January 2008. The voluntary restriction in Category 4 states: Flares and Chaff will be dropped above 5000 feet on SCR, JBR, and in the MOAs. Chaff and flares will be deployed above 5000' AGL under the Proposed Action if fire Category 4 is issued by MHAFB or the BLM South Central Interagency Dispatch Center, Shoshone, Idaho.

2.5 Alternative C

Alternative C would increase the available training airspace in the southern portion of the MOA complex and would mitigate the effects of the airspace restrictions over the DVR. In concept, this alternative incorporates the lateral, but not the vertical expansion of the MHRC described for the Proposed Action (Figure 4). Alternative C provides the same 29 percent increase in MOA area, but represents a more modest increase in MHRC airspace volume, about 26 percent more than provided in the No Action Alternative (compared with a 34 percent volume increase for the Proposed Action). Training activities in the MHRC would be enhanced compared to the No Action Alternative, but a number of the operational deficiencies identified in Section 1.3 (Chapter 1) would remain. Maintaining the current vertical MOA structure would limit the potential for a vertical stratification of airspace, making it less likely for operations to occur simultaneously at different altitudes within the airspace. Stratification of the airspace would result in reduced interference or decreased potential conflict between training aircraft packages, thereby improving training mission effectiveness.

No training ranges, conventional targets, no-drop targets, emitter sites, or other on-the-ground assets are part of this alternative. No increase in the total number of aircraft operations is planned.

2.5.1 Airspace Configuration

Alternative C would have the same lateral expansion of the Paradise East and Paradise West MOA boundaries as shown for the Proposed Action. Alternative C differs from the Proposed Action in that the MOA floor would not be lowered, but rather would remain at 14,500 feet MSL. The Owyhee and Jarbidge MOA lateral dimensions would not change except as indicated for the Proposed Action above. The proposed lateral boundaries are as follows:

Paradise West MOA – Beginning at lat. 42°45'00"N, long. 117°00'00"W;
to lat. 42°45'00"N, long. 117°14'00"W;
to lat. 42°30'00"N, long. 117°40'00"W;
to lat. 41°20'00"N, long. 117°50'00"W;
to lat. 41°20'00"N, long. 117°00'00"W;
to the point of beginning.

Paradise East MOA – Beginning at lat. 42°00'00"N, long. 115°02'00"W;
to lat. 42°00'00"N, long. 117°00'00"W;
to lat. 41°20'00"N, long. 117°00'00"W;
to lat. 41°20'00"N, long. 115°35'00"W;
to the point of beginning.

Owyhee MOA – Beginning at lat. 42°00'00"N, long. 117°00'00"W;
to lat. 42°45'00"N, long. 117°00'00"W;
to lat. 42°45'00"N, long. 116°00'00"W;
to lat. 42°00'00"N, long. 116°00'00"W;
to the point of beginning.

The two Restricted Areas, R-3202 and R-3204, associated with the MHRC MOAs would not change dimension or use. This alternative would add 2,179 square NM of lateral training airspace to the existing complex. As in the Proposed Action, ATCAA would be changed but not exceed the new MOA boundaries, while retaining the current altitude range between FL 180 and FL 500. Including the expanded ATCAA, Alternative C would add approximately 12,741 cubic NM to the training airspace volume for a total volume of 62,026 cubic NM.

Alternative C would result in the same expansion into ATCAA airspace and the same overlap with Jet airway J523 as described for the Proposed Action. This alternative would still not change the configuration or the operations within Class C, D, or E airspace in the vicinity of the project. Like the Proposed Action, the new lateral MOA boundaries would be closer to several Victor airway segments and would narrow the gap with the Saddle MOA complex. The lateral expansion of the MOAs under Alternative C would include the same eight (seven existing and one added) GA airports as identified for the Proposed Action and shown in Tables 2.1 and 2.2.

2.5.2 Operational Characteristics

Although this alternative does not provide all of the operational benefits of the Proposed Action, the expanded lateral dimensions of the MOA complex proposed in Alternative C

would enhance the operational efficiency of the MHRC compared to the No Action Alternative, as follows (see Figure 6).

- Alternative C would permit the same set-up configurations as indicated in the Proposed Action. The expanded MHRC would, therefore, increase the number of maneuvering scenarios by approximately 40 to 50 percent over the No Action Alternative. Further, the increased lateral distance would allow aircrews to search, track, and target adversaries more effectively and realistically. The two expanded Paradise MOAs would allow more flexibility in conducting LFE training compared to the No Action Alternative, but would somewhat restrict full vertical maneuvering throughout the MOA/ ATCAA, unlike the Proposed Action.
- Alternative C would maintain the option provided in the Proposed Action of subdividing the Paradise MOAs into sectors for airspace use flexibility. This alternative would also reduce the potential of “spill-out” events as indicated for the Proposed Action.
- Lateral expansion of the ATCAA boundaries above the Paradise MOAs would increase the separation of supersonic operations in the expanded ATCAA airspace by providing greater lateral separation from DVR and other noise-sensitive areas.
- Currently, supersonic operations are authorized above the Paradise MOAs at or above 30,000 feet MSL in the ATCAA airspace. Under the Alternative C, supersonic operations would be remain at or above 30,000 feet MSL in ATCAA airspace. There would be no changes to supersonic operations near DVR.

Current airspace use, including RSAF aircraft, is expected to remain the same over all alternatives. Table 2.5 describes the annual number of sorties and sortie-operations under the Alternative C—Lateral Expansion. A *sortie* is the flight of a single aircraft from takeoff through landing. A *sortie-operation* is defined as the use of one airspace unit by one aircraft.

TABLE 2.5
Annual Sorties and Sortie-Operations in each MOA under Alternative C—Lateral Expansion

MOA	# of Sorties	# of Sortie-Operations	Average Duration in MOA (minutes)	Percent Time at Altitude (feet AGL)		
				500-2,000	2,000-10,000	> 10,000
Jarbidge+		10,827	38	19%	37%	44%
Owyhee		9,646	20	13%	17%	70%
Saddle		2,875	60	NA	NA	100%
						>14,500
Paradise East		3,695	20	NA	NA	100%
Paradise West		4,756	20	NA	NA	100%
Total	10,264*	31,799				

+ Includes aircraft activity over Saylor Creek Range and Juniper Butte Range.

* Includes MHAFB based aircraft (9,570 sorties) and transients (694).

(Adapted from Air Force 2007)

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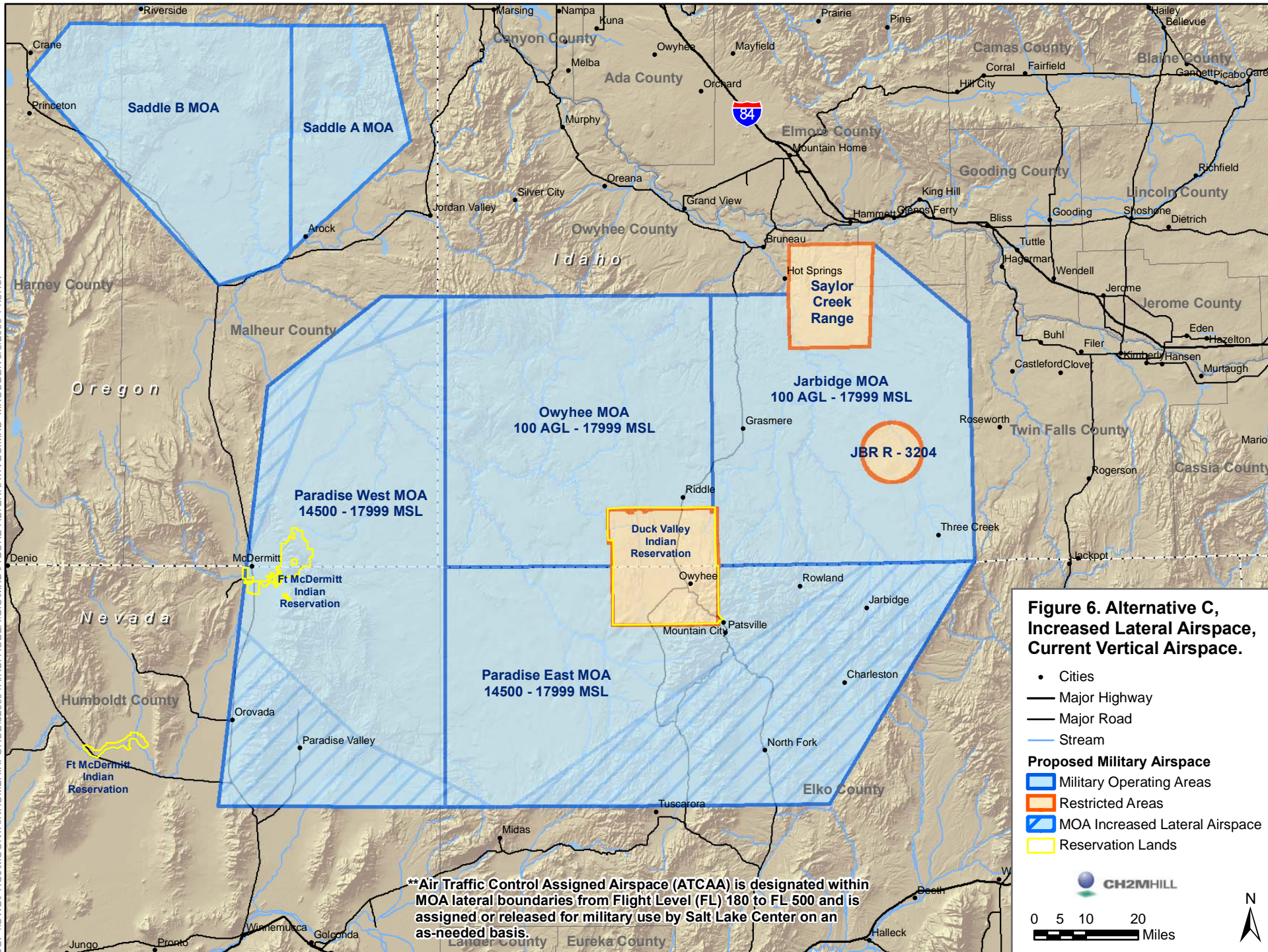


Figure 6. Alternative C, Increased Lateral Airspace, Current Vertical Airspace.

- Cities
- Major Highway
- Major Road
- Stream

Proposed Military Airspace

- Military Operating Areas
- Restricted Areas
- MOA Increased Lateral Airspace
- Reservation Lands

CH2MHILL

0 5 10 20 Miles

N

****Air Traffic Control Assigned Airspace (ATCAA) is designated within MOA lateral boundaries from Flight Level (FL) 180 to FL 500 and is assigned or released for military use by Salt Lake Center on an as-needed basis.**

2.5.3 Chaff and Flare Use

Chaff and flares are the principal defensive countermeasures dispensed by military aircraft to avoid detection and keep aircraft from being successfully targeted by weapons such as surface-to-air missiles, anti-aircraft artillery, and other aircraft. (See 2.3.3 for a description of chaff and flares.)

Chaff and flare use will extend into the proposed expansion area. In the baseline year 2005, MHAFB aircraft used approximately 91,942 bundles of chaff and 47,182 flares annually. After the 2005 BRAC Commission actions are fully implemented and the Republic of Singapore beddown occurs at MHAFB, the total number of chaff bundles expected to be used annually will be 74,519 and the number of flares will increase to 62,070 (Air Force 2007). A portion of the expected chaff and flare use will be in the expanded Paradise MOA. Flares would continue to be deployed at 14,500 feet MSL or higher.

Chaff and flares authorized for employment in Paradise MOAs must be in accordance with the current Air Force Instruction (AFI) 13-212 Volume 1, Air Combat Command Supplement, Mountain Home AFB Supplement, Addendum A. Flares must be self-protection flares. Chaff must be training chaff, unless otherwise authorized in advance. Chaff and flares are not authorized for release over manned sites, inhabited areas, or over Duck Valley Reservation at any altitude.

2.6 Alternative D

In concept, Alternative D incorporates the vertical, but not the lateral expansion of the MHRC described for the Proposed Action (Figure 7). This alternative, therefore, represents a more modest increase in MHRC vertical airspace volume by about 5.4 percent over the No Action Alternative (compared with a 34 percent volume increase with the Proposed Action and a 26 percent volume increase for Alternative C). Training activities in the MHRC under Alternative D would be enhanced compared to the No Action Alternative, but a number of the operational deficiencies identified in Section 1.3 (Chapter 1) would remain. No training ranges, conventional targets, no-drop targets, emitter sites, or other on-the-ground assets are part of this alternative. No increase in the total number of aircraft operations is planned.

2.6.1 Airspace Configuration

Alternative D would retain the current lateral boundaries of the Paradise East and Paradise West MOAs. The Owyhee and Jarbidge MOA dimensions would not change. The lateral boundaries of the MOAs would remain as follows:

Jarbidge MOA – Beginning at lat. 42-53'00"N, long. 115-24'15"W;
to lat. 42-53'00"N, long. 115-23'00"W;
to lat. 42-39'50"N, long. 115-02'00"W;
to lat. 42-00'00"N, long. 115-02'00"W;
to lat. 42-00'00"N, long. 116-00'00"W;
to lat. 42-45'00"N, long. 116-00'00"W;
to lat. 42-45'00"N, long. 115-42'20"W;
to lat. 42-36'00"N, long. 115-42'20"W;
to lat. 42-36'00"N, long. 115-24'15"W;
to the point of beginning.

Owyhee MOA – Beginning at lat. 42°00'00"N, long. 117°00'00"W;
to lat. 42°42'10"N, long. 117°00'00"W;
to lat. 42°45'00"N, long. 116°50'00"W;
to lat. 42°45'00"N, long. 116°00'00"W;
to lat. 42°00'00"N, long. 116°00'00"W;
to the point of beginning.

Paradise East MOA – Beginning at lat. 42-00'00"N, long. 115-26'00"W;
to lat. 41-19'00"N, long. 116-47'00"W;
to lat. 41-24'10"N, long. 117-00'00"W;
to lat. 42-00'00"N, long. 117-00'00"W;
to the point of beginning.

Paradise West MOA – Beginning at lat. 42-42'10"N, long. 117-00'00"W;
to lat. 41-24'10"N, long. 117-00'00"W;
to lat. 41-31'00"N, long. 117-18'00"W;
to lat. 41-52'00"N, long. 117-49'00"W;
to lat. 42-34'00"N, long. 117-27'00"W;
to the point of beginning.

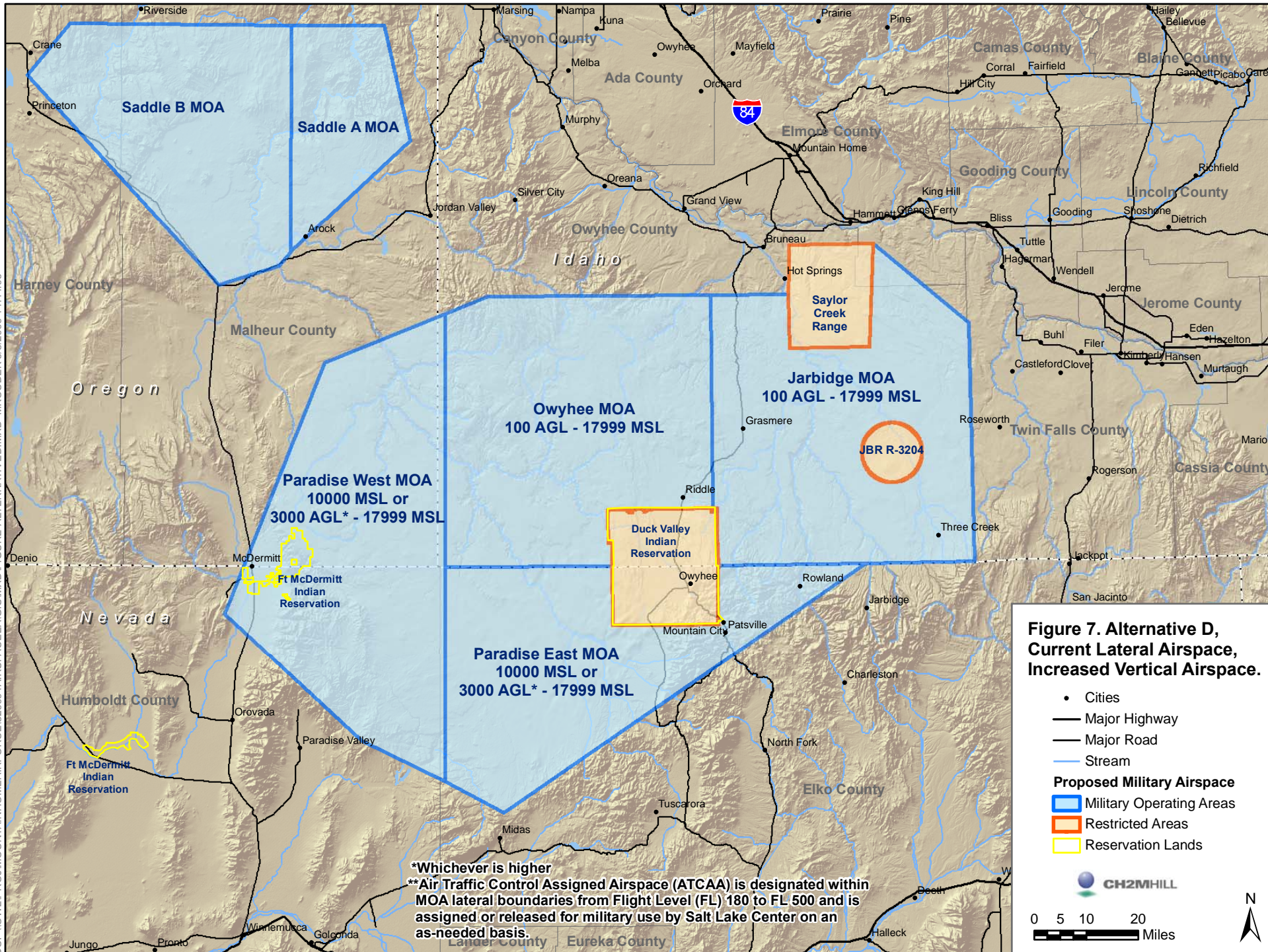
The two Restricted Areas, R-3202 and R-3204, associated with the MHRC MOAs would also not change dimension or use. With this alternative, the floor altitude of the two Paradise MOAs would be lowered from 14,500 feet MSL to 10,000 feet MSL or 3,000 feet AGL, whichever is higher (as in the Proposed Action), adding about 2,661 cubic NM for a total airspace volume of 51,946 cubic NM. There would be no expansion of the ATCAA lateral boundaries and the altitudes would remain between FL 180 and FL 500. The one additional GA public airport that would be encompassed by the Proposed Action and Alternative C would not be encompassed in Alternative D.

2.6.2 Operational Characteristics

Alternative D does not provide all of the operational benefits of the Proposed Action or Alternative C. The expanded vertical dimensions of the MOA complex proposed in Alternative D would provide minimal operational benefits compared to the No Action Alternative, as follows.

- Alternative D would continue to support one LFE or two smaller air combat East/West engagement(s) with a 60 NM setup within the MOA complex, representing little to no improvement over the No Action Alternative from an operational perspective.
- The “funneling” of aircraft approaching the outer portions of the Paradise MOAs would continue because the current boundaries converge in a triangular shape. Access limitations to the eastern portion of the Paradise East MOA caused by the airspace restrictions in the Settlement Agreement over DVR would also continue. The lateral constraints in conducting LFE training would be the same as under the No Action Alternative.

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- Because the lateral MOA dimensions would remain unchanged, the Paradise West and Paradise East MOAs and overlying ATCAA do not facilitate being subdivided into smaller sectors as extensively as described in the Proposed Action and Alternative C. ATC would continue to have limited ability to permit mission training when weather conditions require deviation of non-participating IFR flights through the MOA/ ATCAA. Consequently, ATC would continue to deny use of all or part of the MHRC to accommodate such deviations, which further limits mission accomplishment.
- The vertical airspace expansion in the Paradise MOAs would allow full vertical maneuvering throughout the MOAs, except for the airspace over the DVR, as restricted in the Settlement Agreement. This additional vertical airspace would allow more flexibility in conducting LFE and BFM training compared to the No Action Alternative, but not as much capability as in the Proposed Action and Alternative C.
- Alternative D would not change the dimensions or use of the ATCAA and, therefore, would not increase separation of supersonic operations that would be provided in the Proposed Action and Alternative C. ATCAA controls and restrictions would remain the same as for the No Action Alternative.
- Currently, supersonic operations are authorized above the Paradise MOAs at or above 30,000 feet MSL in the ATCAA airspace. Under the Alternative D, supersonic operations would be remain at or above 30,000 feet MSL in ATCAA airspace. There would be no changes to supersonic operations near DVR.

Current airspace use, including RSAF aircraft, is expected to remain the same over all alternatives. Table 2.6 describes the annual number of sorties and sortie-operations under the Alternative D— Vertical Expansion. A *sortie* is the flight of a single aircraft from takeoff through landing. A *sortie-operation* is defined as the use of one airspace unit by one aircraft.

TABLE 2.6
Annual Sorties and Sortie-Operations in each MOA under Alternative D—Vertical Expansion

MOA	# of Sorties	# of Sortie-Operations	Average Duration in MOA (minutes)	Percent Time at Altitude (feet AGL)		
				500-2,000	2,000-10,000	> 10,000
Jarbridge+		10,827	38	19%	37%	44%
Owyhee		9,646	20	13%	17%	70%
Saddle		2,875	60	NA	NA	100%
					3,000-10,000	
Paradise East		3,695	20	NA	25%	75%
Paradise West		4,756	20	NA	25%	75%
Total	10,264*	31,799				

+ Includes aircraft activity over Saylor Creek Range and Juniper Butte Range.

* Includes MHAFB based aircraft (9,570 sorties) and transients (694).

(Adapted from Air Force 2007)

2.6.3 Chaff and Flare Use

Chaff and flares are the principal defensive countermeasures dispensed by military aircraft to avoid detection and keep aircraft from being successfully targeted by weapons such as

surface-to-air missiles, anti-aircraft artillery, and other aircraft. (See 2.3.3 for a description of chaff and flares.)

In the baseline year 2005, MHAFB aircraft used approximately 91,942 bundles of chaff and 47,182 flares annually. After the 2005 BRAC Commission actions are fully implemented and the Republic of Singapore beddown occurs at MHAFB, the total number of chaff bundles expected to be used annually will be 74,519 and the number of flares will increase to 62,070 (Air Force 2007). Chaff and flares would continue to be used in Paradise East and West MOAs. Flares would continue to be deployed at 14,500 feet MSL or higher.

Chaff and flares authorized for employment in Paradise MOAs must be in accordance with the current Air Force Instruction (AFI) 13-212 Volume 1, Air Combat Command Supplement, Mountain Home AFB Supplement, Addendum A. Flares must be self-protection flares. Chaff must be training chaff, unless otherwise authorized in advance. Chaff and flares are not authorized for release over manned sites, inhabited areas, or over Duck Valley Reservation at any altitude.

A voluntary mitigation measure for flares would be employed during fire season when the BLM or MHAFB fire category rating for Jarbidge MOA is Category 4 or above, according to the MHAFB Wildland Fire Management Plan, signed 18 January 2008. The voluntary restriction in Category 4 states: Flares and Chaff will be dropped above 5000 feet on SCR, JBR, and in the MOAs. Chaff and flares will be deployed above 5000' AGL under Alternative D if fire Category 4 is issued by MHAFB or the BLM South Central Interagency Dispatch Center, Shoshone, Idaho.

2.7 Alternative Comparisons

This section compares potential impacts among the alternatives. A comparison of potential impacts for proposed airspace changes are presented in Table 2.7. Resource areas for which impacts may occur include noise impacts to people and biological resources (wildlife). The reader is directed to the appropriate section of Chapter 4 for resource-specific discussions.

TABLE 2.7
Alternatives Comparison of Potential Impacts for Proposed Airspace Changes of the MOAs at MHRC

Resource Area	Alternative A No Action	Alternative B Proposed Action	Alternative C	Alternative D
Airspace Management and Use	No change from current conditions	Highest potential for deconflicting airspace use and spreading operations over a wider area as compared to the No Action Alternative	Moderate potential for deconflicting airspace use and spreading operations over a wider area as compared to the No Action Alternative	Lowest potential for deconflicting airspace use and spreading operations over a wider area as compared to the No Action Alternative
Noise	No change from current conditions	Very small to no increase in average hourly noise levels over existing conditions	Very small to no increase in average hourly noise levels over existing conditions	Very small to no increase in average hourly noise levels over existing conditions
Biological Resources (Wildlife)	No documented effect	No effect	No effect	No effect

2.8 Alternatives Considered but not Carried Forward

Alternatives considered but not carried forward include adding to the Owyhee and Jarbidge MOAs in Idaho. These alternatives were not possible due to the major jet air route from Salt Lake City to Boise and from Boise to Portland and Seattle north of the Owyhee and Jarbidge MOAs. High volumes of commercial and civil air traffic, coupled with the high population density along I-84 and dominance by the Snake River, a major bird migration corridor, make this option not viable. This alternative would not fulfill the purpose and need established in Section 1.4.

2.9 Reasonably Foreseeable Future Actions

On 29 October 2009, the Air Force announced that Mountain Home Air Force Base was one of eleven bases being considered for a future beddown of the F-35 Lightning II Joint Strike Fighter (JSF).

The announcement also stated: "Now that the list of candidate bases has been released, the formal environmental impact analysis process and site assessments will begin, allowing communities around each candidate base to participate and provide input into the environmental impact analysis. Based on the results of these efforts, officials expect to announce the JSF preferred locations in late spring of 2010. Once the formal environmental impact statements are complete, Air Force officials will issue the Records of Decision and announce the final basing decisions. This is anticipated in early 2011 (Air Force News Service, 2009)."

An F-35 beddown is not part of the Proposed Action in this EA, nor is the F-35 Proposed Action analyzed in this EA. The environmental analysis of the potential impacts of the F-35 will occur in a separate Environmental Impact Statement and will include potential impacts of the F-35 in Mountain Home AFB's MOA airspace.

3.0 Affected Environment

NEPA requires that an impact analysis of the resources and areas potentially affected by a project be conducted. It further directs that while all resources must be considered, those resources that will not be affected by the proposal need not be analyzed in detail. This EA will only focus on those resources potentially affected.

Chapter 3 is organized by resource area. Effects to be discussed in this EA are the direct or indirect result of the expansion of the MOA airspace only. Chaff and flares will be used in the expanded airspace similar to current operations. Resource areas considered include: airspace management and use; noise; air quality; biological resources; safety; environmental justice; land management use; visual and recreational resources; cultural resources; water and soil resources; coastal zone and floodplain resources; hazardous materials; and socioeconomics. These resources areas include several categories presented in Appendix A of FAA Order 1050.1E, and as shown in Table 3.1.

Table 3.1 summarizes the resources originally evaluated and indicates which of the resources are based on Air Force or FAA categories. In accordance with CEQ regulations, the Air Force determined that several resource areas warrant no further examination in Chapter 4, Environmental Consequences (and these are shown in Table 3.1). Only wildlife resources, noise resources, and airspace management and use were carried forward for detailed analysis. The rationale for why resource discussions were not carried forward in Chapter 4 is explained by resource in this chapter, Chapter 3, Affected Environment.

FAA and Air Force resource categories to be evaluated in NEPA documents are somewhat different, but they have been combined where feasible for discussion purposes.

TABLE 3.1
Air Force and FAA Resources Analyzed in the Environmental Impact Analysis Process

Air Force		FAA	
Resource	Carried Forward for Detailed Analysis	Resource	Carried Forward for Detailed Analysis
Airspace Management and Use	Yes	Department of Transportation; Construction Impacts; Secondary Impacts	No
Noise	Yes	Noise and Compatible Land Use	Yes
Land Management and Use; Visual and Recreation Resources	No	Farmlands; and Visual Impacts; and Wild and Scenic Rivers	No
Air Quality	No	Air Quality	No
Biological Resources	No (Vegetation and Fish) Yes (Wildlife)	Fish, Wildlife, and Plants	No (Vegetation and Fish) Yes (Wildlife)

TABLE 3.1
Air Force and FAA Resources Analyzed in the Environmental Impact Analysis Process

Air Force		FAA	
Resource	Carried Forward for Detailed Analysis	Resource	Carried Forward for Detailed Analysis
Cultural Resources	No	Historical, Architectural, Archeological, and Cultural Resources	No
Environmental Justice	No	Environmental Justice, and Children's Environmental Health and Safety Risks	No
Safety	No	Light Emissions	No
Water Resources, and Soils	No	Water Quality; Natural Resources, Floodplains, and Wetlands	No
Coastal Zone, Floodplains, and Wetlands	No	Coastal Resource, Floodplains, and Wetlands	No
Hazardous Materials and Hazardous Waste Management	No	Hazardous Materials, Pollution Prevention, and Solid Waste	No
Socioeconomics	No	Socioeconomic Impacts	No

3.1 Noise

3.1.1 Definition of Resource

Noise is often defined as any sound that is undesirable because it interferes with communication, is intense enough to damage hearing, diminishes the quality of the environment, or is otherwise annoying. Response to noise varies by the type and characteristics of the noise source, distance between source and receptor, receptor sensitivity, and time of day. Noise may be intermittent or continuous, steady or impulsive, and may be generated by stationary or mobile sources. Although aircraft are not the only source of noise in any area, they are readily identifiable to those affected by their noise emissions and are routinely singled out for special attention and criticism.

Noise is represented by a variety of quantities, or "metrics." Each noise metric was developed to account for the type of noise and the nature of what (i.e., receptor) may be exposed to the noise. Human hearing is more sensitive to medium and high frequencies than to low and very high frequencies, so it is common to use "A-weighted" metrics, which account for this sensitivity. Impact of impulsive supersonic noise depends on factors other than human hearing, so that is often quantified by "C-weighted" metrics.

Different time periods also play a role with regard to noise. People hear the sound that occurs at a given time, so it is intuitive to think of the instantaneous noise level, or perhaps the maximum level that occurs during an aircraft flyover. However, the effects of noise over a period of time depends on the total noise exposure over extended periods, so “cumulative” noise metrics are used to assess the impact of ongoing activities within the MHRC.

Within this EA, noise is described by the Day-Night Average Sound Level (DNL), and Onset Rate-Adjusted Monthly Day-Night Average Sound Level (L_{dnmr}).

- Day-Night Sound Average Level is a noise metric combining the levels and durations of noise events, and the number of events over an extended time period. It is a cumulative average, computed over a given time period like a year, to represent total noise exposure. DNL also accounts for more intrusive nighttime noise, adding a 10-dB penalty for sounds after 10:00 p.m. and before 7:00 a.m. DNL is the measure used to appropriately account for total noise exposure around airfields such as Mountain Home AFB.
- Onset Rate Adjusted Monthly Day-Night Sound Average Level is the measure used for subsonic aircraft noise in military operations airspace. L_{dnmr} accounts for the fact that when military aircraft fly low and fast, the sound can rise from ambient to its maximum very quickly. Known as an onset-rate, this effect can make noise seem louder than its actual level. Penalties of up to 11 dB are added to account for this onset rate (Air Force 2007).

Appendix A contains the empirically predicted effects on aircraft noise levels for airspace modifications in the Mountain Home Range Complex. Appendix B contains the noise analysis supplemental calculations of maximum A-weighted and Day-Night Average Sound Levels of aircraft noise. These supplemental calculations were completed at the request of the FAA to produce metrics similar to those used previously in the *Enhanced Training in Idaho, Environmental Impact Statement* (Air Force 1998). This methodology is acceptable to the FAA (Warren, pers. comm., 2008).

3.1.2 Status and Current Conditions

Noise monitors at eight sites in the Mountain Home Range Complex continuously recorded A-weighted sound levels during consecutive one-second periods for 1,141 instrument-days throughout most of an eight month period from April through November of 2002 (Fidell et al. 2003). Partial or complete radar flight tracks for 4,655 military aircraft sorties were captured during the time that the unattended monitors were recording noise levels.

Existing conditions of noise within the MOA complex is based on extrapolations of empirically-derived flight track information (Figure 8) collected in 2002 and analyzed in 2003. The track information is used in conjunction with extensive measurements of actual aircraft noise contributions to the indigenous noise environment of the Owyhee and Jarbidge MOAs. Nearly 24,000 hours of noise monitoring was conducted over the course of 1,141 instrument-days at eight sites in the Jarbidge and Owyhee MOAs from 24 April through 16 November 2002 (see Appendix A, Figure 1) Flight tracks for 4,655 military aircraft sorties were collected for the same time period. It was found that except during a few late morning and afternoon weekday periods, operations of military aircraft in the

vicinity of monitoring sites did not appreciably elevate hourly equivalent indigenous sound levels. Three key findings of noise measurements within the existing MOA complex are:

1. Indigenous noise sources generally control sound levels about 90 to 95 percent of the time at all measurement sites;
2. Aircraft operations do not elevate hourly equivalent sound levels at measurement sites for more than a few hours a day; and
3. Individual aircraft operations at slant ranges beyond a few km from measurement sites have little effect on cumulative noise levels (Fidell et al. 2003).

Figure 8 shows the number of flight tracks over any given point for the baseline/no-action conditions. Eight reference points were chosen for analysis and comparison. Figure 6 and the figures in Appendices A and B are useful for understanding noise-related impacts because without them, it would be difficult to understand where the maximum noise levels would occur for the No Action Alternative and Alternatives B, C, and D.

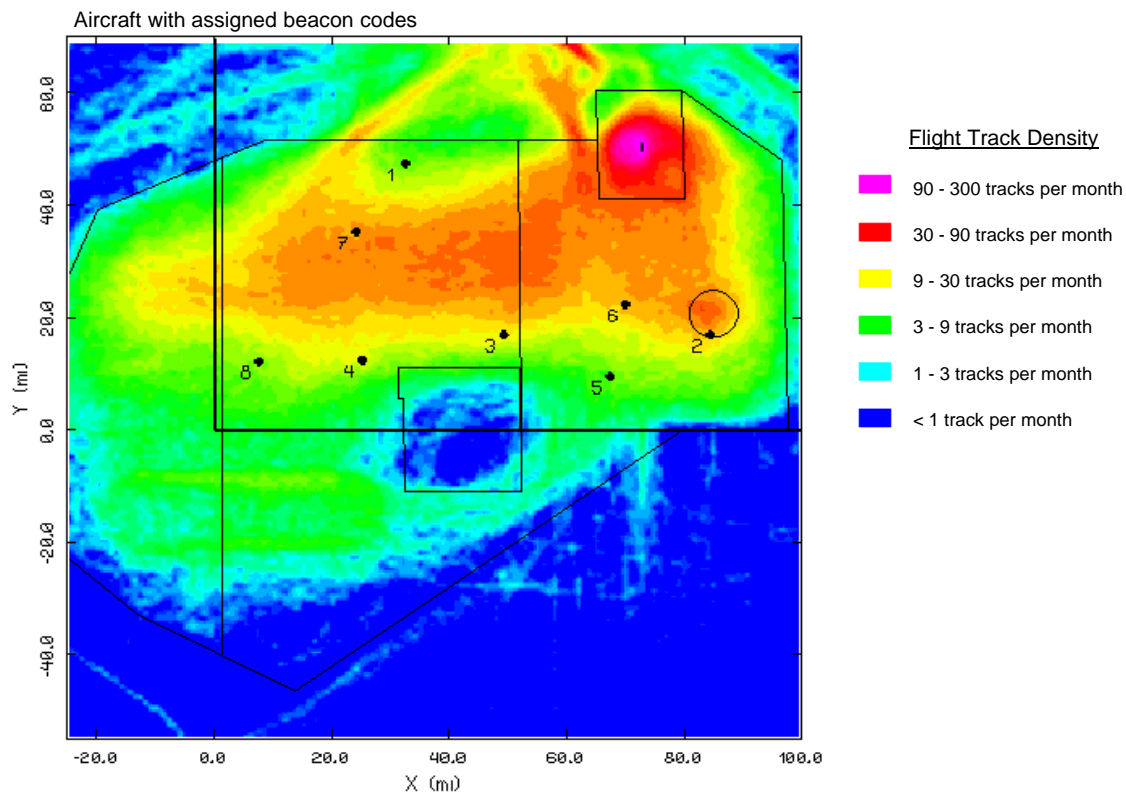


FIGURE 8
Extrapolations of Empirically-Derived Flight Track Information. Note: Flights over Duck Valley Indian Reservation are conducted at 15,000 feet above ground level or higher.

The cumulative L_{dnmr} (onset-rate adjusted, monthly day-night average sound level) can range from a low of 44.2 dB to a high of 48.5 dB for the No Action Alternative (see Appendix, Table 4). Under the No Action Alternative, the aircraft operations are concentrated and bottlenecked along the eastern edge of the Paradise East MOA and along the western edge of the Paradise West MOA.

3.2 Department of Transportation, Construction, and Secondary Induced Impacts

Department of Transportation resources are not considered further in this analysis. In addition, designation of airspace for military flight operations is exempt from the Department of Transportation Act, Section 4(f). The proposal to expand the MHAFB MOA complex would not involve any construction activities or affect land transportation resources. As such, this EA does not further analyze construction impacts. No known secondary induced impacts – as described in FAA 1050.1E – would be anticipated or expected from either the Proposed Action or Alternatives.

3.3 Land Management and Use/Wild and Scenic Rivers

Most of the land in the analysis area is federally held and managed, primarily by the Bureau of Land Management (BLM), with a considerably lesser amount managed by the U.S. Forest Service (part of the Humboldt-Toiyabe National Forest [H-TNF] in Nevada). Existing land uses in the analysis area consist predominantly of livestock grazing (Air Force 1998). Special use lands or areas (for example, Wilderness Study Areas [WSAs]) that have been recommended for designation as Wilderness Areas, and designated and eligible Wild and Scenic Rivers) in the analysis area require particular management attention because of their designation or proposed designation by Congress, the BLM, or the Forest Service. Department of Defense land beneath the MOA complex includes Saylor Creek Air Force Range, and Juniper Butte Range, but these ranges are within the existing Jarbidge MOA and not proposed for expansion.

Aside from federally administered lands, Tribal, state school endowment, and private lands are also present in the analysis area. Tribal lands consist of the Duck Valley Reservation (DVR) on the Idaho-Nevada border and the Fort McDermitt Reservation on the Oregon-Nevada border (Air Force 1998). Most of the land in the analysis area is unimproved, and very little developed land exists. Small communities are scattered in the analysis area. Examples include Mountain City in Nevada, Burns Junction in Oregon, and Owyhee on the DVR (Air Force 1998).

Under the Proposed Action, types of land use and land status beneath the MOA expansion would be the same as beneath the existing MOAs. Grazing would continue to be the predominant land use, federal agencies (primarily the BLM) would continue to be the largest land managers, and public lands would not be withdrawn for military use. Land use and land management beneath the existing MOAs would not be impacted by overhead training activities. Expanding the lateral and vertical boundaries of the Paradise East and West MOAs under the Proposed Action – which would include lowering the floor of the MOAs from 14,500 feet above mean sea level (MSL) to 10,000 feet MSL or 3,000 feet above ground level (AGL), whichever is higher – would not change general land use patterns, land ownership, or affect management of lands or special use land areas beneath the MOAs.

In a previous assessment regarding the effects of Air Force training overflights on the suitability of special land use areas such as WSA, and possible designation as Wilderness Areas, the BLM (1991, in Air Force 1998) stated in the *Idaho Wilderness Study Report*:

BLM recognizes the importance of these military training operations for the national defense preparedness of this country, but did not consider the impacts of the overflights as sufficient to warrant a nonsuitable recommendation for any of the WSAs within the designated flight operation area.

In summary, these resources and special use areas (i.e., Wild and Scenic Rivers, Wilderness Areas, Wilderness Study Areas, Wildlife Management Areas, and Research Natural Areas [as described below]) would not be significantly affected by implementation of the Proposed Action or Alternatives. Potential noise impacts to these resources are discussed in Chapter 4, Section 4.1 Noise.

3.3.1 Wild and Scenic Rivers

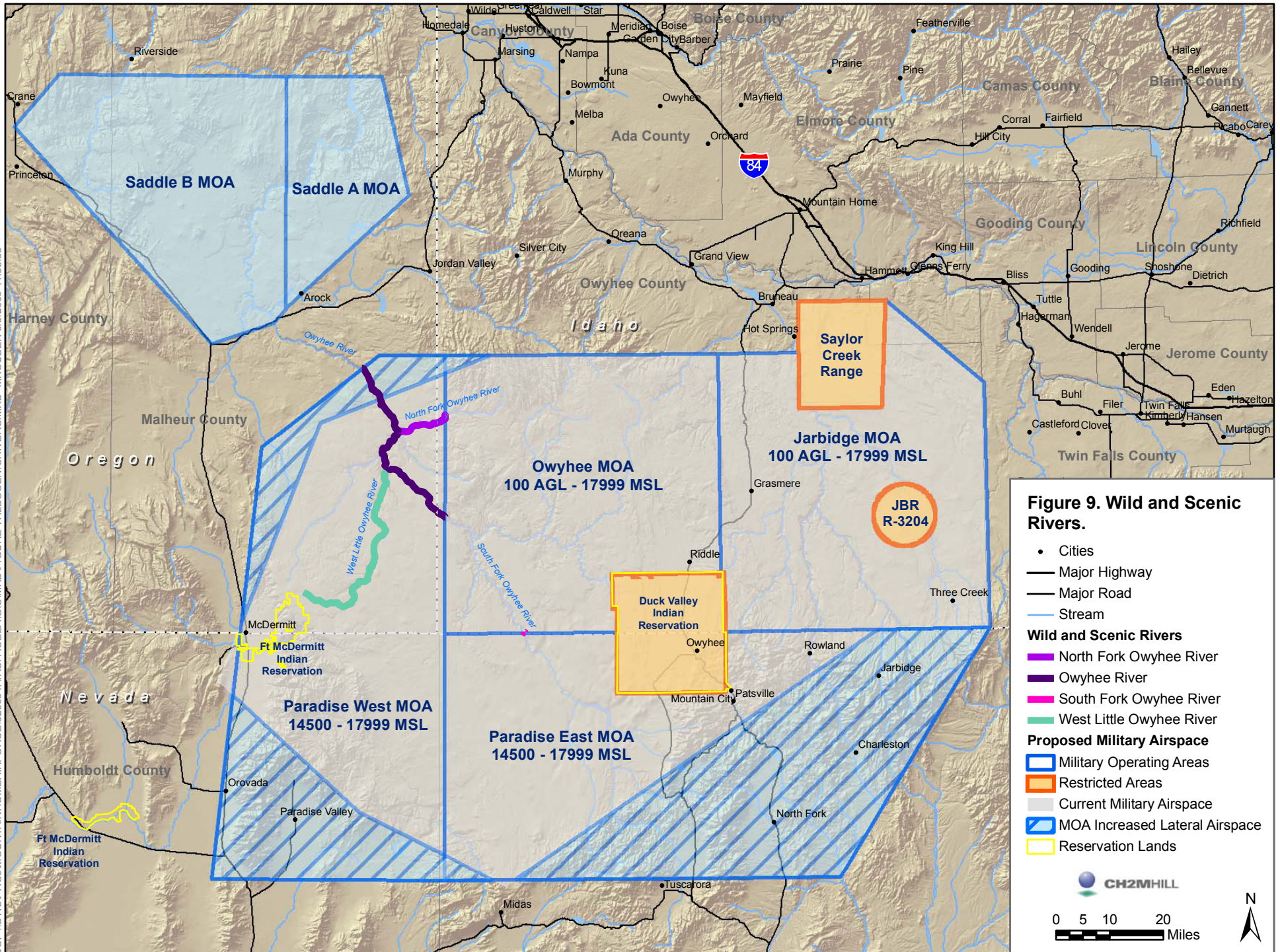
The Wild and Scenic Rivers Act (16 USC 1271-1287) – Public Law 90-542, approved October 2, 1968, (82 Stat. 906) established a National Wild and Scenic Rivers System and prescribed the methods and standards through which additional rivers may be identified and added to the system. Rivers designated as Wild and Scenic within the proposed expansion area include a portion of the Owyhee River in Oregon (Wild and Scenic Rivers Act, <http://www.rivers.gov/wsract.html>).

Legislation that was signed into law by U.S. President Barack Obama on March 30, 2009 (H.R. 146: Omnibus Public Land Management Act of 2009 [now known as Public Law No. 111-11]) designated certain land as components of the National Wilderness Preservation System, and authorized certain programs and activities in the Department of the Interior and the Department of Agriculture, in addition to other purposes.

Subtitle F of P.L. 111-11- Owyhee Public Land Management, Section 1504, Designation of Wild and Scenic Rivers, designated a number of river reaches as Wild and Scenic Rivers. Two of the new designated reaches fall within the existing Paradise West MOA – the North Fork of the Owyhee River, and the Owyhee River (Figure 9). Military activity over those locations is not precluded by the legislation and will not affect the use of the rivers. No impacts would occur with implementation of the proposed project.

3.3.2 Wilderness Study Areas

Several Wilderness Study Areas (WSAs) are located within the proposed MOA expansion area. These include a small area of the North Fork of the Little Humboldt River WSA and roughly one-quarter of the Little Humboldt River WSA in Nevada and the Rough Hills WSA south and east of the of the Paradise East MOA. A narrow leg in the upper region of the Owyhee Canyon WSA in Oregon (Figure 10) called the Owyhee Canyon WSA has been withdrawn. The proposed project would not involve any activities that would change the nature of the remaining WSA areas and affect their status as WSAs. There are no new WSAs in the Paradise MOAs or proposed expansion areas. The FAA does not restrict aircraft flight over WSAs.



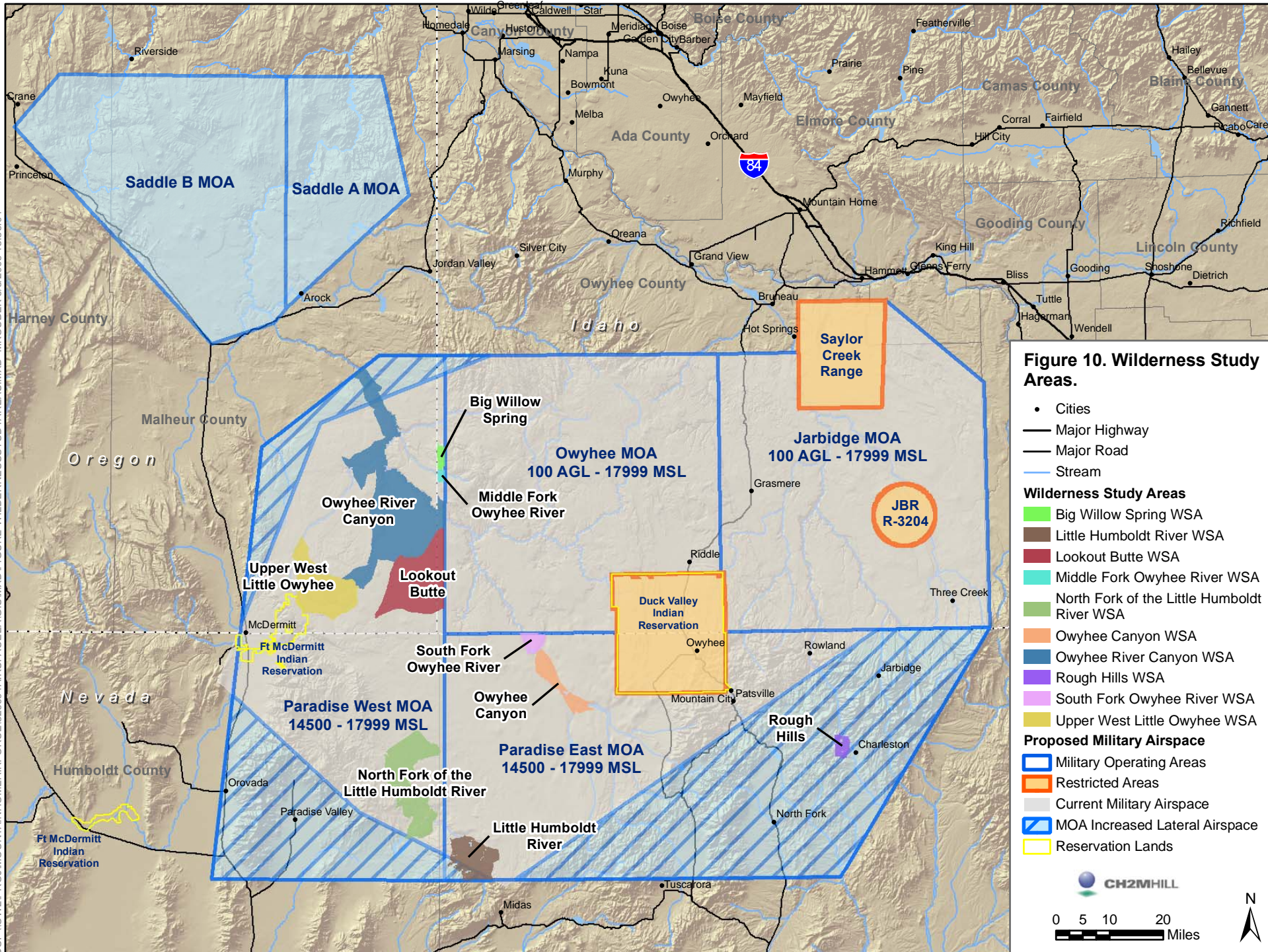


Figure 10. Wilderness Study Areas.

- Cities
 - Major Highway
 - Major Road
 - Stream
- Wilderness Study Areas**
- Big Willow Spring WSA
 - Little Humboldt River WSA
 - Lookout Butte WSA
 - Middle Fork Owyhee River WSA
 - North Fork of the Little Humboldt River WSA
 - Owyhee Canyon WSA
 - Owyhee River Canyon WSA
 - Rough Hills WSA
 - South Fork Owyhee River WSA
 - Upper West Little Owyhee WSA
- Proposed Military Airspace**
- Military Operating Areas
 - Restricted Areas
 - Current Military Airspace
 - MOA Increased Lateral Airspace
 - Reservation Lands







3.3.3 Wilderness Areas

Two wilderness areas are located beneath the proposed expanded MOA (Figure 11). These include the Santa Rosa–Paradise Peak Wilderness Area and the Jarbidge Wilderness Area. According to Section 11 of the Nevada Wilderness Protection Act of 1989 (P.L. 101-195):

“Nothing in this Act shall preclude low level overflights of military aircraft, the designation of new units of special airspace, or the use or establishment of military flight training routes over the Alta Toquima, Arc Dome, Currant Mountain, or Table Mountain Wilderness areas.”

The Santa Rosa-Paradise Peak and Jarbidge are not specifically cited.

The Wilderness Act [16 U.S.C. 1133 (d)(1)] states in the special provisions section that:

“The following special provisions are hereby made:

(1) Aircraft or motorboats; fire, insects, and diseases. Within wilderness areas designated by this Act [16 USCS §§ 1131 et seq.] the use of aircraft or motorboats, where these uses have already become established, may be permitted to continue subject to such restrictions as the Secretary of Agriculture deems desirable. In addition, such measures may be taken as may be necessary in the control of fire, insects, and diseases, subject to such conditions as the Secretary deems desirable.”

Discussions with Jose Noriega, the District Ranger on the Santa Rosa District of the H-TNF, indicated that there is no Wilderness Plan for the Santa Rosa–Paradise Peak Wilderness. He also said that military overflights are neither precluded nor guaranteed for the Santa Rosa–Paradise Peak Wilderness, nor for the Jarbidge Wilderness (Noriega, pers. comm., 2007). The wilderness areas are shown in Figure 11.

Santa Rosa–Paradise Peak Wilderness Area is located in Nevada’s high desert mountains between Winnemucca, about 30 miles to the south, and McDermitt, roughly 30 miles to the north. The area occupies more than 32,000 acres of the high ridges on the southern end of the Santa Rosa Mountains. The two tallest peaks within the boundaries include Santa Rosa Peak (9,701 feet) and Paradise Peak (8,650 feet).

The Santa Rosa-Paradise Peak Wilderness Area features no lakes, alpine meadows or forests. Its outstanding characteristics are the towering granite peaks above pockets of aspen trees. Although bounded on the west by Interstate Highway 95 and on the east by State Highway 290, the area is relatively unvisited (USFS 2007).

Jarbidge Wilderness Area is located in Nevada, six miles south of the Idaho border. Elevations in this Wilderness Area range from 5,000 feet to over 10,000 feet above sea level. Matterhorn, at 10,838 feet, is the highest point in the Jarbidge Wilderness Area. Numerous peaks in this Wilderness Area tower over 10,000 feet, including Mary’s River, God’s Pocket, and Jumbo. Because access to the area is by improved dirt roads and many of these are inaccessible most of the year due to snow, it is very isolated.

Owyhee Wilderness Area is located in Idaho and encompasses a majority of the Owyhee River system bounded by the borders of Duck Valley Reservation, Nevada, and Oregon. A very small portion of the new Owyhee Wilderness Area identified in Public Law No. 111-11 falls within the Paradise West MOA. Section 1503 (b)(11) of Public Law No. 111-11 indicates

that military overflights, flight testing and evaluation, and the designation or creation of new units of special use airspace or the establishment of military flight training routes over the new wilderness areas are not restricted or precluded.

Military aircraft currently use established Military Training Routes (MTRs) for low level training over the Jarbidge Wilderness and the Santa Rosa-Paradise Peak Wilderness, specifically Instrument Route (IR) 300 and IR 313 over the Santa Rosa-Paradise Peak Wilderness, and IR 302 and IR 303 over the Jarbidge Wilderness, see Figure 4. These MTRs are for high speed, subsonic, low level aircraft training, and have an established use at 100 feet above ground level (AGL). The Proposed Action would increase general military aircraft use over the Jarbidge Wilderness and the Santa Rosa-Paradise Peak Wilderness, but at 3000 feet AGL, or 10,000 feet mean sea level (MSL), whichever is higher.

Additionally, the Jarbidge Wilderness is currently overlain by the Elko Air Traffic Control Assigned Airspace (ATCAA) area, and the Santa Rosa-Paradise Peak Wilderness is overlain by the Sodhouse ATCAA. Both Sodhouse and Elko have an operating altitude of 18,000 feet 28,000 feet MSL. Military aircraft regularly use this airspace by permission from Salt Lake Center for refueling and marshalling during Large Force Exercises. See Figure 4.

3.3.4 Wildlife Management Areas

There are no Wildlife Management Areas in the proposed expansion area.

3.3.5 Research Natural Areas

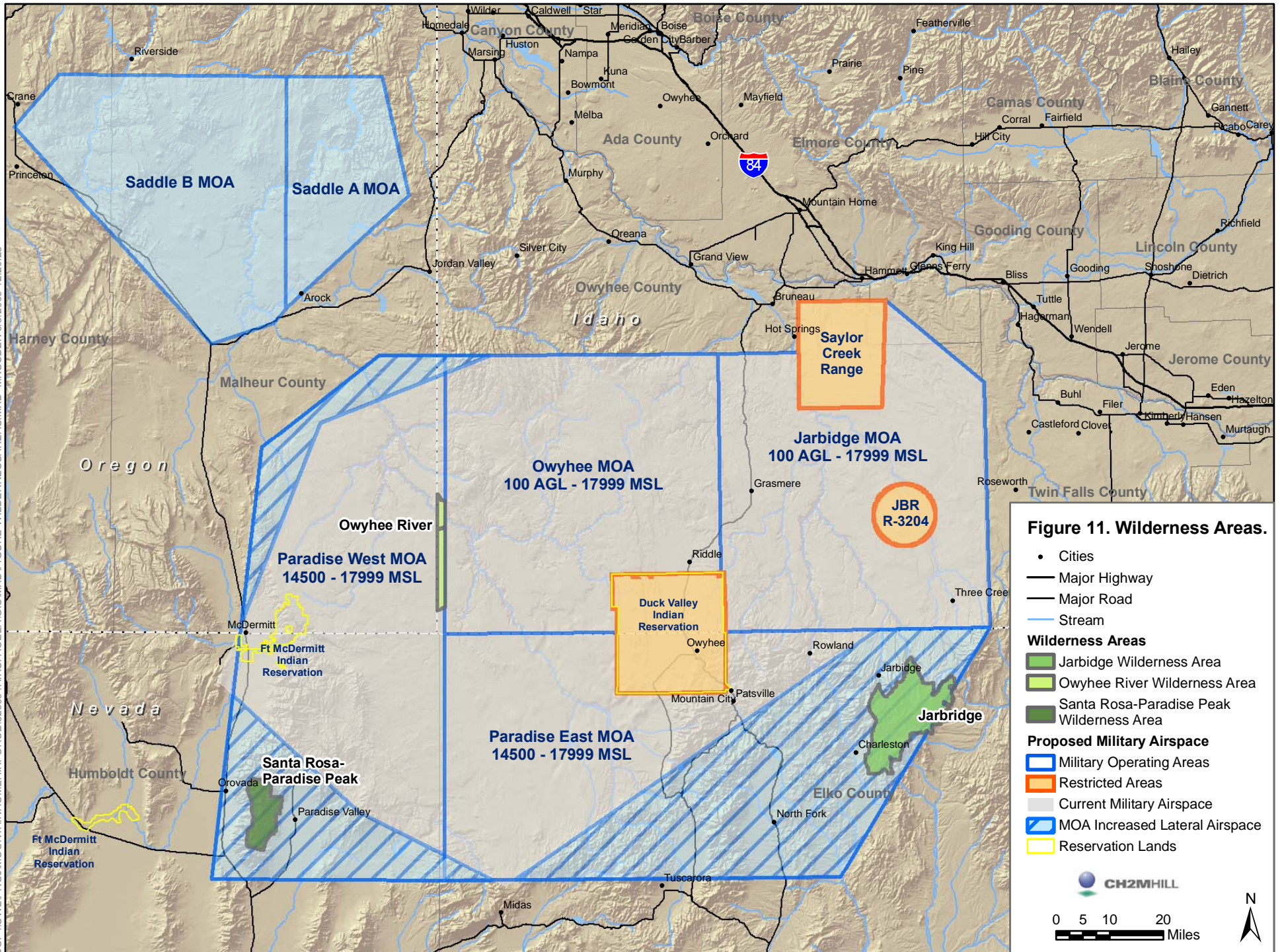
Research Natural Areas (RNAs) are areas of high ecological integrity designated and managed by the USDA Forest Service. These areas are established to protect biological diversity, to serve as a baseline reference, and for monitoring long-term ecological changes. Activities permitted on RNAs are restricted to low-impact studies for educational purposes.

The Fall Creek Research Natural Area, established in 1996, is located within the Jarbidge Wilderness about 4 miles southeast of the town of Jarbidge. The Fall Creek RNA supports the following vegetation types, which are of significant ecological interest:

- Pond alpine barrens
- Whitebark pine
- Englemann spruce-subalpine fir
- Aspen
- Sagebrush steppe
- Mountain mahogany-oak scrub
- Western ponderosa forest stream talus

Fall Creek RNA ranges from about 6,600 feet to over 10,800 feet in elevation, and is characterized by steep topography and unusual geologic formations.

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3.4 Visual and Recreational Resources

Expanding the lateral and vertical boundaries of the Paradise East and West MOAs under the Proposed Action or Alternatives would not be expected to change current Resource Opportunity Spectrum (ROS) or Visual Resource Management (VRM) classifications or the types of recreation opportunities and visual resources available to the public in the analysis area. However, much more of the H-TNF and its recreation opportunities and visual resources would be covered by the expanded airspace boundaries than at present. Recreation and visual resources would experience increased training aircraft sightings over the laterally expanded MOA boundaries (for example, in the H-TNF). Training aircraft also may be more apparent beneath all of the expanded Paradise East and West MOAs because of the vertical boundary changing to 10,000 feet MSL or 3,000 feet AGL, whichever is higher. Increased noise levels, because of the lower vertical boundary, may temporarily detract from the solitude of primitive or semi-primitive recreational experiences while training aircraft pass overhead. The BLM addressed this effect in the Final Environmental Impact Statement (EIS) for the Oregon Wilderness (BLM 1989, in Air Force 1998), stating that the influence of low-level military flights.

“on a visitor’s perception of solitude is quite temporary, but extreme for a short period of time (one minute or less). These flights do not have a significant, long-lasting adverse effect on a visitor’s opportunity to find solitude.”

In summary, these resources would not be significantly affected by implementation of the Proposed Action or Alternatives and have not been further assessed in this EA.

3.4.1 Air Quality

Air quality at a given location is described by the concentration of various pollutants in the surrounding atmosphere. National Ambient Air Quality Standards (NAAQS) are established by the U.S. Environmental Protection Agency (EPA) for criteria pollutants including ozone (O₃), carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), particulate matter equal to or less than 10 micrometers in diameter (PM₁₀), and lead (Pb). NAAQS represent the maximum levels of background pollution that are considered safe, with an adequate margin of safety to protect public health and welfare.

Based on measured ambient criteria pollutant data, the EPA designates areas of the U.S. as having air quality better than (attainment) or worse than (nonattainment) the NAAQS. Individual states are delegated the responsibility to regulate air quality in order to achieve or maintain air quality in attainment with these standards. States are required to develop a state implementation plan (SIP) that sets forth how the CAA provisions will be implemented within the state. The SIP is the primary means for the implementation, maintenance, and enforcement of the measures needed to attain and maintain the NAAQS in each state. According to plans outlined in the SIP, designated state and local agencies implement regulations to control sources of criteria pollutants (Air Force 2007). EPA-approved SIPs for the states of Oregon and Nevada do not regulate aircraft emissions when acting as a mobile source. Aircraft emissions can be regulated as a stationary source if aircraft engines are tested on a test stand (Trimberger 2008).

The CAA prohibits federal agencies from supporting any activities that do not conform to an EPA approved SIP. In 1993, the EPA developed the final rules for determining air quality

conformity. Under these rules, certain actions are exempted from conformity determinations, while others are assumed to be in conformity if total project emissions are below *de minimis* levels established under 40 CFR Section 93.153 (Air Force 2007). Because the Proposed Action and Alternatives are proposed for an area that meets all NAAQS, an air conformity analysis is not required.

In addition to NAAQS, the CAA establishes a national goal of preventing any further degradation or impairment of visibility within federally designated attainment areas. Attainment areas are classified as Class I, II, or III and are subject to the Prevention of Significant Deterioration (PSD) program. Mandatory Class I status was assigned by Congress to all international parks, national wilderness areas, and memorial parks larger than 5,000 acres and national parks larger than 6,000 acres in existence on August 7, 1977. Class III status is assigned to attainment areas to allow maximum industrial growth while maintaining compliance with NAAQS. All other attainment areas are designated Class II. In Class I areas, visibility impairment is defined as a reduction in regional visual range and atmospheric discoloration or plume blight (such as emissions from a smokestack). Determination of the significance of an impact on visibility with a PSD Class I area is typically associated with stationary emission sources. Mobile sources, including aircraft and their operations, are generally exempt from permit review under this regulation (Air Force 2007).

Paradise East and Paradise West MOAs do not occur within Air Quality Control Regions with designated nonattainment areas. The rural nature of this region and the lack of substantial population centers or industrial facilities to serve as significant sources of air pollution contribute to relatively good air quality in the region. One Class I PSD area is located in the Jarbidge Wilderness Area.

Based on an annual sortie rate of 10,264 (Air Force 2007) and assuming all the aircraft sorties are by F-15E and F-15SG aircraft (only 7 percent of sorties are by other aircraft types), a rough estimate of air emissions can be extrapolated per unit area. Other assumptions used in calculating representative air emissions include that aircraft engines are using maximum engine power for the entire sortie and each sortie is 1.2 hours. Afterburner data are not included, as afterburners are used only briefly in the MOAs (very high fuel consumption) or on take-off. Likewise, partial engine power data are not used in the calculations, even though the aircraft would be using less than maximum engine power for a majority of the time while flying the sortie. The emissions calculated in Table 3.2 represent the maximum aircraft emissions per unit area for the existing Paradise MOAs compared to the Proposed Action and Alternatives.

TABLE 3.2
Estimated Maximum Air Emissions Data for F-15E and F-15SG Aircraft for the Proposed Action and Alternatives Per Unit Area

Pollutant	Pounds of pollutant emitted per sortie ^a	Total tons of pollutant emitted per year ^b	Emissions per cubic nautical mile per year- Alternative A: No- Action ^c	Emissions per cubic nautical mile per year - Alternative B: Proposed Action ^c	Emissions per cubic nautical mile per year - Alternative C ^c	Emissions per cubic nautical mile per year - Alternative D ^c
CO	18.2	93.4	3.8	2.8	3.0	3.6
VOC	15.0	77.0	3.1	2.3	2.5	3.0
NO _x	1,589.8	8158.9	331.1	246.2	263.1	314.1
SO ₂	12.1	62.1	2.5	1.9	2.0	2.4
PM ₁₀	30.9	158.6	6.4	4.8	5.1	6.1
Total pounds	1,666.0	8549.9	346.9	258.0	275.7	329.2

^a Sortie length is 1.2 hours

^b Annual emission calculation is based on 10,264 sorties per year

^c Units are pounds of pollutant per cubic nautical mile of airspace

Pollutants considered in this EA include the criteria pollutants measured by state and federal standards. These include volatile organic compounds (VOCs), which are precursors to (indicators of) O₃, nitrogen oxides (NO_x), which are also precursors to O₃, as well as CO, SO₂, and PM₁₀. Airborne emissions of lead (Pb) are not addressed because the affected areas contain no significant sources of these criteria pollutants nor is it associated with the Proposed Action and Alternative A.

No change in the current sortie rate would occur in the MOA complex expansion. Because additional sorties are not included in the Proposed Action or Alternatives, no additional pollutants will be discharged from aircraft within the MOA complex. Because the number of sorties would remain relatively the same and are spread over a larger area, emissions in the existing portions of Paradise East and Paradise West would decrease. Emissions in the proposed airspace expansion area would increase from (presumably) no emissions to 258.0 pounds per cubic nautical mile. This increase is not significant and NAAQS would continue to be met in the MOAs under the Proposed Action and Alternatives. The Class I PSD area in the Jarbidge Wilderness Area would not be adversely affected by the Proposed Action and Alternatives. No further analysis of this resource was conducted.

3.5 Biological Resources

3.5.1 Definition of Resource

Biological resources include all of the living components of an ecosystem. For this EA, biological resources have been divided into five major categories: vegetation, wildlife, species with conservation status, fish, and wetlands.

3.5.2 Wildlife

The USFWS, Oregon Department of Fish and Wildlife, Nevada Department of Wildlife, BLM, and USFS manage wildlife within the Proposed Action Area. The Shoshone-Paiute Tribes manage wildlife resources within the Duck Valley Reservation. The Paiute and Shoshone Tribes manage wildlife resources in the Fort McDermitt Reservation. Wildlife in the Proposed Action Area is diverse and well adapted to the available habitats. In general, quality wildlife habitat includes a diverse mixture of native forbs, grasses, shrubs, and available water sources. These features form the basis of ecosystem community structure. Wildlife resources include large mammals, small mammals, furbearers, small carnivores, reptiles, amphibians, and birds.

3.5.2.1 Large Mammals

Large mammals are highly mobile and may have home ranges up to hundreds of square miles. Many of the large mammals in southwestern Idaho, northwestern Nevada, and western Oregon use different habitats on a seasonal basis.

California bighorn sheep (*Ovis canadensis californiana*) inhabit grasslands adjacent to steep canyons and rimrock in the Nevada expansion area. They migrate seasonally (Northwest Power Planning Council 2004). Bighorn sheep are discussed further in Section 3.5.5.2.

Mule deer (*Odocoileus hemionus*), pronghorn antelope (*Antilocapra americana*), and elk (*Cervus elaphus nelsoni*) winter in low elevation areas to escape deep snow. These animals migrate to higher elevations during the spring and summer. Cougar (*Puma concolor*) are found in higher elevation areas, typically in forested portions of the project analysis area. Black bear (*Ursus americanus*) habitat exists in the project area, but the species is restricted to areas in western Nevada. A brief discussion of these species habitat requirements and status follows below.

Pronghorn Antelope

Pronghorn are highly dependent on sagebrush for year-round food and cover, but it is especially important in winter (Johnson 1979). Big sagebrush (*Artemisia tridentata*), rabbitbrush (*Chrysothamnus nauseosus*), and bitterbrush (*Purshia tridentata*) have been identified as being particularly important winter food sources for antelope in the Great Basin (Allen et al. 1984). Migration routes are traditional, but vary by snow conditions, water availability, vegetation condition, and disturbance (Crenshaw 1991). Pronghorn numbers are good within the project area. In the winter of 2006-07, the Nevada Department of Wildlife (NDOW) removed 190 pronghorn from the winter range areas in Management Unit 6, which covers much of the Nevada segment of the project expansion area, and moved them to other management units (Cox et al. 2007). Within Area 6, 363,000 acres in the North Central Elko County units burned in 2006. The most devastating results of these fires were approximately 27,000 acres of crucial pronghorn winter habitat that burned along Deeth, Elbutz, and Susie creeks. Trapping and increased harvest in this area, which covers the east side of the Nevada expansion area, have decreased pronghorn numbers to better conserve crucial winter range.

Fires also burned the center of the Nevada Area 6 (Management Unit 66); however, sagebrush had already been devastated by moths in this unit and was in poor condition (Cox et al. 2007). Pronghorn populations in this unit are stable or increasing.

Management Unit 51 is within the west side of the Nevada expansion. This area appears to have increasing pronghorn populations based on survey results (Cox et al. 2007). Increased precipitation appears to be increasing forage in this area.

Pronghorn population numbers on both wildlife management units in Oregon, especially in winter counts appear to be increasing (ODFW 2006a).

Mule Deer

Specific habitat characteristics supporting mule deer populations in the Great Basin include aspen with abundant herbaceous understory, sagebrush, and mixed grass/shrub habitat with shrub cover up to 75 percent. Although specific data are not available, deer utilize low elevation sagebrush for winter range.

Wildfires have significantly reduced mule deer sagebrush habitats in the same areas as for pronghorn. A total of 662,730 acres burned in Area 6 in 2006. Much of the area burned was either crucial winter range or important transitional range for deer (NDOW 2007). Loss of many acres of crucial winter range to cheatgrass invasion is likely to occur as an aftermath of these fires. Fawn ratios in the eastern units of the project area were down from previous averages in 2006. Although approximately 105,000 acres of crucial habitat that burned on the east side of the expansion area were seeded in 2006, lack of spring precipitation in early 2007 produced poor germination results from these seedings (Cox et al. 2007).

On the west side of the Nevada expansion area, mule deer populations have increased slightly in Unit 51 (Cox et al. 2007). An emergency antlerless hunt was initiated in the center of the Nevada portion (Unit 66), which is part of the current air space, in order to protect crucial mule deer habitat that burned in 2006 fires.

In Oregon, mule deer objectives for the two wildlife management units within the project area are set for a total of 10,500 mule deer (ODFW 2005). The Oregon Department of Fish and Wildlife (ODFW) would like to revise the Whitehorse Management unit objectives for mule deer from the current total of 5,500 for the whole unit to 3,200 for East Whitehorse and to 2,800 for the Trout Creek Mountains. They base these recommended changes on changing distribution of mule deer populations in this unit. In the Owyhee Management Unit, the ODFW would like to revise the objectives up to 8,000 from the current 5,000. This increase is based on better population estimates.

Elk

Elk habitat varies seasonally and with altitude. In the summer, elk are primarily associated with mountain meadows and coniferous forests. In winter months, elk move to lower elevations of foothills, valleys, and shrublands. Elk forage on grasses, sedges, conifer needles, serviceberry (*Amelanchier alnifolia*), sagebrush, and other plant material.

Fires within elk habitats on the east side of the expansion area in Nevada do not appear to have impacted elk to the same degree as they have pronghorn and mule deer. Fires have promoted grass, which elk prefer. Elk numbers are currently increasing in management units on the east side of the Nevada air space project expansion (Cox et al. 2007). No elk habitat occurs on the west side.

Elk habitat for the Oregon portion of the air space is much more limited. The ODFW has set population objectives for the two wildlife management units within the project area, which they consider to be high desert habitat, at a total of only 1,000 elk (ODFW 2005).

Cougar

Cougar can be found in rugged mountains and semi-wooded canyon habitat. These animals feed primarily on mule deer and other large game in addition to a wide variety of small mammals. Primary prey in the project area typically would be mule deer, elk, bighorn sheep, and porcupines. Prey availability directly influences cougar reproduction and mortality rates. Studies indicate cougar populations increase as available prey increases. Cougar density is primarily influenced by a combination of prey availability, habitat structure, and tolerance for other cougars (ODFW 2006b).

Potential habitat, typically comprised of pinyon pine, juniper, and mountain mahogany in rocky terrain, is available in the mountains of the western and southeastern regions of the proposed expansion area as well as in the Bruneau/Jarbridge and Owyhee river canyon complexes.

Cougar populations are believed to be stable within the expansion area in Nevada, but if wildfires result in a decrease in mule deer populations, cougar populations are expected to decrease as well. The NDOW currently assess habitat in good condition throughout the Eastern Region with an ample prey base and minimal overall loss of habitat due to development activities (Cox et al. 2007). They also conclude that range fires during previous summers converted thousands of acres of deer habitat to vegetation dominated by grasses and annuals in the Eastern Region, burning some important deer summer ranges and some key deer winter ranges. Although the future status and trend of deer herds in the burned areas will have a significant impact on cougar productivity and survivability, the NDOW believes that documented mortality in the form of harvest and accidental loss has not exceeded the reproductive or recruitment capabilities of the mountain lion resource. Although harvest objectives for some units had been met under the previous unit-based approach, the collective harvest objective for cougars for the east side of the project expansion area in Nevada has never been achieved (Cox et al. 2007).

Populations of cougar in eastern Oregon are low. Few are harvested in either of the management units within the expansion. The best habitat for cougar is north of the expansion area in northeastern Oregon (ODFW 2006b).

Black Bear

Black bears are primarily associated with forested mountains and wooded areas in the western U.S. Throughout their range, prime habitat is characterized by relatively inaccessible terrain, brushy vegetation, and food sources in the form of fruits and nuts, insects, tubers and eggs (Crowe 1986, Burt and Grossenheider 1980). Presumably black bears once occurred in the proposed expansion area in the region named Bear Creek, located in the northern part of the upper elevations of the Paradise East MOA.

Although potential black bear habitat is available in the mountains of the western and southeastern regions of the proposed expansion area, the managed range of the black bear by the NDOW is restricted to "mountainous areas and foothills of Lake Tahoe, the Sierra

Nevada Mountains and nearby mountain ranges in extreme western Nevada”, which are outside the proposed expansion area (NDOW 2007a). Black bear are not hunted in Nevada.

Black bear are not known to occur in the Oregon expansion area.

3.5.2.2 Furbearing Mammals and Small Carnivores

Furbearers include mink (*Mustela vison*), river otter (*Lutra canadensis*), beaver (*Castor canadensis*), muskrat (*Ondatra zibethica*), bobcat (*Lynx rufus*), red fox (*Vulpes vulpes*), raccoon (*Procyon lotor*), and badger (*Taxidea taxus*). Small carnivores include coyote (*Canis latrans*), kit fox (*Vulpes macrotis*), skunks (*Mephitis mephitis*), and long-tailed weasels (*Mustela frenata*). Fourteen furbearing and small carnivore species may potentially occur within the MOA complex as year-round residents.

Coyotes and kit fox are typically found in a wide variety of habitats but are most numerous in the uplands. Both are found in grasslands and sagebrush habitats. This habitat is found in the current air space as well as the southeast and western portion of the Nevada expansion area and the expansion area in Oregon.

Beaver, river otter, muskrat, and mink are associated with river environments and have the potential to occur in the Bruneau, Jarbidge, Owyhee, and Humboldt River systems within the MOA complex. Smaller river systems in the expansion area include the Little Humboldt River complex and numerous smaller drainages including the south fork of the Owyhee River and Martha, Deep, and Canyon creeks. Most protected areas of these channels are willow or alder dominated, often with cottonwood and aspen components.

Bobcats and weasels are most likely to occur on canyon slopes near water courses. Bobcats inhabit a wide variety of community types but prefer areas with rocky terrain, which is common in the proposed expansion area. Long-tailed weasels are typically found near water as well.

Raccoons, skunk, red fox, and coyote all utilize agricultural areas (Air Force 1998).

3.5.2.3 Small Mammals

Small mammals include voles, mice, squirrels, rabbits, and shrews. Small mammals are found in a diversity of habitats ranging from the desert to montane vegetation communities. Both the presence of vegetation for concealment, food supply, and bedding, and the composition of the soil (rocks, gravel, and sand) are important microhabitat features that influence the small mammal species composition of an area (Air Force 1998).

Thirty-seven small mammal species have the potential to occur within the affected environment of the MOA complex (Keller 1992). In two field surveys, deer mice (*Peromyscus maniculata*) were the most common species trapped, followed by the Great Basin pocket mouse (*Perognathus parvus*). The pocket mouse was trapped at a much lower frequency of occurrence than the deer mouse. All other small mammals were trapped at very low or undetected frequencies.

According to the US Fish and Wildlife Service (26 Aug 09), the pygmy rabbit (*Brachylagus idahoensis*) and American pika (*Ochotona princeps*) are found within the current Paradise MOAs and proposed airspace expansion in Oregon and Nevada and have been petitioned

for listing under the Endangered Species Act. Pygmy rabbit and American pika are discussed in Section 3.5.5.3.

Bats

Essential habitat components for insectivorous bat populations are appropriate day roosts and foraging habitat. Foraging habitat must provide sufficient insect densities within the air column and be of some acceptable distance from roosts. Habitat preferences vary among species, but suitable habitat must contain adequate roosting and foraging sites.

Additionally, the presence of open water has been found to enhance habitat for species that live in arid environments (Carpenter 1969). In addition to hydration, open water also provides habitat for insect prey.

Three species of bats are likely to occur in Nevada in the proposed expansion area: little brown myotis bat (*Myotis lucifugus*); Townsend's big-eared bat (*Corynorhinus townsendii*); and spotted bat (*Euderma maculatum*). Little brown myotis bat and Townsend's big-eared bat are unprotected in the state of Nevada and spotted bat is protected and listed as Threatened. Known threats can include "Habitat loss, collection, recreational rock climbing, water impoundments, grazing, mining operations, and pesticide use" (NDOW Wildlife data, online at <http://ndow.org/wild/animals/facts/index.shtm#mammals>).

Bat species that may occur in the proposed expansion area in Oregon include the pallid bat (*Antrozous pallidus*), spotted bat, and Townsend's big-eared bat. Spotted and Townsend's big-eared bats are both ranked G4; pallid bat is ranked G5. All three species fall within the state rank of S2. Threats can include disturbance at roosts, patchy distribution, loss of habitat, pesticides, and natural rareness (ODFW Conservation Strategy 2006).

3.5.2.4 Birds

Upland Game Birds

Upland game birds known to occur within the expansion area of the MOA complex include four native species; sage grouse (*Centrocercus urophasianus*), mourning dove (*Zenaida macroura*), mountain quail (*Oreortyx pictus*), and blue grouse (*Dendragapus obscurus*). An additional four introduced species: chukar (*Alectoris chukar*), gray partridge (*Perdix perdix*), ring-necked pheasant (*Phasianus colchicus*), and California quail (*Callipepla californica*) occur here as well. Sage grouse are discussed in Section 3.5.5.1.

Mourning doves occupy a variety of habitats including grassy meadows, cultivated fields, woodlands and sagebrush stands. They nest primarily in shrubs and trees. They are expected to occur in all expansion areas in both Nevada and Oregon.

Mountain quail typically are found in dense brush and woodlands up to 10,000 feet in elevation, but move to lower elevations in cold weather. In the fall and winter, they congregate in coveys. The Sierra Nevada is the main population center for this species in Nevada (NDOW 2005). They may have once occurred within the project expansion area. NDOW has released and plans additional supplemental releases of this species in the eastern region of the expansion area in Nevada.

Blue grouse require a winter range of conifers and a summer range that is open and contains a diversity of plant life and topography (Bendell and Zwickel 1980). Blue grouse have a limited distribution in the expansion area and only occur in the forested regions of the

eastern side of the Nevada expansion (Espinosa et al. 2007). Blue grouse populations in Nevada appear to be stable. Blue grouse are listed with ruffed grouse as forest grouse in Nevada, but ruffed grouse are not native to the state. It is unlikely that ruffed grouse occur within the project area, but if they do, they would primarily be associated with aspen (Espinosa et al. 2007). Blue grouse are not known to occur within the Oregon expansion area.

The gray partridge, ring-necked pheasant, and California quail nest on the ground, are somewhat gregarious, and are year-round residents. Gray partridge and ring-necked pheasant are primarily associated with cultivated farmland such as corn or hay fields, which have some component of vegetative cover. Sagebrush-grass dominated habitats are also used by gray partridges (IDFG 1990). California quail can be found in farmlands, brushy foothills, and deserts, which contain riparian areas or some type of water source with cover. Chukars prefer rocky and brushy canyons with grassland and scattered sagebrush. They occur within these habitats in the proposed expansion areas.

Waterbirds

A diverse group of waterbirds inhabit the project area, including ducks, swans, herons, ibises, sandpipers, plovers, gulls, terns, and many other birds primarily associated with aquatic environments. Aquatic environments provide nesting and foraging habitat for most of the water bird species. Waterbirds also use temporarily flooded areas and ephemeral ponds as resting and foraging stops during migration. Concentrations of waterbirds occur on Wildhorse Reservoir and Sunflower Reservoir in the eastern expansion area in Nevada. NDOW surveys these reservoirs for waterfowl. Other riverine and wetland areas within the expansion areas support nesting, migrating, and wintering habitats for both shorebirds and waterfowl. These are primarily found in the expansion areas of Nevada. The abundance and seasonality of each habitat type is variable. However, in Oregon, Owyhee Reservoir provides important waterbird habitat.

Marsh habitat provides important nesting habitat for both waterfowl and some shorebirds. Several areas of marsh (Palustrine Emergent [PEM]) occur within the project expansion areas. In Nevada, these include the Adams Slough, Martin Creek, and Big Cottonwood Creek drainage complex located east of the Santa Rosa-Paradise Peak Range, and the Little Humboldt River complex and reservoirs.

In addition, one of the two Important Bird Areas (IBAs) located within the proposed eastern expansion area in Nevada support waterfowl and shorebird use: Mary's River. The Mary's River IBA watershed is considered to be the last functioning segment of the Humboldt River system. Its wetlands and riparian corridors are home to a large variety of birds including raptors and riparian obligates. Waterfowl species that are known to nest in this watershed include cinnamon teal, green-wing teal, common mergansers, gadwalls, and mallards. Shore or marsh nesting birds that are known to nest in this watershed include sandhill cranes, snowy egrets, Wilson's phalaropes, Forster's terns, and common snipe.

Raptors

Raptors include hawks, eagles, falcons, vultures, and owls. Diversity of vegetation communities within the existing MOA complex provides suitable nesting and foraging habitat for many raptor species, especially along canyon walls and riparian areas. Some raptors are migratory species; however, raptors that are likely to be year-round residents,

and which utilize canyon walls for nesting, include golden eagles (*Aquila chrysaetos*), prairie falcons (*Falco mexicanus*), peregrine falcons (*Falco peregrinus anatum*), red-tailed hawks (*Buteo jamaicensis*), American kestrels (*Falco sparverius*), great horned owls (*Bubo virginianus*), western screech owls (*Otus kennicottii*), and barn owls (*Tyto alba*). Suitable nesting habitat within the MOA complex includes the canyons of the Owyhee Canyon Wilderness Study Area in the Oregon expansion area, and other areas of rimrock elsewhere within the complex.

Raptor species that would nest in trees along the Mary's River in the eastern Nevada expansion area include Swainson's (*Buteo swainsoni*), ferruginous (*Buteo regalis*), and red-tailed hawks, long-eared owls (*Asio otus*), great horned owls, and western screech owls. Areas with appropriate nesting habitat for these species tend to be found at higher elevations, in canyons, or along drainages.

Short-eared owls (*Asio flammeus*) and northern harriers (*Circus cyaneus*) nest on the ground in grassland, shrub-steppe, or marsh habitats. Both species may be found nesting in grasslands, shrub-steppe, and near agricultural areas throughout the uplands of the MOA complex. At higher elevations, forests in the eastern Nevada expansion area provide nesting habitat for accipiter species, including northern goshawk (*Accipiter gentilis*), Cooper's hawk (*Accipiter cooperii*), and sharp-shinned hawk (*Accipiter striatus*).

Non-Game Bird Species

A large variety of non-game avian species occur within the proposed expansion area, including sparrows, warblers, thrushes, wrens, nighthawks, swifts, hummingbirds, and woodpeckers.

Riparian areas within the MOA complex, especially those found in the major canyons, support between 40 and 47 species of birds (Saab and Groves 1992). In addition to game birds and raptors, canyon bird species include rock wren (*Salpinctes obsoletus*), canyon wren (*Catherpes mexicanus*), white-throated swift (*Aeronautes saxatalis*), belted kingfisher (*Ceryle alcyon*), northern rough-winged swallow (*Stelgidopteryx serripennis*), Say's phoebe (*Sayornis saya*), rock dove (*Columba livia*), and yellow-breasted chat (*Icteria virens*). For example, the Mary's River IBA in the eastern Nevada expansion area lists the following non-game bird species that are known to nest in this area: yellow-breasted chat, Lewis's woodpecker (*Melanerpes lewis*), sage thrasher (*Oreoscoptes montanus*), bobolink (*Dolichonyx oryzivorus*), mountain bluebird (*Sialia currucoides*), and long-billed curlew (*Numenius americanus*).

Sage sparrows (*Amphispiza belli*), sage thrashers, and Brewer's sparrows (*Spizella breweri*) are obligate sagebrush species that nest in sagebrush stands within all expansion areas. Loggerhead shrikes (*Lanius ludovicianus*) also favor sagebrush habitats.

Western meadowlarks (*Sturnella neglecta*), vesper sparrows (*Pooecetes gramineus*), and Savannah sparrows (*Passerculus sandwichensis*) are found in grasslands and sagebrush-grasslands in the expansion areas of both Oregon and Nevada.

Between 17 and 31 species of birds are found within the pinyon-juniper and aspen woodland habitat types (Saab and Groves 1992). These habitats are found in river canyons in all expansion areas, but are especially prevalent in the Nevada expansion areas. These birds include mountain bluebirds, American robin (*Turdus migratorius*), Hammond's flycatcher (*Empidonax hammondi*), Swainson's thrush (*Catharus ustulatus*), pine siskin (*Carduelis pinus*),

western wood-pewee (*Contopus sordidulus*), Lewis' woodpecker, Townsend's solitaire (*Myadestes townsendi*), and spotted towhee (*Pipilo maculatus*).

The coniferous forests associated with higher elevations along the eastern Nevada extension area is home to many of the same species listed about for pinyon-juniper and aspen stands. Coniferous forest also provide nesting and foraging habitat for other bird species, including several species of warblers, dark-eyed juncos (*Junco hyemalis*), Clark's nutcrackers (*Nucifraga columbiana*), and red-crossbills (*Loxia curvirostra*). Tree swallows (*Tachycineta bicolor*) also occur in areas near water in this expansion area.

3.5.2.5 Amphibians and Reptiles

Seven species of amphibian and 15 species of reptile potentially occur within the affected environment. These species are year-round residents. Amphibians are restricted to moist habitats, whereas reptiles have a greater tolerance for a variety of dry and wet habitats. During the winter, all of the amphibian and reptile species hibernate. Many reptiles gather in communal overwintering sites known as *hibernacula*. Conserving these rare hibernacula is essential to maintaining a significant proportion of the reptile population in a given area.

Four amphibian species – bullfrog (*Rana catesbeiana*), Pacific tree frog (*Hyla regilla*), Great Basin spadefoot (*Spea intermontana*), Woodhouse's toad (*Bufo woodhousii*) – are known to occur within the existing MOA complex and would be expected to occur in suitable habitat in the expansion areas. The bullfrog is native to eastern North America, but has invaded many areas of the west. Its range expansion may be partially to blame for the decline of native frog species. The bullfrog and Pacific tree frog are mostly limited to riverine systems in canyon bottoms or wetlands. The Great Basin spadefoot, and Woodhouse's toad are adapted to arid conditions and might occur in both wetland and upland environments.

Populations of an additional amphibian species, Columbia spotted frog (*Rana luteiventris*) have been found in several areas of the Nevada eastern expansion area (Columbia Spotted Frog Technical Team 2006). This frog is a candidate species for listing under the Endangered Species Act. This species is also found near lakes, ponds, marshes, and slow-moving streams in eastern Oregon. Fifteen reptile species (seven snakes and eight lizards) that have habitat within the existing MOA complex are expected to occur within the expansion areas. The gopher snake (*Pituophis melanoleucus*), racer (*Coluber constrictor*), western fence lizard (*Sceloporus occidentalis*), sagebrush lizard (*Sceloporus graciosus*), and western rattlesnake (*Crotalus viridis*) are widespread and are considered common throughout the MOA complex. The western garden snake (*Thamnophis elegans*) is limited to riparian or wetland areas. The western whiptail lizard (*Cnemidophorus tigris*), long-nosed leopard lizard (*Gambelia wislizenii*), and desert horned lizard (*Phrynosoma platyrhinos*) are commonly found in sandy or sandy loam soils. The night snake (*Hypsiglena torquata*), striped whipsnake (*Masticophis taeniatus*), western ground snake (*Sonora semiannulata*), rubber boa (*Charina bottae*), western skink (*Eumeces skiltonianus*), and short-horned lizard (*Phrynosoma douglassii*) are more limited in their distributions and would be considered locally uncommon or rare (Air Force 1998). Neither Oregon nor Nevada appears to actively monitor populations of these reptile species.

3.5.3 Vegetation

Vegetation includes terrestrial plants and plant communities, plant species of concern, and weed species of concern. A plant community is a combination of plants that depend upon

and modify their environment, and influence each other. Together with their common habitat, microclimates, and associated organisms, communities form an ecosystem, which in turn is influenced by neighboring ecosystems and the climate of the region.

Dominant landscape features of the Proposed Action area include rolling plateaus, low buttes, and incised canyons. Land within MHRC MOAs lies within the regional landform and vegetation classification known as the Intermountain Sagebrush Province/Sagebrush Steppe Ecosystem (Bailey and Kuchler 1996), which is widespread over much of southern Idaho, eastern Oregon, eastern Washington, and portions of northern Nevada, California, and Utah. This ecosystem contains a large diversity of landforms and vegetation types, ranging from the vast expanses of flat sagebrush-covered plateaus to rugged mountains blanketed with juniper woodlands and grasslands.

Elevation within the proposed expansion area ranges from approximately 5,000 to well over 10,000 feet above sea level. Vegetation types represented within this area include salt desert scrub, black sagebrush, low sagebrush, basin big sagebrush, Wyoming big sagebrush, mountain big sagebrush, bitterbrush, rabbitbrush, mountain shrub, aspen, coniferous forest, Utah and western juniper, bunchgrass or forbland, and areas of agriculture. Additional land cover includes dunes, barren/rock/lava, exotic species, marsh/wetland areas, open water, wet meadow, riparian, and a small percentage of snow/ice (Bruneau Subbasin Assessment 2004).

Proposed airspace changes to the MOA complex would not affect vegetation. The use of training materials such as rockets or ordnance are not part of the Proposed Action or Alternatives, and as such, no ground disturbance would occur. Because no ground disturbing activities are proposed, no further analysis of this resource was conducted.

3.5.4 Fish

A variety of fish species can be found in the project vicinity. These include leatherside chub (*Gila copei*), white sturgeon (*Acipenser transmontanus*), Shoshone sculpin (*Cottus greeniei*), interior redband trout (*Oncorhynchus mykiss gairdneri*), bull trout (*Salvelinus confluentus*), and Lahontan cutthroat trout (*Oncorhynchus clarki henshawi*).

Few studies have evaluated the effects of aircraft noise on fish. Sonic booms apparently caused no change in rainbow trout blood stress indicators and “very slight” reactions to the noise (Manci et al. 1998). Rainbow trout, cutthroat trout, and Chinook salmon eggs showed no mortality increases from sonic boom vibrations compared to eggs not exposed to the noise (Manci et al. 1988). Based on this limited research, no effects are expected to fish species in the project area due to periodic, infrequent, and small increase in noise in the expanded MOA area. No further analysis of this resource was conducted.

The US Fish and Wildlife Service (26 Aug 09) expressed concerns on the components of chaff and flares interacting with water quality and fish habitats. See Section 3.9.3., Water Resources, Water Quality, Soils and Natural Resources, and Energy Supply for discussion of chaff and flares and water quality.

3.5.5 Species with Conservation Status

Species with Conservation Status include a variety of organisms that appear on agency lists and are considered important. These status species range from threatened or endangered

species to game species of special concern. Threatened and endangered species include plants and animals that are rare and have federal protection under the Endangered Species Act of 1973 (ESA). Protection of federally listed species under the ESA is the responsibility of U.S. Fish and Wildlife Service (USFWS). In addition to threatened and endangered species, the USFWS maintains a list of species that are candidates and proposed candidates for listing. While candidate and proposed candidate species do not have protection from the full force of the ESA, the USAF manages their activities to avoid significant impacts to candidate or proposed candidate species.

In addition to federally-listed species, each state determines the status of species that are rare or declining within their own state boundaries. State species of concern can include game species that are abundant in some portions of the state, but exist in low numbers or have declining populations in other portions of that state. For this EA, state-listed species for Nevada and Oregon are considered. The EA also encompasses large areas that are managed by federal agencies, including BLM lands and Forest Service lands. Each federal agency is responsible for determining a list of special-status species on their lands and for protecting those species from further population declines.

Laws protecting wildlife include, but are not limited to, the Bald Eagle Act of 1940, which protects eagles and hawks, the Migratory Bird Treaty Act of 1972, which protects neo-tropical migrant birds, and the ESA. Raptors have statutory protection from indiscriminate killing under the Federal Migratory Bird Treaty Act. Eagles are also protected under the Federal Bald and Golden Eagle Protection Act.

Many plant species with conservation status in the three-state area are under the proposed air space change; however, effects discussed in this EA are the result of expansion of the MOA airspace only. No changes to plant species with conservation status are anticipated. No changes in operations and no construction activities are proposed and so would not affect vegetation resources.

Table 3.3 lists all protected and sensitive wildlife species with conservation status having the potential to occur within the proposed project area. The table includes species' ranking under the ESA (USFWS 2006), and BLM designations, habitat notes, and the potential for impact. A discussion of species with conservation status that may be potentially impacted by the proposed MOA expansion follows the table. Species without the potential for impact will not be addressed. Table 3.3 shows the federally listed and candidate species identified by the U.S. Department of Interior Fish and Wildlife Service, Nevada office (USFWS 2006) as having the potential to occur in the project area. These include bull trout, Lahontan cutthroat trout, yellow-billed cuckoo, and Columbia spotted frog.

TABLE 3.3
Protected and Sensitive Animal Species That Are Known to Occur or That Are Expected to Occur Based on Known Distribution and Suitable Habitat within the Expansion Area

Common Name	Species Name	Species Status ¹	Habitat Description	Known Occurrence and/or Potential Habitat In or Near Expansion Areas	Potential Impacts to Species or Habitat from Proposed Project
Invertebrates					
California floater	<i>Anodonta californiensis</i>	Nevada BLM Sensitive	Shallow areas with soft substrate in clean, clear lakes, ponds and large rivers.	Yes	No
Fish					
Bull trout (Jarbidge River Distinct Population Segment)	<i>Salvelinus confluentus</i>	ESA Threatened	Jarbidge River in southern Idaho and northern Nevada supports a migratory population of bull trout.	Yes	No
Interior redband trout	<i>Oncorhynchus mykiss gairdneri</i>	Nevada BLM Sensitive	Perennial streams including Bruneau and Jarbidge rivers. Rare in most of the Owyhee River, but common in Red Canyon Creek where spawning occurs	Yes	No
Lahontan cutthroat trout	<i>Oncorhynchus clarki henshawi</i>	ESA Threatened	The current distribution is broken into small, reproductively isolated groups generally restricted to small streams and reaches, often in isolation.	Yes	No
Amphibians & Reptiles					
Northern leopard frog	<i>Rana pipiens</i>	BLM Sensitive	Permanent, slow-moving water with aquatic vegetation such as marshes.	Yes	No
Columbia spotted frog (Great Basin Distinct Population Segment)	<i>Rana luteiventris</i>	ESA Candidate	In or near cold, slow moving streams, springs or marshes, ponds and small lakes where emergent vegetation is relatively sparse.	Yes	No
Western toad	<i>Bufo boreas</i>	BLM Sensitive	Widespread, but typically near moist or wet areas.	Yes	No
Mojave black-collared lizard	<i>Crotaphytus bicinctores</i>	BLM Sensitive	Typically rocky arid areas or deserts with sparse vegetation.	Yes	No

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Common Name	Species Name	Species Status ¹	Habitat Description	Known Occurrence and/or Potential Habitat In or Near Expansion Areas	Potential Impacts to Species or Habitat from Proposed Project
Longnose snake	<i>Rhinocheilus lecontei</i>	BLM Sensitive	Dry, often rocky, grassland and sagebrush steppe.	Yes	No
Western groundsnake	<i>Sonora semiannulata</i>	BLM Sensitive	Rocky, dry sagebrush steppe and grasslands, often near moist areas or wetlands.	Yes	No
Birds					
Bald eagle	<i>Haliaeetus leucocephalus</i>	BLM and FS Sensitive	Nest in mature forests and large trees near open water in areas with a large prey base. Winters in areas with open water or areas with substantial big game winter die off. Roost in large mature trees.	Yes	No
Ferruginous hawk	<i>Buteo regalis</i>	BLM and FS Sensitive	Flat and rolling grasslands and shrub steppe with buttes or trees for nest structures.	Yes.	No
Northern goshawk	<i>Accipiter gentiles</i>	FS Sensitive	Dense coniferous and mixed forest. Nest in mature and old-growth forest of mixed tree species, often near riparian or aspens stands.	Limited areas of suitable habitat in the Eastern Nevada Expansion Area	No
Peregrine falcon	<i>Falco peregrinus</i>	BLM and FS Sensitive	Wide-ranging over open landscapes such as grasslands and sagebrush steppe. Nest sites are typically on cliffs associated with river canyons.	Yes	No
Prairie falcon	<i>Falco mexicanus</i>	BLM Sensitive	Arid or semi-arid plains and open country where it typically nests on rock cliffs.	Yes	No
Western burrowing owl	<i>Speotyto cunicularia</i>	BLM Sensitive	Inhabits dry, open grasslands where it nests in burrows excavated by mammals, usually badger (<i>Taxidea taxus</i>), ground squirrel (<i>Spermophilus</i> spp.), or coyote (<i>Canis latrans</i>).	Yes	No

TABLE 3.3

Protected and Sensitive Animal Species That Are Known to Occur or That Are Expected to Occur Based on Known Distribution and Suitable Habitat within the Expansion Area

Common Name	Species Name	Species Status ¹	Habitat Description	Known Occurrence and/or Potential Habitat In or Near Expansion Areas	Potential Impacts to Species or Habitat from Proposed Project
Sage grouse	<i>Centrocercus urophasianus</i>	BLM Sensitive	Requires sagebrush, especially for nesting and brooding. Broods need diverse forbs mixed with grass as well. Courtship occurs in open areas called leks in spring. Low flying planes can disrupt courtship.	Yes	No
Columbia sharp-tailed grouse	<i>Tympanuchus phasianellus</i>	BLM Sensitive	Mountain and foothills shrub communities of serviceberry, snowberry, chokecherry, and Gambel oak; sagebrush-grassland; and willow riparian habitats. Courtship occurs on open ridges or knolls.	Suitable habitat exists	No
Mountain quail	<i>Oreortyx pictus</i>	BLM Sensitive	Nests in shrub-dominated communities such as brushy draws or riparian thickets.	Yes	No
White-faced ibis	<i>Plegadis chihi</i>	Nevada Species of Conservation Priority	Forage in marshes or swamps, or near ponds or rivers. Construct nests on the ground or low in trees or shrubs in marshes or riparian areas. White-faced ibis nesting colonies are patchily distributed.	Yes	No
Loggerhead shrike	<i>Lanius ludovicianus</i>	BLM Sensitive	In shrub-steppe habitat, they nest in big sagebrush, antelope bitterbrush, and greasewood. Nest sites have greater shrub canopy, taller shrubs, and less annual grass cover than unoccupied sites.	Yes	No
Brewer's sparrow	<i>Spizella breweri</i>	BLM Sensitive	Sagebrush obligate. Nest in sagebrush stands.	Yes	No
Sage sparrow	<i>Amphispiza belli</i>	BLM Sensitive	Sagebrush obligate. Nest in sagebrush stands.	Yes	No
Grasshopper sparrow	<i>Ammodramus savannarum</i>	BLM Sensitive	Prairies, grasslands, and open sagebrush-grasslands with herbaceous cover and not too many shrubs.	Yes	No
Bobolink	<i>Dolichonyx oryzivorus</i>	BLM Sensitive	Open grasslands, pastures or hayfields.	Yes	No
Yellow-headed blackbird	<i>Xanthocephalus xanthocephalus</i>	BLM Sensitive	Cattail marshes for nesting.	Potential habitat	No

TABLE 3.3
Protected and Sensitive Animal Species That Are Known to Occur or That Are Expected to Occur Based on Known Distribution and Suitable Habitat within the Expansion Area

Common Name	Species Name	Species Status ¹	Habitat Description	Known Occurrence and/or Potential Habitat In or Near Expansion Areas	Potential Impacts to Species or Habitat from Proposed Project
Yellow-billed cuckoo (Western US Distinct Population Segment)	<i>Coccyzus americanus</i>	ESA Candidate	Riparian areas with dense willows combined with mature cottonwoods. Also known to use wooded parks, cemeteries, tree islands, Great Basin shrub-steppe, and high elevation willow thickets.	Marginal or fragmented habitats. Mary's River has best potential habitat.	No
Lewis' woodpecker	<i>Melanerpes lewis</i>	BLM and FS Sensitive	Mature cottonwood riparian zones and woodlands or burned conifers for nesting.	Yes	No
Red-naped sapsucker	<i>Sphyrapicus nuchalis</i>	BLM Sensitive	Coniferous or deciduous forests that include aspen or cottonwood.	Yes	No
Mammals					
Fringed myotis	<i>Myotis thysanodes</i>	BLM and FS Sensitive	Old growth forest with mature snags for roosts and nurseries.	Yes	No
Long-eared myotis	<i>Myotis evotis</i>	BLM Sensitive	Forage over sagebrush and rocky slopes in the Owyhee and Jarbidge area (Doering and Keller 1998).	Yes	No
Long-legged myotis	<i>Myotis volans</i>	BLM Sensitive	Forage close over sagebrush and rocky slopes in the Owyhee and Jarbidge area (Doering and Keller 1998).	Yes	No
Big Brown Bat	<i>Eptesicus fuscus</i>	BLM Sensitive	Forage in riparian willow areas in the Owyhee-Jarbidge area (Doering and Keller 1998).	Yes	No
Spotted Bat	<i>Euderma maculatum</i>	BLM Sensitive	Roost in canyon walls, forage over sagebrush near riparian areas in the Owyhee-Jarbidge area with highest density along Mary's Creek (Doering and Keller 1998).	Yes	No
Townsend's Big-eared Bat	<i>Corynorhinus townsendii</i>	BLM and FS Sensitive	Found in the Bruneau Jarbidge River canyon complex foraging over sagebrush stands near riparian zones (Doering and Keller 1998).	Yes	No

TABLE 3.3
Protected and Sensitive Animal Species That Are Known to Occur or That Are Expected to Occur Based on Known Distribution and Suitable Habitat within the Expansion Area

Common Name	Species Name	Species Status ¹	Habitat Description	Known Occurrence and/or Potential Habitat In or Near Expansion Areas	Potential Impacts to Species or Habitat from Proposed Project
Yuma Myotis	<i>Myotis yumanensis</i>	BLM Sensitive	Preferred foraging areas in the Owyhee-Jarbridge area appears to be over water, especially river slackwater (Doering and Keller 1998).	Yes	No
Dark kangaroo mouse	<i>Microdipodops megacephalus</i>	BLM Sensitive	Basin shrub habitats with sandy or gravelly substrates.	Potential habitat	No
Pygmy rabbit	<i>Brachylagus idahoensis</i>	BLM Sensitive	Sagebrush cover with deep soils.	Yes	No
Kit fox	<i>Vulpes macrotis</i>	BLM and FS Sensitive	Desert and arid habitats, typically in sagebrush or juniper habitats.	Yes	No
California bighorn sheep	<i>Ovis canadensis californiana</i>	BLM Sensitive	Semi-open, precipitous terrain with rocky slopes, ridges, and rugged canyons. Forage, water, and escape terrain are the most important components of bighorn sheep habitat.	Yes	No
American pika	<i>Ochotona princeps</i>	BLM Sensitive	Alpine and subalpine fields and rocky areas, populations rarely exist lower than 8,000 feet elevation.	Yes	No

3.5.5.1 Sage Grouse

Sage Grouse are an example of a game species with conservation status. Sage grouse are hunted in Idaho, Oregon, and Nevada. All large expanses of sagebrush are potential sage grouse (*Centrocercus urophasianus*) habitat or transit areas. Sage grouse also occur in mosaics of sagebrush, grasslands, and aspen, but not in woodland habitats. Males display on leks in gatherings of a few to a few hundred birds; leks are used exclusively for display and mating. They are in open areas surrounded by sagebrush or where sagebrush density is low – often ridges and knolls. The grouse nest in shallow ground nests lined with grass and sage leaves. Grouse benefit from restoration of native forb and perennial bunchgrass communities, and from maintenance of patches of tall and dense big sagebrush within sagebrush shrublands.

Multiple sage grouse leks have been identified (Wilson, pers. comm., 2007) south and east of DVR. These lek areas are bisected by the current Paradise East diagonal boundary with the most southern and eastern portions of lek habitat occurring under the proposed lateral expansion of the Paradise East MOA. Wildfires in both 2006 and 2007 destroyed additional acres of sagebrush habitat, especially in the eastern Nevada expansion area on BLM lands. The expansion area is one of the areas of northeastern Nevada where sage grouse had already been facing severe challenges from increasing invasion of exotic species (cheatgrass) and a devastating fire cycle in 1999-2000 that destroyed 1.6 million acres of range, much of it prime mule deer and sage grouse habitat (Western Governors' Association and USDA-NRCS 2004). Since 1994, NDOW has implemented restoration work on nearly 40,000 acres in the western portion of the Elko County where the wildfire and cheat grass issue has impacted nearly 90 percent of historic deer winter range in one mule deer management area. Almost all of this project work is within historic or existing sage grouse habitat. The overarching goal of many of these projects is to reestablish sagebrush in areas where wildfires have effectively eliminated this essential element of mule deer and sage grouse habitat.

Sage grouse can still be legally hunted in Nevada. Sage grouse have petitioned for listing under the ESA.

Sage grouse populations in Oregon have been declining since 1957. Remaining sage grouse populations are present in the expansion area (www.dfw.state.or.us/wildlife/sagegrouse/pdf/section_3.pdf - 2005-08-23).

3.5.5.2 California Bighorn Sheep

California Bighorn Sheep are another example of a game species that has conservation status, and is hunted in Idaho, Oregon, and Nevada. California bighorn sheep prefer rugged, open habitat that provides high visibility of their surroundings. Cliffs, rimrock, and rocky outcrops provide important habitat components for bighorn sheep survival. These habitats are particularly important for lambing and escape from predators (ODFW 2006c). Grasses are a staple in the bighorn's diet through most of the year. Forbs and shrubs are of seasonal importance depending on type and availability. Bighorn sheep do not normally use tree cover to the extent that deer or elk do, but it is not unusual to find them seeking shade under conifers, juniper, or mountain mahogany where available.

Water is an essential requirement of bighorn sheep and in some cases may limit their distribution, especially in southeastern Oregon (ODFW 2006c). Other limiting factors for bighorn sheep include habitat degradation, disease, predation, and competition for forage with livestock (Klott 1996). Off-road vehicles, historic poaching, drought, disease transmitted from domestic sheep, and mountain lion predation are believed to be major factors that have depressed bighorn sheep populations to a sensitive level.

In Nevada, aerial surveys were conducted for California bighorn in virtually all occupied ranges during 2006 (Cox et al. 2007). An intensive aerial survey was conducted in the Santa Rosa Mountain Range in Unit 051, which is within the western Nevada expansion area during this survey because of concerns related to the health of recently transplanted sheep in the Martin Creek Drainage. All three subpopulations were surveyed and relatively good samples were obtained. This survey found 125 sheep with high ram and lamb ratios indicating that concerns about the health of this population were unfounded. Based on recent surveys in the Santa Rosas the NDOW believes that this population is rebuilding from a significant die-off that occurred fall-winter 2003 (Cox et al. 2007). Although some areas of Nevada have been closed to hunting, total numbers for Nevada have been increasing. Bighorn sheep numbers appear to be stagnant in the eastern expansion area in Nevada (Cox et al. 2007). This may be a result of fires that burned through Rock Creek Gorge and Black Mountain areas. Since these areas were considered to be in good ecological conditions prior to the 2006 fires, the NDOW believes they will recover and provide good habitat for California bighorn sheep in the relatively near future.

California bighorn sheep were extirpated from Oregon by 1945. The ODFW begin to transplant the species back to historic habitats in the Upper Owyhee Canyon in 1983. As a result, several hundred bighorn sheep now live in or near the proposed Oregon expansion area (ODFW 2006c).

3.5.5.3 Pygmy Rabbit and American Pika

According to the US Fish and Wildlife Service (26 Aug 09), the pygmy rabbit (*Brachylagus idahoensis*) and American pika (*Ochotona princeps*) are found within the current Paradise MOAs and proposed airspace expansion in Oregon and Nevada and have been petitioned for listing under the Endangered Species Act.

The pygmy rabbit historical range includes portions of the following states: California, Oregon, Nevada, Idaho, Montana, Wyoming, Utah and Washington. On March 5, 2003, the Columbia Basin Distinct Population Segment of the pygmy rabbit was listed as endangered in the state of Washington. The listing status for pygmy rabbit populations throughout the rest of its range is under review for listing as threatened or endangered under the ESA.

Pygmy rabbits are typically found in areas of tall, dense sagebrush (*Artemisia* spp.) cover, and are highly dependent on sagebrush to provide both food and shelter throughout the year. Their diet in the winter consists of up to 99 percent sagebrush. (USFWS 2009a)

The American pika is a small mammal that inhabits fields fringed by suitable vegetation in alpine and subalpine mountain areas extending south from central British Columbia and Alberta into the Rocky Mountains of New Mexico and the Sierra Nevada Mountains of California. The historical range of the species includes California, Nevada, Oregon, Washington, Idaho, Montana, Wyoming, Colorado, Utah, and New Mexico.

A key characteristic of the American pika is its temperature sensitivity; death can occur after brief exposures to ambient temperatures greater than 77.9 °F. Therefore, the range of the species progressively increases with elevation in the southern extents of its distribution. In Canada, populations occur from sea level to 9,842 feet, but in New Mexico, Nevada, and southern California, populations rarely exist below 8,202 feet. (USFWS 2009b)

The American pika is an International Union for Conservation of Nature (IUCN) Red List species of least concern. (Natureworks 2009.)

3.6 Cultural Resources

Cultural resources include “historic properties” as defined in the National Historic Preservation Act (NHPA), Title 16, United States Code, section 470, et seq., (16 U.S.C. §470, et seq.; “cultural items” as defined in the Native American Graves Protection and Repatriation Act (NAGPRA), 25 U.S.C. §§3001-3013; “archaeological resources” as defined in the Archaeological Resources Protection Act (ARPA), 16 U.S.C. §§470aa-470mm; and “sacred sites” as defined in Executive Order (E.O.) 13007, Indian Sacred Sites, May 24, 1996. Cultural resources are often generally referred to as “heritage resources.” “Historic properties” are cultural resources that are eligible for listing to the National Register of Historic Places (National Register).

In general, cultural resources are evidence of past human activity, and both the physical remains of and knowledge about past human activity. These may include prehistoric artifacts; prehistoric village sites or objects; rock inscription; human burial sites or earthworks; pioneer homes, buildings, old roads and trails; or structures with unique architecture. Cultural resources are nonrenewable resources that often yield unique information about past societies and environments, and provide answers for modern day social and conservation problems. Although many have been discovered and protected, numerous undiscovered or unprotected cultural resources remain to be identified. Cultural resources are managed for the long-term benefits of all Americans.

Over the years, a variety of legislation has been passed to protect cultural resources. These regulatory documents are discussed below. The National Historic Preservation Act of 1966 (NHPA), as amended, protects historic and archaeological properties during the planning and implementation of federal projects. The Native American Graves Protection and Repatriation Act (NAGPRA) established regulations to protect American Indian burials and sacred items. The Archaeological Resources Protection Act (ARPA) makes it illegal to excavate or remove any archaeological resources from federal or Indian lands without a permit. It also provides for criminal penalties for the vandalism, alteration, or destruction of historic and prehistoric sites on federal and Indian lands, as well as for the sale, purchase, exchange, transport, or receipt of any archaeological resource if that resource were excavated or removed from public lands or Indian lands or were in violation of state or local law. The American Indian Religious Freedom Act (AIRFA) protects and preserves traditional Native American spiritual beliefs and practices by providing access to sites and providing for the use and possession of sacred objects.

Presidents have issued several Executive Orders (EOs) to protect heritage cultural resources. EO 12875 provides direction to federal agencies to enhance intergovernmental partnership to

encourage government-to-government relations with American Indians. EO 13007 requires federal agencies to accommodate access and ceremonial use of sacred sites and to avoid adverse effects on the physical integrity of these sites. EO 13007 also requires federal agencies to protect and make accessible Indian sacred sites on public lands for Indian religious practitioners.

Traditional Cultural Properties (TCPs) are defined by the National Park Service (NPS) as properties that are eligible for inclusion in the National Register of Historic Place (NRHP) because of an association with cultural practices or beliefs of a living community that: 1) are rooted in that community's history; and 2) are important in maintaining the continuing cultural identity of the community. Currently, no TCPs are known to exist within the proposed expansion area. Identification of TCPs depends primarily on consultation with the people who value the resource and require the resource to maintain their spiritual or cultural beliefs within the Area of Potential Effect (APE).

Native American sites recorded in the proposed expansion area are diverse in type and include: hunting/gathering base camps, lithic scatters, rock shelters, hunting blinds, rock alignments, a game drive facility, petroglyph panels, quartzite quarry, plant processing/short term camps, rock cairns, and pot shards scatters.

Euro-American sites are also diverse in type and include mining, roads, ditches, camp/dumps, trash scatters, mine adit, mining cabin, arboglyphs, sheepherders camps, Chinese placer mining sites, mill remains, placer mining townsite, structures, ranger station, stamp mill, ranch, placer mining ditches, mineral exploration, prospect pits, claim marker, cemetery, driveline, residential area, gold/silver mill, dugout, homestead, and rock cairns.

The total area found underneath the Proposed Action and Alternatives area includes 1,916,552 acres of land in Nevada, and Oregon. File searches were conducted for Oregon and Nevada and areas in Idaho bordering Oregon and Nevada. A total of 573 documented projects have been conducted in this area covering 228,180 acres or about 12 percent of the total area of the project. Within the surveyed areas, 1,110 sites were recorded. Of these sites, 799 of the sites are prehistoric, 311 of the sites are historic, and 50 of the sites have both prehistoric and historic components.

The NRHP was also reviewed for this project and six listings were found: five in Nevada and one in Idaho. The five listings in Nevada include the Adorno Station located in Winnemucca; the Micca House, Paradise Valley Guard Station, and the Silver State Flour Mill located in Paradise Valley; and the Gold Creek Ranger Station near Mountain City. In Idaho, Camp Three Forks, a military installation near Silver City, is listed on the NRHP.

Because of the large amount of acreage covered by the Proposed MOA Expansion Area, only 12 percent of the area has been documented through cultural resources surveys. In the areas that have been surveyed, there are four areas that have a high percentage of site density.

1. The first area is located north of Elko, Nevada.
2. The second area is located north and east of Elko, Nevada
3. The third area is located in the Little Humboldt River watershed in Nevada.
4. The fourth area is located north of Paradise Valley, Nevada.

Cultural resources effects are not expected with implementation of the Proposed Action or Alternatives. This is because:

- No ground disturbing activities would be conducted.
- No TCPs have been identified which would be disturbed by noise.
- No new flight disturbances would occur over the Fort McDermitt Reservation, as Military Training Route (MTR) IR300 passes directly over the Reservation. Aircraft are authorized to go down to 100 feet AGL in that area while on MTR IR300, although most stay above 500 feet AGL. No complaints have been received by the USAF due to this activity. The expanded MOA would have planes flying at a higher altitude than 500 feet, presumably which would also not disturb the cultural resources on the Reservation.

3.6.1 Compliance with the NHPA as Amended

All Alternatives comply with NHPA guidelines. Although there are historic properties located with the proposed MOA Expansion Area, there will be no ground disturbing activities associated with the high and low altitude training exercises therefore there would be no potential for impact. Compliance would result in no historic properties affected.

3.6.2 Executive Orders Pertaining to the Consultation and Coordination with American Indian Tribal Governments

The project complies with EOs and would be subject to government-to-government consultation with federally recognized tribes during planning and prior to implementation activities.

3.7 Coastal Zone or Resources, Wetlands, and Floodplains

No coastal zones or resources exist in the project area. Floodplains are present adjacent to major rivers and streams in the project area. In arid environments, wetlands are critical resources for the survival of many wildlife species and represent a unique biotic ecosystem for a variety of plant and invertebrate species. Wetlands perform physical and chemical functions essential for the health of an ecosystem, including surface and subsurface storage of water, microbial processing, and organic carbon export, among others (Air Force 1998).

Coastal, floodplain, and wetland resources would not be affected by the Proposed Action or Alternatives, because no construction or ground-disturbing activities are proposed with this project. No further analysis of these resources was conducted.

Wetland delineation has been evaluated in the proposed expansion area (USGS 2007). Wetland components within the area are predominantly vegetated, water, and playa areas (Figure 12). Those classified as vegetated areas occur in primarily perennial riparian areas, and in flood plains that are likely to be seasonal or ephemeral in nature, supporting wildlife during spring breeding and nesting activities.

3.8 Environmental Justice

EO12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, issued in 1994, requires federal agencies to address disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority and low-income populations. EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks (Protection of Children)*, issued in 1997, directs federal agencies to identify and assess environmental health and safety risks that may disproportionately affect children.

For this analysis, Census County Divisions (CCDs) were compared to county-wide data to more accurately depict the ethnic characteristics, age profile, and income level of the population in the project area (Table 3.4). Counties are subdivided into CCDs along visible geographic features.

Military Training Route (MTR) IR300 passes directly over the Fort McDermitt Reservation. Aircraft are authorized to go down to 100 feet AGL in that area while on MTR IR300, although most stay above 500 feet AGL. No complaints have been received by the USAF due to this activity. The existing flight level floor of 14,500 feet MSL for the Paradise West MOA – in which the Fort McDermitt Reservation resides – would be lowered to 10,000 feet MSL or 3,000 feet AGL, whichever is higher. Neither 10,000 feet MSL nor 3,000 feet AGL would put aircraft below the level at which they currently operate around Fort McDermitt Reservation.

The four CCDs that contain the majority of the expanded MOA have populations of children age 14 or younger that range from 16.7 percent in the Jarbidge CCD to 25 percent in the McDermitt CCD (Table 3.4). All four CCDs have a smaller percentage of children under 14 than their respective county as a whole. The proposed airspace expansion would not have a disproportionate effect on this segment of the population.

Table 3.4 also addresses the percentage of individuals living below the U.S. poverty level in the affected counties. The poverty levels range from 8.9 percent of individuals in Elko County to 18.6 percent in Malheur County.

The proposed expansion of the airspace is likely to result in a reduction in the concentration of flights over any one location and would not result in disproportionately high or adverse human health or environmental effects to minority populations or children. Therefore, no further analysis of this resource was conducted.

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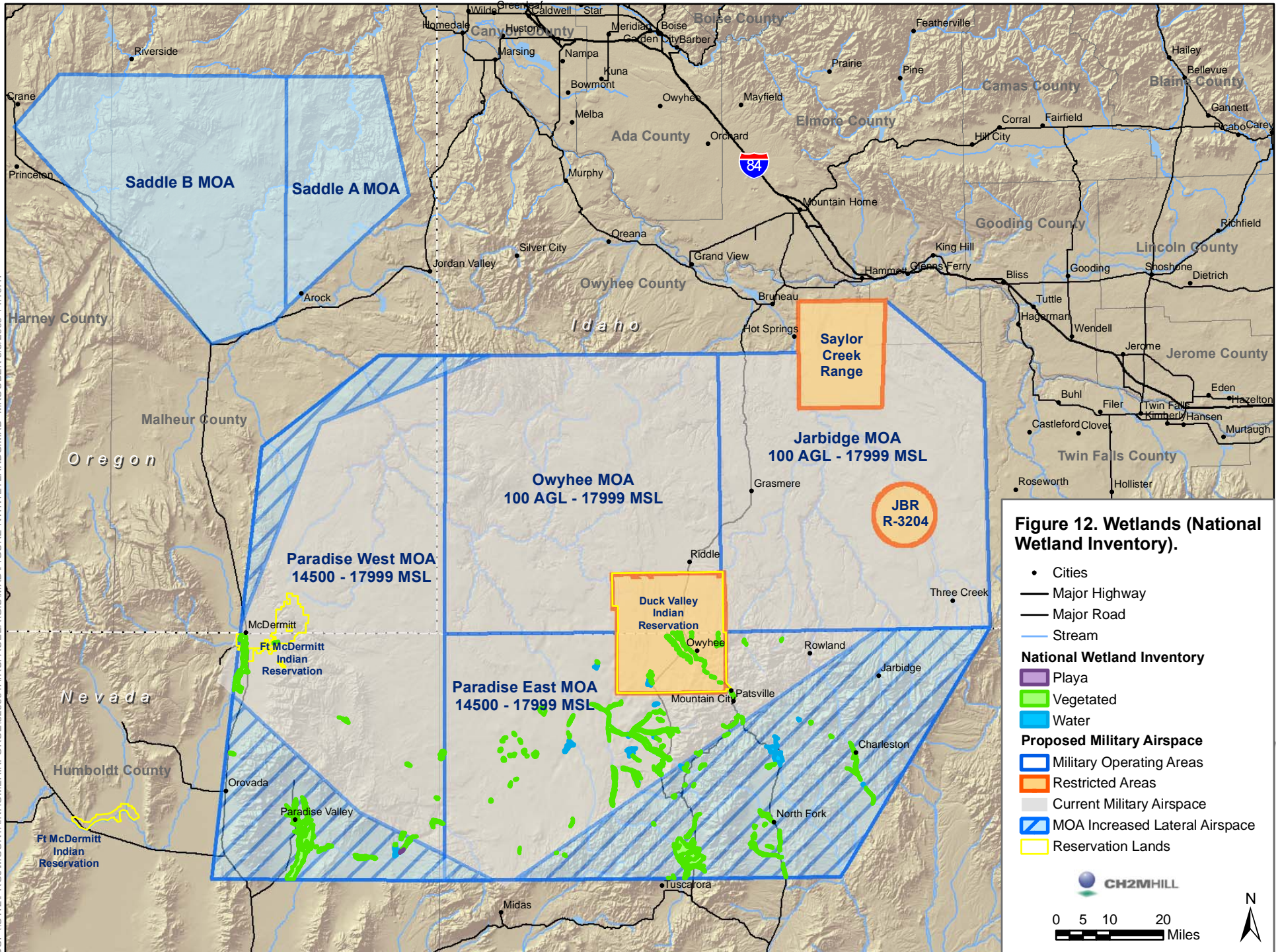


TABLE 3.4
Ethnic and Age Distribution of Population in Census County Divisions (CCD) under Expanded MOAs compared to Whole County

	Elko County, NV			Humboldt County, NV		Malheur County, OR	
	Jarbridge CCD	Mountain City CCD	Elko Co.- All	McDermitt CCD	Humboldt Co.- All	Jordan Valley CCD	Malheur Co.- All
Total	112	1,442	45,291	1,240	16,106	668	31,615
White	98 (87.5%)	552 (38.3%)	37,159 (82%)	743 (59.9%)	13,401 (83.2%)	564 (88.9%)	23,959 (75.8%)
Black	0 (0%)	37 (2.6%)	287 (0.6%)	2 (0.2%)	82 (0.5%)	0 (0%)	387 (1.2%)
American Indian	4 (3.6%)	780 (54.1%)	2,400 (5.3%)	332 (26.8%)	647 (4%)	20 (3%)	322 (1%)
Asian	1 (0.9%)	6 (0.4%)	306 (0.1%)	3 (0.2%)	92 (0.6%)	3 (0.5%)	619 (2%)
Other	9 (8%)	67 (4.6%)	3,901 (8.6%)	161 (12.9%)	1,386 (8.6%)	51 (7.6%)	5520 (17.5%)
Children Under 14	19 (16.7%)	295 (20.5%)	12,129 (26.8%)	310 (25%)	4,187 (26%)	143 (21.4%)	7,249 (22.9%)
Percent of Individuals Under the Poverty Level	*N/A	*N/A	8.9%	*N/A	9.7%	*N/A	18.6%

Source: Bureau of the Census 2000.

*Poverty level is not reported at the CCD level as individuals, but numbers of families. Numbers of individuals are available only for the County level.

CCDs in the expansion area with major Native American populations are the Mountain City CCD in Nevada (54.1 percent), which contains a portion of the Duck Valley Reservation, and the McDermitt CCD (26.8 percent), which contains the Fort McDermitt Reservation. The percentage of other non-white ethnic groups range from 13.3 percent in the McDermitt CCD to 7.6 percent in the Mountain City CCD.

Both Fort McDermitt Reservation and the Duck Valley Reservation, where the highest percent of minority populations live, are within the current boundaries of Paradise East and Paradise West MOAs. The proposed airspace expansion in Oregon and Nevada would not have a disproportionate effect on these minority populations when compared to other areas within the proposed expansion.

The USAF entered into a Settlement Agreement with the Shoshone-Paiute Tribes of Duck Valley Reservation in 1996 in recognition that military training overflights may potentially impact Reservation residents. The Settlement Agreement sets flight level restrictions to reduce noise impacts inside the Duck Valley Reservation and would not be changed by the Proposed Action or Alternatives. The potential to move military aircraft operations farther from the DVR would result in less noise impacts on this population.

3.9 Physical and Socioeconomic Resources

3.9.1 Light Emissions

Light emissions are generated by flares and would be a part of the Proposed Action and Alternatives. See Sections 2.3.3, 2.4.3, 2.5.3, and 2.6.3. In the proposed airspace expansion area, flares are not currently deployed. Some of the projected 62,000 flares will be used in this area.

Light emissions from flares are unlikely to be disruptive to human or wildlife activities during daylight hours. Flares could be disruptive to night time activities and flare use would occur during some night operations. On average, Mountain Home AFB schedules night operations 167 times annually, with the majority of night operations occurring in winter months (November through February) to take advantage of earlier and longer darkness periods for training (Dauphinais 2008). As fewer people are likely to be recreating under the MOAs during winter, disruption of solitude values by light emissions from flares is likely to be insignificant for most of the year.

Aircraft training typically does not occur on weekends, so flare usage during summer months would be primarily limited to weekday, daylight hours, reducing the potential for light emission impacts on campers and summer recreationists who camp in larger numbers over weekends. The Proposed Action and Alternatives are unlikely to result in significant light emission impacts and no further analysis of this resource was conducted.

3.9.2 Safety

Safety issues include fire and flight safety considerations. Fire safety focuses on potential fire risks associated with aircraft accidents. Flight safety addresses the risk of aircraft mishaps and bird-aircraft strike hazards.

Aircraft flight activity, in and of itself, poses very little fire or ground safety risk. Concerns center on the potential for an aircraft accident resulting in fire. No aircraft accidents have occurred in or near the Paradise MOAs since 1998. The last two aircraft crashes in 1996 and 1998 did not result in a fire that spread beyond the immediate vicinity of the crashed aircraft. The location, intensity, and duration of wildfires caused by aircraft accidents are difficult to predict due to the specific and variable nature of aircraft accidents, weather conditions, vegetation type, and response time. Wildfire and emergency responders communicate through use of radios, cell phones, or satellite phones. In the event of a wildfire, military aircraft are generally removed from the affected area, and the area remains closed to military aircraft until such time as the fire is controlled, contained, or extinguished. Military aircraft exclusion prevents conflicts with aircraft tanker attacks on the fire, and prevents unsafe conditions for pilots and aircraft. Aircraft tanker attacks are coordinated with MHAFB Airspace Scheduling or Command Post. MHAFB has a Memorandum of Understanding (MOU) with the BLM for firefighting operations on USAF lands that includes communications procedures with Cowboy Control and the Range Control Officer. Outside of USAF lands, the BLM or other state, federal, tribal, or private landowner has firefighting responsibilities on lands it owns or manages. For protracted firefighting operations, BLM fire aviation sends out Temporary Flight Restrictions (TFR) for the affected area.

Fires from chaff and flare use are unlikely to occur in the expanded MOA airspace. Chaff does not typically cause fires as there is no incendiary component to chaff, although they may be ejected from the aircraft using a pyrotechnic device which remains on the aircraft. Flares are released at altitudes that ensure sufficient time to burn and cool before hitting the ground. When used anywhere except on the target area of SCR, flares are released no lower than 2,000 feet above the ground in accordance with a coordinated agreement with the BLM. This altitude is more than double the normally approved safe-release altitude designated by the Air Force for flare use over range impact areas (AFI 13-201-ACCSUP1-MOUNTAINHOMEAFB SUP1-2008). In accordance with the *Inter-Department Memorandum of Agreement among the Bureau of Land Management of Idaho, Nevada, and Oregon and Mountain Home Air Force Base, Idaho*, the following three agreements concerning flare usage are specified:

- The only approved aerial flares by any military aircraft (i.e., Army, Navy, Marine, Air Force, National Guard, Reserve) will be MJU-7 and M-206 flares. These flares totally burn up in less than 400 feet (approximately four seconds). The only failure experienced has been the failure of the cartridge to fire from the aircraft (one percent probability), in which case the flare remains in the aircraft.
- The minimum altitude for flare use in the MOAs will be 2,000 feet AGL in the Owyhee and Jarbidge MOAs, and 14,500 MSL in the Paradise East and Paradise West MOAs.
- No flare will be dropped or used in MTRs outside MOAs (Air Force 1998).

No flare started fires have been reported in Owyhee and Jarbidge MOAs. No fires caused by flares are expected from the Proposed Action or Alternatives based on the lack of flare started fires in the Jarbidge and Owyhee MOAs when released at altitudes above 2,000 feet AGL. Deploying flares in the Paradise East and West MOAs will not result in fires when released at 3,000 feet AGL or above.

Under the Proposed Action or Alternative D, in order to deploy flares at 3,000 feet AGL, the Memorandum of Agreement with the BLM would need to be reaccomplished to change the altitude at which flares could be released in the Paradise East and West MOAs.

Flight safety addresses the potential for aircraft accidents. Such mishaps may occur as a result of mid-air collisions, collisions with manmade structures or terrain, weather related accidents, mechanical failure, pilot error, or bird-aircraft strike. Projections for potential aircraft accidents are based on historical information regarding mishaps at all installations, and under all conditions of flight. The military calculates Class A mishap (loss of life, destruction of an aircraft, and total cost of more than \$1 million) rates per 100,000 flying hours for each type of aircraft in the inventory (Air Force 1998). The average mishap rate for ACC for the period 2002 through 2006 is 2.38 (ACC Office of Safety 2007) (Table 3.5).

TABLE 3.5
Potential for Aircraft Accidents

	FY02	FY03	FY04	FY05	FY06
ACC Mishaps	10	12	5	12	4
ACC Mishap Rate	2.52	3.23	1.34	3.62	1.20

The Class A Mishap rate for MHAFB for the same time period was 2 Class A Mishaps per 100,000 flying hours = 0.00002 (366 FW Safety). Secondary effects of an aircraft crash include the potential for environmental contamination. The potential for contamination is dependent on the porosity of the surface soils, geologic structure of the region, and the location and characteristics of surface and groundwater in the area, which will determine the speed, direction, and extent of contamination associated with the aircraft accident.

Bird-aircraft strikes constitute a safety concern because of the potential for damage to aircraft or injury to aircrews or local populations if an aircraft crash should occur in a populated area. Aircraft may encounter birds at altitudes generally up to 13,000 feet AGL or higher. However, most birds fly close to the ground; 75 percent of songbirds migrate between 500 and 2,000 feet (Smithsonian Migratory Bird Center 2007). More than 95 percent of reported bird strikes occur below 3,000 feet AGL. The potential for bird-aircraft strikes is greatest in areas used as migration corridors or where birds congregate for foraging or resting.

No change to existing sortie operations would occur in the MOA complex expansion. Because additional sorties are not included in the Proposed Action or Alternatives, no increases in fire risk, flight risk, or bird strike risk are anticipated under the Proposed Action or Alternatives. In addition, the lower flight floor of the Proposed Action and Alternatives does not go below 3,000 feet AGL and remains above typical bird migration altitudes. As no increases in sortie numbers or intrusion into typical bird flight altitudes within bird migration zones are proposed, no further analysis of this resource was conducted.

3.9.3 Water Resources, Water Quality, Soils and Natural Resources, and Energy Supply

Precipitation in the proposed expansion area ranges from below 10 inches in the low desert regions to nearly 30 inches annually in the higher elevations. Snotel data at Granite Peak in the Santa Rosa-Paradise Peak Wilderness Area range from a low of 19.4 inches to a high of 59.2 inches of snow for the twenty-five year period between 1981 and 2006, for an average annual snowfall of 32.7 inches. Lamance Creek, on the east side of this range, saw a range of 15.8 inches to 58.4 inches for an average annual snowfall of 28.6 inches. These numbers are typical of the range of annual snowfall in the higher elevations within the study area (Western Regional Climate Center 2007).

In the Jarbidge Wilderness Area, the northern drainages empty into the Snake River Basin and eventually into the Pacific Ocean, where the southern drainages exit to the south and east into the Great Basin and have no outlet. Primary drainages include Fall, God's Pocket, Cougar and Robinson creeks, and the main and East Fork Jarbidge rivers to the north. To the east, the Jarbidge Wilderness Area is drained by Canyon, Cottonwood, and Camp creeks and their tributaries and to the south by Mary's River and Dry, Willow, and Coyote creeks (USFS 2007).

Drainages in the Santa Rosa-Paradise Peak Wilderness Area include, on the west, Wood Canyon, Antelope, Dog, Pine, and Andorno creeks from north to south. Draining the east side of the range, north to south, are Mullinix, Big Cottonwood, Dry, Little Cottonwood, Lamance, Hanson, and Singas creeks.

The use of chaff and flares over aquatic habitats is not a significant impact. In the study, *Environmental Effects of RF Chaff*, Naval Research Laboratory, 1999, the following Summary Findings are listed:

- Chaff particle concentrations in air of chaff-affected areas are 1/100th of allowable limits set by the EPA and less than 1/10th of the natural background concentration for suspended soil particles.
- Deposition of chaff, even under areas of intensive use, is hundreds of times less than the annual deposition of dust in the southwestern U.S. The chemical composition of chaff is very similar to the chemical composition of desert dust.
- Deposition of chaff does not result in the accumulation of toxic or otherwise undesirable substances in soils.
- The risk of exposure for humans through inhalation or ingestion of chaff is considered negligible because chaff fibers are too large to pass through the nose or mouth or do not exceed known toxic thresholds.
- Marine and freshwater organisms exposed to relevant levels of chaff are unlikely to exhibit effects in their growth or development (Naval Research Laboratory 1999).

Flare usage is widespread and would occur above 3,000' AGL. It is unlikely that flare ash or flare residue would accumulate in aquatic environments in a quantity that would measurably affect species. Flares are primarily magnesium, which is a common metal and nutritional necessity. Tests on flare ash and flare duds revealed that magnesium is most unstable in acidic environments. Trace amounts of aluminum, boron, barium, and chromium were generally sufficiently low to preclude concerns in aquatic environments with a pH above 7. Laboratory mixtures were 1:20 material to solution, a much higher ratio than could occur as a result of military training (USAF ACC 1997). Impacts from flares would only be of potential concern in small confined water bodies subject to repeat, intense use of flares.

Energy consumption relative to use of the MOAs following expansion would be similar to that currently consumed. The number of sorties and training missions would remain the same, with similar type aircraft.

No changes in operations and no construction activities exist that would affect water or soil resources. Although aircrews are authorized to discharge flares and chaff with certain restrictions and specified altitudes, these conditions would prevent impacts to water, soil, or energy resources. It is not anticipated that additional fuel or energy supplies would be required to implement the Proposed Action or Alternatives. In summary, these resources would not be affected by implementation of the Proposed Action or Alternatives and have not been further assessed in this EA.

3.9.4 Hazardous Materials and Hazardous Waste Management, Pollution Prevention, and Solid Waste

Hazardous materials are identified and regulated under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA); the Occupational Safety and Health Act (OSHA); and the Emergency Planning and Community Right-to-Know-Act (EPCRA).

The Resource Conservation and Recovery Act (RCRA) defines hazardous waste as any solid, liquid, contained gaseous or semisolid waste, or any combination of wastes that could or do pose a substantial hazard to human health or the environment. Waste may be classified as hazardous because of its toxicity, reactivity, ignitability, or corrosiveness. The airspace proposal to lower the floor of the MHAFB MOA complex and expand its lateral boundaries does not involve construction activities or appreciably change how the airspace would be utilized. No increase in the use of hazardous materials, production of hazardous wastes, or production of solid waste would be expected from implementation of the Proposed Action or Alternatives. No new activities would be introduced that would warrant further assessment; therefore, these resources have not been further assessed.

3.9.5 Socioeconomics

Socioeconomics is defined as the social and economic activities associated with the human environment, particularly population and economic activity. Economic activity typically includes employment, personal income, and industrial growth. Impacts on economic activity can influence other components such as housing availability and public services.

No significant impacts to social or economic activity in the Proposed Expansion Area would be expected from implementation of the Proposed Action or Alternatives; therefore, this resource has not been carried forward for further analysis.

3.9.6 Farmlands

Although there is some limited irrigated agriculture in the project area, most agricultural activities revolve around grazing. The primary reason for this emphasis on grazing is that most of the project area is owned by federal, state, or tribal governments. The largest landowner, the BLM, authorizes livestock grazing on most of its land through a grazing allotment program. Allotments shift seasonally. The H-TNF also allows some grazing on the lands it manages. Existing aircraft noise has not been known to disturb livestock under the existing MOAs, and is not expected to significantly disturb livestock in the expanded MOAs; therefore, no significant impacts to farmlands would occur. No further analysis of this resource was conducted.

3.10 Airspace Management and Use

3.10.1 Definition of Resource

The primary objective of airspace management is to ensure the best possible use of available airspace, to meet user needs, and to segregate any use needs that are incompatible with other airspace or land uses. The FAA manages U.S. airspace by constantly reviewing civil and military airspace needs to ensure that all interests are served to the greatest extent possible (Air Force 1998).

Airspace is regulated and managed through the use of flight rules, airspace use designations shown on aeronautical maps, and ATC procedures and separation criteria. These measures are also used to identify areas where activities are conducted that require separation of users, either within the airspace or on the underlying land (Air Force 1998).

Military MOAs, by definition, are separated from other types of airspace to conduct training operations such as air combat tactics, air intercepts, aerobatics, formation training, and low-altitude tactics. Within MOA structures, IFR non-participating aircraft are afforded separation from participating aircraft by Air Traffic Control. Aircraft operating under VFR are expected to exercise extreme caution while flying within a MOA when military activity is being conducted.

3.10.2 Status and Current Conditions

3.10.2.1 Military Operations

The current MHAFB MOA complex includes the Jarbidge MOA, Owyhee MOA, Paradise West MOA, and Paradise East MOA (totaling 7,501 square NM [Figure 1 in Chapter 1]). This training airspace includes the ATCAA between FL180 and 500 when it is made available by the Salt Lake Center. The existing MOA airspace floor is 14,500 feet MSL for the Paradise East and West MOAs and is 100 AGL for the Owyhee and Jarbidge MOAs. Charted exclusionary areas exist in the eastern portion of Paradise East, the northern portions of Owyhee and Jarbidge MOAs, and within 3 NM of the Grasmere Airport. Altitudes in these areas are below 2,000 feet AGL, 500 feet AGL, and 1500 feet AGL, respectively. Similar flight restrictions are implemented over Juniper Butte and Saylor Creek Ranges due to the type of activity occurring there. The MHRC contains a volume of approximately 49,285 cubic NM of training airspace.

On average, there are about 32 missions a day and approximately 10,400 sorties per year in the MHRC (Air Force 2007). The MHRC airspace is typically used in blocks of flying time: conventional flying blocks are 1.2 hours in duration, averaging 10 aircraft per block. Training blocks significantly increase in length and composition during Large Force Exercises (LFE) and surges. The number of aircraft operating simultaneously within the MHRC can range from two aircraft to more than 40 aircraft during a LFE. The duration and frequency of training activities within the MHRC varies upon the syllabus requirements for each squadron. Typically, three or four GCI-controlled air-to-air and air-to-surface missions occur per day. In addition, approximately eight missions that do not require GCI or GCI support typically fly each day. The number of aircraft for these types of training flights averages eight total aircraft. Currently, only one flight at a time can be conducted when mission requirements dictate land range ACT/TI mission set-ups (East/West Owyhee/Jarbidge) (Henderson 2006). Daily users in the MHRC include three squadrons from MHAFB (F-15Cs and F15Es) and four squadrons from Gowen Field (A-10s, C-130s, HH-60s, and Apache Attack Helos). Other types of aircraft that frequently use the range including B-52s, B-1s, EA-6Bs, KC-135s, KC-10s, and F/A-18s (Henderson 2006).

MHRC flying operations are limited to one LFE or two smaller air combat engagements at a time into the East/West engagement configuration, with a maximum initial separation distance between opposing forces of 60-70 NM. Supersonic operations are authorized above the Paradise MOAs in ATCAA airspace at or above 30,000 MSL and above 10,000 feet AGL in the Owyhee and Jarbidge MOAs. In accordance with the 1996 Settlement Agreement, supersonic operations are not conducted over DVR.

Air-to-air missions use the Owyhee and Jarbidge MOAs and overlying ATCAAs predominantly because of boundary layout and vertical limitations of the Paradise MOAs.

Air-to-ground missions are conducted in the Jarbidge MOA, which contains Saylor Creek Air Force Range and Juniper Butte Range. Air refueling is typically done in the south portion of the MHRC using the Paradise East refueling anchor track or in the north portion of the Saddle using the Saddle refueling anchor track. Cowboy Control assists with overseeing and implementing de-confliction plans, ensuring safety of flight and making traffic advisory calls, as necessary (Henderson 2006).

The airspace in the immediate vicinity of the DVR includes the Owyhee and Paradise MOAs. This airspace is currently used by DVR for medical emergencies, tourism, and other reasons. If an emergency flight through this MOA airspace should be necessary while training operations are taking place, the flight can be conducted under VFR procedures and the pilot can notify MHAFB to ensure that training activities in the vicinity are halted or redirected. The 1996 Settlement Agreement included restrictions on military overflight activities in the airspace over the DVR below 15,000 feet AGL, military overflights within a 5 NM radius of the City of Owyhee, supersonic training, and the use of chaff and flares above the DVR (Air Force 1998).

MOA airspace is scheduled and managed through the MHAFB Airspace Scheduling Office on a daily basis, to coordinate mission requirements and squadron activities within the airspace. However, conflicts between training packages do occur (such as between flights entering and leaving the training area) because of the limitations in available airspace and the lack of schedule breaks among training activities required to complete training objectives. Some training flights show up early and stay late to maximize their training time within the MHRC. Frequency of these conflicts vary as a result of factors such as weather, early/late departures, scheduling overlap, mission changes, and length of the flying window. On average, approximately five conflicts occur each day that the MHRC is in use.

Non-participating aircraft are not restricted from operating within a MOA, even when military training is taking place. These non-participating flights can include general aviation aircraft operating under VFR, as well as IFR aircraft (general aviation or air carrier) that may be diverted into MHRC to avoid adverse weather. Flights of non-participating aircraft into the MOA complex can interrupt military training flights. According to Cowboy Control, the frequency of interruptions is seasonal in nature, with more interruptions during the warmer months of the year when transient nonmilitary flights are more frequent. During the months of November through April, interruptions occur an average of 2 to 3 times per week. From May through October, interruptions occur an average of 10 to 12 times per week. On weekends, when general aviation flights are generally more frequent (and MHRC would be expected to be unoccupied by training flights) there may be 5 to 6 interruptions in a single day if a National Guard Unit is training within the complex. If Cowboy Control identifies a potential safety of flight issue with a non-participating aircraft within the MOA complex, training operations are interrupted. Depending on the location and circumstances of the interruption, the FAA Air Route Traffic Control Center, in conjunction with Cowboy Control will decide whether the whole MOA complex or MOA sectors will go cold, including which altitudes are affected. For example, priority handling of an air ambulance may only require a limited area to go cold, while a situation such as a large scale weather system requiring numerous flight diversions may require the entire MOA complex to go cold. As noted below, some non-participating aircraft are not detected by Salt Lake Center or Cowboy Control because of factors such as limitations in radar coverage in the vicinity of

MHRC. In this situation, military and non-participating flight crews would be responsible for avoiding each other through visual “see-and-avoid” techniques. In the ATCAA airspace above MHRC, all flights are IFR, but ARTCC diversions are possible during military training activities. Generally, only emergencies, minimum fuel, and air ambulance flights would be routed through the active ATCAA by Salt Lake Center, as coordinated with Cowboy Control.

When a military aircraft inadvertently departs the horizontal or vertical limits of a MOA into adjoining airspace during a training operation, the event is referred to as a “spillover.” The safety concern with spillouts is that other aircraft would not expect these military aircraft maneuvering outside of the MOA, so see-and-avoid vigilance would not be as high as within the MOA, increasing the potential for collision. MHAFB had 209 spillouts in 2005 and 183 spillouts in 2006. In the event of an imminent spillover, a “whiskey alert” is issued by Cowboy Control to Salt Lake Center when the aircraft is no less than 2.5 miles from, but still within, the airspace boundary. In response to a whiskey alert, the military aircraft are directed by Cowboy Control back into the MOA and Salt Lake Center would advise non-participating aircraft of the potential conflict if the aircraft is in radio contact with Salt Lake Center. Whiskey alerts and spillouts are tracked by the Air Force, with 678 MHRC whiskey alerts reported in 2005 and 564 whiskey alerts reported in 2006. Because the MOA and ATCAA airspace is released by Salt Lake Center for use to Cowboy Control, the airspace is subject to recall by Salt Lake Center. Although this is not frequently done, Salt Lake Center may recall the airspace in the event of repeated whiskey alerts or spillouts. Recall would be more likely when two conditions occur at the same time: when military aircraft training groups assemble and hold (referred to as the regeneration point) near the edge of the airspace resulting in numerous whiskey alerts, and when Salt Lake Center is very busy with operations outside of MHRC. Salt Lake Center will recall the airspace because Cowboy Control MRU is not an Air Traffic Control facility and is therefore limited procedurally. The location of DVR relegates the southeast area of the Paradise East MOA primarily as a managerial flow control area for aircraft, such as regeneration, kill-remove, and fight marshalling of aircraft during LFEs, and to transition to and from the tanker/refueling track in the Paradise East/West and the Elko/Sodhouse Orbit ATCAA. MHAFB estimates that approximately three to four aircraft per day pass through this airspace.

As noted previously, supersonic operations occur daily within the ATCAA. The frequency of supersonic operations is not quantifiable or predictable, but rather tied to a specific operation to accomplish a particular mission. Some operations, such as weapons delivery, require supersonic speed for employment. Supersonic operations below 10,000 feet AGL are not allowed in Owyhee and Jarbidge MOAs. The current FL300 floor for supersonic operations in the ATCAA above the Paradise MOAs limits ACT/TI missions in the ATCAA airspace to a single mission at a time.

3.10.2.2 Civilian Operations

As discussed in Section 2.2 (Chapter 2), there are four public (McDermitt State, Grasmere, Owyhee, and Murphy Hot Springs) and three private (I-L, Riddle, and Petan) general aviation airports within the MOA complex. All of these airports are uncontrolled (no ATCT). The closest air carrier airport (with scheduled airline operations) is Boise Air Terminal, approximately 50 NM north of the MHRC.

Factors such as radar limitations, the large volume of airspace, the unscheduled nature of civilian flight activity (other than airline flights), and the use of VFR transponder codes by both civilian aircraft and transient military aircraft make it difficult to assess the civilian flight operation portion of the affected environment and environmental consequences. The assessment provided here uses multiple sources of information such as radar track data from 2002, rough estimates of operations from experienced Cowboy Control and Salt Lake Center personnel, and rough estimates provided by airport operators who replied to inquiries for this EA. This assessment provides a general picture of airline and general aviation operations in the vicinity of the MHRC, with emphasis on current general routing and altitudes used by these civilian aircraft.

IFR operations (which include air carrier operations) are required to be conducted under a clearance issued by ATC. IFR clearances identify route of flight and altitudes issued to aircraft that are assigned unique transponder codes (departure and approach clearances provide additional information to assist aircraft with departing and approaching airports). Routings may include airways or direct routings (using GPS or other area navigation systems). Minimum en-route altitudes (MEA) along Victor airways vary, on the north side of the MOA complex between 6,000 and 9,400 feet MSL and between 10,000 and 11,000 feet MSL in other quadrants around the MOA complex. Minimum IFR off-route obstacle clearance altitudes charted within and in the vicinity of the MOA complex range from 10,100 to 13,500 feet MSL. As noted previously, IFR traffic will not be issued clearances into a MOA unless ATC can assure adequate separation from aircraft operating in the MOA. According to Salt Lake Center and radar track information, IFR flights appear to follow airways as well as file through the MOA/ATCAA complex. Non air carrier aircraft are more likely to go through the MOA, but may be diverted by ATC around the MOA during periods of high training activity. These smaller aircraft frequently operate IFR within the MOA complex above 10,000 feet (for terrain avoidance) but below the ATCAA. According to Salt Lake Center, the MOA complex frequently affects air carrier operations at high altitude, typically above FL290 in the heavily traveled north-south corridor between the Seattle and Phoenix areas. Because of the training activity in the ATCAA above MHRC as well as other MOAs to the north and south, approximately 70 percent of air carrier operations within this corridor are diverted to avoid the MOA footprint (Harrell 2007).

VFR operations are wide ranging in routes, altitudes, and types of operations. Flight track information from 2002 shows widely varying VFR traffic, including transient aircraft (transiting from one airport to another) as well as training operations (operation within a small training area, presumably from the same origin/destination airport) but inside and outside of the MOA complex. Altitudes of VFR traffic were generally in the 5,000 to 8,000 feet MSL range, as well as some flights above 10,000 feet MSL. Because of radar data limitations (no weekend traffic report; incomplete coverage; overlapping radar system tracks; and variations in reporting transponder code 1200 traffic as military or civilian aircraft) and the wide range and uncontrolled nature of VFR operations, it is impossible to confirm the number or characteristics of VFR operations with objective data. According to Salt Lake Center and individual airport operators, VFR traffic is characterized as “occasional” within the vicinity of the MOA complex, with higher traffic volume on weekends and during good weather such as between April and October. Average traffic

operations reported at the airports within the existing and proposed MOA footprint were reported as follows (AirNav 2006, AOPA 2006):

- McDermitt State (26U): 42 operations per week
- Grasmere (U91): 27 operations per month
- Owyhee (10U): 50 operations per year
- Murphy Hot Springs (3U0): 83 operations per month
- Stevens-Crosby (08U): 25 operations per year
- Riddle Ranch (11ID): 42 operations per month
- Petan Ranch (NV08): only used on remote circumstances

The other airports within the footprint did not report the number of operations. Airports such as Grasmere and Murphy Hot Springs indicated that most flights were VFR recreation flights using single engine aircraft. However, operations from other nearby airports take place within the MOA complex boundaries. Winnemucca Airport, located about 18 NM southwest of the MOA, reported approximately 70 operations per day that include training flights (practice cross country flights), which in some cases use McDermitt State as the destination airport. These training flights to McDermitt are estimated to average between 6 to 10 per month, with more flights in the better weather months of the year. Typical altitudes are between 6,000 and 8,500 feet MSL. In addition, this airport is reported to be a frequent fueling stop for transient aircraft (an average of about 5 aircraft per day) traveling north beyond the MOA complex, such as to McCall Airport (80 miles north of Boise) where mountain flying training is offered. Many of these flights are believed to operate above 10,000 feet MSL in this general routing (McCoy 2007).

Operations within a MOA by non-participating VFR aircraft are widely recognized as adding risk to all aircraft operating therein. Guidance has been prepared regarding civilian aircraft operation in MOAs.

The Air Force requires that installations associated with MOAs prepare Mid-Air Collision Avoidance (MACA) programs and encourages the installations to brief civilian pilots on this information. MHAFB participates in MACA briefings at local area airports within 100 NM of the Mountain Home Range Complex. MHAFB has developed Wing MACA Plan 9601-05, updated every 18 months, a 23-page MACA pamphlet, and a two-page MACA handout.

The March 2006 issue of USAF *Flight Safety Magazine* contains an article specific to avoiding collisions with non-participating military and civilian aircraft. The FAA Aeronautical Information Manual (AIM) – a non-regulatory guidance manual (FAA, flight instructors, insurers, and industry associations strongly encourage follow AIM guidance and procedures) – states that VFR pilots should “exercise extreme caution while flying within a MOA when military activity is being conducted” (FAA 2006). The AIM strongly encourages pilots to contact Flight Service Stations or the controlling agency to determine the status (hot or cold) of the MOA before entering it. To specifically respond to the potential hazards associated with operations in MOAs and other special use airspace, a web-based tool is being developed by the FAA and the military to share information about operations within this airspace (SeeAndAvoid.org).

Civilian aviation organizations including the Aircraft Owners and Pilots Association (AOPA) and the Experimental Aircraft Association (EAA) periodically publish articles in their member magazines related to operations within MOAs. AOPA provide extensive searchable guidance documents including past member magazine articles and government publications on its website at AOPA.org (AOPA 2007). EAA also provides guidance to its members regarding MOAs, most recently in the February 2007 issue of its member magazine, *Sport Aviation* (EAA 2007).

4.0 Environmental Consequences

Chapter 4 is organized by resource area. Discussion is limited only to resource areas that have the potential to be affected by the Proposed Action and Alternatives. Resource areas not anticipated to be affected by the Proposed Action and Alternatives are discussed in Chapter 3, with no further analysis presented in this chapter.

4.1 Noise

No ground-disturbing activities are proposed as part of this action. Therefore, aircraft noise represents the main potential impact from implementation of an action alternative. Noise effects on specific resources are discussed in the following sections of this chapter.

It is possible to empirically predict the potential noise levels of flight operations in the Paradise East and West MOAs by using data gathered in the Owyhee and Jarbidge MOAs in 2002, and by assuming that the pattern of airspace use documented by the radar-based analyses of Fidell et al. (2003) has not changed.

Appendix A contains the empirically predicted effects on aircraft noise levels for airspace modifications in the Mountain Home Range Complex. Appendix B contains the noise analysis supplemental calculations of maximum A-weighted and Day-Night Average Sound Levels of aircraft noise. These supplemental calculations were completed at the request of the FAA to produce metrics similar to those used previously in the *Enhanced Training in Idaho, Environmental Impact Statement* (Air Force 1998). This methodology is acceptable to the FAA (Warren, pers. comm., 2008).

4.1.1 Noise Analysis

Field measurements and flight track data collected during 2002 were re-analyzed to support extrapolations of the prior findings to the anticipated effects of training operations in the proposed MOA expansion. Because the fleet mix (types of different aircraft expected to operate in the MOAs) does not differ significantly under Alternatives A through D from the fleet mix operating in the MOAs at the time of the 2002 measurements, and the types of training missions to be conducted in the MOAs differ little from those conducted in 2002, the primary difference in operations that might affect noise levels is the frequency of flight activity in the airspace. The primary differences between aircraft noise levels measured during 2002 and anticipated noise levels are expected to be directly proportional to such changes in flight activity. The frequency of flight activity is not proposed to change in the Proposed Action and Alternatives.

Since the nature of the training exercises conducted in the MOAs are not expected to change between Alternatives, the effect of increasing the area and volume of the Paradise MOAs is to redistribute noise impacts of operations over a wider range of altitudes and greater land areas. This redistribution was accomplished for Alternatives B, C, and D by redistributing the flight tracks collected during the 2002 noise measurements into the greater airspace volumes. Flight tracks associated with use of particular MHRC facilities (such as the Saylor

Creek and Juniper Butte bombing ranges and refueling tracks) were considered fixed. Such flight tracks remained fixed under all Alternatives.

Figures 13 and 14 illustrate how flight paths were redistributed across the new MOAs. The figures show a flight track originally flown north of the Duck Valley Reservation (Figure 13) in 2002 as translated into airspace south of the Duck Valley Reservation (Figure 14).

Approximately a third of the 2002 flight tracks available for aircraft that were on-range for at least 15 minutes were so translated.

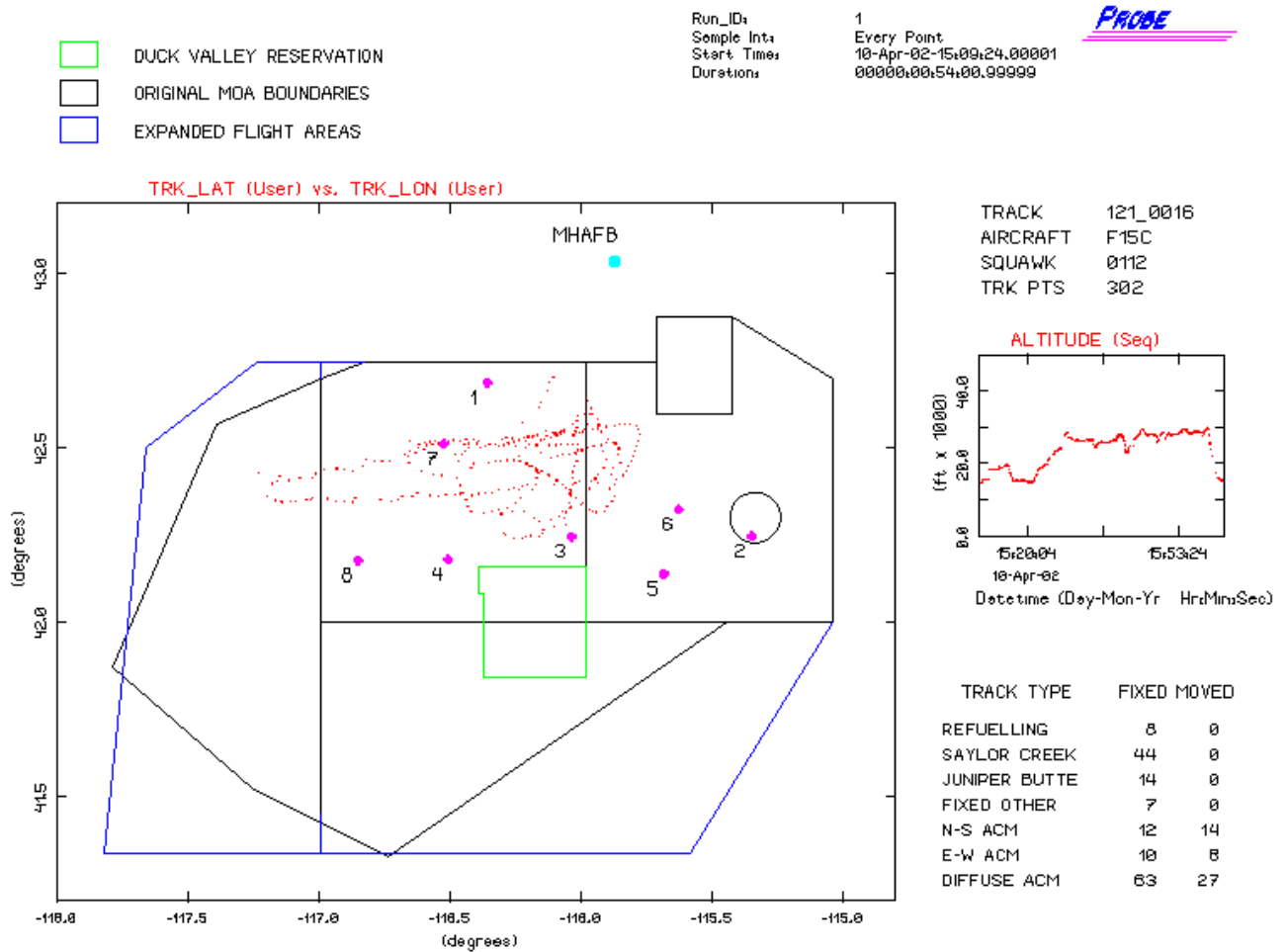


FIGURE 13
Example of Predominantly East/West Flight Track Actually Flown North of Duck Valley Reservation

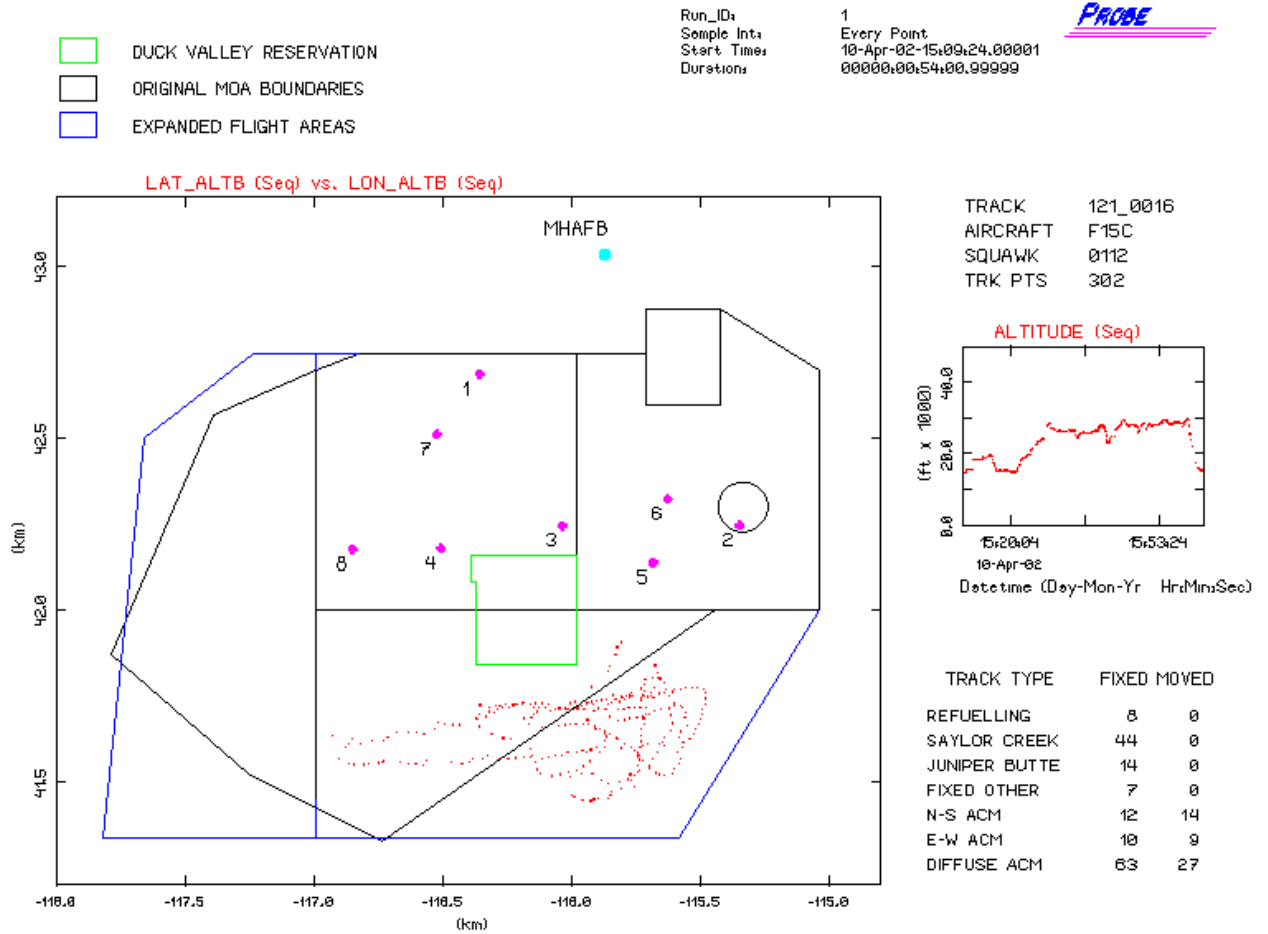


FIGURE 14
 Example of Predominantly East/West Flight Track Translated Into Expanded Airspace South of Duck Valley Reservation

Another way to understand the net effect of reprocessing and redistributing flight tracks for the four project alternatives is by means of flight track density maps. Such maps, which represent the frequency with which aircraft operate within airspace, are produced by gridding the sky within the MHRC and contouring the numbers of radar position reports from military aircraft flying at any altitude within each cell. Figures 15 (for Alternatives A and D) and 16 (for Alternatives B and C) show the nominal flight track densities assumed for purposes of computing points of closest approach and 95th percentile noise level values.

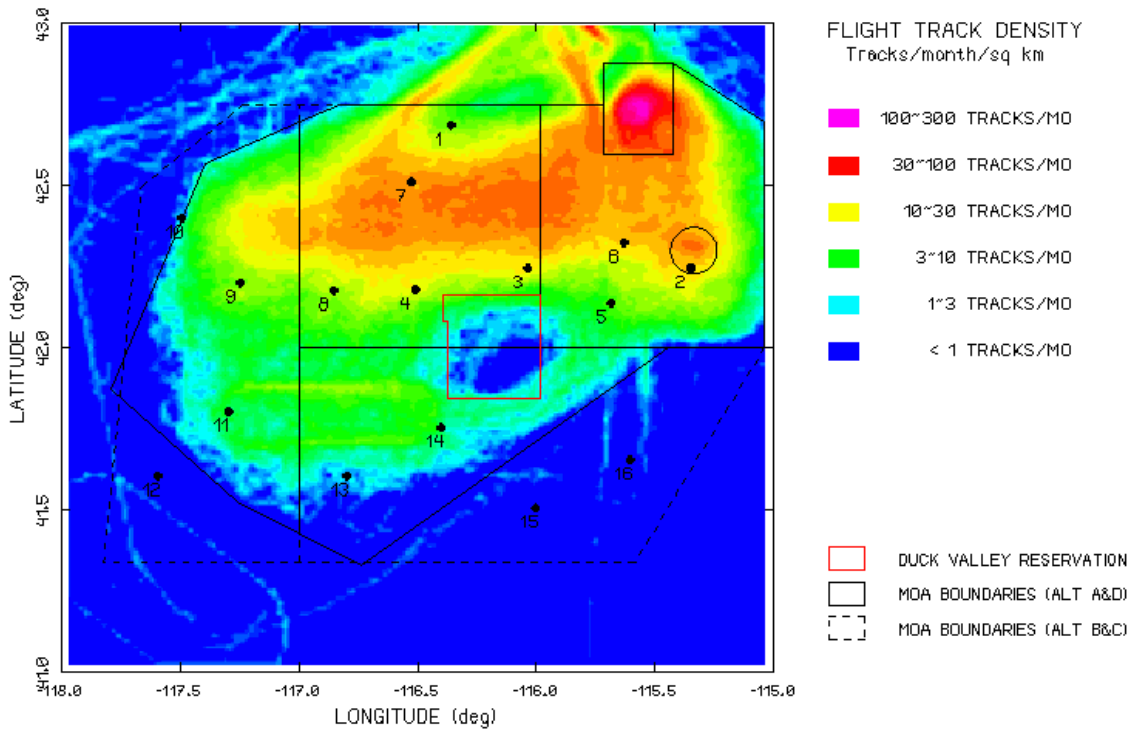


FIGURE 15
Flight track density map for Alternatives A and D.

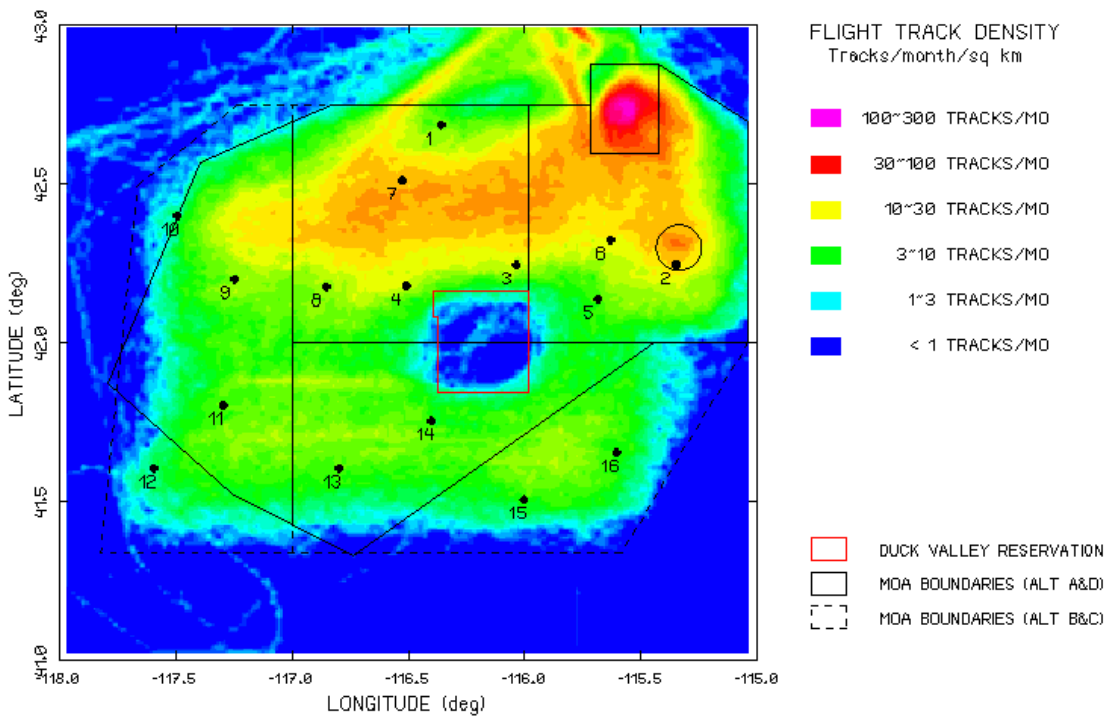


FIGURE 16
Flight track density map for Alternatives B and C.

Closest points of approach (CPA) of flight tracks to the 2002 measurement points and to hypothetical points underlying the expanded Paradise East and West MOAs were then re-computed for the redistributed flight tracks for each of the four Alternatives, and the statistical analyses described in Appendices A and B were applied to the new sets of flight tracks to estimate noise impacts in the hypothetically-overflown areas.

Point 12 used for CPA calculations is near the Santa Rosa-Paradise Peak Wilderness Area and Point 16 used for CPA calculations is near the Jarbidge Wilderness Area (Figure 17). As discussed previously, military overflights are not precluded in the wilderness areas, but they are not guaranteed either. Based on the projected results depicted in Table 4.1, which are derived from the analysis in Appendixes A and B, no significant noise effects in the wilderness areas are expected from the Proposed Action or Alternatives

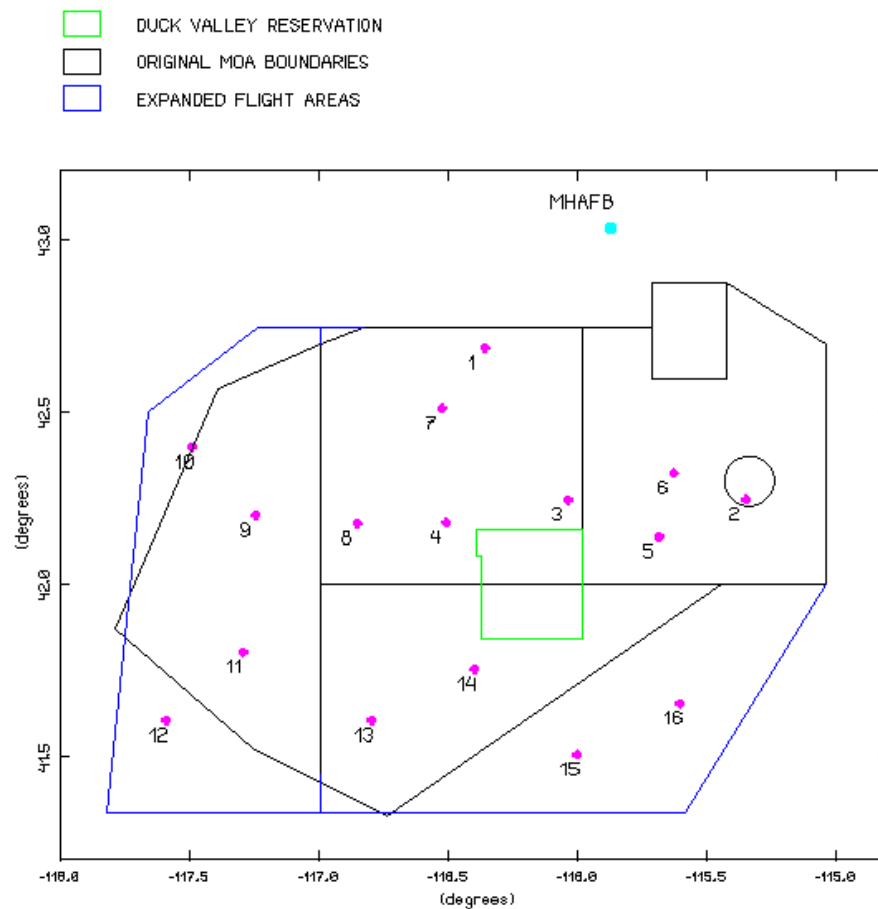


FIGURE 17
Locations of 16 Points Used for CPA Calculations

4.1.2 Alternative A—No Action Alternative

Aircraft training in the MOAs under the No Action Alternative would continue the same as at present. There would be no change from existing conditions and the Air Force would continue to train within the MOA complex as described in Chapters 1 and 2. As a result, there would be no change in noise levels.

4.1.3 All Action Alternatives

The Day-Night Average Sound Level was calculated by summing the predicted individual hourly levels (including the 10 dB penalty for the nighttime operations) using the same total numbers of flight operations as in the calculations described in Appendix A. L_{dn} was then calculated by taking 10 times the logarithm of this day-night sound exposure, averaged over 24 hours.

Table 4.1 summarizes the predicted levels for each of the 16 points shown in Figure 2. The values of L_{dn} and L_{dnmr} are identical in Table 2 for lack of any evidence (per Section 3.2, Appendix B) to justify application of an onset rate adjustment. The range of L_{dn} values from site to site is small because aircraft noise events control noise levels at the various sites for only small proportions of the day, and differences between indigenous noise levels at the sites are minor.

TABLE 4.1
Predicted L_{dn} and L_{dnmr} Values for all Alternatives

Location	Alternative A— No Action	Alternative B— Proposed Action	Alternative C— Lateral Expansion	Alternative D— Vertical Expansion
Site 1	47.1	46.7	46.7	47.2
Site 2	47.2	47.0	47.0	47.2
Site 3	47.6	46.9	46.9	47.7
Site 4	47.2	46.9	46.9	47.3
Site 5	46.1	46.1	46.1	46.1
Site 6	48.4	47.7	47.7	48.4
Site 7	49.5	48.5	48.5	49.6
Site 8	46.6	46.7	46.7	46.6
Average for Owyhee and Jarbidge MOAs (Sites 1-8)	47.5	47.1	47.1	47.5
Site 9	45.9	46.0	45.9	46.0
Site 10	44.9	44.9	44.9	44.9
Site 11	44.7	45.3	45.2	44.7
Site 12	44.2	44.6	44.6	44.2
Site 13	44.5	45.3	45.2	44.5
Site 14	44.9	45.6	45.5	45.0
Site 15	44.2	44.9	44.9	44.2
Site 16	44.2	45.1	45.0	44.2
Average for Paradise MOAs (Sites 9-16)	44.7	45.2	45.2	44.7

Noise values in A-weighted decibels (dB) within the proposed expansion area range from 45.0 to 47.5 dB (Appendix A, Table 5). Average noise levels would increase to levels of

45.0 to 45.8 dB with implementation of the Proposed Action. Day-Night Average sound levels (L_{dn}) would decrease slightly or remain the same in Owyhee and Jarbidge MOAs across all action alternatives (Table 4.1, Sites 1-8). Day-Night Average sound levels would increase slightly or remain the same in Paradise West and Paradise East MOAs across all action alternatives (Table 4.1, Sites 9-16). The average L_{dn} for Paradise East and West MOAs under the No Action Alternative is 44.7 dB and would change to 45.2 dB under the Proposed Action. Therefore, except for periodic direct overpasses or a sonic boom, the average noise level would not change significantly.

Cumulative Impacts

Reasonably foreseeable actions include military actions that have a potential to coincide, either partially in time or geographic extent, with the Proposed Action or Alternatives. The airspace expansion for Paradise MOA under consideration is needed for the current fighter aircrew training mission (see Section 1.4) and, accordingly, is independently justified separate from any potential mission changes in the future. On 29 October 2009, US Air Force officials announced the list of candidate locations for basing the F-35 Lightning II joint strike fighter. In December 2009, the US Air Force announced its intent to prepare an EIS to evaluate the potential environmental consequences of basing F-35A aircraft at one or more Air Force and/or Air National Guard installations across the U.S. See AF Notice of Intent, 74 Fed. Reg. 69080 (Dec 30, 2009), which is incorporated by reference. Mountain Home AFB was included as an alternative to be considered. The proposed F-35A beddown is not sufficiently developed to provide complete and detailed information of the potential alternatives; therefore, consideration of the F-35A potential use of MHAFB airspace cannot be meaningfully analyzed in this Final EA. A decision on the Proposed Action and Alternatives for expanding Paradise MOA need not be delayed while the F-35A proposal is being developed through scoping. Any potential F-35A impacts would be analyzed in the F-35A aircraft beddown EIS before any decisions are made to beddown the F-35A and routinely use MHAFB airspace. Naturally, that analysis would include cumulative impacts of past actions.

There are no other potential proposed actions known at this time that may be considered reasonably foreseeable future actions.

TABLE 4.2
Relative Comparisons of Decibel Levels.

Sound	Noise Level (dB)	Effect
Boom Box in Cars	140	
Jet Engines (Near)	140	
Shotgun Firing	130	
Jet Takeoff (100-200 Ft.)	130	
Rock Concerts (Varies)	110-140	Threshold of pain (125 dB)
Oxygen Torch	121	
Discotheque/Boom Box	120	Threshold of sensation (120 dB)
Thunderclap (Near)	120	
Stereos (Over 100 Watts)	110-125	

TABLE 4.2
Relative Comparisons of Decibel Levels.

Sound	Noise Level (dB)	Effect
Symphony Orchestra	110	Regular exposure of more than 1 minute risks permanent hearing loss (over 100 dB)
Power Saw (Chain Saw)	110	
Jackhammer	110	
Snowmobile	105	
Jet Fly-over (1000 Ft.)	103	No more than 15 minutes of unprotected exposure recommended (90-100 dB)
Electric Furnace Area	100	
Garbage Truck/Cement Mixer	100	
Farm Tractor	98	
Newspaper Press	97	
Subway, Motorcycle (25 Ft.)	88	Very annoying
Lawnmower, Food Blender	85-90	Level at which hearing damage (8 hrs.) begins (85 dB)
Recreational Vehicles, TV	70-90	Annoying; interferes with conversation; constant exposure may cause damage
Diesel Truck (40 Mph, 50 Ft.)	84	
Average City Traffic Noise	80	
Garbage Disposal	80	
Washing Machine	78	
Dishwasher	75	
Vacuum Cleaner	70	
Hair Dryer	70	
Normal Conversation	50-65	
Quiet Office	50-60	
Refrigerator Humming	40	Comfortable (under 60 dB)
Whisper	30	Just audible
Broadcasting Studio	30	
Rustling Leaves	20	
Normal Breathing	10	Threshold of normal hearing (1000-4000 Hz)
	0	

4.2 Biological Resources

4.2.1 Wildlife

Impacts to wildlife species occur in three general ways: by direct mortality of young or adults, by altering habitats, and by disrupting species' normal behavior. Potential wildlife

impacts associated with the Proposed Action and Alternatives includes disturbance of species' behavior from noise. Noise impacts associated with the Proposed Action and Alternatives originate from jet aircraft overflights.

4.2.1.1 Alternative A—No Action Alternative

Aircraft training in the MOAs under the No Action Alternative would continue the same as at present. There would be no change from existing conditions and the USAF would continue to train within the MOA complex, as was described in Chapters 1 and 2. As a result, there would be no change in wildlife effects from noise. Effects under the No Action Alternative within the existing MOAs are likely to decrease over time as the number of aircraft operating there decreases over the long-term following BRAC implementation and bedding down of the Republic of Singapore Air Force (RSAF).

4.2.1.2 Alternative B—Proposed Action

Direct/Indirect Impacts

Effects discussed in this EA are the result of expansion of the MOA airspace only; increased sorties and/or ground disturbance are not part of the Proposed Action or other Alternatives.

The Proposed Action would lower flight restrictions from 14,500 feet MSL to 10,000 feet MSL, or to 3,000 feet AGL in the Paradise West and Paradise East MOAs. These MOAs would also expand their lateral extent to cover an additional 2,179 square nautical miles (NMs). No increase in sorties is associated with this EA analysis. The frequency of overflights at a given point within the existing MOA complex will decrease from current conditions as operations are spread further out over the MOAs. Under the Proposed Action, no increases for supersonic events would occur. In fact, sortie levels will decrease over the long-term following BRAC implementation and bedding down of the RSAF, further reducing overflight numbers from current conditions. The noise analysis assumed no decrease in sortie numbers.

Average daily *busy* hour noise levels within the expanded horizontal and vertical boundaries would increase from a baseline of 44.1 - 44.2 dB (A-weighted) to below a maximum of 51.3 dB (A-weighted) for 95 percent of the time (Appendix A, Table 5). This 7 dB increase is comparable to the noise made by normal breathing. The change in decibel level could be likened to an increase in noise from that of a refrigerator humming to the typical noise in a quiet office. A quiet office has a noise range of 50 to 60 dB and a normal conversation ranges from 50 to 66 dB. Therefore, except for periodic direct overpasses or a sonic boom, noise levels would not be expected to be uncomfortable to wildlife species as discussed below.

Day-Night Average sound levels would increase slightly or remain the same in Paradise West and Paradise East MOAs (Table 4.1, Sites 9-16). The average L_{dn} for Paradise East and West MOAs under the No Action Alternative is 44.7 dB and would change to 45.2 dB under the Proposed Action.

Large Mammals

Under the Proposed Action, lateral expansion of the Paradise East and West MOAs will overlap several polygons of big game habitat identified by the H-TNF (Wilson, pers. comm.,

2007). Elk habitat and summer and winter habitat for deer have been identified within the proposed Paradise East expansion. The northern portion of this habitat extends into the current MOA boundaries south and east of the DVR. Within and in the vicinity of the Paradise West MOA, big game habitat includes deer summer and winter range. The mapped habitat occupies the southern half of the existing Paradise West MOA and extends into the proposed area of southern expansion for the Paradise West MOA.

In general, effects of aircraft noise on wild ungulates is varied depending on species, time of year, type of aircraft (fixed-wing or rotary), distance to aircraft, noise level of overflight, and previous exposure of the animals to aircraft noise. Pronghorn antelope did not show any reaction when helicopters flew at an altitude of 400 feet with a slant range of 3,000 feet (60 dBA). Mild reactions were observed as the craft increased its descent to 200 feet/minute and traveled at 40 to 50 knots. Pronghorn reacted strongly by running when the craft was at 150 feet altitude with a slant range of 500 feet (77 dBA) (Luz and Smith 1976). Weisenberger et al studied mountain the heart rates of sheep (*Ovis canadensis mexicana*) and desert mule deer (*Odocoileus hemionus crooki*) exposed to simulated aircraft noise 33-465 m (108-1,526 feet) above ground level with maximum sound levels of 92.5- 112.2 dB. Heart rates of the exposed animals increased but returned to the resting heart rates in 1 to 3 minutes. Ungulates in the study habituated rapidly to the simulated jet aircraft overflight noise. With increased exposure, response times (amount of time with an elevated heart rate) to jet noise decreased. The study concluded that “The frequency and simulated noise levels that the ungulates were exposed to in this study were not detrimental to their well-being.” (Weisenberger et al. 1996)

Overflights within the Paradise West and Paradise East MOAs are anticipated to have a minimal, insignificant effect on large mammals. This assumption is based on the proposed lowered floor of the MOA to 3,000 feet AGL, which has not been shown to affect large mammals in other studies. The 3,000 foot AGL floor is expected to result in sound below 53.1 dB for 95 percent of the time (Appendix A, Table 5), which is not expected to be a significant noise impact to large mammals. The sound levels in the expansion areas will be similar to that experienced in the existing MOA complex. Large mammals within the existing MOAs are assumed to have become habituated to these noise levels, as will the animals in the expanded areas. No significant large mammal effects would be expected, due to the lack of significant effects observed in the existing MOA, as well as the infrequent nature and short duration of noise effects in the expansion area.

Bats

Noise effects on bats have not been conducted in depth. Potential impacts may include foraging disruption, physiologic stress, roost abandonment, and hibernation disturbance. Dalton and Dalton 1993 concluded that low-level overflight of military aircraft did not have a significant effect on an endangered species of bat at roosts within the Organ Pipe National Monument, Arizona. In a preliminary progress report for the Ministère des Ressources naturelles et de la Faune, Quebec, Canada, Maisonneuve et al. (2006) found that bat activity was not statistically different in areas of low-level military aircraft operations compared to control areas without low-level overflight in Quebec. Noise disturbance associated with the Proposed Action would be likely to have little, insignificant adverse effect on bats based on existing studies.

Small Mammals

Small mammals may show changes in their hearing sensitivity, which could impact small mammal populations. Small mammals rely on hearing to avoid predators and frequent exposure to high noise levels has been found to decrease hearing sensitivity temporarily (Brattstrom and Bondello 1983, Reinis 1976). Hearing physiology of desert kangaroo rats was found to be affected by a recording of off-road vehicle noise (78-110 dB) by temporarily decreasing the kangaroo rat's hearing sensitivity. Approximately 3 weeks were required for hearing thresholds to resume to normal function (Brattstrom and Bondello 1983.) Average daily *busy* hour noise levels for the Proposed Action would increase to below a maximum of 51.3 dB (A-weighted) for 95 percent of the time (Appendix A, Table 5). Expected noise values from the Proposed Action would not be high enough to affect the hearing physiology as reported in the afore-mentioned research study. No significant small mammal effects would be expected in the expansion area, due to the lack of significant effects observed in the existing MOA, as well as the infrequent nature and short duration of noise effects in the expansion area.

Upland Game Birds

Upland game birds (specifically turkeys) have not been found to vacate areas or experience reproductive losses in response to short-term exposure to aircraft noise or sonic booms. Results from Lynch and Speake (1978) and Lamp (1989) indicate that gallinaceous birds are not known to be highly sensitive to aircraft noise. Game birds residing in areas of proposed MOA lateral expansion may show a temporary response to overflights, but are expected to develop a tolerance to noise levels similar to game bird species that reside within the existing MOA complex. No significant upland game bird effects in the expansion area would be expected, due to the lack of significant effects observed in the existing MOA, as well as the infrequent nature and short duration of noise effects in the expansion area.

Water Birds

Water bird response to noise disturbance has not been definitively researched. Several studies report contradictory results on the effects of overflights on water birds (Black et al. 1984, Lamp 1989, Bunnell et al. 1981). Black et al. (1984) suggests that overflights do not negatively affect breeding success, colony establishment, or site selection. However, Lamp (1989) reported that some water bird species were sensitive to both subsonic and supersonic overflights. In this study, birds flushed and vacated feeding areas following low-level bombing runs. Bunnell et al. (1981) found that low-level aircraft overflights impacted survivorship of young and reproductive success of American white pelicans.

Water bird colonies within DVR will continue to be avoided by existing flight and supersonic restrictions. Based on existing research, overflights within the Paradise West and Paradise East MOAs are unlikely to affect water birds. The limited amount of water bird habitat results in a reduced potential for adverse interactions between waterfowl and aircraft. No significant water bird effects would be expected in the expansion area, due to the lack of significant effects observed in the existing MOA, as well as the infrequent nature and short duration of noise effects in the expansion area.

Raptors and Other Birds

In studies on low-altitude jet overflights on nesting peregrine and prairie falcons, Ellis (1981) and Ellis et al. (1991) found that responses to frequent overflight by jet aircraft were often minimal and did not result in reproductive failure. Although falcons were alarmed by

the noise stimuli in this study, the negative responses were brief and they quickly resumed normal activities within a few seconds following an overflight. Flights at less than 500 feet from nests and sonic booms greater than 112 dB were most likely to elicit biologically significant responses (Ellis et al. 1991). Lamp (1989) found in a study of the impacts to wildlife of aircraft overflights at Naval Air Station Fallon in northern Nevada, that nesting raptors (golden eagle, bald eagle, prairie falcon, Swainson's hawk, and goshawk) either showed no response to low-level flights (less than 3,000 feet AGL) or only showed minor reactions.

The flight levels in the Proposed Action are much higher than those shown by research to affect raptors nesting. Noise modeling results suggest noise levels would be below 51.3 dB (A-weighted) for 95 percent of time (Appendix A, Table 5); well below the 112 dB shown to elicit significant biological responses. No long-term significant impacts are anticipated. Reduction over time in the number of overflights will further reduce the potential for impacts.

Few studies have been conducted investigating the impacts of noise on passerine birds. As a result, impacts to passerine bird species are assumed to be similar to those reported for raptors.

Migratory Bird Treaty Act and Bird Aircraft Strike Hazard (BASH) Avoidance

Impacts to migratory birds protected under the Migratory Bird Treaty Act would be negligible based on the noise analysis provide in Appendices A and B, and proposed overflight altitudes. MHAFB has an active Bird Air Strike Hazard (BASH) avoidance program. Currently, MHAFB partners with the Idaho Department of Fish and Game, radio collaring raptors and tracking them seasonally through the MOAs. With more information about migratory bird routes and use times, aircrews will be better able to avoid collisions. From 2007-2009, only three bird-aircraft collisions occurred in the MOAs. All occurred 900 feet AGL or below. Two of the collisions were over/near MHRC air-to-ground training ranges where aircraft fly lower during ordnance deliveries and much more frequently than other sectors of the MOAs. Based on current bird-aircraft collision information, potential bird-aircraft collisions are expected to remain low and have insignificant impacts to migratory bird populations.

Amphibians and Reptiles

Although few field studies have been conducted to evaluate the impact of noise on amphibians and reptiles, Manci et al. (1998) summarized the results of several laboratory studies that demonstrate their sensitivity to sound, specifically ORV sounds. Specific results to noise exposure include hearing loss, call redistributing, and hibernation emergence. Desert iguanas (*Dipsosaurus dorsalis*) and Mojave fringe-toed sand lizards (*Uma scoparia*) showed hearing loss or decreases in hearing after exposure to off-road vehicle noise (95 to 114 dB). Spadefoot toads (*Scaphiopus sp.*) emerged from burrows out of hibernation after exposure to motorcycle sounds of 96 dB. Early emergence during dry conditions could negatively impact toad populations in arid regions (Brattstrom and Bondello 1983).

While amphibian and reptile response to noise is not well studied and aircraft noise has not specifically been shown to affect them, the noise levels expected to occur under Alternative B would fall well below the exposure times and decibel levels of disruptive noises described in the studies above, and are therefore insignificant.

Cumulative Impacts

Reasonably foreseeable actions include military actions that have a potential to coincide, either partially in time or geographic extent, with the Proposed Action or Alternatives. The airspace expansion for Paradise MOA under consideration is needed for the current fighter aircrew training mission (see Section 1.4) and, accordingly, is independently justified separate from any potential mission changes in the future. On 29 October 2009, US Air Force officials announced the list of candidate locations for basing the F-35 Lightning II joint strike fighter. In December 2009, the US Air Force announced its intent to prepare an EIS to evaluate the potential environmental consequences of basing F-35A aircraft at one or more Air Force and/or Air National Guard installations across the U.S. See AF Notice of Intent, 74 Fed. Reg. 69080 (Dec 30, 2009), which is incorporated by reference. Mountain Home AFB was included as an alternative to be considered. The proposed F-35A beddown is not sufficiently developed to provide complete and detailed information of the potential alternatives; therefore, consideration of the F-35A potential use of MHAFB airspace cannot be meaningfully analyzed in this Final EA. A decision on the Proposed Action and Alternatives for expanding Paradise MOA need not be delayed while the F-35A proposal is being developed through scoping. Any potential F-35A impacts would be analyzed in the F-35A aircraft beddown EIS before any decisions are made to beddown the F-35A and routinely use MHAFB airspace. Naturally, that analysis would include cumulative impacts of past actions.

There are no other potential proposed actions known at this time that may be considered reasonably foreseeable future actions.

4.2.1.3 Alternative C

Direct/Indirect Impacts

Wildlife responses to proposed lateral expansion (Alternative C) of the MOA complex is expected to have an insignificant impact on wildlife within the existing MOA complex, and within areas proposed for lateral expansion. Reduction of flight ceiling is not associated with this Alternative, but a change from current flight tracks may cause a slight increase in existing MOA footprints. Day-Night Average sound levels (L_{dn}) would increase slightly (Table 4.1, Sites 10, 12, 15, 16) compared to the No Action Alternative. No significant wildlife effects would be expected in the expansion area, due to the lack of significant effects observed in the existing MOA, as well as the infrequent nature and short duration of noise effects in the expansion area.

Cumulative Impacts

There would be no cumulative effects as described above for the Proposed Action.

4.2.1.4 Alternative D

Direct/Indirect Impacts

Wildlife response to proposed vertical expansion (Alternative D) of the MOA complex is expected to be insignificant. No impacts on wildlife are expected within the existing MOA complex. Reductions of minimum flight ceilings for Alternative D are expected to increase noise levels from 44.1 to 53 dB (A-weighted, see Appendix A, Table 5). Day-Night Average sound levels would increase slightly in Paradise West and Paradise East MOAs over the No Action Alternative (Table 4.1, Sites 9-16). The average L_{dn} for Paradise East and West MOAs

under the No Action Alternative is 44.7 dB and would remain 44.7 dB under Alternative D. These noise levels are not expected to affect wildlife, as discussed for the Proposed Action. Species currently residing within the MOA complex are habituated to aircraft noise and are not expected to have increased stress from a small increase in noise level associated with proposed reductions of the flight ceiling. No significant wildlife effects would be expected in the expansion area, due to the lack of significant effects observed in the existing MOA, as well as the infrequent nature and short duration of noise effects in the expansion area.

Cumulative Impacts

There would be no cumulative effects as described above for the Proposed Action.

4.2.2 Species with Conservation Status

4.2.2.1 Alternative A—No Action Alternative

Aircraft training in the MOAs under the No Action Alternative would continue the same as at present. There would be no change from existing conditions and the USAF would continue to train within the MOA complex as was described in Chapters 1 and 2. As a result, there would be no change in wildlife effects from noise.

4.2.2.2 Alternative B—Proposed Action

Direct/Indirect Impacts

Sage Grouse

Sage grouse leks have been identified (Wilson, pers. comm., 2007) south and east of the DVR within the Paradise East MOA, and mapped leks continue to the south and east of the DVR into the lateral expansion of the Paradise East MOA. Studies on other gallinaceous birds, discussed in Section 4.2.1.2, indicate that if a response to aircraft noise occurs, it is usually temporary. No significant effects to sage grouse would be expected in the expansion area, due to the lack of significant effects observed in the existing MOA, as well as the infrequent nature and short duration of noise effects in the expansion area.

California Bighorn Sheep

California bighorn sheep numbers are increasing in western Nevada and Oregon expansion areas, but are stable or stagnating in the western Nevada expansion area. Lambing areas are expected to occur, but they have not been specifically identified.

Numerous studies have investigated aircraft noise impacts on bighorn sheep. The body of work on this subject indicates that sheep response can vary from increased heart rate to flight and avoidance. Sheep response to disturbance is influenced by type of disturbance, distance of disturbance, and size and composition of sheep groups. The range of sheep responses to noise disturbance are noted in several studies. Heart rates were unchanged when helicopters or fixed-wing aircraft did not fly closer than 1,300 feet to sheep (MacArthur et al. 1982). Bodie et al. (1995) found that 60 percent of radio-collared sheep changed location in response to aerial surveys, and suggested that frequent low-level overflights by aircraft may increase sensitivity to incidental overflights. Conversely, Weisenberger et al. (1996) suggested that bighorn sheep develop reduced sensitivity to aircraft noise with increased exposure.

Potential impact to bighorn sheep would be low and insignificant in most areas of the expanded MOA complex because the lowered flight ceiling of 3,000 feet AGL will not

significantly increase aircraft sound levels – and the elevation is above that shown to affect bighorn sheep in research studies.

Pygmy Rabbit and American Pika

No literature was found on the specific effects of noise on either the pygmy rabbit or the American pika in the project area.

Cumulative Impacts

Reasonably foreseeable actions include military actions that have a potential to coincide, either partially in time or geographic extent, with the Proposed Action or Alternatives. The airspace expansion for Paradise MOA under consideration is needed for the current fighter aircrew training mission (see Section 1.4) and, accordingly, is independently justified separate from any potential mission changes in the future. On 29 October 2009, US Air Force officials announced the list of candidate locations for basing the F-35 Lightning II joint strike fighter. In December 2009, the US Air Force announced its intent to prepare an EIS to evaluate the potential environmental consequences of basing F-35A aircraft at one or more Air Force and/or Air National Guard installations across the U.S. See AF Notice of Intent, 74 Fed. Reg. 69080 (Dec 30, 2009), which is incorporated by reference. Mountain Home AFB was included as an alternative to be considered. The proposed F-35A beddown is not sufficiently developed to provide complete and detailed information of the potential alternatives; therefore, consideration of the F-35A potential use of MHAFB airspace cannot be meaningfully analyzed in this Final EA. A decision on the Proposed Action and Alternatives for expanding Paradise MOA need not be delayed while the F-35A proposal is being developed through scoping. Any potential F-35A impacts would be analyzed in the F-35A aircraft beddown EIS before any decisions are made to beddown the F-35A and routinely use MHAFB airspace. Naturally, that analysis would include cumulative impacts of past actions.

There are no other potential proposed actions known at this time that may be considered reasonably foreseeable future actions.

4.2.2.3 Alternative C

Direct/Indirect Impacts

In general, potential impacts from noise to species with conservation status under Alternative C would be similar to those discussed under Alternative B. The overall potential level of impacts under Alternative C is expected to be lower than Alternative B, because there is no lowering of the minimum flight ceiling and noise levels will not increase within the existing MOA complex. In addition, noise levels within the expanded lateral MOA complex are expected to increase, but only to the levels currently encountered in the existing MOA complex. Current noise levels have not been observed to cause significant impacts to species with conservation status in the existing MOA and therefore, significant impacts are not expected in the expansion area.

Cumulative Impacts

There would be no cumulative effects as described above for the Proposed Action.

4.2.2.4 Alternative D

In general, potential impacts from noise to species with conservation status under Alternative D would be similar to those discussed under Alternative B. The overall potential level of impacts under Alternative D is expected to be similar to Alternative B because the minimum flight ceiling and associated noise levels will be increased within the existing MOA complex. However, no noise level increases would occur in areas outside of the existing MOA complex.

Cumulative Impacts

There would be no cumulative effects as described above for the Proposed Action.

4.3 Airspace Management and Use

4.3.1 Alternative A—No Action Alternative

Under the No Action Alternative, no additional airspace would be provided for military training operations in MHRC. However, it is anticipated that there would be increased operational pressure within the military training environment if the aircraft fleet changes to newer, higher performance aircraft (such as the F-22 and F-35), new training scenarios are implemented, or use by “other user” traffic from the Navy, Marines, and Air Force units not assigned to MHAFB increases. The airspace does not meet all objectives for large force exercises or allow additional, simultaneous training packages the space for full performance maneuvering. Operational conditions associated with training aircraft conflicts, spillouts, interruptions, DVR avoidance, and supersonic operations would persist. Civilian aircraft operations would still operate in a similar manner in the vicinity of the MOA complex. However, the growth in civilian use of higher performance piston aircraft that operate in the “teen” altitudes (between 10,000 feet MSL and FL180) and well into the flight levels, as well as widely publicized introduction of new, very light civilian jet aircraft, would place a larger number of these aircraft at higher altitudes and higher speeds in the vicinity of the MOA complex—including more direct flights through the complex using the area navigation and glass cockpit systems in these new aircraft. The No Action Alternative would provide no additional management tools such as MOA sectoring to address these operational concerns.

4.3.2 Alternative B—Proposed Action

Direct/Indirect Impacts

The Proposed Action would result in increased lateral and vertical airspace, resulting in the improved military flight training operation characteristics described in Section 2.3. Overall, this alternative would provide the greatest potential of all of the action alternatives for flexibility in MOA complex airspace management and use. These changes would improve anticipated military flight training operations as described in Section 2.3. Regarding operational considerations, this alternative would provide the most additional room for training packages and provide the most relief to the training schedule by allowing training packages to operate simultaneously within the MOA complex compared to existing conditions, resulting in a shorter flying day. This spatial and training day relief would provide the greatest reduction in training package conflicts among the action alternatives.

As a value added component, the Proposed Action would provide the maximum reduction of spillouts among the action alternatives, by changing the overall lateral and vertical geometry to provide additional room for maneuvering at the edges of the airspace. The future, predicted reduction in airspace use for military training would further enhance this improvement by placing fewer aircraft within the MOA complex and staging smaller scale operations at the edges of the airspace. This would also move the MOA lateral boundaries further out into adjacent airspace closer to Victor airways and VORs at the west and south sides of the complex, where nonparticipating aircraft would be expected to operate.

This alternative would provide the greatest improvement in the ability to use the southeastern portion of the Paradise East MOA through lateral geographic boundary expansion – while preserving the operational restrictions at the DVR. This alternative would provide the airspace necessary to accommodate a more complete and varied training operation in the southeast portion of the Paradise East MOA and allow aircraft operations to be conducted farther away from DVR.

Alternative B would provide the greatest potential for managing supersonic operations to meet mission requirements while maximizing distances from sensitive areas. This alternative would potentially increase the overall ATCAA area available for supersonic operations, thereby dispersing these operations, by widening the overall footprint where supersonic operations could occur. This has the potential of reducing the noise footprint around the DVR through geographical separation.

This alternative would result in the greatest expansion into adjacent airspace (laterally and vertically) of the action alternatives, so it would potentially have the greatest effect on operations associated with nonparticipating aircraft. This alternative would have the greatest potential for interruptions from nonparticipating aircraft because it increases the area around which nonparticipating aircraft must navigate if they wish to avoid the MOA complex. This alternative would increase the area to potentially be used for weather diversions within the MOA complex and the overlying ATCAA. While this is a MOA expansion action, overlying ATCAA airspace would be vital for successful mission accomplishment under this alternative, and ATCAA airspace would be sought from the FAA. VFR and IFR aircraft currently enter the MOA complex, and this activity is expected to continue with increased activity from larger numbers of future civilian operations, operating faster, more capable aircraft on direct routings. However, the larger MOA complex airspace would conversely allow greater options for moving training packages, thereby temporarily releasing airspace for interruptions and diversions, and offsetting some of the increase in potential interruptions. The lateral expansion of the MOA complex and associated ATCAA would insignificantly affect airline operations by requiring longer distance diversions (with earlier turning points) to avoid this airspace. Southeast bound flights from Seattle and Portland would at most experience an approximate 12 minute delay time by traveling an additional 80 NM to skirt around the southeast corner of the B and C alternatives. East-west tracks from cities such as Salt Lake City and Oakland would not experience any additional flight time. Lowering the MOA floor to 10,000 feet MSL would result in all off-route IFR altitudes lying within the MOA complex, so IFR traffic would likely not be approved for off-route clearances within the larger MOA footprint unless the MOA is not being used for military training operations. If the lower altitude is not available for IFR operations and the MOA is active, ATC would have to divert the IFR traffic around

the MOA, take back the training airspace, or utilize the SUA sub areas as described. The predicted decline in training operations in the MOA complex over the long-term following BRAC implementation and bedding down of the RSAF will increase the ability to utilize sectorizing or scheduling to free up MOA airspace for IFR operations, short of having a dedicated ATC facility controlling the complex.

This alternative would reduce the vertical distance available for VFR passage while remaining below the Paradise East and West MOAs. VFR pilots operating above 10,000 feet in the western portion of the MOA complex would have to decide whether to accept the increased risk of operating within the MOA versus choosing a lower altitude (closer to terrain) or diverting around the MOA. This alternative would have the greatest potential effect on VFR traffic compared to other action alternatives, because of the larger footprint combined with the lower MOA floor. While VFR traffic is allowed to operate in the MOA at any time, these pilots would have greater risk management considerations, which would require them to operate at lower altitudes, to operate within the MOA, or to divert around a larger MOA footprint if they currently operate in airspace that would be redesignated as MOA airspace. The USAF coordinates with ATC and facilitates the joint use concept through its Mid-Air Collision Avoidance (MACA) program to advertise MOA activities and procedures. The USAF updates and provides-MACA guidance to general aviation pilots within the vicinity of the MOA complex.

Cumulative Impacts

Reasonably foreseeable actions include military actions that have a potential to coincide, either partially in time or geographic extent, with the Proposed Action or Alternatives. The airspace expansion for Paradise MOA under consideration is needed for the current fighter aircrew training mission (see Section 1.4) and, accordingly, is independently justified separate from any potential mission changes in the future. On 29 October 2009, US Air Force officials announced the list of candidate locations for basing the F-35 Lightning II joint strike fighter. In December 2009, the US Air Force announced its intent to prepare an EIS to evaluate the potential environmental consequences of basing F-35A aircraft at one or more Air Force and/or Air National Guard installations across the U.S. See AF Notice of Intent, 74 Fed. Reg. 69080 (Dec 30, 2009), which is incorporated by reference. Mountain Home AFB was included as an alternative to be considered. The proposed F-35A beddown is not sufficiently developed to provide complete and detailed information of the potential alternatives; therefore, consideration of the F-35A potential use of MHAFB airspace cannot be meaningfully analyzed in this Final EA. A decision on the Proposed Action and Alternatives for expanding Paradise MOA need not be delayed while the F-35A proposal is being developed through scoping. Any potential F-35A impacts would be analyzed in the F-35A aircraft beddown EIS before any decisions are made to beddown the F-35A and routinely use MHAFB airspace. Naturally, that analysis would include cumulative impacts of past actions.

There are no other potential proposed actions known at this time that may be considered reasonably foreseeable future actions.

4.3.3 Alternative C

Direct/Indirect Impacts

Alternative C would result in increased lateral airspace, resulting in the improved military flight training operation characteristics described in Section 2.4. Overall, this alternative would provide additional potential, compared with the No Action Alternative, for flexibility in MOA complex airspace management and use. These changes would improve anticipated military flight training operations as described in Section 2.4, but to a lesser degree than the Proposed Action.

Regarding operational considerations, this alternative would provide additional lateral room for training packages to the south and west, providing relief to the training schedule by allowing more or larger training packages to operate within the MOA complex at the same time—compared to existing conditions. This spatial and training day relief would provide a reduction in training package conflicts, but to a lesser extent than the Proposed Action.

This alternative would provide the same value-added reduction of lateral spillouts by changing the lateral geometry to provide additional room for maneuvering at the edges of the airspace, but would not be expected to significantly affect the frequency of spillouts above or below the MOA airspace. This alternative would also move the MOA lateral boundaries further out into adjacent airspace, including closer to Victor airways and VORs at the west and south sides of the complex, where nonparticipating aircraft would be expected to operate. This alternative would improve the ability to use the southeastern portion of the MOA complex, but to a lesser degree than the Proposed Action because the added MOA area would retain the higher floor altitude. This alternative would allow larger numbers and types of training operations to occur in the southeast portion of the MOA, which may bring a similar level of other operational concerns (conflicts, lateral spillouts, etc). However, the increased potential for vertical spillouts—compared to the Proposed Action—because of the higher MOA floor would not be significant, as the overall numbers of aircraft decrease over the long-term following BRAC implementation and bedding down of the RSAF. This alternative would provide the same potential for managing supersonic operations as the Proposed Action, because this alternative would still increase the footprint of the ATCAA area, widening the overall footprint where supersonic operations could occur.

This alternative would result in the same lateral expansion into adjacent airspace as the Proposed Action, but would not lower the floor within the existing MOA footprint, so the direct effects of Alternative C would generally be limited to the footprint covered by the lateral expansion. However, the increased lateral dimensions would still increase the area around which nonparticipating aircraft must navigate if they wish to avoid the MOA complex (or IFR traffic diverted by ATC), and it would increase the area to potentially be used for weather diversions within the MOA complex and the overlying ATCAA. Again, overlying ATCAA airspace would be vital for successful mission accomplishment under this alternative, and ATCAA airspace would be sought from the FAA. VFR and IFR aircraft currently enter the complex, and this activity is expected to continue with increased activity from larger number of future civilian operations, operating faster, more capable aircraft on direct routings. The increased lateral MOA complex dimensions would allow greater

options for moving training packages and for temporarily releasing airspace for interruptions and diversions, offsetting some of the increase in potential interruptions – although the additional vertical MOA airspace of the Proposed Action would not be available for relocating training packages in Alternative C. The lateral expansion of the MOA complex and associated ACTAA in Alternative C would affect airline operations to the same extent as the Proposed Action. Alternative C would require similar IFR flight rerouting as the Proposed Action if the MOA complex is not available. However, the higher MOA floor of Alternative C (compared to the Proposed Action) would allow IFR routings beneath the MOA floor while remaining above the charted, minimum, off-route altitudes.

Alternative C would provide increased options for managing training operations (moving these operations laterally) within sectors of the MOA to allow transient IFR traffic. This alternative would maintain the existing vertical distance available for VFR passage, while remaining below the Paradise East and West MOAs – thus eliminating the direct effect of the lowered MOA floor that would be experienced in the Proposed Action. However, Alternative C would still laterally expand the MOA complex and associated 14,500 feet MSL floor into airspace currently not overlain by the MOA complex, although relatively few high performance general aviation aircraft would be anticipated above 14,500 feet MSL in this area. VFR pilots would continue to be able to operate up to 14,500 feet MSL within the Paradise East and West MOA footprints while remaining clear of the MOA airspace. Overall, Alternative C would have less effect on general aviation IFR and VFR operations compared to the Proposed Action, but would have a similar level of insignificant effects on high altitude air carrier operations as the Proposed Action.

Cumulative Impacts

Reasonably foreseeable actions include military actions that have a potential to coincide, either partially in time or geographic extent, with the Proposed Action or Alternatives. The airspace expansion for Paradise MOA under consideration is needed for the current fighter aircrew training mission (see Section 1.4) and, accordingly, is independently justified separate from any potential mission changes in the future. On 29 October 2009, US Air Force officials announced the list of candidate locations for basing the F-35 Lightning II joint strike fighter. In December 2009, the US Air Force announced its intent to prepare an EIS to evaluate the potential environmental consequences of basing F-35A aircraft at one or more Air Force and/or Air National Guard installations across the U.S. See AF Notice of Intent, 74 Fed. Reg. 69080 (Dec 30, 2009), which is incorporated by reference. Mountain Home AFB was included as an alternative to be considered. The proposed F-35A beddown is not sufficiently developed to provide complete and detailed information of the potential alternatives; therefore, consideration of the F-35A potential use of MHAFB airspace cannot be meaningfully analyzed in this Final EA. A decision on the Proposed Action and Alternatives for expanding Paradise MOA need not be delayed while the F-35A proposal is being developed through scoping. Any potential F-35A impacts would be analyzed in the F-35A aircraft beddown EIS before any decisions are made to beddown the F-35A and routinely use MHAFB airspace. Naturally, that analysis would include cumulative impacts of past actions.

There are no other potential proposed actions known at this time that may be considered reasonably foreseeable future actions.

4.3.4 Alternative D

Direct/Indirect Impacts

Alternative D would result in increased vertical airspace within the Paradise East and West MOAs, resulting in the improved military flight training operation characteristics described in Section 2.5. Overall, this alternative would provide the most limited potential of all of the action alternatives for flexibility in MOA complex airspace management and use. Regarding operational considerations, Alternative D would provide the least additional room for training packages (no additional lateral airspace), thereby providing the least amount of relief to the training schedule of the action alternatives. The decline in training operations over the long-term following BRAC implementation and bedding down of the RSAF would complement improvements afforded by this alternative.

This alternative would not have the value-added feature of potentially reducing lateral spillouts, which would continue at approximately the same rate of occurrence, but over time would be expected to decline somewhat as training operations slowly taper in the future due to reduced sortie levels. However, since spillouts are more a function of aircrew vigilance than training space, spillout frequency will be determined more by training opportunities than airspace. Vertical spillouts would be improved by lowering the MOA floor, and would be enhanced as training operations decrease in the future. Under Alternative D, there would be little improvement in supporting larger numbers or types of training operations in the southeast portion of the complex, although the floor would be lowered, providing some additional vertical room to maneuver. This alternative would not change management of supersonic operations because they are associated with the ACTAA footprint and volume that would be unchanged. Effects from supersonic operations would not change compared with the No Action Alternative.

Alternative D would not encroach into adjacent lateral airspace, so it would have less potential for interruptions from nonparticipating aircraft than the Proposed Action and Alternative C, but more potential than the No Action Alternative. Alternative D would not increase the area to be potentially used for weather diversions, but would lower the MOA floor, which may introduce lower altitude nonparticipating aircraft into the MOA. Because the lateral MOA boundary would not change with Alternative D, this alternative would provide the least flexibility for moving training packages to avoid interruptions.

The lowered floor of the Paradise East and West MOAs would not significantly affect the existing ACTAA, so there would be no added effects on airline operations compared with the No Action Alternative. Moreover, retaining the existing lateral boundaries would not affect IFR flights compared to the No Action Alternative, except for IFR flights operated between 10,000 and 14,500 feet MSL. In that case, IFR flights may need to be diverted around the MOA complex if the airspace is not available. Because the MOA floor would be lowered below the minimum off-route altitudes, direct IFR flights may need to be diverted around the MOA, or utilize the SUA sub areas for non-participating aircraft at a higher altitude. Because the existing lateral MOA dimensions would be retained, the distance for the diversion to avoid the MOA complex would be less than for the Proposed Action. Alternative D would also reduce the vertical distance available for VFR passage while remaining below the Paradise East and West MOAs. VFR pilots operating above 10,000 feet in the western portion of the MOA complex would have to decide whether to accept the

increased risk of operating within the MOA, versus choosing a lower altitude (closer to terrain) or diverting around the MOA. However, the diversion would not be as long a distance as with the broader MOA footprint in the Proposed Action. This alternative would have the greatest potential effect on VFR traffic within the existing MOA boundary, but would not affect VFR traffic that would not have the need to navigate within the MOA boundary. While this alternative avoids the broader MOA footprint and low altitude volume of the Proposed Action, there would still be greater risk management considerations for general aviation aircraft compared with the No Action Alternative.

Overall, Alternative D would have less effect on air carrier operations compared to the Proposed Action. It would have less effect on IFR and VFR general aviation operations outside of the existing MOA boundaries compared to the Proposed Action, but the same effects on low-level general aviation aircraft within the MOA boundaries.

Cumulative Impacts

Reasonably foreseeable actions include military actions that have a potential to coincide, either partially in time or geographic extent, with the Proposed Action or Alternatives. The airspace expansion for Paradise MOA under consideration is needed for the current fighter aircrew training mission (see Section 1.4) and, accordingly, is independently justified separate from any potential mission changes in the future. On 29 October 2009, US Air Force officials announced the list of candidate locations for basing the F-35 Lightning II joint strike fighter. In December 2009, the US Air Force announced its intent to prepare an EIS to evaluate the potential environmental consequences of basing F-35A aircraft at one or more Air Force and/or Air National Guard installations across the U.S. See AF Notice of Intent, 74 Fed. Reg. 69080 (Dec 30, 2009), which is incorporated by reference. Mountain Home AFB was included as an alternative to be considered. The proposed F-35A beddown is not sufficiently developed to provide complete and detailed information of the potential alternatives; therefore, consideration of the F-35A potential use of MHAFB airspace cannot be meaningfully analyzed in this Final EA. A decision on the Proposed Action and Alternatives for expanding Paradise MOA need not be delayed while the F-35A proposal is being developed through scoping. Any potential F-35A impacts would be analyzed in the F-35A aircraft beddown EIS before any decisions are made to beddown the F-35A and routinely use MHAFB airspace. Naturally, that analysis would include cumulative impacts of past actions.

There are no other potential proposed actions known at this time that may be considered reasonably foreseeable future actions.

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List of Contributors and Preparers

6.1 Lead Agency Contributors

Name	Responsibility	Education	Years of Experience
Mountain Home Air Force Base			
Angelia Binder	Chief, Conservation	B.S. Biology	10
Byron Schmidt	Chief, Airspace Management	Not provided	20
Pamela Dugger	Attorney-Advisor	B.A. Political Science J.D. (Juris Doctorate)	23
Sheri Mattoon	Cultural Resources Manager	B.A. Anthropology M.S. Anthropology	18
Carl Rudeen	Wildlife Biologist	B.S. Wildlife Resources B.S. Rangeland Ecology & Management	9

6.2 Document Preparers

Name	Responsibility	Education	Years of Experience
CH2M HILL Team			
Rick McCormick	Project Manager	M.S. Environmental Engineering B.S. Biology	11
Denny Mengel	Lead Writer/Reviewer	Ph.D. Soil Science M.S. Forest Resources B.S. Wildlife Resources	25
Gretchen Herron	Writer	M.S. Disturbed Land Restoration B.S. Environmental Science	9
Judy Ferguson	Writer	M.S. Rangeland Ecology B.S. Range Resources B.S. Wildlife Biology	8
Michelle Koubek	GIS	B.S. Geography	6
Jason Carr	GIS	A.A.S. Geographic Information Systems	9
Jody Fagan	Graphics	B.A. Fine Arts A.A.S. Drafting Technology	33
Paula Gustafson	Lead Technical Editor	B.A. English	20
Katie Miller	Document Preparation	A.A. Legal Secretary	9

Name	Responsibility	Education	Years of Experience
Fidell Associates, Inc.			
Sanford Fidell	Project Manager/Lead Writer	Ph.D. Experimental Psychology	40
Matthew Sneddon	Flight Track/Acoustic Analysis	B.S. Physics	31

Acronyms and Abbreviations

ACC	Air Combat Command
ACM	Air Combat Maneuvers
ACT/TI	Air Combat Tactics/Tactical Intercept
AGL	Above Ground Level
AIM	FAA Aeronautical Information Manual
AIRFA	American Indian Religious Freedom Act
AOPA	Aircraft Owners and Pilots Association
APE	Area of Potential Effect
ARPA	Archaeological Resources Protection Act
ARTCC	Air Route Traffic Control Center
ATC	Air Traffic Control
ATCAA	Air Traffic Control Assigned Airspace
ATCT	Air Traffic Control Tower
BFM	Basic Flight Maneuvers
BLM	U.S. Bureau of Land Management
BRAC	Base Realignment and Closure
CAA	Clean Air Act
CCD	Census County Divisions
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
CO	Carbon Monoxide
CPA	Closest points of approach
DACT	Dissimilar Air Combat Tactics
dB	Decibel
DCA	Defensive Counter Air
DOPAA	Description of the Proposed Action and Alternatives
DVR	Duck Valley Reservation
EA	Environmental Assessment
EAA	Experimental Aircraft Association
EIS	Environmental Impact Statement
EO	Executive Order
EPA	Environmental Protection Agency
ESA	Endangered Species Act (of 1973)
FAA	Federal Aviation Administration
FL	Flight Level
FLPMA	Federal Land Policy and Management Act
GA	General Aviation
GCI	Ground Controlled Intercept
GPS	Global Positioning System
H-TNF	Humboldt-Toiyabe National Forest
ICAO	International Civil Aviation Organization
IDFG	Idaho Department of Fish and Game
IFR	Instrument Flight Rules
JBR	Juniper Butte Range
Ldnmr	Onset Rate-Adjusted Monthly Day-Night Average Sound Level
LFE	Large Force Exercise

MACA	Mid-Air Collision Avoidance
MEA	Minimum Enroute Altitudes
MHAFB	Mountain Home Air Force Base
MHRC	Mountain Home Range Complex
MOA	Military Operations Area
MOU	Memorandum of Understanding
MRU	Military RADAR Unit
MSL	Mean Sea Level
MTR	Military Training Route
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act
NDOW	Nevada Department of Wildlife
NEPA	National Environmental Policy Act
NHPA	National Historical Preservation Act
NM	Nautical Miles
NO ₂	Nitrogen Dioxide
NPS	National Park Service
NRHP	National Register of Historic Places
O ₃	Ozone
OCA	Offensive Counter-Air
ODFW	Oregon Department of Fish and Wildlife
OSHA	Occupational Safety and Health Act
Pb	Lead
PM ₁₀	Particulate Matter Equal To or Less than 10 Micrometers
PSD	Prevention of Significant Deterioration
RADAR	Radio Detection and Ranging
RCRA	Resource Conservation and Recovery Act
RNA	Research Natural Area
ROS	Resource Opportunity Spectrum
RSAF	Republic of Singapore Air Force
SAT	Surface Attack Tactics
SCR	Saylor Creek Range
SEL	Sound Exposure Level
SIP	State Implementation Plan
SO ₂	Sulfur Dioxide
TCP	Traditional Cultural Properties
TFR	Temporary Flight Restrictions
USAF	U.S. Air Force
USFWS	U.S. Fish and Wildlife Service
VFR	Visual Flight Rules
VOR	Very-High-Frequency Omni-directional Range
VRM	Visual Resource Management
WA	Wilderness Area
WSA	Wilderness Study Area

Appendix A
**Predicted Effects on Aircraft Noise Levels of Airspace Modifications
for the Mountain Home Range Complex**

Appendix A

PREDICTED EFFECTS ON AIRCRAFT NOISE LEVELS OF AIRSPACE MODIFICATIONS FOR THE MOUNTAIN HOME RANGE COMPLEX

March 19, 2007

Prepared by:

Fidell Associates, Inc.
23139 Erwin Street
Woodland Hills, CA 91367

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1.0 INTRODUCTION AND SUMMARY

This report analyzes the effects of proposed alternatives for airspace expansion at the Mountain Home Range Complex (MHRC) on distributions of aircraft noise levels in underlying land areas. These analyses consider only proposed actions to lower portions of the MHRC floor and to include newly overflowed areas in the Paradise MOAs, not any potential changes in types and numbers of operations.

Rural areas underlying the airspace of the MHRC are sparsely settled, and managed primarily for agricultural and outdoor recreational purposes. As described in Section 2, the very large size of land areas underlying the airspace of interest and the sporadic (*i.e.*, infrequent and irregular) nature of anticipated flight operations preclude deterministic predictions of prospective noise exposure levels. The size of the project area and primarily non-residential land uses further complicate modeling and interpretation of noise impacts in conventional units of long-term, cumulative exposure levels such as Day-Night Average Sound Level (DNL).

The current predictions are instead based on analyses and extrapolations of prior monitoring of aircraft noise levels at sites underlying the Jarbidge and Owyhee MOAs¹. They focus on estimating the effects of project alternatives on statistical distributions of sound levels. These analyses indicate that:

- Indigenous sound levels - those created by wind and rustling foliage – will continue to prevail most of the time throughout the land areas underlying the MHRC airspace in all of the proposed project alternatives.
- The sporadic nature of flight operations throughout the MHRC and the very large land areas underlying the MOAs limit the changes associated with any of the project alternatives to the upper centiles of hourly distributions of noise levels attributable to military aircraft operations.
- Even under busy hour conditions, no meaningful differences are expected in 95th centile aircraft noise levels among the four project alternatives.

1 . Fidell, S., White, P., and Sneddon, M. Monitoring of Aircraft Noise in the Owyhee and Jarbidge MOAs. SAIC Project 01-0203-34-2813-676. September, 2003.

2.0 BACKGROUND

2.1 Empirical Approach Adopted for MHRC

For purposes of the Settlement Agreement of 24 November 1999 between the U.S. Air Force and the Greater Owyhee Legal Defense (in Case No. CIV 92-0189 S BLW of the U.S. District Court for the District of Idaho), direct field measurements were requested to validate the noise modeling for characterizing aircraft noise impacts in the Mountain Home Range Complex. This empirical approach focused on characterizing the additional noise contributed by aircraft operations to the distribution of indigenous noise levels in the sparsely populated land area beneath the airspace.

Nearly 24,000 hours of noise monitoring was conducted over the course of 1,141 instrument-days at eight sites in the Jarbidge and Owyhee MOAs from 24 April through 16 November 2002, as shown in Figure 1. Flight tracks for 4,655 military aircraft sorties were collected for the same time period. It was found that except during a few late morning and afternoon weekday periods, operations of military aircraft in the vicinity of monitoring sites did not appreciably elevate hourly equivalent indigenous sound levels.

In other words, sound levels at the eight monitoring sites were controlled by sources other than military aircraft about 90 to 95 percent of the time. During relatively brief and infrequent intervals when military flight activity occurred near monitoring sites, average hourly noise levels could be elevated by as much as 6 to 12 decibels (dB). Even during such hours, however, average hourly aircraft sound levels remained within a range characteristic of sparsely populated rural areas, as did longer term (*e.g.*, daily), cumulative noise levels.

2.2 Adoption of Conservative Airspace Use Assumptions

Runway repairs at Mountain Home Air Force Base resulted in lower utilization of the MHRC airspace during the summer of 2002 than during the more representative months of April, May, and October of 2002. The current extrapolations of data were then normalized to an 850-sortie month. The current estimates therefore make no attempt to anticipate noise impacts associated with potential changes in range utilization in the future.

3.0 METHOD

Field measurements and flight track data collected during 2002 were re-analyzed to support extrapolations of the prior findings to the anticipated effects of additional training operations in the MHRC airspace. Because the fleet mix (types of different aircraft expected to operate in the MHRC) does not differ systematically under project alternatives A through D from the fleet mix operating in the MHRC at the time of the prior measurements, and since the types of training missions to be conducted in the MHRC differ little from those undertaken at the time of the prior measurements, the primary differences in operations that might affect noise impacts are those associated with frequency of flight activity in the airspace. The primary differences between aircraft noise levels measured during 2002 and anticipated noise levels are expected to be directly proportional to such changes in flight activity.

3.1 Reprocessing of Prior Noise Measurement and Flight Track Data

The first step in the present noise impact analysis was to calculate centile values for hourly distributions of noise level distributions measured at all eight of the monitoring sites of Fidell et al. (2003). Table 1 summarizes the mean levels of various centiles of these distributions of hourly noise levels at each site. Since sound level measurements were made once per second for 24 hours per day, hourly statistics are based on 3600 samples. Labeling of centiles in Table 1 follows the acoustical convention, in which, for example, the 90th centile is referred to as L10. (On an hourly basis, the sound level exceeded 10 percent of the time is the value exceeded by 360 of the 3600 hourly samples, or for a total duration of six minutes per hour.)

Table 1: Centile Levels (in A-Weighted Decibels) of Distributions of Ambient Sound Levels Monitored at All Times at Eight Locations in the Jarbidge and Owyhee MOAs in 2002

SITE	HNL	Min	L25	L20	L15	L10	L05	L03	L02	L01
1	27.4	17.7	24.9	25.6	26.6	28.0	30.3	32.0	33.4	35.4
2	25.8	17.3	23.0	23.7	24.6	25.9	28.3	30.1	31.4	33.5
3	30.1	16.5	25.8	27.0	28.4	30.5	33.9	36.2	37.9	40.5
4	31.3	19.0	28.9	29.9	31.0	32.6	35.1	36.8	38.1	40.1
5	25.4	16.6	22.4	23.1	24.1	25.4	27.8	29.7	31.1	33.2
6	31.0	16.6	26.2	27.3	28.8	30.7	33.8	35.8	37.3	39.5
7	26.1	16.4	21.9	22.7	23.7	25.0	27.3	29.1	30.4	32.6
8	27.0	17.1	24.9	25.6	26.6	27.8	30.0	31.6	32.9	34.7
Weighted	28.1	17.2	25.3	26.4	27.7	29.5	32.4	34.6	36.2	38.5

Several aspects of the centile values displayed in Table 1 are noteworthy. Differences across sites in comparable centiles are minor (typically, less than ± 3 dB); the absolute values of equivalent hourly noise levels (L_{eq1hr}) are very low - generally, no greater than about 30 dB; and all of the distributions are highly skewed, such that L_{eq1hr} values are in the vicinity of the 90th centile.

The next step was to calculate slant ranges at closest points of approach of each military aircraft flight track to each noise monitoring site, and to tally numbers of such operations per

hour by monitoring site. The information about hourly noise levels and about closest points of approach of military aircraft to each site was then concatenated across sites. This information was consolidated in a spreadsheet associating hourly centile values for each of the roughly 24,000 hours of monitoring data with numbers of aircraft approaching any monitoring site at ranges from 5 through 100 km.

3.2 Quantification of Contribution of Aircraft Noise to Indigenous Levels

The influence on the upper centiles of hourly noise level distributions of numbers of military aircraft per hour approaching each monitoring site within slant ranges of 5 through 100 km were studied. Because the land area underlying the Jarbidge and Owyhee MOAs is so large, and numbers of military aircraft operations so small (typically, no more than ten or twenty a day at most, concentrated during weekday daylight hours), no military aircraft approached within 100 km of any noise monitoring site for most of the hours that the noise monitors operated. Analyses were therefore restricted to hours when at least one aircraft approached monitoring sites within given distances. (At most other times, measured levels were controlled by wind-driven rustling of foliage.)

3.3 Redistribution of Flight Tracks to Expanded Paradise MOA Areas

Both Alternatives B and C expand the lateral boundaries of the Paradise East and West MOAs. Alternative B lowers the floor of the operating area from 14,500' to 10,000' MSL or 3,000 AGL as well, while Alternative D lowers the floor only. Since the nature of the training exercises conducted in these MOAs are not expected to change in these project alternatives, the effect of increasing the area and volume of the Paradise MOAs is to redistribute noise impacts of operations over a wider range of altitudes and greater land areas.

This redistribution was accomplished for Alternatives B, C, and D by redistributing the flight tracks collected during the 2002 noise measurements into the greater airspace volumes. This was accomplished by interactive software that displayed 2002 flight tracks so that decisions could be made about their relocation. Figures 2 through 7 illustrate the manner in which such decisions were made for all of the project alternatives other than the “no action” alternative.

Flight tracks associated with use of particular MHRC facilities (such as the Saylor Creek and Juniper Butte bombing ranges and refueling tracks), as shown in Figures 2 and 3, were considered fixed. Figure 2 shows a B-1 entering the MHRC airspace, overflying monitoring site 7, and then spending more than an hour in the Saylor Creek range. Figure 3 shows a KC-135 orbiting in a refueling track. Such flight tracks remained fixed under all project alternatives.

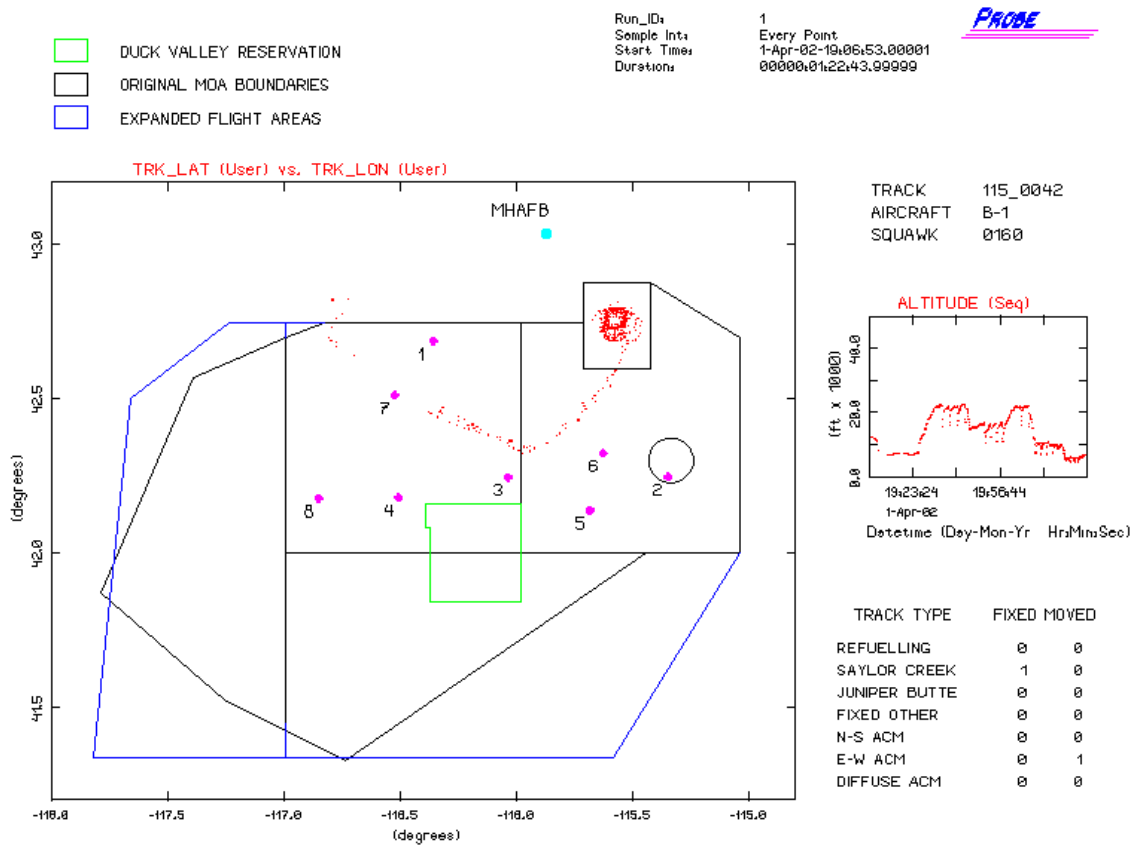


Figure 2: Example of non-relocatable flight track for a training mission using the facilities of the Saylor Creek range.

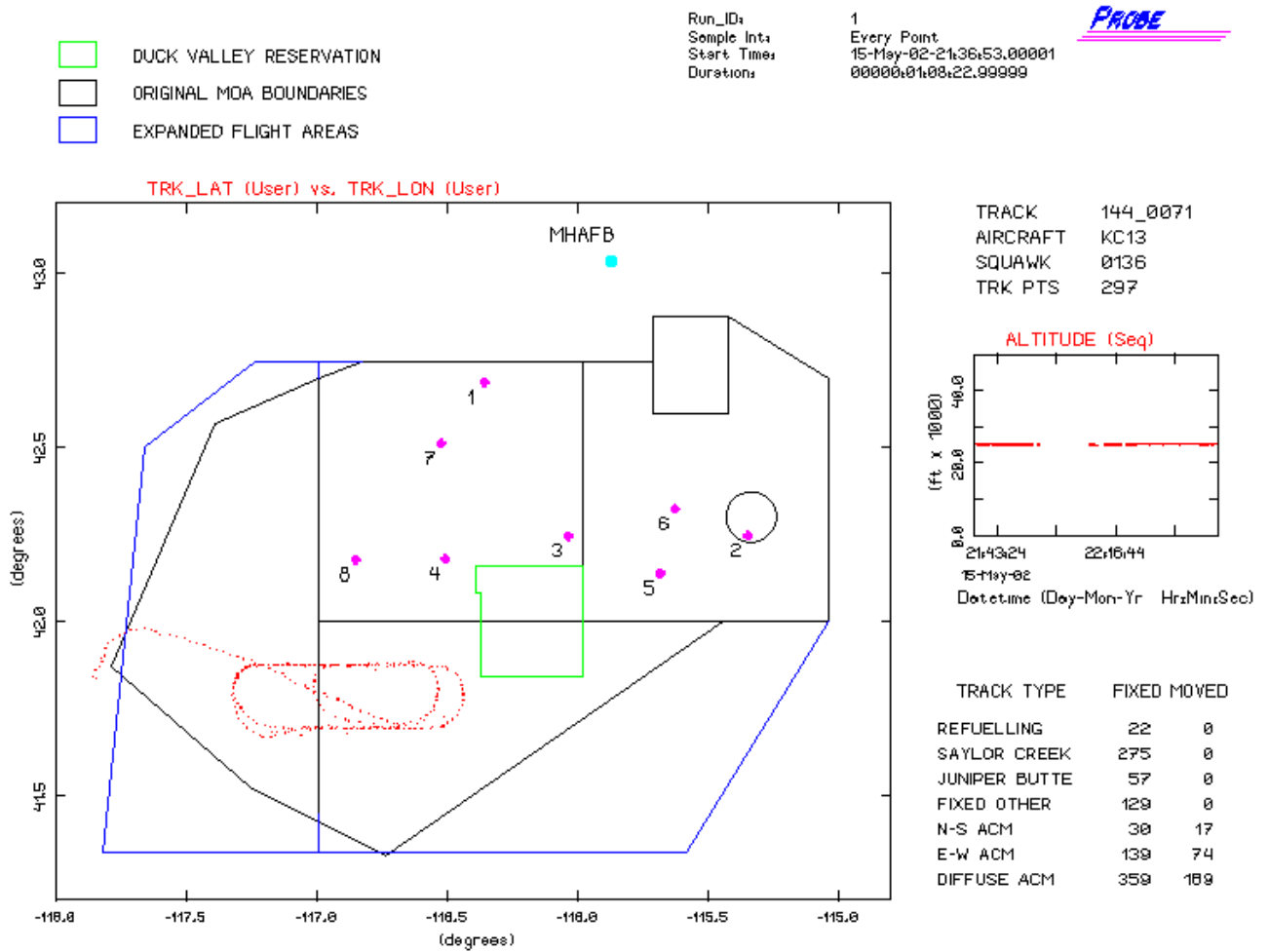


Figure 3: Example of non-relocatable refueling flight track.

Figures 4 and 5 illustrate a flight track originally flown north of the Duck Valley reservation (Figure 4) in 2002 as translated into airspace south of the Duck Valley reservation (Figure 5). Figures 6 and 7 illustrate a similar translation of a north/south flight track. Approximately a third of the 2002 flight tracks available for aircraft that were on-range for at least 15 minutes were so translated.

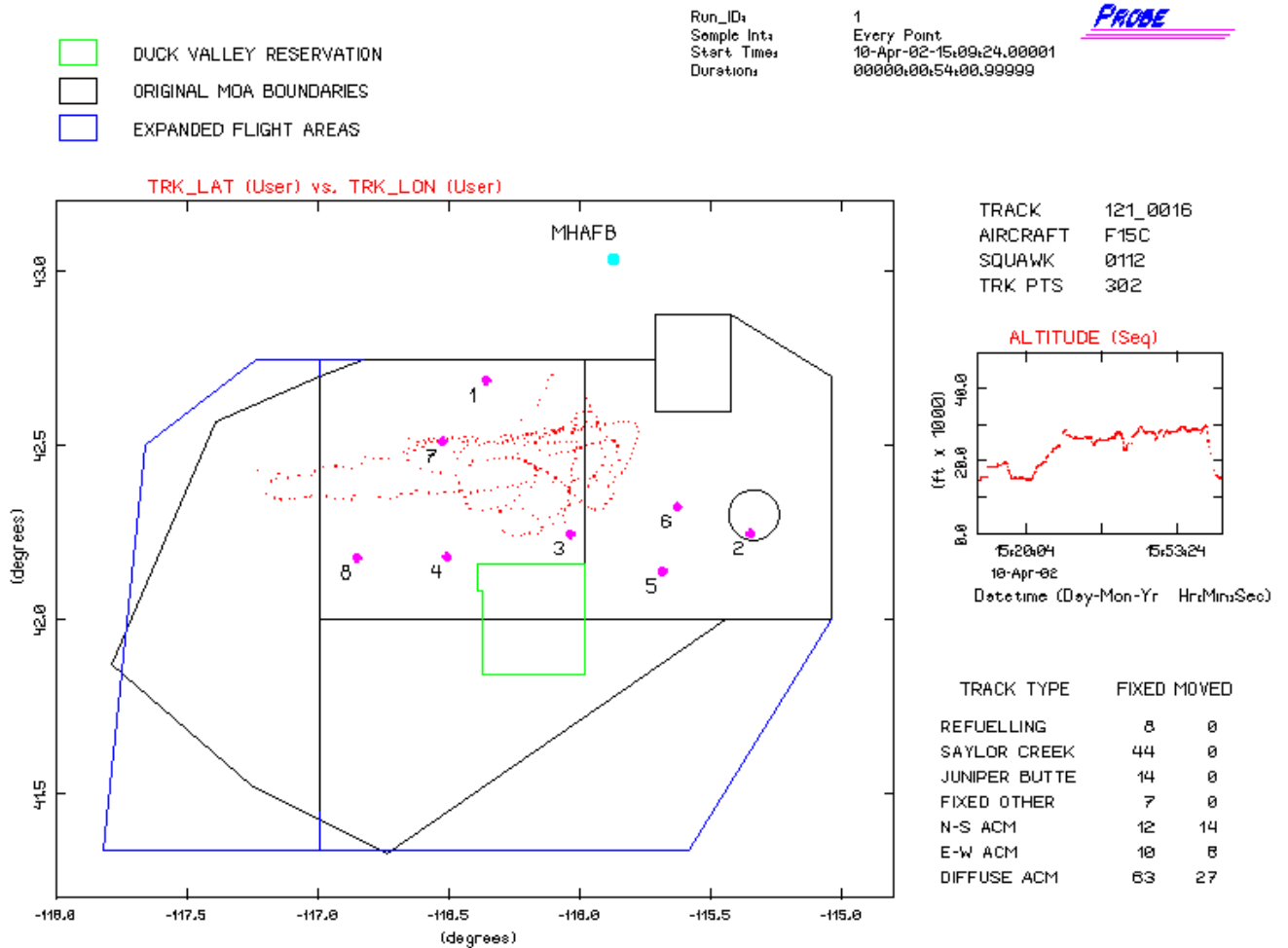


Figure 4: Example of predominantly east/west flight track actually flown north of Duck Valley reservation.

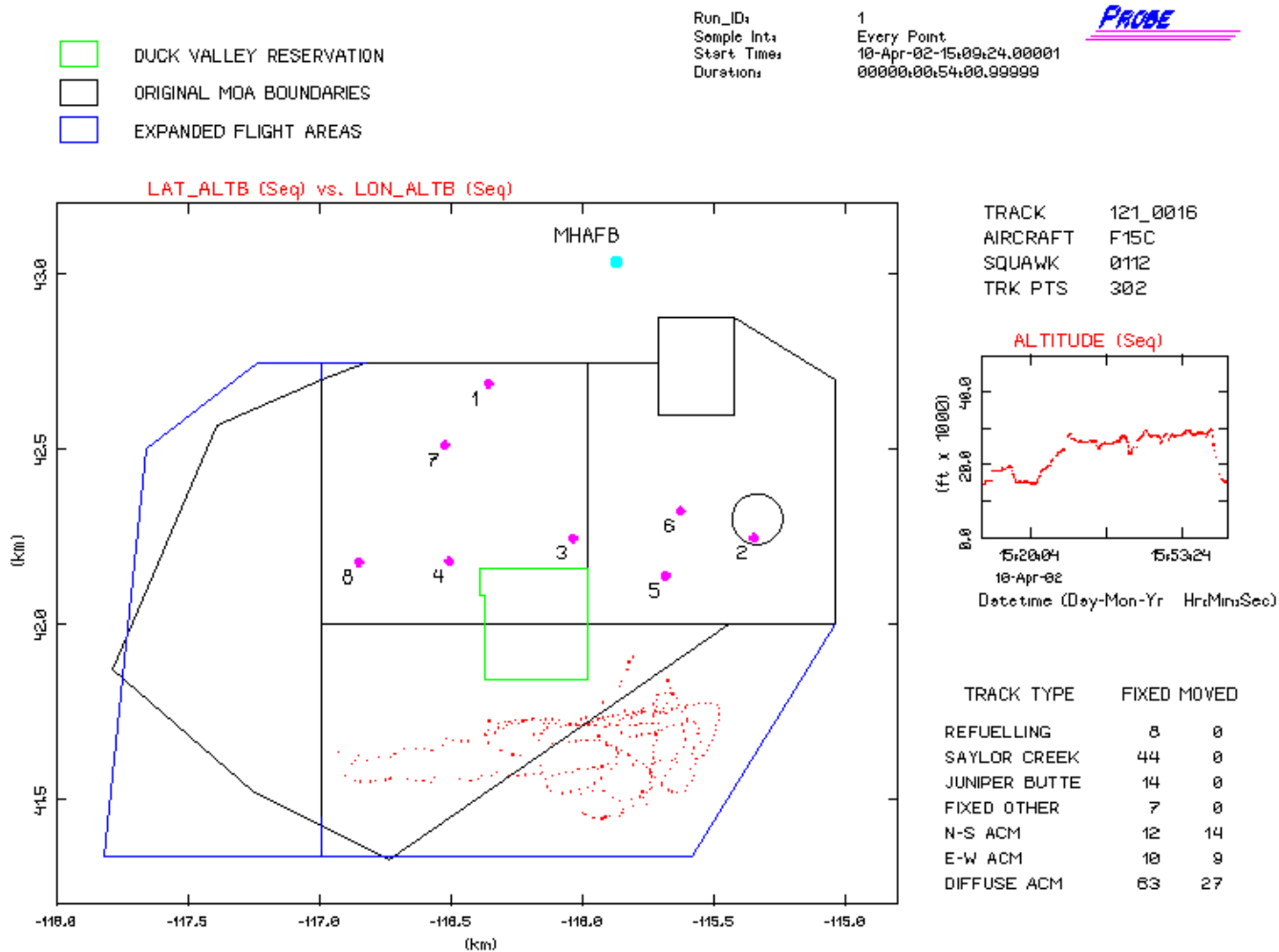


Figure 5: Example of predominantly east/west flight track translated into expanded airspace south of Duck Valley reservation.

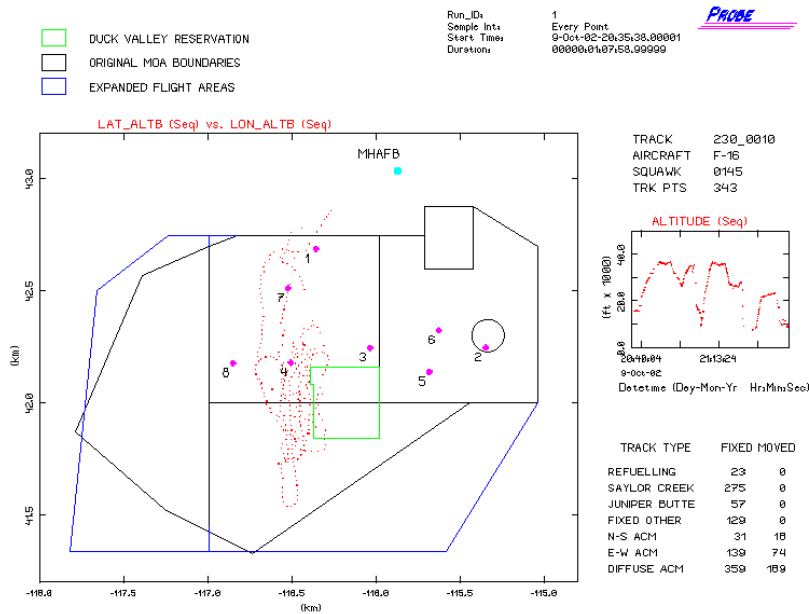


Figure 6: Example of an actually-flown north/south flight track.

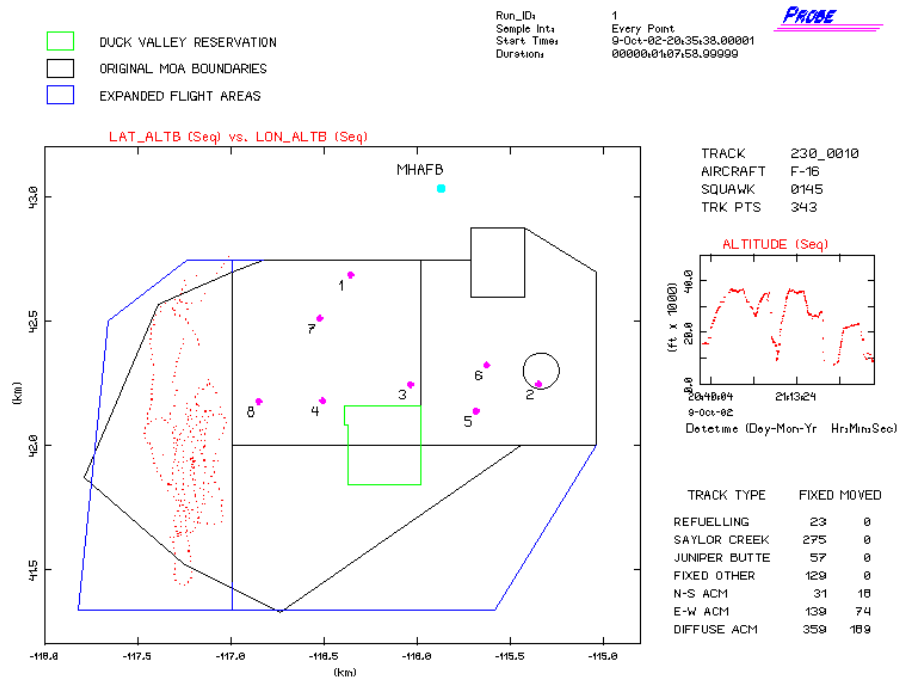


Figure 7: Example of a predominantly north/south flight track translated westward.

3.4 Recalculation of Closest Points of Approach

Closest points of approach (CPAs) of flight tracks to the 2002 measurement points and to hypothetical points underlying the expanded Paradise East and West MOAs were then re-computed for the redistributed flight tracks for each of the four project alternatives, and the statistical analyses described in Sections 3.2 and 4.1 were applied to the new sets of flight tracks to estimate noise impacts in the hypothetically-overflown areas. Figure 8 shows the locations of these points.

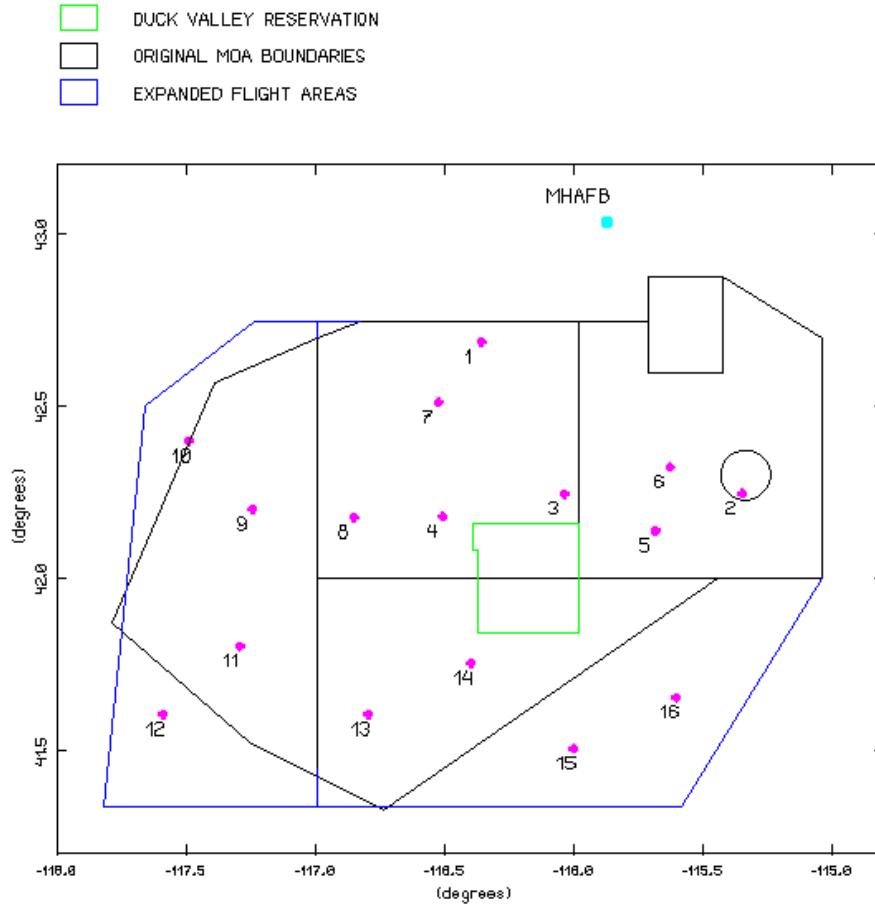


Figure 8: Locations of 16 points used for CPA calculations.

4.0 RESULTS

4.1 Predicting Centile Values from Numbers of Aircraft Approaching Measurement Sites

Linear regressions were undertaken to predict hourly equivalent noise levels (HNLs) and hourly levels exceeded 10%, 5%, and 1% of the time, for cases in which numbers of aircraft approaching a monitoring site within 5, 7.5, 10, 12.5, and 15 km. The resulting prediction equations are shown in Tables 2 and 3. The numbers of hours during which flight tracks of military aircraft approached monitoring sites within these five slant ranges were 385, 698, 892, 1048, and 1164, respectively. As percentages of the 23,800 hours of noise monitoring, these figures represent 2.4%, 2.9%, 3.7%, 4.4%, and 4.9% of all monitoring hours, respectively.

Table 2: Summary of linear least square regression prediction equations for HNL and L_{10} from numbers of aircraft approaching 2002 measurement points at slant ranges within 5, 7.5, 10, 12.5, and 15 km within the Jarbidge and Owyhee MOAs

HNL	L_{10}
2.60 (No. of A/C < 5km) + 50 dB	3.36 (No. of A/C < 5km) + 40.3 dB
2.31 (No. of A/C < 7.5km) + 46.3 dB	2.67 (No. of A/C < 7.5km) + 38.9 dB
2.12 (No. of A/C < 10km) + 44.0 dB	2.46 (No. of A/C < 10km) + 37.4 dB
1.91 (No. of A/C < 12.5km) + 42.7 dB	2.12 (No. of A/C < 12.5km) + 36.9 dB
1.91 (No. of A/C < 15 km) + 41.1 dB	2.01 (No. of A/C < 15 km) + 36.0 dB

Table 3: Summary of linear least square regression prediction equations for L_5 and L_1 from numbers of aircraft approaching 2002 measurement points at slant ranges within 5, 7.5, 10, 12.5, and 15 km within the Jarbidge and Owyhee MOAs

L_5	L_1
3.66 (No. of A/C < 5km) + 47.5 dB	3.20 (No. of A/C < 5km) + 61.2 dB
2.78 (No. of A/C < 7.5km) + 45.8 dB	2.36 (No. of A/C < 7.5km) + 58.6 dB
2.59 (No. of A/C < 10km) + 44.1 dB	2.13 (No. of A/C < 10km) + 56.4 dB
2.16 (No. of A/C < 12.5km) + 43.3 dB	2.00 (No. of A/C < 12.5km) + 45.8 dB
2.09 (No. of A/C < 15 km) + 42.1 dB	2.02 (No. of A/C < 15 km) + 53.0 dB

The correlations between numbers of aircraft approaching measurement positions and centile values of noise level distributions were typically in the range of 0.30 to 0.40. The numbers of hours over which these correlations were calculated were great enough that they are all significantly different from zero, even though they do not account for large amounts of variance.

The great variability in hourly centile values associated with the vagaries of long range acoustic propagation and aircraft operational factors is apparent in Figures 8 and 9. Note, for example. The 50 dB range of 95th centile hourly noise levels in Figure 2 associated with approaches of aircraft within 10 km of measurement positions. This variability limits the variance accounted for by the fitting functions to less than 15% in the best cases. Quadratic fitting functions accounted for only marginally greater amounts of variance in these data sets.

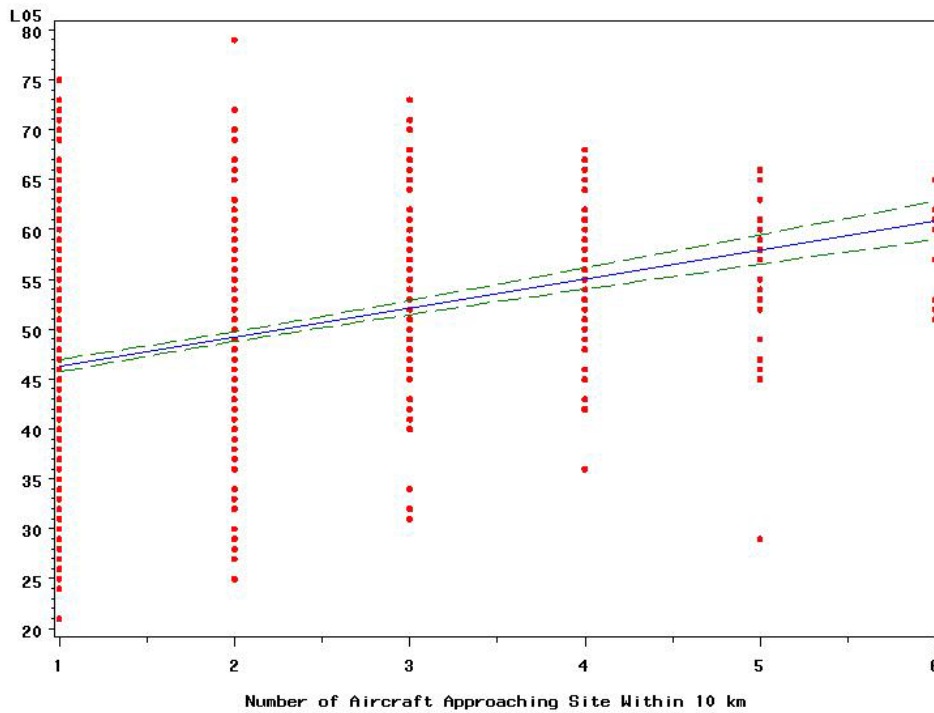


Figure 9: Linear fit of numbers of aircraft approaching measurement sites within a slant range of 10 km to 95th centile of sound level distribution at 2002 measurement sites in Jarbidge and Owyhee MOAs. Red dots are 95th centile values for hours in which aircraft were present; dashed lines show 90% confidence intervals. Total variance accounted for by relationship is 12.4%.

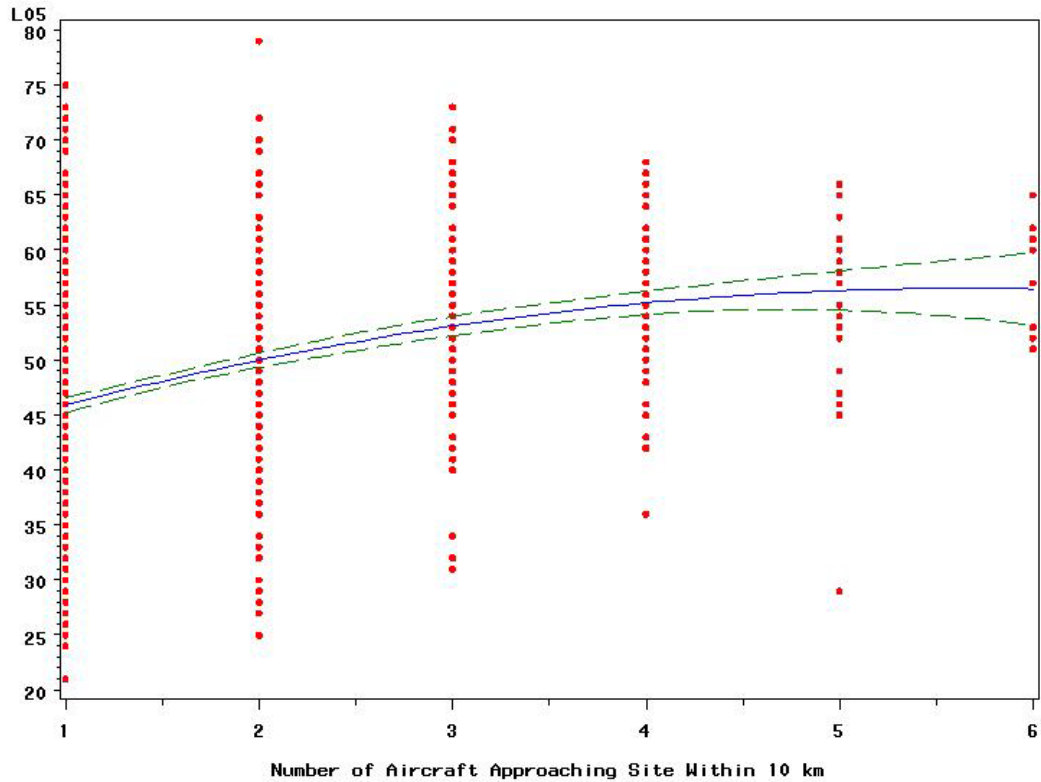


Figure 10: Quadratic fit of numbers of aircraft approaching measurement sites within a slant range of 10 km to 95th centile of sound level distribution at 2002 measurement sites in Jarbidge and Owyhee MOAs . Red dots are 95th centile values for hours in which aircraft were present; dashed lines show 90% confidence intervals. Total variance accounted for by relationship is 13.9%.

4.2 Applying Results of Regression Analyses to Proposed Project Alternatives

Application of the results of the regression analyses described above to predictions of noise levels under the various project alternatives was accomplished by comparing predicted L_5 (95th centile) values at sixteen points in the in Alternatives B, C, and D to those in the no action Alternative (A). Table 4 summarizes estimated L_5 values for each project alternative for average weekday daylight time periods. At times when the range is generally not in use (weekends, holidays, and nighttime hours), hourly L_5 values are likely to be several decibels lower than those shown in Table 4.

Table 4: Summary of estimated 95th centile values of average hourly aircraft noise levels at sixteen points underlying Mountain Home Range Complex airspace for four project alternatives, in A-weighted decibels.

POINT	ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C	ALTERNATIVE D
1	46.7	46.3	46.3	46.7
2	46.7	46.5	46.5	46.8
3	47.1	46.5	46.5	47.1
4	46.8	46.5	46.5	46.8
5	45.8	45.9	45.9	45.8
6	47.6	47.1	47.1	47.6
7	48.5	47.7	47.7	48.5
8	46.3	46.3	46.3	46.3
9	45.7	45.8	45.7	45.8
10	44.8	44.8	44.8	44.8
11	44.6	45.2	45.1	44.7
12	44.1	44.6	45.1	44.1
13	44.4	45.1	45.1	44.4
14	44.8	45.4	45.3	44.9
15	44.1	44.8	44.8	44.1
16	44.2	44.9	44.9	44.2

5.0 DISCUSSION

5.1 Comparison of L_5 Values under Four Project Alternatives

At each of the sixteen points for which L_5 values were predicted, all of the estimated L_5 values under all four project alternatives are within ± 0.5 dB of one another. Since differences of this magnitude are not meaningful, average hourly aircraft noise levels provide no practical basis for preferring one project alternative over others. As long as no changes are expected in sortie rates, types of training exercises, and types of aircraft conducting them, the contemplated changes in MOA airspace boundaries will produce no meaningful differences in the sporadic sorts of aircraft noise produced throughout the Mountain Home range complex.

5.2 Extension of Predictions to Busy Hour Conditions

The hourly L_5 values summarized in Table 4 of Section 4.2 were estimated for average daily conditions, by normalizing an average of 850 sorties per month over 210 flying hours (21 ten-hour-long weekday periods) per month. In practice, range use often peaks in late morning and mid-afternoon hours by a factor of approximately two with respect to other hours of the day. The estimated L_5 values summarized in Table 5 were therefore developed to represent weekday *busy* hour conditions.

POINT	ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C	ALTERNATIVE D
1	49.2	48.5	48.5	49.4
2	49.4	49.0	49.0	49.4
3	50.0	48.9	48.9	50.1
4	49.4	48.9	48.9	49.6
5	47.6	47.7	47.7	47.6
6	51.1	50.1	50.1	51.1
7	52.8	51.3	51.3	53.0
8	48.4	48.5	48.5	48.5
9	47.2	47.5	47.3	47.4
10	45.4	45.6	45.5	45.6
11	45.1	46.3	46.1	45.2
12	44.1	45.0	44.9	44.1
13	44.7	46.2	46.1	44.7
14	45.6	46.7	46.6	45.7
15	44.2	45.5	45.5	44.2
16	44.2	45.8	45.7	44.2

Note that L_5 sound pressure levels shown in Table 5 are as much as about 3 dB greater than those shown in Table 4. They nonetheless remain low in absolute level. For example, even in the worst case (Alternative D at Site 7), busy hour aircraft noise levels will remain below 53 dB 95% of the time.

5.3 Flight Track Density Maps

Another way to understand the net effect of reprocessing and redistributing flight tracks for the four project alternatives is by means of flight track density maps. Such maps, which represent the frequency with which aircraft operate within airspace, are produced by gridding the sky within the MHRC and contouring the numbers of radar position reports from military aircraft flying at any altitude within each cell. Figures 11 (for Alternatives A and D) and 12 (for Alternatives B and C) show the nominal flight track densities assumed for purposes of computing points of closest approach and 95th centile noise level values. The increase in density of flight tracks in the expanded airspace of the Paradise East and West MOAs under Alternatives B and C produced by re-distributing flight tracks (as described in Section 3.3) is readily apparent.

5.4 Sensitivity of Predictions to Alternate Flight Track Redistribution Assumptions

Although the re-distribution of 2002 flight tracks to permit prediction of noise impacts under the four project alternatives is somewhat arbitrary, the predicted 95th centile noise levels calculated in Sections 4.2 and 5.2 are relatively insensitive to the details of the flight track redistribution assumptions for several reasons:

- There can be little doubt that many of the training missions involving use of specialized range facilities such as the bombing ranges in the Jarbidge MOA will maintain current entry and exit routes, and otherwise change little (if at all) under any of the project alternatives.
- Given that no major changes are contemplated in fleet mix or mission types, it is similarly unlikely that the orientation or dimensions of east/west and north/south-oriented flight tracks will undergo substantial alterations other than translations to take advantage of the expanded airspace.
- The shallow slopes of the regression equations, in conjunction with the absence of any major changes in anticipated numbers of sorties flown in the airspace, imply that changes in numbers of aircraft operating in close proximity to any given point on the ground in any given hour will remain modest under all of the project alternatives.

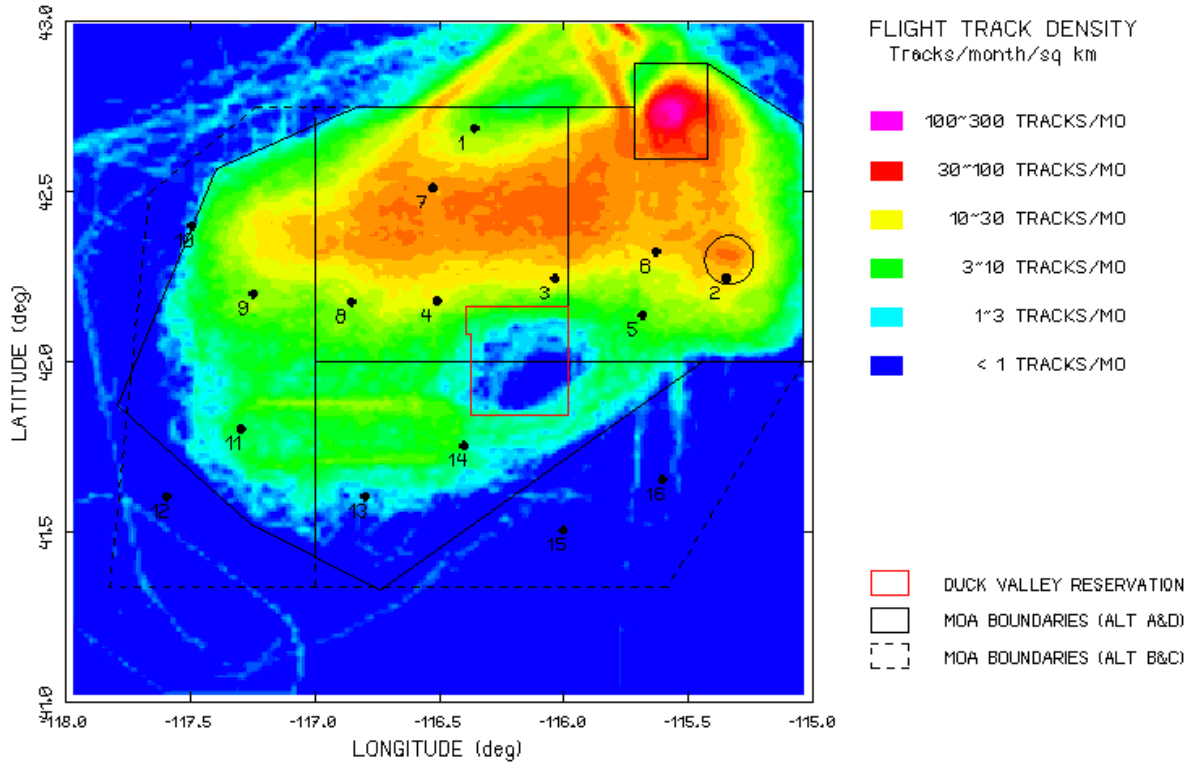


Figure 11: Flight track density map for Alternatives A and D.

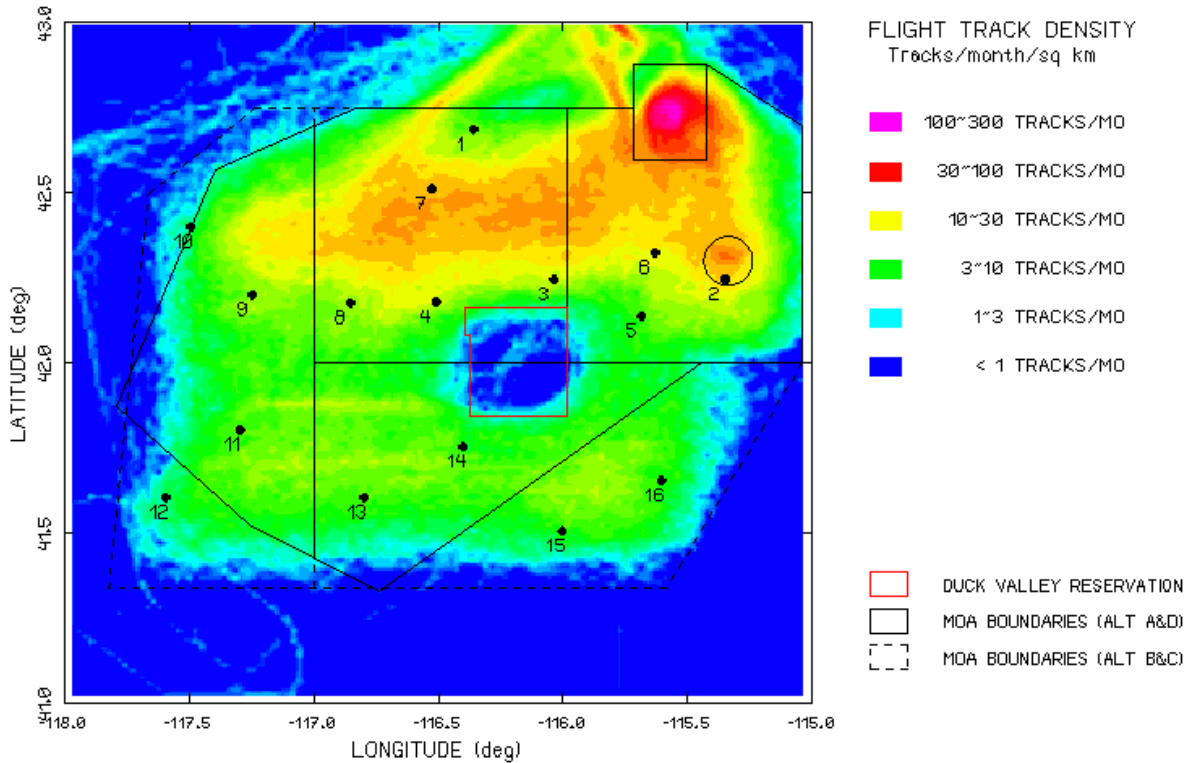


Figure 12: Flight track density map for alternatives B and C.

6.0 CONCLUSION

Barring changes in sortie rates, types of training exercises, and types of aircraft conducting them, the proposed alterations of MOA boundaries will produce no meaningful differences in the sporadic sorts of aircraft noise produced throughout the Mountain Home range complex under any of the project alternatives.

Appendix B

**Supplemental Calculations of Maximum A-Weighted and Day-Night
Average Sound Levels of Aircraft Noise in Areas Underlying Expanded
Airspace in the Mountain Home Air Force Base Range Complex**

Appendix B

SUPPLEMENTAL CALCULATIONS OF MAXIMUM A-WEIGHTED AND DAY-NIGHT AVERAGE SOUND LEVELS OF AIRCRAFT NOISE IN AREAS UNDERLYING EXPANDED AIRSPACE IN THE MOUNTAIN HOME AIR FORCE BASE RANGE COMPLEX

February 11, 2009

Prepared by:

Fidell Associates, Inc.
23139 Erwin Street
Woodland Hills, CA 91367

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1.0 INTRODUCTION AND BACKGROUND

Noise monitors at eight sites in the Mountain Home Range Complex continuously recorded A-weighted sound levels during consecutive one-second periods for 1,141 instrument-days throughout most of an eight month period from April through November of 2002. Figure 1 locates the eight monitoring sites. Fidell, White and Sneddon (2003) documented the statistical distributions of sound levels observed at each site, and concluded (*inter alia*) that “aircraft operations did not reliably elevate hourly equivalent sound levels for most of the day”; and that “indigenous sound sources generally controlled sound levels about 90 to 95% of the time.”

Partial or complete radar flight tracks for 4,655 military aircraft sorties were captured during the time that the unattended monitors were recording noise levels. In a prior report, (Fidell Associates, 2007) these flight tracks were subsequently re-analyzed and redistributed geographically to simulate aircraft noise impacts resulting from the conduct of flight operations in expanded airspace volumes.

Upon review of the information developed in the 2007 Fidell Associates report, the Federal Aviation Administration requested supplemental analyses to calculate predicted values for two additional noise metrics in areas underlying the expanded airspace. The current analyses were performed to estimate values of these two noise metrics: maximum A-weighted aircraft noise levels, and monthly onset-rate adjusted Day-Night Average Sound Levels (L_{dnmr}) (Harris, 1989).

In the approximately 24,000 instrument-hours of operation at the eight monitoring sites, many millions A-weighted noise levels were recorded at a rate of 86,400 such measurements per site per day. At each monitoring site, maximum A-weighted aircraft noise levels derived from the present data set thus represent the highest single sound level during any one-second interval observed among many millions of measurements.

Day-Night Average Sound Level (EPA, 1974) is a 24-hour time weighted average sound level. Onset-Rate Adjusted Day-Night Average Sound Levels (L_{dnmr}) differ from Day Night Average Sound Levels (L_{dn}) only when the rise times of the discrete noise events that control L_{dn} values exceed 15 dB/s. This situation rarely arises when aircraft operate at altitudes greater than a few thousand feet. Even when aircraft are flying at low altitudes, range rates (that is, rates at which aircraft approach observers) of several hundred knots are typically required for onset rates of noise events to exceed 15 dB/s. For example, onset rates of noise events created by large jet transports flying at speeds of about 150 knots at altitudes of hundreds of feet AGL within a few miles of landing on airport runways do not exceed 15 dB/s.

In military flying, onset rate corrections are required most commonly during high speed, low altitude operations on Military Training Routes (MTRs). MTRs are typically narrow corridors between successive navigation waypoints that are repeatedly flown in the same manner, often at low altitudes, by a few aircraft at most at any one time.

MTR flying does not closely resemble flying in the Mountain Home Range Complex. Multiple aircraft engaged in a variety of training missions occupy the MOAs simultaneously; altitude floors throughout most of the MOAs are 3,000 feet AGL or higher; and flight operations are not confined to well-defined routes, but rather are highly dispersed over vast volumes of airspace. Because the land area underlying the range complex is enormous, and flight activity is highly dispersed throughout much of the complex, direct overflights are extremely rare events from the perspective of an observer at any given point on the ground. Direct overflights of observers at low altitudes in this largely unpopulated area are rarer yet.¹ For all of these reasons, it is highly unlikely *a priori* that an onset rate adjustment is required for any meaningful number of flight operations within the range complex.

2.0 METHOD

2.1 Determination of Maximum A-Weighted Aircraft Noise Levels

Maximum A-weighted sound levels recorded by the noise monitors at each site represent the greatest values observed during single one second periods during the many thousands of hours of noise monitoring. Since the monitoring instruments were unattended, they did not distinguish between sounds made by indigenous sources (wind, rain, thunder, hail, insects, birds, cattle, and rustling foliage), artifactual sources (pseudo-noise created by interactions of wind gusts with the microphone diaphragm), and aircraft.

Noise created by non-aircraft sources must be excluded from consideration when identifying maximum A-weighted sound levels due to aircraft operations. Accordingly, a database of hourly noise levels at each monitoring site was screened for the presence of aircraft flight tracks within 10 km of the noise monitors. The greatest one second A-weighted sound levels at each site were then identified by sorting noise levels recorded during noise events corresponding to known flight tracks.

¹ Note that Day-Night Average Sound Level is, by definition, a 24 hour measure of cumulative noise exposure. Except in rare cases, individual aircraft operations do not control 24-hour average levels on the ground underlying the range complex. Moreover, an observer on the ground has to remain at a single location for a full 24 hour period to directly experience the Day-Night Average Sound Level at that location.

2.2 Determination of Day-Night Average Sound Levels (L_{dn}) and Monthly Onset-Rate Adjusted Day-Night Average Sound Levels (L_{dnmr})

Day-Night Average Sound Levels were calculated by averaging 24 individual predicted Hourly Noise Levels, with the appropriate 10 dB nighttime penalty, at each of the eight noise measurement sites. The HNL values were derived by the same means described in the 2007 Fidell Associates report for computing centile noise levels. This information was next extrapolated to eight additional hypothetical noise monitoring sites at points underlying the expanded airspace to estimate L_{dn} and L_{dnmr} values. Figure 2 shows the locations of the original eight monitoring sites, as well as eight additional points underlying the expanded airspace.

For the L_{dnmr} calculation, the entire database of radar flight tracks was sorted by closest points of approach to each noise monitoring site. Calculations were then performed to identify onset rates of any aircraft noise events that exceeded 15 dB/s. This was accomplished by calculating onset rates for all noise events that could be linked to flight tracks approaching within approximately 5 km of a monitoring site. Noise events with onset rates in excess of 15 dB/s could then be then be individually adjusted as specified by the L_{dnmr} calculation, and new hourly noise levels computed as warranted.

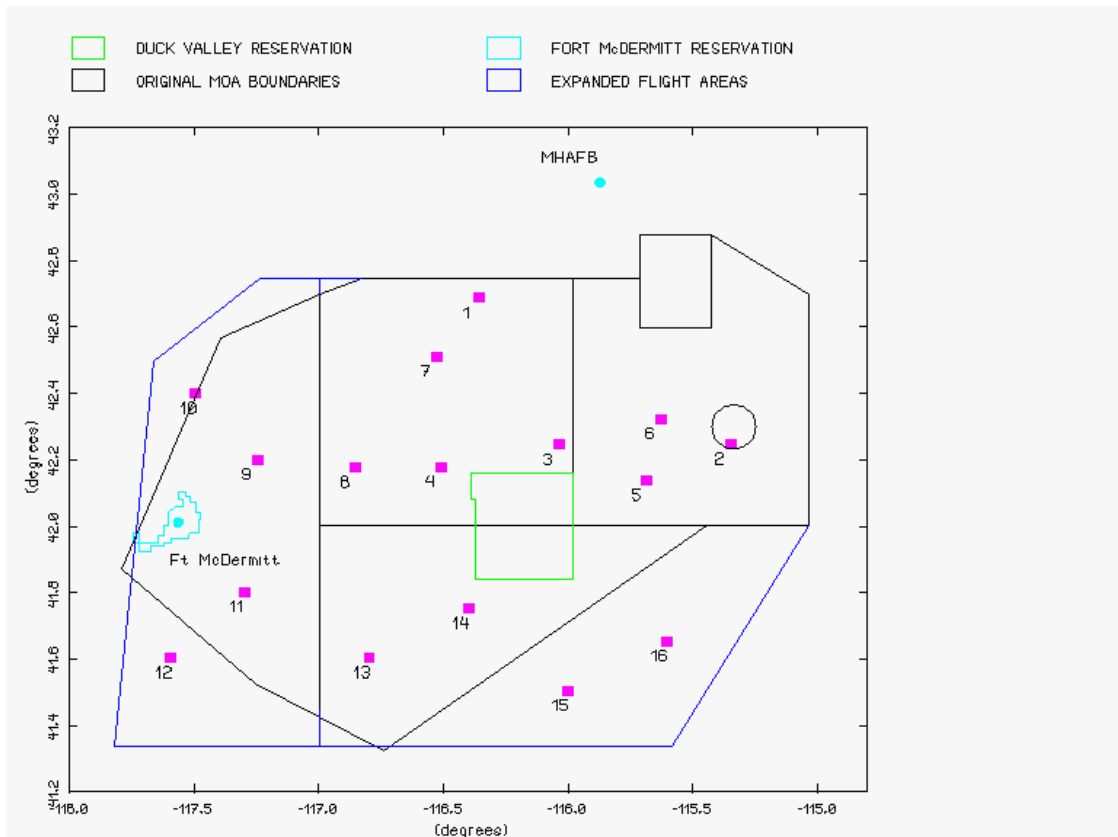


Figure 2: Locations of original noise monitoring sites (red dots numbered 1 through 8) and eight additional points in areas underlying expanded airspace.

3.0 RESULTS

3.1 Findings of Site-by-Site Screening for Maximum A-weighted Aircraft Noise Levels

Table 1 summarizes the results of screening all recorded noise levels for maximum A-weighted values associated with known radar flight tracks. The second column of Table 1 shows the highest A-weighted noise level recorded during any one second sample at each site while aircraft were known to be in the vicinity of the monitoring instruments. The third column shows the closest points of approach (CPA) of known aircraft flight tracks to the noise monitors during the hours in which the maximum A-weighted sound levels occurred.

Table 1: Maximum A-weighted sound levels during one-second periods that can be associated with known aircraft noise events

SITE	MAXIMUM A-WEIGHTED SOUND LEVELS ASSOCIATED WITH AIRCRAFT FLIGHT TRACKS WITHIN 10 KM OF NOISE MONITOR (dB)	MINIMUM CPA DURING HOUR IN WHICH MAXIMUM A-WEIGHTED NOISE LEVEL WAS MEASURED (km)
1	94	1.9
2	96	4.8
3	113	4.7
4	107	8.1
5	103	2.2
6	103	0.8
7	112	7.2
8	98	9.8

As noted in Section 2.2 of Fidell, White, and Sneddon (2003), flight activity in the airspace of the Owyhee and Jarbidge MOAs at the time of the field measurements was monitored by one Air Force and two FAA surveillance radars. Terrain shielding between these antennas and some low altitude portions (below about 3,000 feet AGL) of the MOAs limited coverage in

some areas. Thus, not every monitored noise event could be directly associated with a radar-derived aircraft flight track.

Two one-hour duration periods at Site 1, four periods at Site 2, two at Site 4, and three at Site 8 contained maximum A-weighted sound levels in the absence of known aircraft flight activity within 10 km that were higher than those occurring during intervals that included known flight activity. Each of the eleven sequences of one-second samples that included these maximum levels was individually examined to determine whether the monitored noise event was likely to have been generated by an aircraft.

The examination included a comparison of the maximum noise level with the 99th centile (L_{01})² value, the average wind speed during the hour in which the noise level was observed, and the second-by-second sequence of recorded levels in the temporal vicinity of the observed maximum. A *bona fide* subsonic aircraft noise event exhibits relatively small differences between the maximum and L_{01} values, and a characteristic “haystack” temporal pattern.

At monitoring sites 1, 2, 4, and 8, several noise events which did not coincide with known flight tracks, but which had overflight-like temporal patterns, included greater maximum A-weighted values than those shown in Table 1. The maximum A-weighted values for these sites were 104, 108, 113, and 104 dB, respectively.

It is important to recall that the maximum noise levels shown in Table 1 (or alternatively, those at each site which could plausibly have been created by undocumented aircraft activity) lasted approximately eight seconds out of more than 24,000 hours of aircraft noise monitoring. These eight seconds amount to about .0000009% (~8/86,400,000 seconds) of the total duration of noise monitoring. The likelihood that an eight-month long visit to ground locations within the range complex would expose an observer to aircraft noise at the tabulated maximum sound levels (*i.e.*, that a visitor could be in “right” place at the “right” time) is vanishingly small.

3.2 Findings of Onset Rate Screening and Calculations

A screening of noise event onset rates was performed by examining noise events where the associated flight track had a small CPA (closest point of approach) value. A total of 107 noise events with flight tracks that approached within 5 km of noise monitors was identified. Noise event onset rates were calculated for each. The mean onset rate for these noise events was 3.8 dB/sec, and the average maximum A-weighted noise level was 77.6 dB. Figure 3 shows the relationship between the maximum A-weighted sound level during noise events associated with military aircraft operations and their onset rates. Even the onset rate of a B-1 approaching

² Hourly L_{01} values represent the sound level present for 36 seconds per hour. The maximum level occurring for one second per hour that is generated by a rapidly moving aircraft is generally within about 20 dB of the L_{01} value for the hour.

monitoring site 6 at a range rate of 476 knots (producing an onset rate of 10.8 dB/sec) fell short of the 15 dB/sec criterion for calculation of an onset rate adjustment.

Figure 3 shows that only a handful of flight tracks out of the 4,600+ known flights over an eight month interval had onset times as much as *half* (7.5 dB/sec) of the threshold value for calculation of onset time corrections. It is therefore very unlikely that unobserved aircraft operations during any single 24-hour period could have been sufficiently numerous, low enough in altitude, and fast enough in airspeed to have meaningfully affected actual Day-Night Average Sound Levels at any given point on the ground underlying the range complex.

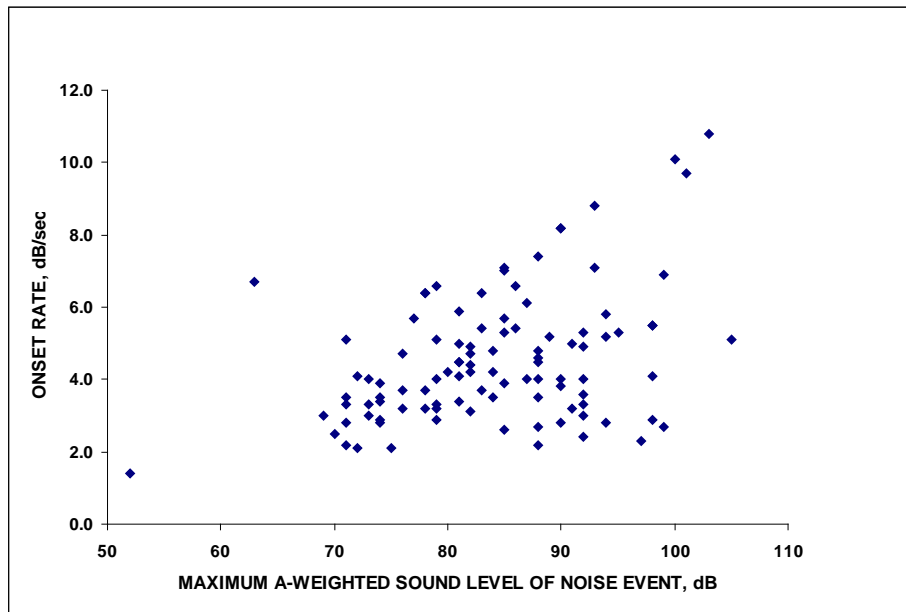


Figure 3: Relationship between maximum A-weighted noise levels and onset rates of monitored military aircraft noise events.

An additional statistical analysis of the radar data was performed to evaluate the likelihood of high-onset rate noise events. Radar flight tracks were separated by aircraft type and geographically masked to their on-range portion, in order to exclude flight activity during departure from and approach to Mountain Home AFB. The distribution of aircraft altitudes was then computed to estimate how much time aircraft spent at different altitudes while on range. The transponder altitudes from each radar track file were then corrected to AGL altitudes using a low-resolution digital elevation map of the range. Figure 4 shows the observed altitude distribution for F15 operations. The bulk (76%) of the time on-range is spent at altitudes between 5000 and 25000 ft AGL. F-15s spend about 15% of their time on range at higher altitudes, but only about 10% of their

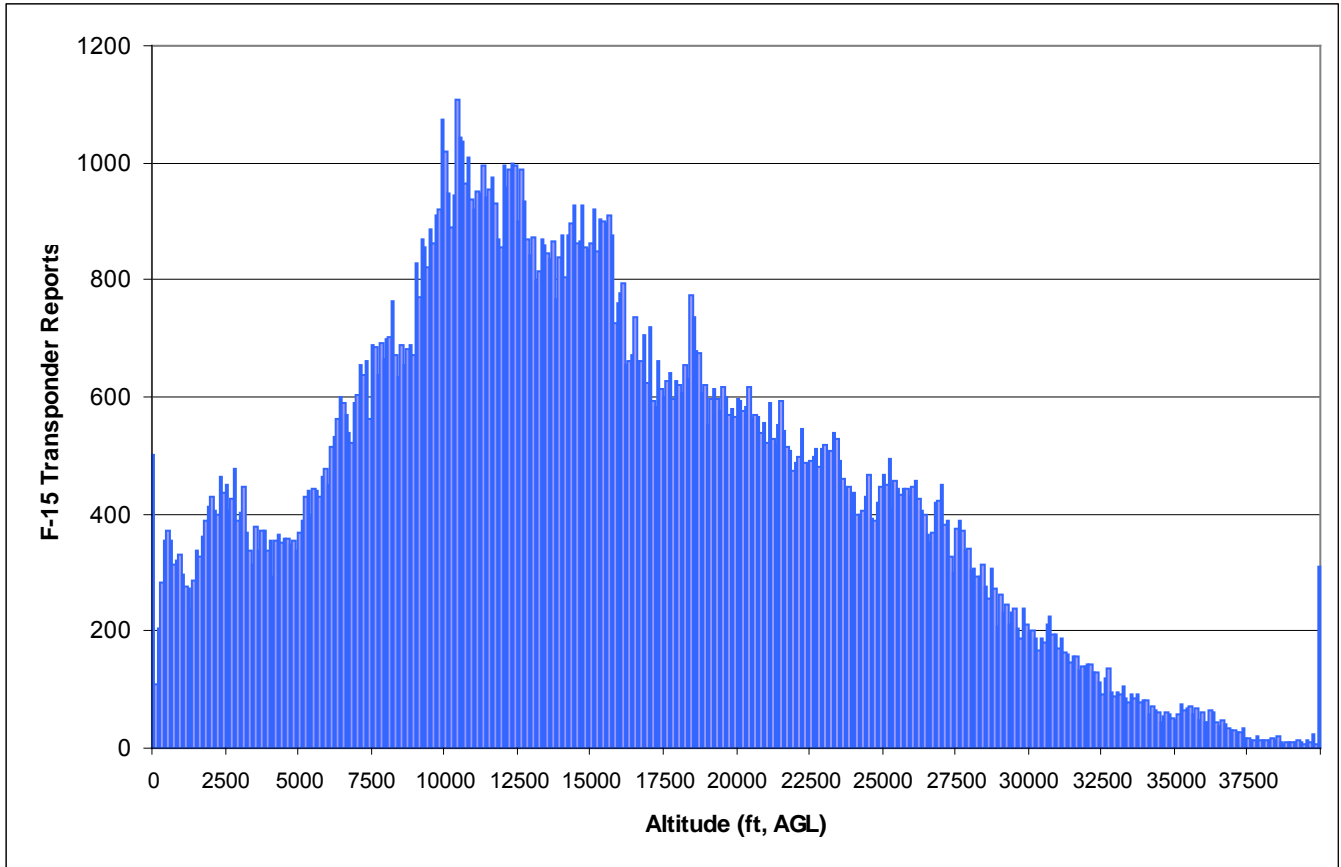


Figure 4 Histogram of F-15 operating altitudes within the Mountain Home Range Complex

time below 5000 ft AGL. Less than 5% of F-15 flight time is spent below 2500 ft AGL while on range. This finding corroborates the rarity of high-onset rate noise events as even direct, high-speed overflights must also occur at sufficiently low altitude to produce onset rates in excess of those needed to trigger onset rate corrections.

Although no aircraft noise event that could be associated with a known flight track met the criterion for calculation of an onset rate adjustment for Day-Night Average Sound levels, it is conceivable that an aircraft not visible to any of the three surveillance radars might have created a noise signature at one of the noise monitors that might have warranted an onset rate correction.

Another noise event screening was therefore conducted, this time searching for the very loudest noise events, irrespective of supporting radar data. This screening revealed only a dozen noise events without associated flight tracks over the entire eight months of noise monitoring in the range complex that 1) had onset rates greater than 15 dB/sec, and 2) could plausibly have been caused by aircraft. Because DNL is a cumulative rather than a single-event noise metric, and because DNL values in the range complex are affected by noise created by multiple aircraft operations, no single aircraft noise event controls the value of a 24-hour time-weighted average noise level, even if the maximum onset rate penalty is added to its sound exposure level.

Even in the highly unlikely event that large enough numbers of very high speed, very low altitude operations had gone unobserved, however, and that the flight tracks of all of these aircraft had managed to converge over the same point on the ground, the land area underlying the range complex is so vast that it is very unlikely that an observer on the ground could be present for a full 24 hour period beneath the hypothetical intersection point of all such flight tracks to actually experience either the L_{dn} or L_{dnmr} value at that point.

3.3 Extrapolation of Maximum A-weighted Sound Levels to Expanded Airspace

The maximum one-second duration A-weighted sound level observed at any of the eight monitoring sites operated in 2002 was 113 dB. In the eight months of noise monitoring at these sites, no noise event that could be associated with a radar flight track created any higher sound level, nor did the maximum one-second duration A-weighted sound level of any other noise event that could plausibly have been created by an aircraft unobserved by radar create any higher level. The maximum predicted A-weighted sound levels at any of the expansion sites is thus unlikely to exceed the 113 dB value observed at site 3 as well.

For reasons noted earlier, the likelihood that a visitor to the lands underlying the Mountain Home Range Complex could actually experience a direct overflight capable of creating a one-second maximum A-weighted sound level of 113 dB is vanishingly small.

3.4 Extrapolation of DNL Calculations to Expanded Airspace

The calculation of L_{dn} (and by extension, L_{dnmr}) was done in a manner very similar to that previously used to predict the 95th centile (L_{05}) levels. As described in the prior report, a regression relationship relating measured hourly noise levels (HNL) to the number of aircraft approaching within 10 km of the measurement site was served as the basis for estimating L_{dn} . Because L_{dn} employs a 10 dB nighttime weighting ('penalty'), the first step in calculating L_{dn} was to determine the numbers of daytime (0700-2200 local) and nighttime (2200 – 0700 local) flight operations.

Flight track CPA statistics, including time-of-day information, were compiled from all eight measurement sites, and used to segregate the observed flight activity into day and night categories. Of those flight tracks approaching within 10 km of any receiver site, 98.6% were "daytime" operations, and 1.4% were "nighttime" operations (*i.e.*, aircraft on range after 2200 hours local time).

The Day-Night Average Sound Level was calculated by summing the predicted individual hourly levels (including the 10 dB penalty for the nighttime operations) using the same total numbers of flight operations as in the calculations described in the prior report. L_{dn} was then calculated by taking 10 times the logarithm of this day-night sound exposure, averaged over 24 hours.

Table 2 summarizes the predicted levels for each of the 16 points shown in Figure 2. The values of L_{dn} and L_{dnmr} are identical in Table 2 for lack of any evidence (per Section 3.2 of this report) to justify application of an onset rate adjustment. The range of L_{dn} values from site to site is small because aircraft noise events control noise levels at the various sites for only small proportions of the day, and differences between indigenous noise levels at the sites are minor.

Predicted L_{dn} and L_{dnmr} Values				
LOCATION	Alternative A	Alternative B	Alternative C	Alternative D
Site 1	47.1	46.7	46.7	47.2
Site 2	47.2	47.0	47.0	47.2
Site 3	47.6	46.9	46.9	47.7
Site 4	47.2	46.9	46.9	47.3
Site 5	46.1	46.1	46.1	46.1
Site 6	48.4	47.7	47.7	48.4
Site 7	49.5	48.5	48.5	49.6
Site 8	46.6	46.7	46.7	46.6
Site 9	45.9	46.0	45.9	46.0
Site 10	44.9	44.9	44.9	44.9
Site 11	44.7	45.3	45.2	44.7
Site 12	44.2	44.6	44.6	44.2
Site 13	44.5	45.3	45.2	44.5
Site 14	44.9	45.6	45.5	45.0
Site 15	44.2	44.9	44.9	44.2
Site 16	44.2	45.1	45.0	44.2

Table 2: L_{dn} and L_{dnmr} values at the eight original noise monitoring sites and eight nominal sites in areas underlying expanded airspace.

4.0 CONCLUSIONS

The maximum A-weighted sound level associated with an aircraft noise event in land areas underlying the expanded airspace of the Mountain Home Range Complex is unlikely to exceed 113 dB – the highest one-second duration sound level recorded during eight months of noise monitoring in the existing range complex. An aircraft noise-related sound level this great will be an exceedingly rare event that is highly unlikely to be experienced by any visitor to lands underlying the range complex.

Values of both Day-Night Average Sound Levels and Monthly Onset Rate Adjusted Day-Night Average Sound Levels due to aircraft activity will be in the mid-40 dB range throughout the entire area underlying the current and expanded MOA airspace. The likelihood that an observer at any given point on the ground will experience a direct overflight during the course of any casual visit to the area will be negligible. The probability of experiencing a direct overflight at a great enough range rate and a low enough altitude to generate a noise event with a rise time greater than 15 dB/s (the threshold for calculation of an onset rate adjustment) will be vanishingly small.

5.0 REFERENCES

Environmental Protection Agency (1974). “Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety,” U.S. Environmental Protection Agency, EPA/ ONAC 550/9-74-004, Washington, DC.

Fidell, S., White, P., and Sneddon, M. (2003) “Monitoring of Aircraft Noise in the Owyhee and Jarbidge MOAs”, SAIC Subproject 01-0203-34-2813-676, Subcontract 4400051428

Fidell Associates letter report of 8 March, 2007, “Predicted Effects on Aircraft Noise Levels of Airspace Modifications for the Mountain Home Range Complex”.

Harris, C.S. (1989) “Effects of Military Training Route Noise on Human Annoyance”, Aerospace Medical Research Laboratory, Wright-Patterson AFB OH, DTIC Accession No. ADA218040.

PO Box 1377
Mountain Home, ID 83647

June 16, 2009

366th Fighter Wing Public Affairs Office
366 Gunfighter Ave., Suite 314
Mountain Home Air Force Base, ID 83648

RE: Draft EA for Airspace Boundary Changes, MHRC MOAs

Dear 366th Fighter Wing:

I am writing to comment on the US Air Force proposal to expand current Military Operating Areas (MOAs) in the Mountain Home Range Complex (MHRC). I fully support the proposed expansion and changes to the MOAs to a total of 9680 square miles. Actions such as this are critical to maintaining our national defense. Training airspace is crucial to maintaining pilot skills, coordination of air maneuvers, and the general preparation of the US Air Force's readiness to fight wars and protect America. As a US Army veteran of the 1st Cavalry Division, I know how critical air superiority is in the modern battlefield.

You will no doubt receive protests from the treehuggers who are offended by jet noise (aka the sound of freedom). Please dismiss these protests. Jet noise does not disturb wildlife, it does not adversely effect my enjoyment of the backcountry, and it has no adverse environmental impacts on anything other than the pusillanimous sensibilities of the overly delicate. Again, I fully support the proposal to expand the MHRC MOAs. As a vet, I know that freedom is not free - thank you for your service in the defense of American freedom.

Sincerely,

A handwritten signature in cursive script that reads "Peter Humm". The signature is written in black ink and is positioned above the printed name.

Peter Humm

United States Department of the Interior



BUREAU OF LAND MANAGEMENT

Winnemucca District Office
5100 East Winnemucca Boulevard
Winnemucca, Nevada 89445-2921
Phone: (775) 623-1500 Fax: (775) 623-1503
Email: NV_WFO_Webmail@blm.gov
<http://www.blm.gov/nv/st/en/fo/wfo.html>



In Reply Refer to:
1790
NV010.00

JUL 29 2009

366th Fighter Wing Public Affairs Office
Attn: Airspace EA
366 Gunfighter Avenue, Suite 314
Mountain Home AFB, ID 83648

Dear Department of the Air Force:

The BLM Humboldt River Field Office received the Draft Environmental Assessment (DEA) for Proposed Airspace Changes for Paradise East and Paradise West Military Operations Areas (MOAs) at Mountain Home Air Force Base (MHAFB) Idaho (June 2009). Thank you for the opportunity to review and comment.

The DEA was circulated for review among several resource specialists at the Humboldt River Field Office. One comment was submitted referencing the second paragraph on page 2-12 (section 2.4.3 "Chaff and Flare Use"):

Chaff and flare use will extend into the proposed expansion area. In the baseline year, 2005 MHAFB aircraft used approximately 91,942 bundles of chaff and 47,182 flares annually. After the 2005 BRAC Commission actions are fully implemented and the Republic of Singapore beddown occurs at MHAFB, the total number of chaff bundles expected to be used annually will be 74,519 and the number of flares will be increased to 62,070 (Air Force 2007). A portion of the expected chaff and flare use will be in the expanded Paradise MOA. Flares would be used above 10,000 feet MSL, or 3,000 feet AGL, whichever is higher.

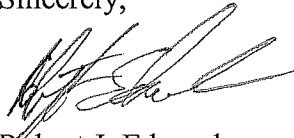
COMMENT:

Fire is discussed in 3.9.2 Safety, page 3-40. Even with the "unlikely to occur" wildfires have the potential to destroy large areas of critical habitat in both Paradise West and Paradise East MOAs. These areas are critical habitat for wildlife and wild horses. Due to the remoteness of the area a wildfire has the potential to become very widespread before discovery and fire fighting will be very difficult in this remote area. The potential for habitat loss of these areas is of great concern.

As a mitigating measure the Air Force may want to consider ceasing chaff and flare operations if the Forest Service or BLM fire warnings are above moderate and/or fire restrictions are in place within this MOA.

Please accept this letter as written notification of the Winnemucca District's response to the DEA. Should you have any question or concern regarding this comment, or if you wish to discuss further, please call 775-623-1500.

Sincerely,

A handwritten signature in black ink, appearing to read "Robert J. Edwards", written in a cursive style.

Robert J. Edwards
Field Manager
Humboldt River Field Office

August 4, 2009

Colonel Peter A. Lee
Vice Commander
366 Gunfighter Avenue, Ste. 331
Mountain Home AFB, ID 83648

Dear Colonel Lee:

At their regularly scheduled meeting on August 3, 2009, the Humboldt County Board of Commissioners unanimously agreed to forward comment related to the draft E.A. for the proposed changes to airspace in the current paradise East and West M.O.A.

We respectfully submit the following comments.

Humboldt County supports Alternative "A", the no change alternative, and opposes all other alternatives to expand the MOA airspace by increasing either the lateral or vertical boundaries of Paradise West MOA. Although we respect the Air Force training intent, we feel that the expansion for military airspace will create negative effects on the economic and quality of life elements of our constituents and those who visit our county, particularly the expansion of Paradise West to include military traffic over the communities of Paradise Valley and Orovada. These recreational and agricultural areas in northern Humboldt County include not only the communities of Orovada and Paradise Valley, but also farms and ranches in the area with numerous private airstrips. The expansion also encompasses the Santa Rosa Paradise Peak Wilderness area.

Military aircraft maneuvering at potentially supersonic speeds at altitudes of 10,000 feet MSL or 3000 feet AGL will have negative effects on livestock, wildlife and the peaceful enjoyment of quality of life and outdoor recreation.

The Commission also feels that this expansion of military airspace should be considered under an EIS as opposed to an EA. The critical nature of concern warrants that level of consideration.

Please accept this letter as Humboldt County's official comment to any changes in Mountain Home tactical airspace MOA Paradise West and East. We are a serious stakeholder in this MOA expansion and very much appreciate being involved in the process.

Sincerely,

Tom Fransway
Chairman
Humboldt County Board of Commissioners

JIM GIBBONS
Governor

STATE OF NEVADA

ANDREW K. CLINGER
Director



DEPARTMENT OF ADMINISTRATION

**209 E. Musser Street, Room 200
Carson City, Nevada 89701-4298
(775) 684-0222
Fax (775) 684-0260
<http://www.budget.state.nv.us/>**

July 28, 2009

SSgt Brian Stives
366th Fighter Wing Public Affairs Office
366 Gunfighter Avenue
Suite 314
Mountain Home AFB, ID 83648

Re: SAI NV # **E2009-297**

Reference: **Airspace EA**

Project: **Expansion of Mountain Home AFB airspace, Elko and Humboldt Counties**

Dear SSgt Brian Stives:

Enclosed are comments from the agencies listed below regarding the above referenced document. Please address these comments or concerns in your final decision.

Division of State Lands

State Historic Preservation Office

This constitutes the State Clearinghouse review of this proposal as per Executive Order 12372. If you have questions, please contact me at (775) 684-0213.

Sincerely,

R. Tietje
Nevada State Clearinghouse

Nevada State Clearinghouse

From: Skip Canfield
Sent: Monday, July 06, 2009 11:45 AM
To: Nevada State Clearinghouse
Subject: RE: E2009-297 Expansion of Mountain Home AFB airspace, Elko and Humboldt Counties -

Reese:

For the most part, the Nevada Division of State Lands will defer to comments provided by Humboldt and Elko Counties.

One comment that is not clear in the documentation and a question of this Division is the following:

The Alternative B map shows the proposed expansion. A conclusion from the map is that the expansion will now include the Jarbidge Wilderness and the Santa Rosa Wilderness. While recognizing that the Wilderness Act does not address existing commercial or military plane overflights, it does have the following language:

SPECIAL PROVISIONS

(d) The following special provisions are hereby made:

(1) Within wilderness areas designated by this Act the use of aircraft or motorboats, where these uses have already become established, may be permitted to continue subject to such restrictions as the Secretary of Agriculture deems desirable. In addition, such measures may be taken as may be necessary in the control of fire, insects, and diseases, subject to such conditions as the Secretary deems desirable.

This new proposal does represent a CUMULATIVE increase in NEW aircraft activities (noise,visual) over existing wilderness that did not previously have this impact.

I did not see a discussion in this regard.

- Why is it necessary for the expansion area to include those two wilderness areas, and is there a way to create an Alternative B that avoids those wilderness areas?

Skip Canfield, AICP

From: Nevada State Clearinghouse
Sent: Tuesday, June 16, 2009 10:01 AM
To: Skip Canfield
Subject: E2009-297 Expansion of Mountain Home AFB airspace, Elko and Humboldt Counties -



NEVADA STATE CLEARINGHOUSE

Department of Administration, Budget and Planning Division
209 East Musser Street, Room 200, Carson City, Nevada 89701-4298
(775) 684-0213 Fax (775) 684-0260

TRANSMISSION DATE: 6/16/2009

Division of State Lands

Nevada SAI # E2009-297

Project: Expansion of Mountain Home AFB airspace, Elko and Humboldt Counties

Follow the link below to download an Adobe PDF document concerning the above-mentioned project for your review and comment.

[E2009-297](#)

Please evaluate it with respect to its effect on your plans and programs; the importance of its contribution to state and/or local areawide goals and objectives; and its accord with any applicable laws, orders or regulations with which you are familiar.

Please submit your comments no later than Monday, July 27, 2009.

Use the space below for short comments. If significant comments are provided, please use agency letterhead and include the Nevada SAI number and comment due date for our reference.

[Clearinghouse project archive](#)

Questions? Reese Tietje, (775) 684-0213 or clearinghouse@state.nv.us

No comment on this project Proposal supported as written

AGENCY COMMENTS:

Signature:

Date:

Distribution: Sandy Quilici, Department of Conservation & Natural Resources
Gary Derks, Division of Emergency Management
David Mouat, Desert Research Institute
Kevin Kirkeby, Senator Ensign's Office
Chad Hastings, Fire Marshal
Jodi Stephens, Governor's Office
Kirk Bausman, Hawthorne Army Depot
Skip Canfield, AICP, Division of State Lands

Michael J. Stewart, Legislative Counsel Bureau
Clint Wertz, Lincoln County
Zip Upham, NAS Fallon
Ed Rybold, NAS Fallon
Jerry Sandstrom, Commission on Economic Development
John Walker, Nevada Division of Environmental Protection
Catherine Cuccaro, Department of Transportation
Bill Thompson, Department of Transportation, Aviation
Steve Siegel, Department of Wildlife, Director's Office
Roy Leach, Department of Wildlife, Fallon
Steve Foree, Department of Wildlife, Elko
Tod Oppenborn, Nellis Air Force Base
Ms. Deborah MacNeill, Nellis Air Force Base
Lt Jeff Henderson, Nellis Air Force Base
MSgt Carolyn Urdiales, Nellis Air Force Base
Linda Cohn, National Nuclear Security Administration
Joseph C. Strolin, Agency for Nuclear Projects
Steve Weaver, Division of State Parks
Mark Harris, PE, Public Utilities Commission
Pete Konesky, State Energy Office
Hatice Gecol, State Energy Office
Rebecca Palmer, State Historic Preservation Office
John Muntean, UNR Bureau of Mines
Jon Price, UNR Bureau of Mines
Ron Hess, UNR Bureau of Mines
David David, UNR Bureau of Mines
Clearinghouse, zzClearinghouse
Maud Naroll, zzClearinghouse-Maud



JIM GIBBONS
Governor

MICHAEL E. FISCHER
Department Director

STATE OF NEVADA
DEPARTMENT OF CULTURAL AFFAIRS

State Historic Preservation Office
100 N. Stewart Street
Carson City, Nevada 89701
(775) 684-3448 • Fax (775) 684-3442
www.nvshpo.org

RONALD M. JAMES
State Historic Preservation Officer

July 15, 2009

Sheri L. Mattoon
Cultural Resources Program Manager
Department of the Air Force
366th CES/CEAN
1100 Liberator Street B1297
Mountain Home AFB ID 83648

RE: Proposed Airspace Changes for Mountain Home Air Force Base, Humboldt and Elko Counties.

Dear Sheri L. Mattoon:

The Nevada State Historic Preservation Office (SHPO) reviewed the cultural resources report for the subject undertaking. The SHPO notes that the consultants determined that it was not necessary to consult either our online statewide archaeological inventory (NVCRIS) or our archaeological inventory archive at the Nevada State Museum because the records maintained by the U.S. Forest Service and Bureau of Land Management are complete (pages 3-34 and 3-35). The SHPO suggests that this is not an accurate assessment of the status of the archaeological records maintained by the federal agencies and this determination neglects to address resources that might be located on lands not managed by these agencies. In the future, please consult our records for any undertaking located within the state of Nevada.

The SHPO supports the U.S. Air Force statement in the draft Environmental Assessment (EA) that the identification of traditional cultural properties requires consultation with the affected Native American resources (page 3-34). Prior to your consultation with this office for compliance with Section 106 of the National Historic Preservation Act of 1966 as amended, please consult with the affected Native American tribal representatives and compile this information for your submission.

If you have any questions concerning this correspondence, please contact me by phone at (775) 684-3443 or by e-mail at Rebecca.Palmer@nevadaculture.org.

Sincerely,

A handwritten signature in black ink that reads "Rebecca Lynn Palmer".

Rebecca Lynn Palmer
Review and Compliance Officer, Archaeologist



Oregon

Theodore R. Kulongoski, Governor

Parks and Recreation Department

State Historic Preservation Office

725 Summer St NE, Ste C

Salem, OR 97301-1266

(503) 986-0671

Fax (503) 986-0793

www.oregonheritage.org

8/3/2009

Ms. Sheri Mattoon
DOAF 366th Civil Eng Squadron
366 Gunfighter Ave STE 314
Mountain Home AFB, ID 83648



RE: SHPO Case No. 09-1195
Paradise East/West Military Operations Areas at Mt. Home AFB
Malheur County

Dear Sheri:

Our office recently received your report about the project referenced above. I have reviewed your report and agree that the project will have no effect on any known cultural resources. No further archaeological research is needed with this project.

Please be aware, however, that if during development activities you or your staff encounters any cultural material (i.e., historic or prehistoric), all activities should cease immediately and an archaeologist should be contacted to evaluate the discovery. Under state law (ORS 358.905-955) it is a Class B misdemeanor to impact an archaeological site on public or private land in Oregon. Impacts to Native American graves and cultural items are considered a Class C felony (ORS 97.740-760). If you have any questions regarding any future discovery or my letter, feel free to contact our office at your convenience.

Matt Diederich, MAIS
SHPO Archaeologist
(503) 986-0577

Matthew.Diederich@state.or.us



Aug 01, 2009, at 02:26:47 PM



Rose Strickland



775 329-0503



Toiyabe Chapter
P.O. Box 8096
Reno, NV 89507

July 31, 2009

Peter A. Lee, Colonel
366th Fighter Wing Public Affairs Office
ATTN: Airspace EA
366 Gunfighter Ave. #314
Mountain Home AFB, ID 83648

Dear Colonel Lee,

On behalf of the 5,000+ members of the Toiyabe Chapter of the Sierra Club in Nevada and the eastern Sierra, many of whom live near or recreate on public lands which would be impacted by the proposed airspace changes for Paradise East and Paradise West MOAs in northern Nevada, I am submitting comments on the draft EA.

By this letter, the Toiyabe Chapter signs on to the specific comments submitted on July 28, 2009 by Western Watersheds Project and the Oregon Natural Desert Association on the draft EA.

The Sierra Club finds the draft EA deficient in its analysis of environmental impacts and in its finding of no significant impacts of the proposed changes in these areas:

- impacts on the Jarbidge and Santa Rosa-Paradise Peak Wilderness areas and several wilderness study areas,
- sagebrush-dependent wildlife, including the greater sage grouse, pygmy rabbits, pronghorn antelope as well as migratory birds,
- and especially egregiously deficient in its "cumulative impacts" analysis of existing and proposed MOAs which are now covering almost all of northern Nevada airspace.

The proposed changes appear to be an attempt to transfer unacceptable MOA impacts from one area to another.

We strongly urge the USAF to prepare a full EIS on the proposed changes and to hold extensive hearings in Nevada and other areas affected by the proposed MOA changes.

Thank you for considering our comments.

Sincerely,

Rose Strickland, Chair
Public Lands Committee

cc: WWP
ONDA
Senator Harry Reid

July 30, 2009

366th Fighter Wing Public Affairs Office
c/o Samantha Crane
366 Gunfighter Ave., Ste. 314
Mountain Home, ID. 83648
Via FAX to(208)828-4205



RE: Draft Environmental Assessment for Proposed Airspace Changes for Paradise East and Paradise West Military Operations Areas, Mountain Home Air Force Base

To Whom It May Concern:

We are in receipt of the aforementioned Draft Environmental Assessment.

Friends of Nevada Wilderness supports the actions of our military to train and be in readiness to protect the people and resources of our great country. We recognize as is quoted in Section 3.3.3 of the DEA that The Wilderness Act states "...the use of aircraft...where these uses have already become established, may be permitted to continue subject to such restrictions as the Secretary of Agriculture deems desirable..."

We do, however, have concerns about some aspects of the proposed expansion as they impact the Jarbidge and Santa Rosa-Paradise Peak Wilderness Areas and the Wilderness Study Areas in Nevada. They include:

Chaff and flare use;
Effects on visual, recreational and wildlife resources

As noted, chaff and flare use will extend into the proposed expansion area, in increased numbers in the case of flares in the proposed Alternative B, and "...training activities...would be enhanced by a 29 percent increase in the airspace surface area available for training...training chaff would be used unless otherwise authorized in advance. Chaff and flares are not authorized for release over manned sites, inhabited areas or over Duck Valley Reservation at any altitude" (Page 3-31). Perhaps these restrictions could be extended to protect the special recreational and habitat values of the Wilderness areas and WSAs, since there are concerns implicit in their restriction over inhabited areas, and their use will be expanded.

Visual, recreational and wildlife resources: We note that you have addressed possible concerns about these resources and quoted a BLM report (Idaho Wilderness Study Report) addressing training overflights over special land use areas: "BLM recognizes the importance of these military training operations for the national defense preparedness of this country, but did not consider the impacts of the overflights as sufficient to warrant a nonsuitable recommendation..." (Page 3-47). You do, however, recognize that in the case of this proposed expansion "...much more of the H-TNF and its recreation opportunities and visual resources would be covered by the expanded airspace boundaries than at

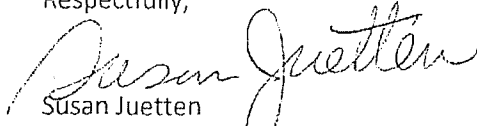
present" (Page 3-53). The added noise levels and lower flight altitudes are additional factors which may affect visitors' perception of solitude. Likewise, the increased light emission from flares, and probable wildlife disturbances, though temporary, will lessen the experience of and disappoint the expectations of those who recreate in protected and theoretically less disturbed Wilderness areas and WSAs.

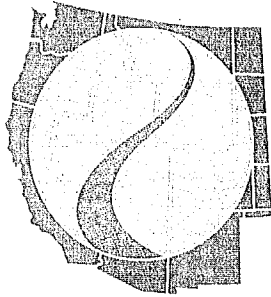
Thank you for your kind attention to these concerns.

Please add us to your mailing list for future proposed changes that could affect Nevada Wilderness and Wilderness Study Areas, and for the subsequent documents generated by this proposed airspace expansion.

As always, if we can be of assistance in any way, please do not hesitate to ask.

Respectfully,


Susan Juetten
Friends of Nevada Wilderness



**Western
Watersheds
Project**

Western Watersheds Project
P.O Box 2863
Boise, ID 83701

Tel: (208) 429-1679
Web site: www.WesternWatersheds.org

July 28, 2009

366th Fighter Wing Public Affairs Office
366 Gunfighter Avenue, Suite 314
Mountain Home Air Force Base, Idaho 83648

Dear Air Force,

The following are comments of Western Watersheds Project and the Oregon Natural Desert Association on the Draft EA for Proposed Airspace Changes for Paradise East and Paradise West Military Operations Areas (MOAs) at Mountain Home Air Force Base (MHAFB), Idaho.

WWP is a non-profit membership organization based in Clayton, Idaho, with offices also in Montana, Wyoming, Utah and California. WWP is dedicated to protecting and conserving the public lands and natural resources of watersheds in the American West. WWP, as an organization and on behalf of its 1200-plus members, is concerned with and active in seeking to protect and improve the wildlife, riparian areas, water quality, fisheries, and other natural resources and ecological values of watersheds throughout the West.

ONDA is a non-profit public interest organization dedicated to preserving and protecting the public lands of eastern Oregon. ONDA has a long history of interest and involvement in eastern Oregon's public land management. ONDA's mission is to protect, defend, and restore forever the health of Oregon's native deserts. The members and staff of ONDA use and enjoy the public lands, waters, and natural resources of eastern Oregon and the adjacent sagesteppe environment in adjacent states, including the project area and the Owyhee Wild and Scenic River and surrounding country, for recreational, scientific, spiritual, educational, aesthetic, and other purposes. ONDA and its more than 1,200 members also participate in information gathering and dissemination, education and public outreach, commenting upon proposed agency actions, and other activities

relating to the federal government's management and administration of the public lands of eastern Oregon and adjacent states.

The U. S. Air Force (AF) is proposing that the public wild lands, biotic communities, rural residents and recreationalists be subjected to expanded military airspace and intensified activities with increased pollution, contrails, noise, intense lights and a broad range of other harmful disturbances and adverse activities. The AF proposes very large extremely noisy operations that may involve up to 40 planes including transients of unknown and unidentified type and origin. This will create intensive sound disturbances over one of the last remaining relatively intact blocks of sagebrush wild lands and wildlife habitat. These lands are to be sacrificed to not just U.S. military training, but to Singapore and other foreign military training. It is highly foreseeable that more foreign militaries and even louder planes like the F-35, and new harmful weaponry or training devices will be used in this airspace, once the Air Force gets the changes it seeks.

The EA is a study in obfuscation, contradiction, and confusion. While analyses supporting expansion of the airspace are based on the situation and training/military activities NOT CHANGING (see EA Appendix A at A-1), the EA admits that activities are expected to change. See EA at 4-13. *"It is anticipated that there would be increased operational pressure within the military training environment if the aircraft fleet changes to newer, higher performance aircraft ..., new training scenarios are implemented, or use by "other user" traffic ... assigned to MHAFB increases"*.

An EA Appendix includes a 2007 analysis of "Predicted effects on aircraft noise levels of airspace modifications for the Mountain Home Training Range Complex" of March 19, 2007. This concludes that "Barring changes in sortie rates, types of training exercises, and types of aircraft conducting them, the proposed alterations of MOA boundaries will produce no meaningful differences in the sporadic sorts of aircraft noise produced throughout the Mountain Home Range project under any alternatives". Yet all kinds of changes have been proposed since 2007, including this airspace expansion.

The Air Force noise, air, light emissions and other analyses and conclusions would have the public suspend all basic common sense and basic human experience in encounters with military aircraft and the intense training activities that are occurring right now. The Air Force asks the public to believe that operations of 40 various loud to ear-shattering military planes – each one of them audible over large distances – will not greatly change the soundscape or affect biotic systems in areas of expanded airspace, as well as over the airspace as a whole.

The Air Force would have us forsake our own experiences with military training associated with MHAFB and abandon basic human startle, fear, noise avoidance and other instincts, and defy reality in accept its claims that its highly intrusive and disturbing activities over remote public wild lands are somehow benign to recreational

users including in Class 1 Airshed Wilderness, to sage-grouse, pygmy rabbits, bighorn sheep, bats, migratory birds and the public wild lands as a whole. It ignores that in this fragile system that is under greatly increased stress from all manner of human disturbances – from grazing to wild land fire to proposed new energy and other developments. Any additional stress will jeopardize sensitive and important species and move them closer to extirpation and extinction.

The Air Force knew full well that it was planning to expand airspace for Singapore and other foreign militaries that the American West is being sacrificed to when it did its 2007 Singapore Bed-down EA. In Appendix A, the Fidell report is dated March 2007 – and the contract for it/its preparation likely began quite a while before then. Preparation of the report thus started at least in part occurred before the Air Force finalized its inadequate EA for the Singapore Bed-down.

Yet the Air Force purposefully misled the public in the Bed-down EA in claiming that it would NOT need additional training changes in its flawed Singapore Bed-down EA – while all the time it was planning this and other expansions at least in part to accommodate Singapore and other foreign militaries.

The 2007 Singapore Bed-down EA states:

“No aspect of the Proposed Action or Alternative A would alter the structure or overall nature or use of the local or remote airspace units. Rather, changes to the aircraft inventory at Mountain Home AFB would, as described below, only result in minor modifications to the amount of activity in the airspace”.

The Singapore EA also promised that chaff and flares would be used like before. Yet the 2009 EA calls for changing the MOU with BLM to lower levels of flare use (we also note that with any MOU change, BLM must conduct NEPA to analyze the impacts of the vastly increased use of flares!). “Other seasonal and locational restrictions apply to the use of chaff and, especially, flares in these MOAs (Air Force 1998). Chaff and flare use by the RSAF aircraft would follow all current locational, seasonal, and altitude restrictions for the MOAs”. (2007 Singapore EA - ***Chapter 2: Description of the Proposed Action and Alternatives 2-13 Final, March 2007 Environmental Assessment for RSAF F-15SG Beddown, Mountain Home AFB***).

Incredibly, the Singapore Bed-down EA had NO mitigation. “No mitigation measures are proposed to arrive at a FONSI if the Proposed Action or Alternative A were implemented at Mountain Home AFB”.

In 2009, the AF attempted to supplement the noise claims of its 2007 Fidell report by rehashing long-outdated info from the Composite Wing days that, not the Strike Eagles of Singapore or the F-35 or other planes including transients and others that may be involved in 40 plane exercises across large blocks of the region.

The bottom line is that the military noise from MHAFB activities is already so loud, annoying and extreme that the residents of Duck Valley are being terrorized by it. So instead of conducting honest analysis, reducing its

noise impacts by using other bases with less sensitive values, or increasing use of flight simulators or reducing activities that produce the most intense noise, the Air Force plans to shift these activities including by foreign militaries over the Jarbidge and Santa Rosa Wilderness, close to Fort McDermitt country, and over critical bighorn sheep, sage-grouse and other habitats.

The Fidell 2009 report claims that the chances of an observer being subjected to an extreme noise event are vanishingly small. Yet nearly every day we go into the field in MHAFB airspace there are loud, annoying military plane events – in many areas loud deafening grinding plane noise during training that makes a person's ears hurt and that persists after the planes move elsewhere. No matter how the Air Force, Fidell, etc. try to hide, obscure or spin the noise impacts, the experience on the ground by human recreationists (and certainly noise sensitive wildlife) is radically different from the complex noise statistical analyses and averages that the Air Force relies on to hide the effects of its activities. The Duck Valley residents know this – that is why they have acted to try to reduce the overflight impacts on their health and wellbeing. The Air Force can't credibly claim "no impacts" when its justification for needing to grab a lot more airspace is to avoid Duck Valley. It is just shifting impacts.

The Air Force references the F-22 (plane type now shelved by Congress) and F-35 as specific planes that may be used by MHAFB in the future. What are the characteristics and environmental concerns associated with the F-35? How does this plane and training activities affect noise, contrails pollution, climate change gas releases, etc? What weaponry? Please see the *Air Force Times* article included with these comments. This describes the F-35 as terribly loud – raising great concerns over its foreseeable use in sensitive wild land settings, where many species of native wildlife rely on auditory cues and other senses to detect predators and survive, and where the public seeks quiet recreation.

An EIS Is Required

The USAF is violating NEPA by proposing to make this very significant changes in airspace. This is part of a long series of connected and segmented actions both in association with MHAFB and the general region of the West – where segmented, incremental expansions are occurring – and now often for the benefit of foreign militaries (even those with questionable human rights records) who buy planes and weaponry from the U. S. We recall seeing a military planning map in the mid-1990s during the days of the Andrus Bombing Range proposal that showed plans of the military to take over the airspace of nearly the entire area of Nevada, and surrounding lands. If this Paradise expansion, along with the giant UTTR White Elk expansion occurs, the takeover of the region's skies by the military, as shown in that mapping, will have become reality. An EIS is required to look at all direct, indirect and cumulative effects of the Paradise expansions and all the MHAFB and other changes underway, planned or foreseeable.

MHAFB Changes

A series of changes in planes, missions and training activities have occurred since the AF Composite Wing Bed-down EIS – which justified expanded airspace in some of the areas where the flight level is now being drastically lowered in this proposal. Very different modes of training (no more composite Wing), changes in Air Planes, and now Bed-down of planes from a foreign dictatorship have all occurred. The EA is very unclear about what planes (with what weaponry) will be present foreseeably in the airspace, or even what will be present during the 40 plane exercises, during use by transients, as a result of spillover (like from White Elk), etc. We will discuss these changes throughout comments below.

Shrubsteppe Fragility/Species Rarity/Habitat Loss and Fragmentation Concerns

There is now a large amount of scientific knowledge about the increasingly perilous status of many species of native wildlife in the lands used for training and under the existing and expanded Airspace. See Connelly et al. Sage-grouse Conservation Assessment 2004), on cd. See NDOW Sage-grouse Powerpoint. These species of critical concern include sage-grouse, pygmy rabbit, Brewer's sparrow, loggerhead shrike. Sensitive large mammals like bighorn sheep are also of great concern and this proposal would expand military noise, overflights, and other activity over additional bighorn herds. Sage-grouse are particularly sensitive to disturbance at certain times of the year. Air Force intrusions into habitats resulting from this airspace changes and expansion include both increased and greater visual and auditory intrusions. Activities and intrusions may interfere with lekking or other behavior, or cause birds to flush, crouch in fright, decrease foraging, or otherwise alter behaviors. This may make them more susceptible to predators, increase stress, lower foraging efficiency or other activity, Plus, the use of flares in Nevada in the past has resulted in large range fires. Northern Nevada and southern Idaho lands within and near the existing and proposed expanded airspace have suffered large-scale recent fires. Populations of shrubsteppe species have been greatly impacted See NDOW Report and other info on cd.

Existing unburned habitats are often significantly degraded. Chronically altered and disturbed by livestock grazing, fragmented by livestock facilities and roads, and sub-optimal or unsuitable for sage-grouse, pygmy rabbit and other sensitive species. As large-scale wildfires have consumed vast acreages of former sage-grouse habitat, and grazing disturbance continues, cheatgrass and other weeds are dramatically increasing.

These lands annually suffer from the adverse effects of chronic intensive livestock grazing disturbance altering native plant community composition. Trampling activity alters and destroys microbiotic crusts. See Fleischner (1994) describing how grazing alters the composition, function and structure of arid ecosystems and biotic communities. Wildfires and grazing disturbance also cause cheatgrass to proliferate, and cheatgrass promotes

more frequent fires – dooming shrubsteppe systems. Grazing also retards or precludes recovery of necessary habitat components of shrubsteppe systems – such as microbiotic crusts that help to exclude weeds. See USDI BLM Technical Bulletin Belnap et al. 2001

Recent federal agency Ecoregional Assessments, based on data sets that are already out-dated, were conducted by BLM and other USGS and other agencies to assess the status of, and threats to, the Great Basin ecosystem as well as the Nevada lands specifically circa 2005. Because the predictions of cheatgrass expansion and ecosystem fragmentation and decline were not positive, the results were largely kept quiet during the Bush BLM. We are including several of the papers from the effort on cds. Authors include Wisdom, Rowland, Suring. This data did NOT include any direct consideration of the adverse effects of grazing in promoting disturbance – so the situation is significantly worse than the analyses found. The ecosystem is under stress. The animals that inhabit it are under stress. Now the Air Force proposes to interject disturbance and new stresses across even a larger landscape.

Habitats for sagebrush-dependent species in the eastern part of the sagebrush biome have been greatly altered by run amok energy development (oil and gas), and now a “renewable” energy boom threatens sage-grouse, migratory birds, bats and other wildlife in Oregon and parts of Idaho and Nevada. Here, proposed placement of giant industrial facilities (turbines, power lines, storage reservoirs, roads, etc.) in remote still relatively intact sage-grouse habitats would severely impact populations in the heart of core habitat areas. Thus remote-sited “renewable” energy production threatens to destroy much of the remaining unburned less-fragmented habitats.

Moreover, a portion of the Airspace expansion is located by a portion of the Proposed Ruby Natural Gas Pipeline – a very controversial project that would rip apart additional relatively intact shrubsteppe sage-grouse and other wildlife habitat – including some of the wildest country left.

USAF training activity is noisy, visually disruptive, and has a potential for promoting wildfires if accidents happen. Fires may also result if flares used in increased training exercises fail to function properly. Plus, in the areas of the remote emitter and no drop sites, ground disturbance will increase along with this proposed increase in activity with expanded and lowered airspace. The EA claims that increased use in these areas was examined in the Singapore bed-down EA. We stress that this analysis was wholly inadequate, and clearly segmented. However, even if the AF claims are to be believed, it is still part of the cumulative, linked and related effects of the Beddown action that must be examined in this EA. We stress that the effects of the Singapore activity in the expanded airspace areas were NOT analyzed at all in that EA.

It is impossible for us to understand how on the one hand the EA acknowledges increased flares and a high level of chaff use should be analyzed here – but segmented analysis of the increased flight activity from Singapore in a separate, segmented EA. Aren't more flares tied to more flights?

Air Force Ignores Global Warming/Climate Change Effects and Air and Water Pollution

Global warming and climate change are now an acknowledged and pressing concern. We are dismayed that the U. S. Air Force NEPA document lacks information and analysis on the effects of the proposed action in altering local and/or regional climates – through increased cloud cover from contrails, emissions in the expanded airspace, and other effects. The EA ignores any analysis of the carbon and other climate change gases that will be emitted - and lacks a cumulative effects analysis of the carbon and global warming Footprint of the pre-Singapore, current, expanded, and foreseeable military actions in the area and region.

The air and waters where pollutants end up in the region of the MOASs and MHAFB zone of disturbance and pollution are known to already be exposed to large amounts of toxic mercury from foreign-owned cyanide heap leach gold mines in Nevada. Waters are being poisoned, and fish and other aquatic species affected. Humans suffer from increased mercury exposure, as well as exposure to other air pollutants. What other materials are these mines releasing – and how might they interact in the air, or waters in which they ultimately end up – with various military-released pollutants contaminating systems?

How will any pollutants from exhaust, weapons, practice activities, etc. possibly mix or combine with other air pollutants? Will any toxic substances end up in air or waters as a result? What Baseline monitoring has the Air Force done in areas with and without military overflights in the region to determine air and water quality? Where will various pollutants from military overflights and training activities end up? What are the regional and seasonal weather patterns that may affect where AF pollutants end up polluting surface waters or being hazardous to humans exposed to them? Where are chaff bundles/fibers likely to accumulate? Where will they show up on weather radar?

Livestock grazed on public lands under nearly all this airspace contribute significantly to desertification processes, which contributes to global warming and puts further stresses on surface waters. See Sheridan CEQ 1981, describing desertification effects. See Steinfeld et al. 2006, describing the effect of livestock in promoting climate change and global warming. Since livestock grazing contributes to global warming (desertification making hotter, drier, more depauperate simplified sites⁰ as well as through methane, ammonia and other emissions, it is entirely appropriate for the Air force to mitigate its training effects in part through actions that reduce those effects. This includes willing seller purchase and Retirement of public lands grazing permits and acquired base properties placed under Forest and BLM management. Why doesn't the Air Force consider

Singapore and itself having to set aside funds equivalent to the purchase of a few Boeing Strike Eagles for the privilege of using our Airspace – and to protect and restore habitats, and to improve the natural sequestration of carbon as mitigation for adverse climate effects?

Large feedlots in the other MOAs associated with MHAFB emit methane, a potent global warming gas.

It is also now recognized that the western U. S. receives a significant amount of air pollution from China – dust, as well as industrial pollutants. Haze may choke the skies of the region during certain periods of the year, making the sky murky and whitish. How might military contrails, pollutants, chaff, etc add to, amplify, or exacerbate such effects? How does chaff interact with pollutants? Can all of this combined contribute to regional haze? What are the synergistic impacts of persistent jet contrails on global warming and climate change?

Persistent jet contrails are made up of ice crystals and water vapor and other material, and it is known that water vapor may have climate effects. Some NASA studies show that persistent jet contrails may exacerbate global warming and may alter climate by producing man-made clouds. Water vapor is a significant by-product of commercial and military aviation. Please fully address these issues in this analysis.

We have watched as military planes training in the existing MHAFB airspace have crisscrossed the sky, leaving contrails (water vapor and pollutants) in their wake. As contrail after contrail is left behind under certain atmospheric conditions (less wind movement of certain air layers?) the sky turns what appears to be cloudy – but it actually is not naturally cloudy but instead is a mass of coalescing contrails. In many areas of the existing airspace, this has become more and more common. Now the AF seeks to further extend the zone of white skies, contrail pollution and deafening noise.

We are also increasingly observing what appears to be fuel patches/fuel slicks in the air – with rainbow-colored “sun dog” like effects – associated with white contrails, not natural clouds or other natural phenomena.

All of these AF air pollution effects, besides having potential effects on local climate and weather patterns, also adversely affect recreational users. Many recreationists seek clear, untrammelled and less polluted skies – including for relaxation with untrammelled vistas, nature and wildlife photography, and other activities. The public who appreciates peace and quiet and clear skies is increasingly sandwiched into smaller and smaller areas of the American West with each new, linked, segmented and connected military Airspace and/or activity expansions further eating into untrammelled wild lands. For example right now there is a proposed White Elk Supersonic area is just to the south that will pollute and mar some of the clearest skies and airsheds in the Nation.

Where, outside cities and towns in the southern Idaho, Nevada, southern Oregon, and eastern Utah area, is free of existing or foreseeably expanded military airspace, various training routes? Please provide mapping and detailed analysis of the colossal scale of the military airspace here. Please map the military-free areas. Where do commercial jets overfly? Detailed mapping and analysis of this info is necessary to understand the relative scarcity of untrammelled airspace, places where the public can recreate without being bombarded by sonic booms and incessant deafening grinding plane engine noises and other disturbing and/or harmful intrusions. Is there ANY PLACE that is not overflowed by the military or commercial flights? If so, where?

Much more info also necessary for BLM to commit to any MOU or MOU changes related to lowered level dropping of flares in any expanded Paradise MOA –an action contemplated in the EA. BLM must comply with NEPA, FLPMA, the ESA, its own sensitive species policy and other environmental laws in committing to any expanded use of flares – especially in an environment (the sagebrush biome) that has been so ravaged by Energy development in the east, recent fires in the Great Basin, and that is in the crosshairs of unprecedented new disturbance form “renewable” energy, corridors, gas pipelines, and chronic grazing disturbance nearly everywhere etc.

Since the EA references some weird re-shuffling of blocks of airspace for commercial use, please provide a full and detailed analysis of the effects of all existing and foreseeable commercial use over the MOA areas (existing and proposed) as well as the cumulative effects of Air force and commercial uses here – and across the region that includes UTTR, White Elk, etc. How many commercial air overflights occur – and what is the noise, contrail, air pollution, global warming footprint of these? How will it be expanded or altered under this action? Does the military eventually to take over nearly all the airspace here – and shuffle commercial jets around everywhere in this “sectors”? What weaponry or aircraft are so dangerous or intrusive that such vast airspace is needed?

Please provide a detailed analysis of how military airspace has been incrementally expanded over time, and the incremental lowering of flight levels once airspace is taken over by the military. Please document increases in training activities and the types of activities including the type and degree of noise generated in MHAFB areas as well as across the region for all periods when records are available.

The Air Force must fully reveal the existing climate change/global warming footprint associated with MHAFB and its training and other activities, as well as the increases under this action. This has never been done, and must be done now. Please factor in all parts of this including fuel and other pollution by foreign (Singapore dictatorship, Israeli, German, others) who may be training or transiting through here.

The EA's vapid (and unsubstantiated by any site-specific or other data) claims about air pollution effects being insignificant are just not valid, and are not supported by any scientific data or analysis of the local and regional air quality issues. We emphasize that the air in the region is increasingly polluted by methane from cattle feedlots and other livestock - cattle in Idaho now number at least 2 million – more than the human population. There is also a large amount of ammonia, from industrial dairies, including dairies right by the Mountain Home airbase. The full baseline of these conditions across MHAFB airspace and the region must be fully examined, so that the effects of expanding pollution and other adverse activity across remaining pristine areas can be fully understood. The remaining pristine areas – Santa Rosa, Jarbidge Wilderness, portions of northern Nevada and eastern Oregon are especially important to the public because they still have better quality air – yet Air Force actions would pollute and cloud skies (as well as increase pollutants in waters and soils where residues from plane exhaust and other military training activities would end up).

Changes in global cloud cover may contribute to long-term changes in Earth's climate. "Persistent contrails represent a human-caused increase in the Earth's cloudiness, and are likely to be affecting climate and ultimately our natural resources...". The Air Force must fully examine the effects of contrails from its own and any commercial activities in affecting local and regional atmospheric conditions. It must provide data and analysis on how many persistent contrails would be produced and where, how they may affect local and regional white skies and haze as part of this analysis. The Air Force must also provide data and analysis on the cumulative impacts contrail and any other plane pollutant effects across MHAFB airspace, and also place this in the context of the air pollution and contrail "Footprint" of military training activity in the Western U.S. See <http://www.pbs.org/wgbh/nova/sun/contrail.html>

"In a study published in 2004, for example, Minnis and colleagues reported that contrails are capable of increasing average surface temperatures sufficiently to account for a warming trend in the U.S. between 1975 and 1994".

In response to efforts to downplay the effects of contrails: "Minnis counters that Hansen's model, while on target on the global front, doesn't account as accurately for regional temperature changes. "In zones of greatest air traffic, like between 30° and 50° North, there's a large bulge in the actual increase in temperature that's not reflected in the models".

Note this article mentions even the naysayers on contrail effects admitting that CO2 emissions of planes ARE a problem.

(Chaff) is an aluminum coated fiberglass particulate, that is released in huge quantities by MHAFB over existing airspace. What are the synergistic and health effects of these programs when associated with jet fuel emission and the harmful effects of these particulates?

The Air Force EA failed to adequately analyze all of these effects – from both its own planes as well as commercial aircraft and other pollutant sources in the airspace and the region.

See also:

http://www.metacafe.com/watch/200720/global_dimming_contrails/

And:

<http://www.airliners.net/aviation-articles/read.main?id=85>

Also:

In a Discovery Channel-Best Evidence Program (2007), Nasa's McMinnis described: "... contrails were producing **more cloud cover than we ever thought they did** ... one particular aircraft produced a contrail that covered **an area of four thousand square kilometers and lingered for six hours**. He also described the magnitude of the area covered, and the persistence of contrails: "there were contrails covering much larger areas and lasting more than twenty hours...". The Air Force must also explain just how long all of the contrails that it produces will persist under various temperature and atmospheric conditions. How, too, might contrails increase white sky/haze and light pollution effects at night?

The darkness of night skies is increasingly sought by the public. The Boise-Nampa-Caldwell-Mountain Home light pollution mars vast areas of the existing airspace at night and seems exacerbated under cloudy or some other conditions (Fite field observations). When will the sky ever be free of contrails in this airspace – including the cumulative effects of Air Force and sectorized commercial activity?

Toxic jet fuel contains harmful chemical substances which negatively impact human health, animals, and perhaps even plants. See EPA PA420-R-99-013 - Final Report "Evaluation of Air Pollutant Emissions from Subsonic Commercial Jet Aircraft," U.S. Environmental Protection Agency April 1999. Harmful chemicals may include:

Ozone: Lung Function Impairment, increased susceptibility to respiratory infection, increased hospital visits, pulmonary inflammation, lung structure and tissue damage, crop and tree damage. Carbon Monoxide: Cardiovascular Effects. Nitrogen Oxides: Lung irritations, premature mortality, (asthma sufferers are especially sensitive), acid rain. Volatile Organic Compounds: Eye and respiratory tract irritation, headaches, dizziness,

visual disorders and memory impairment. (Increasing Asthma also associated with VOCs.) Other carcinogens in emissions: Nitric oxide that may deplete beneficial atmospheric ozone, and particulates like soot.

NASA and other studies describe Global Dimming effects with less sunlight reaching the earth but temperatures increasing. Water vapor in the atmosphere associated with contrails acts as a greenhouse gas, and may be exacerbated by jet engine emissions, contrails and man-made clouds trapping warmth in the atmosphere.

Are precursors to lightning promoted by contrail clouds - and do they negatively impact weather and climate? If so, how might this promote range fires? See also:

<http://www.airliners.net/aviation-articles/read.main?id=85>

http://www.earthisland.org/journal/index.php/eij/article/stolen_skies_the_chemtrail_mystery/

More Air Quality

How will the USAF comply with the Carbon Neutral Program in accordance with EO 13423 and the Kyoto Protocols to offset carbon dioxide emissions?

If JP-4 or JP-8 Jet Fuel consists of a complex mixture of hydrocarbons, including poly aromatic hydrocarbons (PAHs), naphthalene and benzene (a known carcinogen), how will the increase in jet fuel emissions impact public health? Will the Air Force be providing local air pollution districts funds to start testing air for barium (salts), aluminum (oxides), perchlorate, cadmium, manganese, magnesium, lead, iron, tungsten, and carcinogenic poly aromatic hydrocarbons like naphthalene and benzene?

Can inhaling JP-8 increase lung permeability, damage DNA of lung and liver cells, and thus cause cancer? How toxic is JP-8 to the immune system? Could repeated exposure increase the risk of autoimmune diseases and cancer?

Military aircraft disperse lingering contrails that when struck by sunlight at certain angles, display color bars. What is the chemical structure causing this repeated prismatic color bar? Do these materials “fall out” in rain or other precipitation events?

Citizens and public lands, and wildlife advocates do not have the expertise necessary to disentangle all of this information, we believe it is the responsibility of the Air Force and NEPA preparers to provide a valid and science-based analysis of all of these potential negative effects in an EIS. This has not been done.

Inadequate Range of Alternatives

The EA contains a greatly deficient range of alternatives. The AF must provide a broad range of alternatives in an EIS. These include alternatives that examine a **reduction in airspace** and new higher flight levels or avoidance of all military use in wilder areas and in areas that still have relatively intact shrubsteppe cover. If the Airspace is shaved back to reduce the temptation to use the “bottleneck”, the USAF will not have to worry about the Duck Valley bottleneck and the military disturbance will be reduced. The reduction in airspace can be combined with more efficient use of other ranges/other airspace, increased use of flight/war game simulators to economize and reduce harmful global warming climate change gas emissions and contrails - and also by increasing training activity over cheatgrass and marginal habitat areas. Paradise MOA Airspace was expanded with the Composite Wing EIS in the late 1990s. Now that the mission has changed (and the justification for previous airspace expansion has changed), the AF must fully consider reconfiguring and reducing its Footprint in the region’s skies.

A key question that must be answered is: How much of the expanded airspace is necessary for, or being used by, foreign militaries? We are alarmed that the public is being asked to suffer more pollution, noise, and disturbance in some of the west’s last wild places and critical remaining less fragmented sagebrush habitats as a result of the U. S having foreign countries defile and pollute our public land airspace and litter our lands including Wilderness, WSAs and roadless areas. This all results in added stress on our wildlife, with all manner of loud noises, visual intrusions, use of chaff and flares and their littering and potentially incendiary devices. It also results in increased likelihood of human and animal exposure to potential hazardous substances either as components of materials used or that may be accidentally released.

While Owyhee wilderness legislation allows any and all manner of military abuse in the airspace of that marginal “wilderness”, that Legislation in no way, shape or form requires the military to abuse this area. Thus, reduction and/or cessation of overflights in existing Owyhee Wilderness and WSAs and proposed Wilderness must be examined.

Reduction or cessation of military overflights and training activity in areas of still-intact larger blocks of sage-grouse habitat must be examined. Please identify in detail all active and historic sage-grouse leks, and areas of remaining important habitat. Please consider shifting uses OUT of these areas while intensifying uses in already greatly altered or disturbed landscapes. Where are ALL historic and current sage-grouse leks, wintering areas, brood rearing habitats, etc. in both the existing and potentially expanded airspace? How can training be conducted to lessen the military footprint and disturbances here? Please consider a range of alternatives that address these concerns.

WHAT other airspaces and airbases can some of this training be conducted at where large blocks of public wild lands, wildlife, and recreational activities sought in remote Western spaces will not be so adversely affected –

including as part of longer term “transient” periods of activity for MHAFB-based planes? Please provide a detailed analysis of this.

The criterion used to define alternatives in the EA is self fulfilling and an inadequate basis to determine alternative training areas for evaluation. For example moving the aircraft to another base that currently has sufficient airspace was not examined. The planes, Singapore AF, etc. are very able to fly more than one hour.

Flight simulation was inadequately addressed in the EA as an alternative to many of the actions. Are there flight simulators that could be utilized as an alternative to the proposed action, or could additional electronic components be used? Computer simulation is a standard of the flight industry that helps reduce the number of flight tests and associated emissions and sonic booms

The Air Force has adequate Special Use Airspace in the southwest to meet all training goals. The EA fails to identify any of these alternatives.

We are always told by the Air Force that any Proposed Change the Air Force desires is essential. Why is there never any action by MHAFB that needs less airspace, or reduces, rather than increases, the huge adverse environmental Footprint of this Base’s activities? Are the planes, weapons systems (practice and real) and substances used now MORE dangerous and intrusive than before? Please explain the real need here. The EA makes this all sound like it is for convenience so the military will not be inconvenienced— yet the actions that are supposed to occur here - like avoiding Duck Valley - will expand disturbances over other sensitive areas – like Fort McDermitt and Wilderness bastions.

A long series of segmented, connected and linked actions have recently occurred at Mountain Home. These include:

* Expanded use by IDANG including use of white phosphorus (used in siege of Fallujah and documented by human rights groups to have burned the skin off victims) in at least some portions of MHAFB airspace and at Saylor Creek. We are very concerned that this or other hazardous substances may accidentally be spilled, littered, or otherwise appear on lands under the existing or expanded airspace. See WWP comments on white phosphorus use – Attached and in Air Force records, as well. The National Guard is claimed to be the party using white phosphorus at Saylor Creek. Will the IDANG or other Guard units/aircraft be using the expanded or altered airspace areas of the MOAs? If so, what dangerous materials or weaponry will they be carrying? Will they have white phosphorus with them? Will other militaries including any “transients” training here, or any “spillover” activity? What highly flammable or dangerous substances will they have or use? How much of the

increased training will occur at night? Will increased illumination be used? Will helicopter uses be expanded? Night training missions are particularly creepy and intrusive for wild land recreationists and may startle and displace wildlife. We have been exposed to such night activities in both the Southwest (Cabeza Prieta - helicopters) as well as in the existing MHAFB airspace near Anderson Crossing in eastern Oregon as well as in the vicinity of Juniper Mountain. These activities are wholly incompatible with Wilderness and other public land values including protection of sensitive wildlife like sage-grouse .

* The AF recently finalized an inadequate Bed-down EA (not even an EIS!) for the Singapore Air Force after Boeing got a lucrative deal selling many jets to Singapore. See WWP comments on Singapore Bed-down EA (Attached and in Air Force record). Both the already immense MHAFB airspace and the remote emitter and No Drop ground-based targets are to be used by Singapore crews, with other foreign crews likely to follow - Israeli, German, others. This is resulting in an increased ground-based and airspace disturbance Footprint. Now at least part of the reason the current EA claims that the airspace must be expanded is to accommodate Singapore. This means that the Air Force violated NEPA in segmenting analysis of the full footprint of the Singapore Bed-down. The AF must now conduct integrated analysis of the whole Footprint in an EIS. Certainly the Air Force knew full well when it contemplated the Bed-down that it would very likely be seeking expanded airspace. So WHY was no integrated EIS-level analysis conducted? It is also clear that accommodating Singapore is further impinging on commercial aircraft use – and potentially public safety as well. An EIS is required just for the full explanation and alternatives analysis related to commercial aviation and safety effects on airline passengers.

A plane model to be used has some kind of infrared targeting device –especially for night use. How might this all affect recreationists, wildlife, wild lands systems?

We are very concerned about this sacrifice of American lands public lands and airspace to training of a foreign dictatorship with poor human rights record. Is part of the reason this is occurring is to be able to justify keeping Mountain Home AFB open in the face of Base re-alignments or closures, and thus retain the large amount of revenue it brings into Idaho? If so, this is not a valid reason for such a sacrifice.

We are also concerned about the potential use of foreign militaries to potentially carry out the U. S.'s dirty work – so that the U. S. may appear to have clean hands – while actions we ourselves might not find legal or ethical are conducted by others. Is this expanded airspace to be used to train foreign countries so as to “outsource” renegade activities? This Bed-down proposal originated during the latter part of the Bush Presidency – a period when the U. S. was engaged in many violations of international laws and human rights. To cut to the heart of this: Is this Airspace expansion occurring because Singapore or others are to do the U. S.'s Bombing or other dirty work in questionable undertakings? If so, there is a whole other aspect to the Human Environment that needs to be examined here?

We believe the Action Alternatives will cause significant harm. The No-Action Alternative can only be adopted if very significant changes and mitigations occur. The Air Force must analyze a preferably a Reduced Airspace Area of Use, Increased Simulator training, and concentrated airspace and activity over weed wastelands. Substantial mitigation actions must be implemented. All alternatives, including currently designated Supersonic airspace in the western USA and the training of the Singapore Air Force or others as transients or moved to other existing bases must be fully examined prior to expanding airspace and lowering flight levels.

More Cumulative Impacts

The USAF is piecemealing the impacts of the proposed Airspace and training changes. To the south and east, there is the proposed Supersonic Operations Area and cruise missile testing and other activities associated with the UTTR and White Elk expansion in the region. What are the potential impacts associated with all of this activity? We stress that the UTTR prepared an EIS for its actions – while MHAFB has defied NEPA and segmented its Singapore Strike eagle Bed-down and airspace expansions into at least two separate EAs.

The EA fails to address cumulative impacts result from “the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions in the region. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time” (40 CFR 1508.7).

These lands and the surrounding area have considerable natural-resource amenities that enhance the quality of life for those who live and recreate there. They also generate economic activity, jobs, and income by attracting recreationists and others including populated areas of Boise, Twin Falls, Elko, Winnemucca and Reno. The public uses the lands of the MHAFB airspace for sightseeing, camping, hiking, motorized activity, hunting, fishing, birdwatching, nature study, aesthetic and other appreciation. All of these activities may be negatively impacted by incessant Air Force noise, disturbance, potential flare or accident-caused fires, etc.

The EA fails to address the cumulative impacts of all military activities, including Military Training Routes noise, emissions, radar and electronic warfare sites etc.

Please provide a detailed accounting of all the weaponry and hazardous materials (and materiel!) the planes using the EA’s expanded airspace would have. In recent comments on the White Elk expansion, the AF was made aware of similar concerns. There, F-16s were proposed. Here, is it Strike Eagles and likely the ear-splitting F-35s. The EA makes references to perhaps other exercises and training occurring here. Will A-10s be used? If so, what about the hazard of depleted uranium associated with A-10s?

In describing its White Elk activity, the AF stated in the DEIS: "The F-16 has a payload which includes two 2,000-pound bombs, two AIM-9 and 1,040-gallon external tanks and can be armed with a M-61A1 20mm multi-barrel cannon with 500 rounds; external stations can carry up to six air-to-air missiles, conventional air-to-air and air-to-surface munitions and electronic countermeasure pods.ⁱ Will aircraft utilizing the MHAFB MOAs and routes here – or transiting through them - be carrying any of these or other systems? Will these F-16s be transients – or routinely used by MHAFB here, and how do they differ from the Singapore Strike Eagles? Are there any risks of inadvertent ordinance releases? Will there be Electronic Warfare Sites or radar or communications sites associated with the proposed action in the future? Where are the current sites located? Will mobile Electronic Warfare equipment be utilized? If so what are the potential health and safety risks, including electromagnetic radiation, associated with these activities? Will lasers be used during the proposed training activities? If so, what class of lasers and what are the potential risks? For example, in 2004 there were four instances in which 20mm rounds fired from F-16s during practice strafing runs struck outside Air Force gunnery ranges. In one high profile case, 20mm rounds hit a New Jersey school four miles from their intended targetⁱⁱ. (Excerpt from White Elk comments).

In any VR, IR or other many routes in and near the Airspace – what is the designated below flight and training level AGL? Where is detailed mapping that shows all of these routes, and their connections with White Elk and other UTTR or other routes? Please fully address the cumulative impacts of noise. What are the cumulative impacts of pollutants and contrails in the region? Please provide Contrail pollution and other analysis that includes all military and commercial aircraft activities in the impacted region to assure that the all cumulative impacts are addressed.

Please apply these concerns to all of the planes, activities, and areas of concern affected by the Paradise MOA expansion EA. This means all the MOAs, training routes, etc. including existing and expanded ones.

Air Refueling Route

Where are all refueling routes, and are any changes or increases anticipated? Will these planes be refueled more often now – since the airspace is bigger will they be spending more time using fuel in it?

Noise

Operating noise would affect the wildlife, recreationists, potentially cultural sites, and the population as a whole. The noise may have an adverse affect on human health, use and enjoyment of the environment.

The EA does not provide critical data necessary to understand how noisy the entire MHAFB MOAs at various proposed flight level would be, as well as at baseline levels. Please provide real-world detailed mapping and analysis of where and when noise will be concentrated.

The EA does not adequately characterize the existing baseline of noise in the environment, so that the significance of the noise increases in this setting can be understood.

There are new ways of examining noise inputs so that the effects on wild public lands, recreationists and native ecosystems can be better understood.

See: <http://acinews.org/archives/222>, describing a recent Yosemite Study and the examination of soundscapes. Also, as articles and links at the Acoustic ecology Website show, there is much increasing evidence that wildlife and humans may be adversely affected by unnatural noise and noise pollution.

See : <http://AcousticEcology.org/scienceresearch.html>

See: understanding and protecting wild Soundscapes interesting.

<http://www.nps.gov/yose/naturescience/soundscape.htm>

The NPS is paying attention to protecting acoustical resources. The Air Force, BLM and Forest Service should pay attention to protection of acoustic resources over designated Wilderness, WSAs, roadless areas, sensitive species habitats and other wild landscapes, including remaining less fragmented sagebrush habitats for sage-grouse and pygmy rabbit.

Significant Noise Effects and Concerns

Recreational users of public lands, especially those seeking peace, quiet and solitude in a primitive and natural setting face an increasingly crowded world, and an ever-expanding industrialization, roading, and noise on public lands – especially in northern Nevada where both the colossal scale mining of and the use of OHVs has a heavy footprint. Please see Info in Appendix A - Concerning noise effects in the natural environment. See Yosemite MP3 Recording, describing how “**noise acts just like smog**”. A noisy fog envelops the landscape. Humans and animals can’t hear as clearly with loud droning noises. Animals may spend increased time scanning looking for predators. They may hole up, and become less active with noise as it is more difficult to detect predators. Or it may be more difficult to detect food – for example –coyotes preying in mice under snow. How many noise events per day, and for how long for each event, will humans and animals be exposed to? What is the interval between noise and/or visual startle events/episodes?

The Yosemite Recording describes how human perception of a pleasurable experience is altered by noise. Humans come to wilderness areas and public lands for a pleasurable experience, not to cover their ears to try to lessen loud irritating droning plane noise. While humans can still see beauty, the quality of the experience of beauty is diminished by disruptive or offensive noise. Thus, the quality of the Wilderness and public wild lands experience will be diminished in areas of expansion.

The AF must examine the additive and cumulative negative effects of noise and visual pollution and startle effect on Wilderness areas and other recreational uses of the public lands.

Military noise pollution, contrail pollution and merging contrails forming “white skies”, chaff litter, visual startle and other effects are all impacts on recreation – many of these affecting wildlife too. The full cumulative effects of these must be examined.

The AF cannot rely on the old noise study from the Owyhees. It greatly failed to capture the disturbance and discomfort associated with the very loud plane noise heard over very large distances that is associated with military training in the existing MHAFB MOAs. We have observed increasingly deafening and relentless grinding non-supersonic noise associated with military training that is highly disruptive in the existing MOAs including the Owyhee region. This plane noise was not adequately described by that study, is irritating, fatiguing, a lingering dull ache remains in the ears after exposure to the incessant roaring grinding noise of the military planes. The noise coupled with visual distraction and the startle effect greatly distracts from, and mars, recreational enjoyment of hiking, camping, birdwatching, and other pursuits. Both sudden visual stimuli as well as sonic booms can also startle hikers, wildlife, etc.

A full and honest non-averaged noise analysis must be conducted. This must also critically examine noise levels and noise components of all plane or other AF activity that sage-grouse, pygmy rabbits, bighorn sheep, rare bats, migratory birds as well as the human population may be subjected to – both in the short and long term. What is the hearing range of affected animals? How intense will noise be within this hearing range? How will various components of the plane or other training-linked noise disturbances interfere with, or otherwise adversely affect, the displays, mating, calling, foraging communication, echolocation or other behaviors of migratory birds, sage-grouse, large and small mammals including bats?

The noise evaluation also does not take into account the increases in localized noise in areas which have almost no non-natural background noise, such as the Wild and Scenic River Corridors within the MOAs, that would result from lowering the operational floor from about two miles above most of the landscape to less than a mile (and in some cases only 3,000 feet) above those corridors. Without a valid evaluation against the baseline of almost unbroken silence in the Wild and Scenic River Corridors, Wilderness areas, WSAs and proposed WSAs,

the noise evaluation is arbitrary and capricious. The failure to evaluate noise properly would also lead to an action which, if adopted, would violate the substantive laws which protect the naturalness and prohibit the mechanization and undue degradation of these areas, including the Wild and Scenic Rivers Act, the Wilderness Act, and the Federal Lands Policy and Management Act.

Please also note that we have had the experience of a military plane flying over and then TURNING and approaching us to “check us out” – or use us perhaps as a “target of opportunity”? The most recent example was last December in the Paradise MOA in the South Fork Owyhee watershed in Nevada. This raises several disturbing questions: What heat or other detection devices might have been in use (besides plain old vision) to draw a military pilot’s attention to us? What all is the military “checking out” out there, and what all does the training entail?

Sonic Boom Concerns (Some Relevant Excerpts from White Elk Comments)

- As a flight vehicle moves through the air at supersonic speeds, the air in front is displaced to make room for the vehicle and then returns once the vehicle passes. This causes what is called a sonic boom. In subsonic flight, the pressure wave (which travels at the speed of sound) precedes the vehicle and displaces the air around the vehicle. When a vehicle’s speed reaches the speed of sound, it is said to be traveling at
- Mach 1. The pressure wave cannot travel faster than the speed of sound or precede the aircraft at Mach 1, and the parting process is abrupt, creating a noise. A shock wave is formed initially at the front of the vehicle when the air is displaced around it and lastly at the rear when a trailing shock wave occurs as the air recompresses to fill the void after passage of the vehicle. A sonic boom differs from most other sounds because it is impulsive (similar to a double gunshot), there is no warning of its impending occurrence, and the magnitude of the peak levels is usually higher. **Noise and Sonic Boom Measurement Relationships**
- Table B-3 shows the relationship between peak overpressure values used to measure the intensity of sonic booms and other impulse related noise in relation to values used to measure non-impulse noise. The projected maximum values for project-related noise [for White Elk] (shaded in Table B-3) were calculated as shown in two noise and sonic boom studies (95ABW 2003, 2005).

**Relationship Between Sonic Boom Overpressure in
Pounds per Square Foot (psf) and Other Noise Metrics in Decibels (dB)**

Peak Overpressure (psf)	CSEL (dB)	Peak SPL (dB)	SEL (dB)
0.2	85.4	113.6	75.9
0.5	94.0	121.6	84.5
1.0	100.4	127.6	90.9
2.0	106.9	133.6	97.4
3.0	110.7	137.1	101.2
4.0	113.4	139.6	103.9
5.0	115.5	141.6	106.0
6.0	117.2	143.1	107.7
8.0	119.9	145.6	110.4
10.0	121.9	147.6	112.4
12.0	123.6	149.2	114.1
14.0	125.1	150.5	115.6
18.0	127.4	152.7	117.9
22.0	129.3	154.4	119.8
26.0	130.9	155.9	121.4
30.0	132.2	157.1	122.7

Source: 95ABW and AFETC 2005b

We note that the sonic booms expected in the White Elk Region will exceed the threshold of pain. Where do such sonic booms occur in the existing MOAs? Where? How many – for all years when data is available. Over what distance do they have this effect? Will such booms occur in the expanded airspace MOAs? If so, when and where? The human threshold of hearing is approximately 0 dB, and the threshold of discomfort or pain is around 120 dB. What will peak overpressures with all existing and foreseeable MHAFB MOA activity be? Will pain thresholds be reached with sonic booms and other noise in or near the MOAs? How many supersonic events will occur? How many will be the result of Singapore activity? vs. U. S. military activity vs. others? How long will they last? Where will they occur?

An aircraft does not simply accelerate to Mach 1, create one loud bang when it breaks the sound barrier, and then proceed quietly on its way. Instead a Mach 1+ flight **continuously breaks the sound barrier, creating shock waves all along the ground over which it passes.** Exactly, what acreage of land is projected to be impacted under the worst case scenario? What sage-grouse leks? What occupied pygmy rabbit habitat? What WSAs? What Wilderness? Might this cause birds to flush from nests – making them more subject to predation? The EA fails to adequately address the potential impacts from carpet booms which spread broadly across the surface beneath the aircraft. In general, the carpet will be one mile wide for every thousand feet of altitude of the

aircraft. Therefore, a carpet boom generated at 50,000 feet above ground level will be approximately 50 miles wide.

Noise analysis in the EA does not adequately address the peak overpressure and noise levels. The EA uses self-serving noise analysis to fit its needs and ignores other findings.

Factors not related to noise have been identified that may influence the annoyance response of an individual. These factors include both physical and emotional variables. However, the effects of noise over a period of time depends on the total noise exposure over extended periods, so “cumulative” noise metrics are used to assess the impact of ongoing activities. Within typical AF documents, noise is described by the sound level (L), the Sound Exposure Level (SEL), Day-Night Average Sound Level (DNL), and Onset Rate-Adjusted Monthly Day-Night Average Sound Level (Ldnmr). The Air Force relies on averaging noise away to claimed “insignificance”, and then proclaiming no harmful effects on humans or anything else.

As Commentors on the White Elk expansion stated: “ ... Cantrell (1974) concluded that the results of human and animal experiments show that average or intrusive noise can act as a stress-provoking stimulus”. Prolonged stress is known to be a contributor to a number of health disorders. Kryter and Poza (1980) state, “It is more likely that noise-related general ill-health effects are due to the psychological annoyance from the noise interfering with normal everyday behavior, than it is from the noise eliciting, because of its intensity, reflexive response in the autonomic or other physiological systems of the body.” Psychological stresses may cause a physiological stress reaction that could result in impaired functions.

From White Elk comments: “The U.S. Department of the Navy prepared a programmatic Environmental Assessment (EA) for the continued use of non-explosive ordnance on the Vieques Inner Range. Following the preparation of the EA, it was learned that research conducted by the University of Puerto Rico, Ponce School of Medicine, suggested that Vieques fishermen and their families were experiencing symptoms associated with vibroacoustic disease (VAD) (U.S. Department of the Navy 2002). The study alleged that exposure to noise and sound waves of large pressure amplitudes within lower frequency bands, associated with Navy training activities--specifically, air-to-ground bombing or naval fire support--was related to a larger prevalence of heart anomalies within the Vieques fishermen and their families. The Ponce School of Medicine study compared the Vieques group with a group from Ponce Playa. A 1999 study conducted on Portuguese aircraft-manufacturing workers from a single factory reported effects of jet aircraft noise exposure that involved a wide range of symptoms and disorders, including the cardiac issues on which the Ponce School of Medicine study focused.”ⁱⁱⁱ

How many night time loud missions or sonic booms will occur under all training scenarios?

The EA also fails to address the annoyance of impulsive signals and other environmental noises containing substantial low-frequency energy in terms of effective (duration-corrected) loudness level.

The EA fails to project impacts from the SUPERBOOM or focused boom when an aircraft utilizes “cutoff” maneuvers. What are impacts of these boom variation from location to location within the impacted region? Focused booms may have peak overpressures two to five times as large as a carpet boom.

What are subsonic noise levels from all military activities in the region? All commercial activities? How will this be altered under the Proposed Action or any alternatives?

The EA fails to provide information on the atmospheric temperature and wind profiles that may affect the way sonic booms, other noises, or weaponry/training materials are transmitted through the atmosphere. Will strong temperature gradients and inversion layers contribute to the scattering of sonic booms? Will wind move and alter the shape of the footprint? Will the angle between the wind and aircraft flight path affect the shape and location of the footprint? What noise factors will change seasonally? What impact will mountain ranges have on noise impacts in the region? Please apply all of these concerns about atmospheric variables to contrails and air pollutants, too.

Dustdevils and violent gusts of wind are characteristic of many high desert areas here –particularly scenic ridges sought by hikers, critical to sage-grouse for wintering and other habitats, used by bighorn sheep, etc. How do strong or sudden wind gusts potentially amplify effects?

How will snow conditions affect noise levels and sonic booms? Will booms promote avalanches? This could have serious effects – especially if coupled with rain on snow events in watersheds such as the Jarbidge. Please note that climate change predictions for the Interior Columbia Basin/Great Basin predict less snowpack but more violent spring storms.

As commentors on the White Elk EA stated: “The U.S. Standard Atmosphere for cutoff is Mach number is 1.15. This represents a speed 35% faster than typical subsonic civil cruise speeds of Mach 0.85 or less. The nominal Mach 1.15 cutoff has, of course, been cited for decades. Two details are typically not pointed out. One is that the cutoff Mach number varies from location to location and time to time as the atmosphere varies. The second is that when cutoff is achieved there is a focused .

Will low-frequency overpressure waves from sonic booms and blasts affect hollow objects such as the caves or other natural features?

The EA fails to provide an evaluation of the peak sound pressures that will be impinging on the structures in the region to determine the possibility of damage. At what frequencies will damage occur? Will multiple planes and actions cause intense noise levels?

Illustrating how much Airspace the military already has in the region: The UTTR range is larger than Rhode Island with over 12,574 square miles of airspace. It is the largest contiguous overland block of supersonic authorized airspace in the continental United States. That means that almost the entire northwestern portion of Utah is reserved for military training^{iv}. Hill Air Force Base already has a Supersonic Operations Area. Why can't some of this MHAFB activity occur there – like transient use – Singapore spend more time there, etc.

The EA fails to provide information on the atmospheric temperature and wind profiles that may affect the way plane noise and sonic booms are transmitted through the atmosphere. Will strong temperature gradients and inversion layers contribute to the scattering of sonic booms? Or intense noise? Will wind move and alter the shape of the footprint? Will the angle between the wind and aircraft flight path affect the shape and location of the footprint? What noise factors will change seasonally? What impact will mountain ranges have on noise impacts in the region?

The EA fails to recognize that commercial supersonic aircraft have been outlawed from flying over the cities. Please consider applying this to all communities here, as well as ALL Wilderness areas and WSAs, and known or suspected sage-grouse leks wintering habitats used by MHAFB. What WILL the effects be over communities?

The EA fails to identify where the transient aircraft are coming from, what foreseeable changes there might be in numbers and types. Are these aircraft traveling more than 150 miles to sonic boom Wilderness areas or the remaining sage-grouse leks – or to drop chaff over the Jarbidge Wilderness and municipal watersheds? How many times can an aircraft go supersonic during one sortie? What are the additional impacts if the aircraft is refueled? What are the toxic substances released if fuel is spilled? Are these aircraft the same ones (like Singapore) that are used in the proposed Paradise expansions? Just how many airplanes, and from where (bases, countries), will planes come from that are to use all of the MHAFB MOAs over the course of the year?

The AF claims that there is no significant effect of noise from its Operations. Yet there are very real and very significant impacts to humans and native biota, and they must be eliminated or mitigated. Noise-induced Vibration. The sound from aircraft activity can cause archaeological resources and structures to vibrate. It can also cause contemporary structures to vibrate and windowpanes to shatter. See Hanson, C.E. 1991. "Aircraft Noise Effects on Cultural Resources: Review of Technical Literature," HMMH Report No. 290940.04-1, NPOA Report No. 91-3.

The EA contains Insufficient Methods of Measurement of Boise, Insufficient Use of Noise Metrics, Failure to Measure Background Noise including in all seasons of the year and at night.

Maximum Sound Levels under all training scenarios must be provided. The noise associated with activities addressed in this EA is intermittent, so that Ldn provides a measure of the total noise, but does not provide an intuitive description of the noise at any given time.

What decibel levels or changes will have significant effects? Don't we need to know just how quiet an area is to understand the sharp contrasts and severity of disturbance that will result? How many sorties, or multi-plane flights per day or month will occur over wilderness areas? How many will have a significant effect?

There are no measurements of ambient background noise levels for the areas affected, including the various wildlife habitat types across all seasons of the year, failure to Include Single Event Analysis

Additional significance criteria must consider the increase in noise. Wilderness areas, sensitive species habitats, areas of high recreational use, Indian Nations, and other rural areas should not have to endure loud aircraft simply because their background levels are so low that the 65dB threshold is not exceeded.

The Air Force must perform single event impact analyses that show the impacts of all potential noises and combinations of noises under local conditions. The FAA has done this before, in *National Parks and Conservation Ass'n v. Federal Aviation Administration*, 998 F.2d 1523, 1532 (10th Cir. 1993). There, the standard 65 Ldn criteria would be of little help in determining whether the uses of the backcountry of the Glen Canyon National Recreation Area would be affected by a new airport and thus used the single-event audibility standard. The FAA also did so for ceremonial uses when rerouting flight paths over the Grand Canyon. The agency changed a proposed flight path when it learned that a number of flights would occur over sites sacred to the Havasupai Tribe. Proposed Rule; Establishment of Corridors in the Grand Canyon National Park Special Flight Rules Area, 62 Fed. Reg. 26901 (May 15, 1997).

Please do this for the proposed lateral and vertical expansions over Wilderness Areas, all Wild and Scenic River Corridors within existing MOAs and proposed lateral additions, WSAs, proposed WSAs, and important relatively intact habitats.

Depleted Uranium (DU)

Most anti armor weapons are made with Depleted Uranium or Tungsten. Will A-10s be flying here, and will they be being carrying weapons made of Depleted Uranium or Tungsten? If so, the EA fails to address this issue. Where are these urban targets? What are the potential impacts of a plane crash and burning Depleted Uranium or Tungsten? In a crash scenario would burned DU form particles of inhalable size? What are the health impacts from inhaling or ingesting DU? Is there currently DU being used in other areas – like Nellis? The lands of the MHAFB MOAs are downwind of Nellis - witness the Idaho cancers caused by the Nellis nuclear testing in the 1960s. What is the baseline of contamination, and what is the potential increase with training activity or accidents?

Chaff and Flare Concerns

Flares are primarily mixtures of magnesium and Teflon (polytetrafluorethylene) molded into rectangular shapes. EPA has found that exposure to even low levels of perfluorooctanoic acid and its salts, known as PFOA, or C-8,

could pose “a potential risk of developmental and other adverse effects.” What are the potential long term impacts of Teflon and the environment from the dispersal of Teflon by the USAF? More recent info further points to the carcinogenic nature of Teflon.

Accidents can and do happen with flares despite restrictions. Extremely dry conditions or red flag conditions are often found in eastern Nevada. What is the potential that a fire from a flare during normal training or an inadvertent firing of a flare such as occurred in Las Vegas on October 18, 2006? What specific conditions will stop the Air Force from dropping flares? No flares should be used from May 1 to October 31, to limit mishaps.

Dud flares may be mishandled if discovered on non-DoD lands by the uninformed public.

Has the USAF eliminated all chaff containing lead? Will chaff containing lead be utilized?

Who is responsible for damages caused from a fire from flares such as occurred in New Jersey in May 2007: “Crews worry about wind spreading N.J. fire; National Guard says military flare likely cause”

Firefighters in New Jersey kept an anxious eye on the weather Wednesday as they battled a massive wildfire that had consumed more than 20 square miles of brush and pine forest after a military jet dropped a flare on a bombing range. The blaze sent walls of flames 80 to 100 feet high racing toward senior citizen communities, where elderly residents grabbed their pets and ran.

"It was as close to hell on Earth as you'll ever experience in your life," said Bert Plante, a spokesman for the New Jersey Forest Fire Service. He spoke in a trailer park where two homes were incinerated and others were damaged”.

What is the potential for dud flares to cause personal injury such as occurred in October 2008 and reported in the Sydney Morning Herald? “A discarded army flare started a bushfire on the NSW south coast but the Defense Department does not know where the flare came from. The dud flare was found on Saturday by two women riding their horses through a state forest near Batemans Bay and one of the women, Brenda-Lee Tonna, picked it up thinking it was a child's toy. But within seconds the flare exploded, burning Ms Tonna's hand.”

An undetonated military flare was found Sunday on the beach in Ocean City, Maryland. The flare, which was attached to a parachute, washed up near 7th Street two days after a large piece of ammunition was found on the shore in Bethany Beach on Friday.

Flares have been responsible for many fires – including in Nevada. The "Seal" fire on September 10, 1996 was started at Naval Air Station Fallon during training. The Meadow Valley fire in 1993 burned 21,686 acres at the Nellis Range Complex in southern Nevada and cost \$300,000 to suppress.

What is the potential for flares to start fires that can spread and have significant adverse impacts on the environment and critical habitats? The EA fails to adequately address impacts to air quality, water quality, wildlife resources including sensitive and ESA species (bull trout, LCT), and wilderness. What are the significant secondary effects that a flare fire would cause on personnel safety, soil, water resources, biological resources, land use, visual resources, and cultural resources? The EA fails to address the issue of the potential for dud flares and falling debris to pose a public safety risks. The EA must present a worst case scenario from flares use over non DOD controlled lands.

What is the predicted risk that a fire will start and spread over a 5 year, 10 year, and 25 year time span? What are the meteorological conditions and the flammability of various types of vegetation found in the region year round? The EA fails to provide analysis conducted on a site-specific basis, and mitigation that prohibits all use of flares during hot periods, or over critical or important habitats.

Please also provide detailed analysis of all the Air Force caused fires in association with the Bombing Ranges – Saylor Creek and Juniper Butte as well. Some have escaped and consumed large acreages on public lands.

Will the Air Force with the Airspace changes, unshackle itself from previous avoidance periods for flare use in the MHAFB MOAs and airspace?

Impulse cartridges and initiators used with some flares contain chromium and, in some cases, lead. These are hazardous air pollutants under the Clean Air Act. What are the potential health risks to local communities from these materials, including seniors, children and the ill? What about impacts on aquatic species – such as Threatened Lahontan cutthroat trout or bull trout? Are there small, confined freshwater habitats that would be impacted by these pollutants? As a mitigation measure the USAF must provide the Air Monitoring system to assure full compliance the Clean Air and Clean Water Acts. It must provide an adequate Baseline for understanding the contaminants present in representative areas at present.

Flare debris is similar to chaff debris, and litter is a major concern in wild land areas, Wilderness, WSAs and other public lands. The EA does not adequately address these public resources and the incompatible proposal to drop chaff and flares over designated Wilderness areas including a Class 1 Airshed, and WSAs across the MOAs. Is it legal to litter public lands? We oppose all proposed chaff and flare dispersal over communities, wilderness, WSAs, or other recreational areas as proposed. We also oppose their use over sensitive, candidate species and Threatened aquatic species habitats. Where is litter and pollutant material discharged in this airspace likely to end up? WHERE –please identify with mapping and other baseline data – are all redband trout, spotted frog, bull trout, and Lahontan cutthroat trout occupied or recovery habitats here? Please take into

full consideration how small and limited many aquatic areas are – so contamination is not likely to be diluted as might occur in some other areas. This limited aquatic habitat, along with the severe impacts of livestock grazing in depleting and polluting waters across public lands in the region, also results in populations being at very low levels. Plus this habitat is increasingly filled with pollutants such as hormones from cattle, pesticides sprayed for grasshopper and Mormon crickets (acreage has increased greatly in recent years), and herbicides – Please see BLM “Weed EIS”, FEIS for Vegetation Treatment in 17 Western States. This envisions greatly increased BLM “treatment” and spraying of vast acreages, with Nevada and Oregon among the top “treatment” states. How will this affect surface and ground waters – in combination with USAF pollutants? How will any aerially sprayed particles mix with or drift with Air Force training contaminants – air pollution from exhaust, flares, chaff, etc.?

We see no evidence of consultation with USFWS over the impacts of the altered airspace and increased and expanded uses of harmful substances over aquatic ESA species habitats? How might sonic booms or other noises affect aquatic species living in very shallow waters? See

<http://www.fluoridealert.org/pesticides/2005/effect.pfos.class.news.204.html> concern over Teflon and fish.

Consultation must occur, or USFS will be in violation of the ESA.

What are the characteristics of ignition sources found in the region? Will cheatgrass burn faster than sagebrush? Is there an abundance of cheatgrass in the region? Where? Can a flare fire occur in relatively low fire hazard conditions if ignition sources are present? What is the release altitude for all potentially utilized flares to ensure a complete burn-out? What type and number of flares, would be utilized under the proposed action and over what vegetation types? Will the USAF reimburse all costs incurred to fight fires caused by flares Will the Air Force (Singapore or others using and polluting the American public lands) provide substantial mitigation (many million dollars a year) to aid in restoration of habitats affected by this action, as well as commit to the providing the full costs of restoration with native vegetation - no matter how many replanting efforts may be required - following any military-related fire in the MOAs?

Data gaps exist regarding the potential risks of chaff. We believe it is unethical to disperse chaff over public lands until adequate independent analysis determines the long-term risk from exposure of inhaled fibers, including chaff break-down material. The EA refers to training chaff, but allows other chaff to be used with prior approval. We are VERY concerned that a whole rat of unidentified transients including likely foreign planes NOT based at MHAFB will be in this airspace – what is in the radar-jamming/interfering or other material that they will be using?

The EA fails to provide resuspension rates of uncoated and coated fibers. Over time can chaff be broken into inhalable particles which could be resuspended by wind or other activities such as driving on many of the

remote dusty roads –especially those churned up with cattle tracks – or lands away from roads similarly trampled by cattle. Cattle trampling alters and disturbs microbiotic crusts, a critical component of native sagebrush systems, that serve to protect soils from wind and water erosion. Degraded lands suffer higher erosion rates, and so chaff, contaminants, etc. on the soil surface are more likely to become airborne or erode into water bodies during runoff events. And of course, the more degraded the tributary, intermittent and ephemeral drainages and watersheds are, the more erosion is likely to occur in watersheds. What ARE the ecological conditions of the public lands underlying the airspace – or where litter/contaminants will be deposited?

What are the weathering rates and chemical fate of metal coatings in soils, fresh water, and wetlands? The EA fails to provide a comprehensive analysis of metal toxicity values for humans, animals, and important fresh water organisms. The EA fails to adequately examine the effects on the respiratory tract and also the effects of ingestion of fibrous particles in avian species and aquatic species. What is the pathology of inhaled fibers? Does jet exhaust have an impact on chaff?

These are not idle concerns. Please review recent news articles on the contamination of Salmon Falls Reservoir and other waterbodies in or near this region with mercury from Nevada mining gold roasting activity discharges into the air. This shows the degree to which toxic material can accumulate in arid, heavily grazed systems with rapid runoff. Is there ANY mercury residue or discharge from plane or training activities?

The EA fails to adequately address chaff accumulation for a 5, 10 and 25 year time frame on water bodies and the effects on animals using those water bodies. The EA does not provide bioassay analysis to assess the toxicity of chaff to aquatic organisms. The EA fails to address the ability of surface or bottom feeding waterfowl and other aquatic species to process ingested chaff. What are the effects to wildlife effects from the inhalation from chaff particles? Chaff looks and feels like fiberglass, what types of skin irritations can be expected? The EA fails to systematically sample lands in the MHAFB MOA were these materials have been used –so that a proper baseline can be established.

The effects of releases of chaff, dud flares, and flare ash on the environmental depend on a variety of factors, including the quantity of material released, the propensity of these materials to leach toxic chemicals under given conditions, and the sensitivity of receiving environments to contaminants of concern. There is inadequate analysis of these impacts.

Use of chaff over or immediately adjacent to highly sensitive areas such as Wilderness Areas, Wild and Scenic Rivers, National Parks and Monuments, and other pristine natural areas is not incompatible with the land use management objectives for those areas and must not be permitted The EA also fails to address the potential for chemical effects from chaff and/or flares on archaeological or architectural resources.

The processing of aluminum and silica into chaff forms a man made material that is hazardous and not naturally found in nature. The International Agency for Research on Cancer (IARC) has found that Exposure to silica can cause silicosis, a fibrosis (scarring) of the lungs that can be progressive and may lead to death. Inhalation is considered carcinogenic to humans, particularly when this material is composed of particles of respirable size, as defined by the current NIOSH method.

Aluminum is also hazardous and associated with fragility fractures have increased epidemically. Especially patients with senile dementia (including Alzheimer's disease) have a greatly increased risk of fragility fractures. Aluminum inhibits bone mineralization; the greater the aluminum exposure, the higher the risk of an early fracture. Aluminum is neurotoxin and may, in addition to genetic factors, play a role in the development of Alzheimer's disease by contributing to the formation of the characteristic beta-amyloid and neurofibrillary tangles. Thus, a common denominator between Alzheimer's disease and bone fragility may be chronic low-grade aluminum intoxication.^{vi}

Chaff looks and feels like asbestos and it breaks into small particles which can be inhaled or ingested.

Handling chaff may also cause skin irritation.

The components of chaff, both aluminum and silica pose serious health risks if inhaled or ingested.

Since the use of biodegradable chaff is not being proposed and chaff is not biodegradable the EA fails to address the long term cumulative impacts associated with chaff dispersal over an extended period of time.

Hydrazine

Hydrazine is a highly volatile propellant that contains toxic elements. It is carried on some planes like the F-16 and others as part of the emergency power unit system, and when activated, the flow of hydrazine lasts approximately 15 minutes. When used for this purpose, hydrazine is completely consumed, and poses no safety hazard. In any crash that is severe enough to rupture the canister, it is most likely that fire will also be involved. In this case, the hydrazine will also burn and be completely decomposed. In the unlikely event that the hydrazine should be released, but not consumed by fire, impacts on soils and groundwater are likely to be of minor consequence.

What is the worst case analysis if emergency personnel were to be exposed to hydrazine and the case where hydrazine had not burned? Is death a possibility?

Aircraft Crashes

Over the past 20 years, how many aircraft have crashed in or near the MOAs? Wasn't there a crash east of Anderson Crossing and the Lucky Seven Cow Camp in eastern Oregon? What all occurs with post-crash activity? Is there expanded roading? Bits of debris from an old crash near Deep Creek in the Owyhee MOA still litters the ground. The site of an aircraft crash can be quite large with wreckage found over a half a mile long site. Clearly, the potential is very high for a catastrophic accident in which an aircraft, or part of an aircraft, could crash into White Pine County or the Goshute Indian Reservation.

If these lands were to burn due to a flare or crash what would the economic impact be? What are the economic impacts from decreased property values associated with the proposed SOA? What are the recreational values lost or diminished by the AF activity, annoying and disturbing loud noise, etc.?

The Foreseeable Future UTTR and other Regional Concerns

In comments on the UTTR White Elk expansion, it was pointed out that: "Use of UTTR airspace is expected to increase by 50 percent in the next 2 years due to demand for training and testing of weapons with large weapons footprints like JDAMs. (Air Force 2006a)".

What exactly is this proposal for? Why is the USAF pushing this proposal at this time? Will cruise missiles or ICBMs be utilizing this airspace? Are there Cruise Routes (CRs) associated with this proposal? Is the USAF piecemealing their activities at the expense of Nevadans? What is the connection of this proposal to the **Submarine-Launched Intermediate Range Ballistic Missile (S-LIRBM)** and the **Supersonic Cruise Missile Engine Development \$10 million?** ^{vii}Has NEPA documentation been prepared for these activities? What are the cumulative impacts on the region from these activities? How much of this activity will spillover, transit into, or otherwise affect MHAFB MOAs and the public lands, wildlife and wild lands that underlie it?

FAA and DOD regulations limit or prohibit flights with speeds above Mach 1 or higher over designated avoidance areas (Air Force Instruction 13-15 201 and FLIP AP/1B) to avoid noise and sonic boom related issues.

Are there any designated noise avoidance areas in the region? Will communities and wilderness, sage-grouse leks, and other sensitive noise areas be designated?

Cultural Materials Concerns

The study by Sutherland *et al.* (1990) also shows that for a sonic boom of 2.0 psf or lower, the probability of damage to early American petroglyphs and caves is 0.011 (1 in 1,100). Since the proposed action will create

sonic booms far exceeding this level what are the potential impacts under a worst case scenario? Has the BLM or other agencies documented impacts from noise and sonic booms on Native American artifacts? For example, we believe the BLM has documented damage to Grimes Point Petroglyph Park from NAS Fallon overflight activities. If a sonic boom with intensity greater than 2.0 psf were to occur over the artifacts, it could reasonably be assumed that damage could occur. What adjustments will be made to ensure no known artifacts were beneath the area projected to have sonic booms? Have thorough on-the-ground surveys been conducted so avoidance can occur?

Wildlife

Are there Adult peregrine falcons in the region? Falcons been known to step on eggs or young and occasionally kick eggs out of the nests during rapid exits following gunshots. What about golden eagles, ferruginous hawks and northern goshawks?

It has been proven that low-altitude overflights and sonic booms do induce stress in animals. Increased heart rates, an indicator of excitement or stress, have been found in pronghorn antelope, elk, and bighorn sheep. The consequences of this disturbance are cumulative and may not cause obvious and serious health effects, but coupled with a harsh winter, it may have an adverse impact. Research has shown that stress induced by other types of disturbances produces long-term decreases in metabolism and hormone balances in wild ungulates. Animals newly or infrequently exposed to aircraft noise exhibit the "startle effect."

Does terrain cover affect impacts of noise on ungulates? What are the effects on predator-prey interactions, reproductive success, and intra-inter specific behavior patterns? The abilities to hear sounds and noise and to communicate assist wildlife in maintaining group cohesiveness and survivorship. Will sonic booms and low level overflights impact social species communication, including the transmission calls of warning, introduction, and other communication types? Is there a potential that noise and sonic booms could disrupt a species' ability to communicate or could interfere with behavioral patterns? Could a sonic boom cause ear drum rupture or temporary and permanent hearing damage or changes? Will sonic booms cause stress and hypertension; behavioral modifications; interference with mating or reproduction; and impaired ability to obtain adequate food, cover, or water? Could there be tertiary effects including population decline and habitat loss due to any potential fires?

Peak overpressures from focused sonic booms damage mammals hearing or cause temporary loss of hearing acuity. Will noise from aircraft affected changes in home ranges, foraging patterns, and breeding behavior? Will the USAF be providing funding to determine impacts to ungulates and other wildlife as a mitigation measure?

Will there be a negative effect to wildlife from running and avoidance behavior and the increased expenditure of energy? This may be of even greater concern with all the night training that is occurring or foreseeable. What is the calculated expenditure of energy due to aircraft harassment from both the Airspace and any MTR activity per minute when running and when walking? During harsh winter conditions, could this energy usage cause negative impacts? Could it make species more susceptible to predation?

Is part of this area where Wildlife Services has been conducting a series of scorched earth predator killing programs in Nevada? If so, this is an additional repeated air and ground disturbance to wildlife over all seasons of the year. Where is the scorched earth predator killing occurring?

It has been proven that low-altitude overflights do induce stress in animals. Increased heart rates, an indicator of excitement or stress, have been found in pronghorn antelope, elk, and bighorn sheep and coupled with a harsh winter, and this may have an adverse impact. Will the stresses induced by sonic booms and overflights or other training activity produce long-term decreases in metabolism and hormone balances in wild ungulates? What are the possible behavioral responses ranging from mild to severe? Will wildlife attempt to escape as a severe response to sonic booms? Will behavioral effects decrease chances of surviving and reproducing include retreat from favorable habitat near noise sources and reduction of time spent feeding with resulting energy depletion?

Will high-noise events like a low-altitude aircraft overflight or sonic boom cause birds to engage in escape or avoidance behaviors, such as flushing from perches or nests? Will these activities impose an energy cost on the birds that, over the long term, may affect survival or growth? Will birds spend less time engaged in necessary activities like feeding, preening, or caring for their young because they spend time in noise-avoidance activity? Are there any research projects underway in this region where results could be affected by new and more intensive military activity?

Are songbirds impacted by sonic boom events? Is there a potential negative impact to reproductive success in some perching birds or songbirds after exposure to overflights or sonic booms?

The EA provides inadequate analysis of the impacts to reptiles from overflights and sonic booms. What reptiles are found in the region of impact and what are the potential impacts?

What response do raptors have from overflights, sonic booms, sudden appearance of bright lights and noise at night, etc? What are raptor responses during nesting? Can a focused sonic boom break eggs? Do low level overflights and sonic booms cause noticeable alarm responses and limit productivity or reoccupancy of otherwise suitable habitats?

Will sonic booms and low level overflights cause birds to engage in escape or avoidance behaviors, such as flushing from perches or nests? Will these activities impose an energy cost on the birds that, over the long term, may affect survival or growth? Will the birds spend less time engaged in necessary activities like feeding, preening, or caring for their young because they spend time in noise-avoidance activity?

We are very concerned about the extreme noise levels we are hearing while on public lands in the MHAFB MOAs causing temporary declines in hearing sensitivity and masking sounds that are important for animals to hear to survive, avoid predation, etc. How does the loud plane noise associated with the airspaces and other MHAFB activity related to Temporary shifts, or losses in hearing – of wildlife? How long will the losses be for EACH species of concern? Grouse, pygmy rabbits, bats, loggerhead shrike, golden eagle, etc? For humans? Will migratory birds, pygmy rabbits or sage-grouse exposed to loud Air Force noise be unable to hear the approach of a predator, or be more vulnerable to predation?

How will Air Force comply with all measures in the Migratory Bird Treaty Act? Vultures have caused many military aircraft crashes. Vultures may fly at altitudes over 10,000 feet. Are crash potentials from vultures increased in the warmer hours of the day when the vulture's activities include thermal gliding and foraging? How many vultures are found in the regions? Where are their roosts located? What is the potential for a crash involving a vulture?

How will this activity in all of the MOAs disrupt migrating birds? Will night missions interfere? Where are bird or bat migration routes here?

EA at "4-25" states:

"Therefore, except for periodic direct overpasses or a sonic boom, noise levels would not be expected to be uncomfortable to wildlife species as discussed below." - also: "Large mammals within the existing MOAs are assumed to have become habituated to these noise levels, as will the animals in the expanded areas. No significant large mammal effects would be expected, due to the lack of significant effects observed in the existing MOA, as well as the infrequent nature and short duration of noise effects in the expansion area." What evidence does the Air Force have that animals are happily habituated? Including in the expanded MOA areas – has the Air Force or Singapore already been unlawfully overflying these areas – or is the noise from within the existing MOAs or in transit areas already so loud that it has affected wide areas outside the MOAs?

Wild Horses

Wild Horses and burros are found in the Owyhee HMA and other areas in Nevada under the lowered flight proposal areas and also in areas where the airspace would be expanded (Squaw Valley allotment). Will horses be startled, spooked into fences, or otherwise disturbed, stressed or injured by this activity?

The EA fails to adequately address how horses, both domestic and wild react to overflights and sonic booms of jet aircraft. Will horses be startled and gallop in response to overflights and sonic booms? Do horses exhibiting

intensive flight reactions, random movements, and biting/kicking behavior from military overflights and sonic booms? During harsh winters or drought conditions could overflight reaction negatively impact survivability or reproductive success? Will horses, including pregnant mares have a “flight-fright” reaction? Would these reactions cause any increase in heart rates and serum cortisol concentrations?

How many fences do the horses have to cope with here? How much disturbance from domestic livestock grazing? This all is part of the cumulative impacts that need to be assessed.

Some Specific Concerns

p. 2. Please provide more detail on sub-dividing the airspace into sectors. Does this mean that the military will soon control so much airspace that commercial navigation will only be able to occur by shutting off “sectors” temporarily for training?

P. 2. As described in our comments, significant impacts will occur – and the Air Force cannot brush aside consideration of how much airspace is already controlled by the military, and the near-jeopardy status of many shrubsteppe species and habitats. Noise will increase greatly under the expanded MOAs – including during hours of the day when recreationalists are hiking camping, etc. There are serious safety concerns – related to chaff, flares, accidental use/discharge of weaponry, plane crashes or malfunctions, increases chance of accidental fires, use of hazardous substances, etc. There has been no adequate analysis of air quality at present, and no adequate accounting of all the various forms of pollution – from contrails to chaff to hazardous substances that may be result - or be present from gold roasting and other activities.

p. 3. What is a multi-role fighter crew? How many different planes – and what places are they – that will be used? How many different foreign militaries? Are we back to a composite Wing –but one comprised primarily of foreign militaries?

p. ES-1. What are the weapon systems’ “true capability”? What are the weapon systems? How harmful is it to humans and wildlife? What does it do?

P. ES-3. Why is no alternative of using other areas considered? Of confining the big operations to the subset of the area where there is sufficient room? Why can’t training to some degree be done on a flight simulator? How much does each flight cost, compared to use of a simulator? What is the comparative global warming footprint. Why is there no alternative that examines the use of only US aircraft?

p. 1-3. Whose combat readiness is this related to? The U. S. – or Singapore? How much of the airspace is to be used by Singapore? What gas changed that makes an ever-bigger Set-Up are necessary? With the last airspace-

expansion at MHAFB, we were told these same things. Now the Air Force wants to take over even more airspace, and litter and pollute even more acres of public land.

p. 104. Just how often do weather concerns and re-routing exit? We had been told that one of the essential reasons MHAFB must stay open is the good flying weather. Now the AF claims weather impacts make it necessary to take over more airspace.

p. 1-4. Yes part of the airspace may be confined – but this is training – isn't the real world ever confined? And it seems like to move uses from near Duck Valley – you will increasingly impact Fort McDermitt and other areas.

p. 1-4. Discussion of flying window. What does this mean? That the AF wants to compress more intense activity into a shorter flying window – thus creating more compressed and intensive disturbance that will greatly stress wildlife or interfere with recreation? If ground or other crews are the limitations here – consider an alternative that expands them and uses the same, or less, airspace as at present. Have Singapore or whatever other foreign militaries this all is being designed to sacrifice our airspace to - pay for that, more simulators, etc. The Air Force has an endless frontier mindset – that somehow it can keep grabbing airspace – with no limits. We all have to live within limits –especially considering the very heavy Footprint that these planes and activities have.

Existing MOA airspace floor is 1403-1906 ft. for the Paradise east MOA and 4000-8664 ft for the Paradise west MOA.

Supersonic activity is allowed at 30,000 ft. MSL in the existing situation. Where is the level in any MTR, IR, VR or other routes in or near this area? How will the proposed airspace and foreseeable training changes affect this?

In section 2.2, the EA discusses all kinds of routes and airspaces. WHERE is detailed mapping of the region showing how many of these routes are present, and how MUCH military airspace already exists in NV, OR, ID, UT?

How many bundles of chaff have been used by MHAFB and others over the past 20 years on a year by year basis? Please do not give us a “baseline year of 2005” number, but the actual amount up to the present. Each bundle of chaff contains half a million to 5.6 million fibers. In 2005, the EA states that the military used 91,942 bundles of chaff – this means releasing potentially 5,600,000 x 91,942 fibers of chaff and 41,487 flares. Flares are expected to increase to 62,070. Why are flares increasing and chaff slightly decreasing – although still being at a level greatly above that promised in the ETI FEIS?

Table 2.2 lists 9570 MHAFB sorties and 694 transients in 2005 – citing the linked and segmented 2007 Singapore bed-down EA? How have the various terms related to sorties been used in tallies of flight activity?

How many will be U. S. vs. Singapore or others, and how many transients will there be – under the Proposed or Foreseeable Actions – like White Elk or F-35s?

At what level above the ground would supersonic operations occur under the Proposed Actions – throughout the MOAs and all Routes?

2-14. Are there OTHER countermeasures – if so what are they besides flares and chaff – and what are their effects? What kinds of radar, IR, electromagnetic or other sensing devices or lasers may be in the planes or may be used in the MOAs?

2-17. What “portion” of expanded flare and chaff use will be in the expanded Paradise MOA areas?

Table 3.1 errs in failing to carry air quality vegetation and fish, visual impacts, visual and recreation resources, cultural resources, safety, wetlands, hazardous materials, socioeconomics and WSRs, forward.

Section 3.1 wrongly averages noise effects so as to be able to underplay noise impacts.

The Air Force and the Owyhee study mentioned wrongly minimized the very low ambient noise levels, and the intensity of the noise as experienced by humans (and likely wildlife) in the area. They were also done under different scenarios than the “base year” of 2005 that saw MUCH more flare and chaff and other activity than was claimed to be typical under the ETI EIS, which is what that noise stud was supposed to be looking at.

Section 3.3 wrongly minimizes the serious adverse effects of noise and military training on wild lands.

Map of Wilderness Study Areas Figure 8. We believe that the BLM should consider all “released” WSAs and significant areas of contiguous or nearby lands as wilderness-suitable. In land use planning efforts, BLM should designate new and expanded WSAs.

3.3.3 Wilderness Areas. We are dismayed at the efforts of the Air Force to expand its airspace and air pollution over the Class I Jarbidge Wilderness airspace. How much Class I airspace is there in Nevada? In the tri-state region? This, like the White Elk supersonic airspace grab/expansion seems designed to mar and pollute some of the clearest air remaining in the Western U. S. The air Force can not use the absence of a Wilderness Plan for the Paradise Peak Wilderness to grab airspace and claim no significant effects. A full and detailed analysis that includes specific data collection for baseline air quality must be conducted. Having just visited the Paradise Peak area, we can assure you that ANOTHER of its attributes (like Jarbidge Wilderness and other nearby NV areas) are its clear blue skies unmarred by USAF/Singapore contrails and grinding, deafening plane noise – as is present across the existing MOA areas. The AF must consider the degree and severity of change in noise and visual and air pollution its expansions would inflict.

Please also address how or if chaff discharged in winter, as well as pollutants from contrails, may affect winter snowpacks and water supplies in both Wilderness areas. We note that researchers in Colorado are finding that dust and dark material appreciably speeds the melting of snowpacks – and anthropogenic sources are a cause of the dust and soot.

The EA fails to clearly differentiate between the long-established Class I airshed of the Nevada Jarbidge Wilderness and the highly flawed anything-goes “wilderness” of Public Law 111-11 (see EA at 3.11). In fact the scant 2 paragraphs on the bottom of page 3-11 appear to be purposefully written to confuse a reader into assuming that the Jarbidge Wilderness somehow has no constraints like the flawed and deficient Owyhee Wilderness military language.

Section 3.4 discusses Visual and recreational Resources. The EA wrongly concludes that “expanding the lateral and vertical boundaries of the Paradise East and West MOAs ... would not be expected to change current ROS or VRM classifications ...”.

Under VRM I changes should not be noticeable at all. The jarring ear-splitting noise of the airplanes, the visual startle effect of fast-appearing horrifically loud planes and the crisscrossing of the blue sky with linear unnatural contrails that coalesce to increase “white sky” and false “cloudiness” would cause a very significant auditory effect and a very noticeable visual effect. Litter from all the tens of thousands of annual bundles of chaff - as well as litter from flare parts and pollutants - would increase visual contrasts and be completely discordant with retention of wild lands and wilderness character. Even the quote used - that “the effects on a visitor’s perception of solitude is quite temporary, but **extreme**” – shows there is a significant effect. Further, visitors travel to these places to seek primitive recreation, relaxation, untrammled lands and skies and solitude – not to be blasted by sonic booms and grinding incessant plane noise during nearly all daylight hours – or be awakened by blinking strange lights and horrific noises during night training exercises involving 40 or more planes including transients of unknown types – or be exposed to the horrific noise of the F-35 and its ilk.

We are also dismayed at how inadequate the mapping of Special Use Areas, flight lanes, etc. is – it even fails to display the IDANG night training and other training helicopter areas in or near the northern part of the Owyhee MOA, and areas of this type in other states, as well.

Are there also going to be drones or blimps present hanging in the sky under the training scenario, including making intrusive motor noises? Might a stationary object be perceived by a sage-grouse as a predator of some kind. Sage-grouse are highly sensitive to overhead objects that may resemble the species perception of raptors. The Air force must be aware of all of the concerns related to wind tower placement. Objects located above ground level are a real concern for a bird that gets preyed on by golden eagles. Might the presence of stationary

or relatively stationary objects in the air affect sage-grouse or other wildlife, and cause them to shift or alter behavior?

The Air Force must fully evaluate the baseline and the change in the baseline under any alternative - as well as foreseeable actions - of its pollution and disturbance in Class I, II and other airsheds here. See additional discussion of Air Force failures to address adverse effects of its air pollution, contrails, etc.

EA at 3-16 assumes only 7 percent of sorties are by other types of aircraft. Does that take into account IDANG? What if the Israelis bed-down? MHAFB changes what it does every couple of years to try to keep from getting the base closed down- so what is really in the Planning stage to impress/sway the Base Closure Commission over the next few years? This also seems to contradict info elsewhere in the EA that clearly contemplates all kinds of changes. See EA at 4-13 saying why the No Action Alternative is not acceptable.

We are dismayed at the lack of critical analysis of the effects of USAF here on contributing to climate change/global warming. WHY does the AF examine emissions associated with building new housing -but not the massive pollution associated with its planes and training at MHAFB? This includes both the effects of pollutant particles and the effects of water vapor (perhaps combined with other pollutants) in forming clouds and contrails that heat the planet or that may contribute to global dimming. The Air Force ignored concerns expressed with the Singapore Bed-down EA, and continues to ignore current science and real concerns about climate change. This is another reason that using simulators for some of this activity -rather than generating more pollution - must be fully considered as an alternative.

Section 3.5 Biological Resources is woefully lacking in sufficient current site-specific data and analysis - including a detailed site-specific look across all the lands of the MOAs and surrounding areas. It ignores the perilous status of shrubsteppe habitats and species that are teetering on the edge of permanent losses and severe declines or foreseeable extinctions. See Knick et al. 2003. See Discussion above.

It also ignores full consideration and analysis of the possible effects of sonic booms, noise, pollutant fall-out, etc. on the very important and often very shallow and flow-limited waters and riparian areas of the region. How many streams, and where, are redband trout, LCT, bull trout, spotted frogs found?

Pygmy rabbits are small mammals, a sensitive species, yet there is no analysis of sound effects on them - including in preventing detection of predators. We stress that even small increases in sound in the quiet shrubsteppe environment may mask the noise of predator wings, or sounds of predator movement through vegetation.

The sage-grouse analysis is woefully deficient. There is no integrated mapping, analysis, presentation of data, or discussion of basic info like location of active and historic leks, areas of remaining larger unfragmented blocks of critical habitats, etc. Such info is basic to establishing seasonal or full avoidance and other criteria that may help to protect this species from even more large-scale declines. It is also essential to understand the need for mitigation, and to determine appropriate mitigation for AF activities. Such mitigation should include \$500,000,000 or more (some to be obtained from foreign militaries like Singapore) to conduct shrubsteppe restoration and to purchase and retire public lands properties and base properties from grazing disturbance across the affected area or region.

There is no adequate analysis of the catastrophic effects of the recent Murphy and northern Nevada fires.

There is no analysis of continued declines in leks in areas subject to overflights or other military activity - such as the dwindling to now extinct leks in the vicinity of Saylor Creek and across the MOAs.

As a result, the environmental consequences analysis for sage-grouse and all other wildlife is greatly inadequate. In EA at 4-12, the AF devotes less than one hundred words to sage-grouse, and claims no significant effects, and that any effects would be “temporary”. Well, one night training mission flushing grouse that fly into one of the thousands of miles of barbed wire fences under the airspace, or that do places birds into a sub-optimal area where they get killed by predators can result in significant adverse effects – to local populations - especially those where numbers are already very low, where habitat that is suitable has been greatly reduced by fire, livestock facilities, BLM and Forest sagebrush “treatments”, etc.

Where IS the best remaining habitat? How can training (noise, visual disturbance, pollutants) best be designed to minimize disturbance – or avoid it altogether. We are greatly concerned that military activities - including during periods where use is limited by the AF Settlement Agreement with conservationists, may be shifted into the expanded and flight level lowered Paradise MOAs.

The Air Force references an Elko County rehab – but much of the sagebrush consumed in recent fires will take many decades to recover. Ecologists increasingly recognize that the recovery period for sagebrush is much longer than previously claimed by range managers.

The Light Emissions section is alarming. There is no real analysis of the effects of lights from 40 plane or other type of night training missions. EA at 3-40 states that “flare usage during summer months would be primarily limited to weekday, work hours “ ... Does this mean that the air Force plans to use flares in late July mid-day in 100 degree heat? The AF also brushes aside night training concerns by saying “most occur in winter” so no problem. Well winter is a stressful time for native wildlife – including wintering big game, sage-grouse, etc. Large night missions impacts hundreds if not thousands of square miles with intense bright flashing lights

accompanied by loud noises. This is likely to startle and potentially displace many animals exposed to this activity.

There is a shocking lack of necessary mitigation for disturbance to sage-grouse, bighorn sheep and all other species, as well as in relation to mitigation for global warming effects and adverse impacts to recreation.

In summary, the Environmental Setting component of the EA is greatly inadequate in providing a current baseline of data and analysis to understand the status of biological and all other resources and attributes of public lands affected by this expansion and increase disturbance and activity.

"Expanding the lateral and vertical boundaries of the Paradise East and West MOAs under the Proposed Action—which would include lowering the floor of the MOAs from 14,500 ft above mean sea level (MSL) to 10,000 ft MSL or 3,000 ft above ground level (AGL), whichever is higher—would not change general land use patterns, land ownership, or affect management of lands or special use land areas beneath the MOAs." p. 3-46.

All of the noise analysis relates to the parts of the current fly zones where minimum levels are 100 feet above ground - there is no analysis of what it means to drop the current level from 14,500 ft (theoretically) to 10,000 ft above all of the WSRs/WSAs/other protected areas where the minimum is now (theoretically) 14,500 ft. Also no indication of how this finding - "Aircraft operations do not elevate hourly equivalent sound levels at measurement sites for more than a few hours a day" p. 3-44 - relates to preservation of quiet and solitude. There is no analysis of how this would affect

Currently over the Owyhee in Oregon, the minimum level allowed is 14,500 feet above sea level (i.e. at the river at Three Forks -- elevation 4,000 ft -- military aircraft should be no less than 10,500 feet above the river, and no less than 9,700 ft above the rim). The proposed action would lower that to 10,000 feet, or 3,000 feet above ground level, whichever is higher. Over Oregon (within the "Paradise West Military Operating Area") this would mean a floor of 10,000 feet everywhere (all mountains within that section of Oregon are less than 7,000 feet high). It would also expand the MOA to the north and west, impinging on a stretch of the Owyhee WSR. How will this affect the Oregon Wild and Scenic River and the commercial floating as well as family and other recreational floating activity there? How will contrails affect the VRM qualities?

Because of the potential effects of increased effects on species listed under the ESA and their habitat from the proposed action, the Air Force must consult with the Fish & Wildlife Service and National Marine Fisheries Service before approving the proposed action to determine whether these increased effects will jeopardize the continued existence of any listed species or destroy or adversely modify designated critical habitat of any listed species.

Where are all BLM ACECs, and proposed ACECs, and how will this proposal affect the critical resources in these areas? What about Proposed WSA/Wilderness and ACEC areas? Where are they? WWP has proposed ACECs to Jarbidge BLM as part of the RMP process under a Settlement Agreement. Portions of the Proposed ACEC lands would be affected by the overflights. ONDA has many wild land protections proposals in eastern Oregon that are threatened by this, and has been involved in protracted litigation over grazing and Land Use Plan issues under this airspace – in order to protect wild lands and sensitive species and areas.

Throughout the 2007 Singapore EA, three terms are used to describe aircraft operations: sortie, airfield operation, and sortie-operation. A *sortie* is the flight of a single aircraft from takeoff through landing. An *airfield operation* represents the single movement or individual portion of a flight in the base airfield airspace environment (e.g., a takeoff, a landing, or a closed pattern). A *sortie-operation* is defined as the use of one airspace unit (e.g., a training route) by one aircraft. (From Singapore EA). It is nearly impossible to track changes over time, from the ETI EIS to the present through the use of varying “baseline” years in analyses. WHY are so many more flares and chaff being used must mean there is much more flight activity. Please provide a year-by-year accounting of all activity with all actions clearly defined. Please provide sortie and sortie-operation figures consistently used and defined, and explain the duration and other important features of these.

Radical Changes from ETI –Full Cumulative Effects Not Assessed – and Adequate Mitigations Not Provided for Expanded Actions

Comparison of 1998 Enhanced Training in Idaho (ETI) Composite Wing FEIS tallies and discussions of Chaff, Flares, Sorties, and the Proposed Action with Levels Under the 2009 MOA Expansion EA shows the large-scale changes and increases in military activity that have occurred.

ETI Chaff. 1998. NO Action. Table 2.3-15. Total 48, 896 bundles. Increase to 54, 690. EA at 2-21 describes “baseline year” with MHAFB aircraft (what about transients) using 91, 942 bundles of chaff. Under EA: 74, 519 chaff bundles. (EA at 212).

ETI FEIS Action.

ETI Flares. No Action. 25,243. Decrease under Alt. D 20, 912. EA at 2-21 describes “baseline year” of 2005 as MHAFB using 47, 812 flares annually. EA Proposed Action proposes use of 62,070 flares including increases over Paradise MOAs and lower level use ((EA at 2-12).

WHAT is meant by “chaff must be training chaff, unless otherwise authorized in advance”. WHAT is the difference? WHO authorizes this? How much of each kind has been used here? How much will be used, and by who?

ETI Sorties. NO Action and Baseline (Table 2.2-3) at 2-23 Owyhee: Total MHAFB and others – 7350 sorties. Paradise 5091. Saddle 1986. # of sortie-operations under EA Alt. B would be 31, 799.

ETI FEIS Table 2.3.11 and 2.3.12 (FEIS at 2-67) shows the INCREASED sorties under the ETI FEIS – an increase of 936, so sorties would total 10,536 –with 7,763 in the JMOA in the day and 540 at night –totaling 8273. AND Page 2-68 illustrates the totals by airspace in diagram. Owyhee 7846, JMOA, SCI, See Figure 2.3-18.

So the Paradise MOA was split or “compartmentalized” and use went from 5091 across the entire area to 4382 (west) and 3353 (east) – with eastern area expanded.

The ETI EIS at 2-69 also predicted limited use by others due to distance, and supersonic activity would be above 10,000 ft.

Table 2.3-13 shows changes in sonic booms – with increase of 32 booms in the SCR and JMOA, and increases of 24 in the Paradise MOAs – A total of 593 sonic booms.

ETI FEIS also discusses radio frequency emissions. What happens if the emissions accidentally zap recreationalists or wildlife? WHAT radio frequency emitting devices or weaponry may be on airplanes?

ETI Restrictions, BMPs. Figure 1.3-1 of the ETI EIS shows many routes around MHAFB airspace. The full number of these routes and their impacts – including low level flight or other activity across the region has not been adequately examined in the EA. The military wants to expand airspace to these routes in some areas. Will it now need even more routes? We were told that the ETI (along with all its ground-based facilities and disturbances) would correct deficiencies in training, and would provide the necessary vertical, horizontal and other features needed for effective and realistic training, that the NEW MOA airspace and structure would be just fine, that Duck Valley could be avoided, etc. See ETI EIS at 1-54 and 1-55 “good neighbor policy”. See ETI EIS at 2-61 describing all the wonderful things with the expansions back then. The ETI EIS at 2-64-2-65, etc. This also discusses how multiple training exercises could occur.

Please refer to FEIS Insert Chapter 2 maps to see how the airspace was expanded and flight levels changed in the ETI EIS (Juniper Butte Alternative).

We simply can't understand why the military needs all of this airspace – unless it is planning very loud, nasty and highly intrusive activity by a host of foreign militaries. In fact, when we compare the info in the ETI EIS to the current Singapore Bed-down and now this segmented EA, we find the same justifications being provided for expansion. Yet the military's desires were supposedly satisfied with the 1998 ETI expansion, bottlenecks cured, and that EIS assured sufficient mitigations and quiet for Duck Valley with eastern airspace expansion of the

MOA. In review of the ETI EIS, we find info presented that allows comparison of activities within each area, MOA.

In this airspace expansion and other activity EIS, the AF must provide a year-by-year tally of aircraft type, flare use, chaff use, transient activity sonic booms, sortie duration, complex/red flag/composite wing/combined, etc missions and their duration and location and duration, as well as how all of this is related to and meshes with the use of the Land-Based facilities (Bombing Ranges, No Drops, emitters and rights-of-way that have been issued).

Recently on the ground in the Bruneau FO we observed new right-of-way disturbance that appeared to be buried electrical lines or other activity, as well as just plane blading of what was supposed to be perennial established vegetation.

We ask that reviewers of these comments refer to ETI FEIS map Figure 1.3.2. Then draw in the proposed airspace expansions of the EA. Then draw in the White Elk expansions. See on-line map of White Elk at

<http://www.nevadatrends.com/grace/supersonic/supersonic.html>

Then try to figure what, if any, sagebrush country will be outside military airspace in the entire region.

Nearly the entire Great Basin and a significant part of the Interior Columbia Basin of Nevada will be taken up by military airspace. Is this why the EA unclearly is references sometimes letting commercial aircraft in sectors? Because there will be no place left for them to fly after the Air Force gets its way? Nearly all the remaining sage-grouse habitat here, too, will be under military Airspace. WHAT are the public safety ramifications of all of this to commercial airlines and passengers? What are the chances for deadly accidents or mistakes – given that both training and commercial pilots may be confused at times about just which airspace they are to be in – or “spillover” or timing of use may result in unfortunate errors.


EA at 4-15 claims that “no past preset or future projects are envisioned that would result in cumulative impacts to airspace management under this alternative”.

EA at 3-41 states “under the proposed action or Alternative D ... in order to deploy flares at 3000 ft AGL, the MOU with the BLM would need to be reaccomplished to change the altitude at which flares could be released in the Paradise East and West MOAs”.

We believe that in order to comply with NEPA, FLPMA, sensitive species policies, the ESA and any other applicable laws, the BLM must conduct its own full and open public NEPA process to understand and examine the scale and scope of changes in military activities since any old MOU was signed, and to ensure that actions subject to the MOU, actions occurring in relation to military rights-of-way across BLM lands, etc. do not impair, harm, or jeopardize important public lands values. There have been large scale increases in flare and chaff use,

night-time activity, changes in planes – with more likely, other airspace expansion proposals, and all of this with minimal to no mitigation for jeopardized species like sage-grouse.

Sincerely,



Katie Fite

Western Watersheds Project

PO Box 2863

Boise, ID 83701

208-429-1679


Dave Becker

Staff Attorney

Oregon Natural Desert Association

917 SW Oak Street, Suite 409

Portland, OR 97205

503-525-0193

APPENDIX

The Appendix includes some relevant articles and information. We are also submitting a series of CDs with sage-grouse information, global warming information and other info that we ask the Air Force to consider in an EIS.

“Increase in Noise Levels Leads to More Annoyance Than Similar Noise in Steady State Brown, Kamp. Response to a change in transport noise exposure: Competing explanations of change effects. J. Acoust. Soc. Am. 125 (2), February 2009 This literature review addresses an interesting question, and one that may be relevant to concerns about noise from wind farms. A long history of studies of human annoyance responses to traffic noise seems to suggest that a **change in noise levels (for example, traffic noise increasing from 50dB to 60dB) triggers more annoyance than occurs when exposure is steady at the higher level (in this case, a steady 60dB).** This paper reviews many proposed explanations for this affect; while no single explanation is identified as most likely, several common ones are shown to be unlikely, and a set of plausible explanations remains. Among the explanations that are rejected is the common assumption that the annoyance after an increase is transient, and over time will dissipate as people adapt to the new noise level; in fact, evidence

suggests that annoyance remains for years after a change. Also of note is that the one study that looked closely at whether attitudes toward a noise source is related to annoyance after an increase in noise found that neither prior attitude nor changes in attitude could account for the **increased annoyance**. This paper, and its many citations, are highly recommended for anyone addressing community responses to new or increased noise sources”.

SEL Metric Does Not Simplify TTS Assessment Mooney, Nachtigall, Breese, Vlachos, Au. Predicting temporary threshold shifts in a bottlenose dolphin (*Tursiops truncatus*): The effects of noise level and duration. *J. Acoust. Soc. Am.* 125 (3), March 2009. This study, from one of the leading researchers investigating Temporary Threshold Shift (TTS; **temporary decline in hearing sensitivity**) after exposure to loud noise in dolphins, calls into question one of the key advantages of the Sound Exposure Level metric. SEL measurements are designed to measure total sound exposure over a given period of time; simply stated, SEL remains constant when sound intensity increases while duration decreases (e.g., twice as loud for half as long should result in "equal energy", or the same SEL). The assumption was that SEL offered an "equal energy" metric that could allow biologists and ocean regulators to set a SEL threshold that would apply to many types of noise exposure. However, this study indicates that a given SEL dB level (arrived at via a mathematical equation combining sound energy from many noise pulses over time) did not seem to induce TTS in the single captive dolphin used in this study. As with other metrics, higher SELs were required to induce TTS with shorter duration sounds. By extension, the hypothesis that TTS is caused by a given level of sound energy (the "equal energy" hypothesis) is called into question. The relationship appears to be logarithmic, rather than linear. In this study, the sound source was short (20ms) digitally generated tone bursts.

AND please also see;

Related: Compressor Station Noise Can Reduce Forest Bird Abundance Bayne, Habib, Boutin. Impacts of Chronic Anthropogenic Noise from Energy-Sector Activity on Abundance of Songbirds in the Boreal Forest. *Conservation Biology*, Volume 22, No. 5, 1186-1193, 2008. This study used an innovative study design to separate the effect of noise from the also-important effects of habitat disruption and edge effects caused by energy development. The authors compared bird distributions around (quiet) well pads and (constantly noise-producing) coalbed methane compressor stations in the forest of Alberta. They found that areas near well pads had a passerine density of 1.5 times higher than areas near compressor stations; one-third of the species studied showed this affect. The noise levels produced by the compressor stations is typically 75-95 dB(A) at the source,

sometimes reaching 105dB(A) at large facilities; compressor noise is commonly heard at distances of well over 1 km in the boreal forest; with 5000 compressor stations in boreal Alberta, the question of noise-related displacement is potentially significant. In addition to the overall tendency for passerines to be found in greater numbers near quiet energy installations than noisy ones (with three species especially affected), seven other species showed less dramatic but still noticeable differences, while eleven other species showed no difference. Red-eyed Vireos, White-throated sparrows, and Yellow-rumped warblers were particularly affected, with chickadees, jays, and wrens showing little effect.

F-35 info:

http://en.wikipedia.org/wiki/F-35_Lightning_II

The F-35 includes a GAU-22/A four-barrel 25 mm cannon.[39] The cannon will be mounted internally with 180 rounds in the F-35A and fitted as an external pod with 220 rounds in the F-35B and F-35C.[40][41]

Internally (current planned weapons for integration), up to two air-to-air missiles and two air-to-ground weapons (up to two 2,000 lb bombs in A and C models; two 1,000 lb bombs in the B model) can be carried in the bomb bays.[42] These could be AIM-120 AMRAAM, AIM-132 ASRAAM, the Joint Direct Attack Munition (JDAM) — up to 2,000 lb (910 kg), the Joint Standoff Weapon (JSOW), Small Diameter Bombs (SDB) — a maximum of four in each bay, the Brimstone anti-armor missiles, and Cluster Munitions (WCMD).[42] The MBDA Meteor air-to-air missile is currently being adapted to fit internally in the missile spots and may be integrated into the F-35. The UK had originally planned to put up to four AIM-132 ASRAAM internally but this has been changed to carry 2 internal and 2 external ASRAAMs.[43] It has also been stated by a Lockheed executive that the internal bay will eventually be modified to accept up to 6 AMRAAMs.[44]

Wiki: “At the expense of being more detectable by radar, many more missiles, bombs and fuel tanks can be attached on four wing pylons and two near wingtip positions. The two wingtip locations can only carry AIM-9X Sidewinder. The other pylons can carry the AIM-120 AMRAAM, Storm Shadow, AGM-158 Joint Air to Surface Stand-off Missile (JASSM) cruise missiles, guided bombs, 480-gallon and 600-gallon fuel tanks.[45] An air-to-air load of eight AIM-120s and two AIM-9s is conceivable using internal and external weapons stations, as well as a configuration of six 2,000 lb bombs, two AIM-120s and two AIM-9s.[42][46] With its payload capability, the F-35 can carry more air to air and air to ground weapons than legacy fighters it is to replace as well as the F-22 Raptor.[47] Solid-state lasers were being developed as optional weapons for the F-35 as of 2002.[48][49][50]”.

Wikipedia also describes: In late 2008 the Air Force revealed that the F-35 would be about twice as loud at takeoff as the F-15 Eagle and up to four times as loud upon landing. As a result, residents near Davis-Monthan Air Force Base, Arizona and Eglin Air Force Base, Florida, possible homes of the jet, have requested that the Air Force conduct environmental impact studies concerning the F-35's noise levels.[69] The city of Valparaiso, Florida, adjacent to Eglin AFB threatened in February 2009 to sue the Air Force over the impending arrival of the F-35s.[70] However, it was reported in March 2009 that testing by Lockheed Martin and the Royal Australian Air Force revealed that the F-35 was not as loud as first reported, being "only about as noisy as an F-16 fitted with a Pratt & Whitney F100-PW-200 engine" and "quieter than the Lockheed Martin F-22 Raptor and the Boeing F/A-18E/F Super Hornet." [71]

THUS it is clear that there is great uncertainty about the noisiness of the F-35. Yet the AF clearly contemplates using them here and is expanding the airspace in advance to try to accommodate this plane. WHERE is the noise modeling for this? Including 40-plane exercises with transients and others? Or modeling of spillover activity from White Elk or other areas?

AND: The noise from the F-35 is extreme!

http://www.airforcetimes.com/news/2008/10/airforce_f35_basing_102608/

Study: F-35 twice as loud as F-15

By Bruce Rolfsen - Staff writer

Posted : Monday Oct 27, 2008 8:48:53 EDT

The Air Force is very quiet about a noisy fighter.

At military housing areas and base schools on Eglin Air Force Base, Fla., noise from F-35 Lightning II operations will be twice as loud as current Eglin F-15 flights, reaching 83 decibels.

Off base, F-35 noise will be even louder, reaching up to 90 decibels in civilian neighborhoods under an Eglin flight path.

All that is revealed in an environmental impact study prompted by plans to set up the joint F-35 pilot and maintenance training school at Eglin.

But the impact of the study goes beyond Eglin, as the Air Force looks to stand up F-35 units at bases across the country. The service has not yet decided where that would be, but is looking at Eielson Air Force Base, Alaska;

Luke Air Force Base, Ariz.; Moody Air Force Base, Ga.; Mountain Home Air Force Base, Idaho; and Shaw Air Force Base, S.C.

Air Force officials declined to discuss the report other than to say its findings have their attention.

“The Air Force is committed to being a good neighbor to the communities which surround Eglin and the future installations selected for F-35 basing,” Kathleen Ferguson, deputy assistant secretary of Air Force for installations, said in a written statement.

“We are diligently exploring methods to mitigate the impact.”

Around Eglin, much of the public’s environmental concerns center on jet noise.

People living near the base are accustomed to the roaring jets at the base and don’t look twice when a fighter circles for a landing or takes off at full military power.

In fact, the seal for Okaloosa County, where Eglin is located, pictures two airborne F-15s.

But when the Air Force issued a preliminary environmental study in June showing an F-35’s single engine would generate more noise than the two engines of an F-15, people started paying attention.

In the city of Valparaiso, along the north side of Eglin, civic leaders bristled at suggestions the residents and businesses under the F-35’s flight path should move to quieter areas.

The preliminary findings were confirmed in the environmental assessment released by the Air Force on Oct. 10.

“At military takeoff power, noise from the F-35 is about 9 decibels higher — or twice as loud — than an F-15C at military takeoff power,” the report said.

The F-35 is even louder coming in for a landing. “During approach, noise from the F-35 is about 19 decibels higher than noise from an F-15C,” the report said. “This corresponds to the F-35 being about four times as loud as the F-15C” when it lands.

There should be plenty of opportunities at Eglin to hear just how loud an F-35 is. On training days, about 125 F-35s will take off and land at Eglin, the study said.

Overall, the combination of louder engines and different flight patterns drastically expands the areas where engine roar will reach 75 decibels and higher.

The number of people living near Eglin exposed frequently to sound levels of 75 decibels or more would rise by more than 1,500 percent, jumping from 142 people to 2,174 people, the report said.

The study calmly noted that once sound levels exceed 75 decibels, more than one third of the people are “high annoyed.”

Still, the new center might bring some good news: jobs.

Overall, 2,146 airmen, sailors and Marines would be assigned to the training wing, including 109 student pilots and 436 student maintainers. In addition, 180 civilians would work for the wing.

The training wing replaces the operational 33rd Fighter Wing, now phasing out as its two squadrons of F-15s are retired or sent to other units.

Regardless of the F-35 basing, Eglin would continue to be home to several Materiel Command units, including the 46th Test Wing and Air Armament Center, and Air Combat Command’s 53rd Wing.

We ask that this study and this information be fully incorporated into Paradise MOA EA analysis. “The study calmly noted that once sound levels exceed 75 decibels, more than one third of the people are “high annoyed.”

We also ask that the Air Force reveal where, and how often, and over how large an area, under any alternative and all training scenarios, will noise levels exceed 75 decibels? We note that the Fidell Report from 2009 bases its conclusions on AVERAGED sounds and info from old aircraft – not even on the Strike Eagle – let alone all the other and new planes including combinations of planes and activities that might be using this including the F-35.

Chaff and Teflon:

<http://www.delawareonline.com/apps/pbcs.dll/article?AID=/20051016/NEWS/510160339/-1/NEWS01>

October 16, 2005

The News Journal (Delaware)

Agencies widen study of toxins in fish Teflon ingredient might be added to list of hazards

By JEFF MONTGOMERY Federal and state regulators have for years issued warnings about levels of mercury, polychlorinated biphenyls (PCBs) and other industrial chemicals in fish.

Now flame-retardant chemicals and compounds used to make stick- and stain-resistant products, including

DuPont's Teflon, may be among the targets in a widening study of fish tissue contaminants and consumer health risks, according to federal officials.

The assessments would be part of a joint attempt by the EPA and the Food and Drug Administration to broaden and clarify information about toxins in fish and to help improve state-by-state fish consumption advisories.

The FDA and EPA signed a five-year agreement in June calling for "close collaboration" in assessing environmental contaminants in fish and shellfish and consumer safety.

Last month EPA managers publicly singled out two relatively new chemicals for mention during a conference in Baltimore on fish contamination: polybrominated diphenyl ethers, or PBDE, used as a flame retardant; and perfluorooctanoic acid, or PFOA, used to make DuPont's Teflon coatings and thousands of other consumer products.

"What they were saying is, they need to know more about the levels" of PFOA in water and fish tissue, said Kerry S. Humphrey, an EPA spokeswoman. "It is true that there is interest in gathering more information about what may be emerging contaminants."

Both chemicals were identified during the Baltimore conference as "emerging contaminants" likely to come under scrutiny in fish tissue and public health assessments, according to a check of one EPA presentation document. Both have been found throughout the environment and in a wide assortment of consumer products, ranging from baby pajamas and mattresses to fast-food packaging, furnishings, clothing and industrial products.

PFOA, a chemical that did not exist decades ago, has turned up in the blood of people and animals around the globe. PBDE, a compound that some scientists have compared with PCBs, has been found in the breast milk of nursing mothers.

Tim Kropp, a senior scientist with Environmental Working Group, a nonprofit organization in Washington, D.C., said the EPA was justified in focusing on PFOA, now under consideration for listing as a probable carcinogen.

"You have something extremely persistent that's going to accumulate in people," Kropp said. "You should always know what the safe level is. There should be some threshold of concern."

Since federal officials issue advisories for mercury and PCBs, Kropp said, "they should make the same determinations for things like the Teflon chemicals, which are indestructible and in everyone."

PFOA already has become the focus of lawsuits against the DuPont Co., a company that uses the chemical during production of its flagship Teflon coatings. DuPont already has agreed to pay millions to compensate and evaluate the health of Ohio and West Virginia residents in areas where PFOA has contaminated drinking water.

Reserving comment

A DuPont spokesman said in a prepared statement that the company would reserve comment on the possibility of fish consumption advisories based on PFOA contamination.

An EPA ruling is due in November on a penalty order against DuPont in a case involving federal claims that the company failed to report signs of potential health issues involving PFOA.

Little is known about the specific toxic effects of brominated flame retardants, but some researchers say the increasing presence of the compounds in human tissue is worrisome because they have been associated with cancer and other health problems in animal studies. The EPA-FDA agreement encourages "uniformity where

appropriate" in warnings about consumption of fish from commercial and sport fish catches. FDA regulations in some cases now tolerate higher concentrations of toxic pollutants for consumer products than levels recommended in EPA-backed warnings for public and "subsistence" fishing.

Under the pact, both agencies would encourage development of advisories that consider "both risks and benefits of consumption of commercial and noncommercial fish and shellfish."

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Also:

<http://www.springerlink.com/content/n065u08q601561t0/fulltext.pdf?page=1>

Teflon bioaccumulates in insects and fish. 3M has

discontinued production while DuPont has not and the health effects

are being investigated. Is the military continuing to use this? How much is present in the soil and water of the region? How will the expanded airspace and predicted level of activity increase its presence especially in bull trout and other habitats.

From the 1994 Report on Flares and Chaff (on cd):

There are no water quality criteria established for **boron**. However, in a comparison of the TCLP laboratory data against a U.S. Fish and Wildlife Service publication on toxicity effects of boron (USFWS 1985), the levels of boron extracted in the pH 10 samples of flare ash would be sufficient to cause lethal or chronic effects in several aquatic species.

Flare ash extracts also contained measurable levels of **ammonia**. The values ranged from 2.8 to 3.2 ppm and are at or above levels reported by EPA as toxic to aquatic life (EPA 1985). In addition, both the flare dud and the flare ash samples had a significant effect on the pH of the solutions with which they reacted. The 1.1 gram samples of flare ash raised the pH of 225 milliliters of buffered sodium acetate solution from pH 4 to pH 9.6. While flare ash quantities likely to settle in a body of water are very small, a dud flare falling into a small, confined pond could raise the pH and adversely affect aquatic life in the water. This is an extremely unlikely event, however.

In summary, the TCLP test results are inconclusive with respect to potential effects from flare

ash on sensitive aquatic habitats, primarily because the toxicity levels to some aquatic organisms are so low. However, the potential for impact is highly dependent on the quantity of material deposited in a given body of water. After burning, the ash produced by a flare would be widely dispersed by wind, and the quantity settling in a single location would be limited. Conditions warranting further consideration might include small water bodies containing organisms that are highly sensitive to magnesium, barium, boron, ammonia, or pH changes in areas that receive a high amount of flare use.

Many of the waterbodies under the MOAs are small with limited flows. Small playas are also found.

<http://www.spaceref.com/news/viewpr.html?pid=14104>

NASA Study: Clouds Caused by Aircraft Exhaust May Warm Climate

PRESS RELEASE

Date Released: Tuesday, April 27, 2004

Source: Langley Research Center

NASA scientists have found that cirrus clouds, formed by contrails from aircraft engine exhaust, are capable of increasing average surface temperatures enough to account for a warming trend in the United States that occurred between 1975 and 1994.

"This result shows the increased cirrus coverage, attributable to air traffic, could account for nearly all of the warming observed over the United States for nearly 20 years starting in 1975, but it is important to acknowledge contrails would add to and not replace any greenhouse gas effect," said Patrick Minnis, senior research scientist at NASA's Langley Research Center in Hampton, Va. The study was published April 15 in the Journal of Climate. "During the same period, warming occurred in many other areas where cirrus coverage decreased or remained steady," he added.

"This study demonstrates that human activity has a visible and significant impact on cloud cover and, therefore, on climate. It indicates that contrails should be included in climate change scenarios," Minnis said.

Minnis determined the observed one percent per decade increase in cirrus cloud cover over the United States is likely due to air traffic-induced contrails. Using published results from NASA's Goddard Institute for Space Studies (New York) general circulation model, Minnis and his colleagues estimated contrails and their resulting cirrus clouds would increase surface and lower atmospheric temperatures by 0.36 to 0.54 degrees Fahrenheit per decade. Weather service data reveal surface and lower atmospheric temperatures across North America rose by almost 0.5 degree Fahrenheit per decade between 1975 and 1994.

Minnis worked with colleagues Kirk Ayers, Rabi Palinkonda, and Dung Phan from Analytical Services and Materials, Inc., of Hampton, Va. They used 25 years of global surface observations of cirrus clouds, temperature and humidity records from the National Centers for Environmental Prediction (NCEP) reanalysis dataset. They confirmed the cirrus trends with 13 years of satellite data from NASA's International Satellite Cloud Climatology Project.

Both air traffic and cirrus coverage increased during the period of warming despite no changes in the NCEP humidity at jet cruise altitudes over the United States. By contrast, humidity at flight altitudes decreased over other land areas, such as Asia, and was accompanied by less cirrus coverage, except over Western Europe, where air traffic is very heavy.

Cirrus coverage also rose in the North Pacific and North Atlantic flight corridors. The trends in cirrus cover and warming over the United States were greatest during winter and spring, the same seasons when contrails are most frequent. These results, along with findings from earlier studies, led to the conclusion that contrails caused the increase in cirrus clouds.

"This study indicates that contrails already have substantial regional effects where air traffic is heavy, such as over the United States. As air travel continues growing in other areas, the impact could become globally significant," Minnis said.

Humidity is the amount of water vapor in the air and determines how long contrails remain in the atmosphere. Contrails that persist for an extended period of time are most likely to impact the climate.

Contrails form high in the atmosphere when the mixture of water vapor in the aircraft exhaust and the air condenses and freezes. Persisting contrails can spread into extensive cirrus clouds that tend to warm the Earth, because they reflect less sunlight than the amount of heat they trap. The balance between Earth's incoming sunlight and outgoing heat drives climate change.

NASA's Earth Science Enterprise funded this research. NASA's Earth Science Enterprise is dedicated to understanding the Earth as an integrated system and applying Earth System Science to improve prediction of climate, weather, and natural hazards using the unique vantage point of space.

For information about this research on the Internet, visit:

<http://www.larc.nasa.gov>

For information about NASA on the Internet, visit:

<http://www.nasa.gov/home/index.html>

[HTTP://WWW.SCIENCECODEX.COM/SCIENTISTS ESTIMATE STATE BY STATE MERCURY EMISSIONS FROM U S FIRES](http://www.sciencecodex.com/scientists_estimate_state_by_state_mercury_emissions_from_us_fires)

SCIENTISTS ESTIMATE STATE-BY-STATE MERCURY EMISSIONS FROM US FIRES

FOREST FIRES AND OTHER BLAZES IN THE UNITED STATES LIKELY RELEASE ABOUT 30 PERCENT AS MUCH MERCURY AS THE NATION'S INDUSTRIAL SOURCES, ACCORDING TO INITIAL ESTIMATES IN A NEW STUDY BY SCIENTISTS AT THE NATIONAL CENTER FOR ATMOSPHERIC RESEARCH (NCAR). FIRES IN ALASKA, CALIFORNIA, OREGON, LOUISIANA, AND FLORIDA EMIT PARTICULARLY LARGE QUANTITIES OF THE TOXIC METAL, AND THE SOUTHEAST EMITS MORE THAN ANY OTHER REGION, ACCORDING TO THE RESEARCH. THE MERCURY RELEASED BY FOREST FIRES ORIGINALLY COMES FROM INDUSTRIAL AND NATURAL SOURCES.

THE STUDY, "MERCURY EMISSION ESTIMATES FROM FIRES: AN INITIAL INVENTORY FOR THE UNITED STATES," IS BEING PUBLISHED ONLINE TODAY BY THE JOURNAL ENVIRONMENTAL SCIENCE AND TECHNOLOGY. THE RESEARCH WAS FUNDED BY THE NATIONAL SCIENCE FOUNDATION, NCAR'S PRINCIPAL SPONSOR, AS WELL AS BY THE ELECTRIC POWER RESEARCH INSTITUTE AND THE ENVIRONMENTAL PROTECTION AGENCY. THIS MAP SHOWS THE ANNUAL AVERAGE (IN METRIC TONS) OF MERCURY RELEASED BY FIRES FOR EVERY STATE EXCEPT HAWAII. THE ESTIMATES ARE BASED ON FIRES FROM 2002 TO 2006. CREDIT: ILLUSTRATION BY STEVE DEYO, UCAR.

THE PAPER ESTIMATES THAT FIRES IN THE CONTINENTAL UNITED STATES AND ALASKA RELEASE ABOUT 44 METRIC TONS OF MERCURY INTO THE ATMOSPHERE EVERY YEAR. IT IS THE FIRST STUDY TO ESTIMATE MERCURY EMISSIONS FOR EACH STATE, BASED ON A NEW COMPUTER MODEL DEVELOPED AT NCAR. THE

AUTHORS CAUTION THAT THEIR ESTIMATES FOR THE NATION AND FOR EACH STATE ARE PRELIMINARY AND ARE SUBJECT TO A 50 PERCENT OR GREATER MARGIN OF ERROR.

MERCURY DOES NOT ORIGINATE IN FIRES. INSTEAD, IT COMES FROM INDUSTRIAL AND NATURAL SOURCES, OFTEN SETTLING INTO SOIL AND PLANT MATTER. INTENSE FIRES THEN RELEASE THE MERCURY BACK INTO THE ATMOSPHERE, WHERE IT POSES A NEW DANGER BECAUSE IT CAN REACH SENSITIVE WATERWAYS AND OTHER AREAS.

"WHAT WE ARE SEEING IS THAT MERCURY FROM OTHER SOURCES IS BEING DEPOSITED INTO THE VEGETATION AND SOIL AND THEN BEING RELEASED BACK INTO THE ATMOSPHERE, WHERE IT CAN TRAVEL FAR DOWNWIND AND CONTAMINATE WATERSHEDS AND FRAGILE ECOSYSTEMS," SAYS NCAR SCIENTIST CHRISTINE WIEDINMYER, ONE OF THE STUDY'S CO-AUTHORS. "IT'S IMPORTANT FOR FEDERAL AND STATE OFFICIALS TO HAVE THIS TYPE OF INFORMATION AND TO KNOW WHERE MERCURY IS COMING FROM SO THEY CAN BETTER PROTECT PUBLIC HEALTH AND THE ENVIRONMENT."

MERCURY IS A TOXIN THAT CAN THREATEN HUMAN HEALTH AND ECOSYSTEMS. DEPENDING ON ITS FORM, IT CAN TRAVEL LONG DISTANCES IN THE ATMOSPHERE BEFORE RETURNING TO EARTH THROUGH PRECIPITATION OR DRY DEPOSITION. IT IS PARTICULARLY DANGEROUS IF IT WINDS UP IN WATERWAYS, BECAUSE IT CAN TRANSFORM INTO METHYLMERCURY AND MOVE UP THE AQUATIC FOOD CHAIN WHILE BECOMING INCREASINGLY CONCENTRATED. THE ENVIRONMENTAL PROTECTION AGENCY WARNS PREGNANT WOMEN AND YOUNG CHILDREN AGAINST CONSUMING SOME TYPES OF FISH AND SHELLFISH BECAUSE OF MERCURY LEVELS.

TO ESTIMATE THE EMISSIONS, WIEDINMYER AND NCAR SCIENTIST HANS FRIEDLI, WHO CO-AUTHORED THE ARTICLE, USED SATELLITE OBSERVATIONS OF FIRES, AIRCRAFT AND GROUND-BASED MEASUREMENTS OF MERCURY, AND A NEW COMPUTER MODEL OF FIRE EMISSIONS THAT WIEDINMYER CREATED. THEY FOCUSED ON A FIVE-YEAR PERIOD FROM 2002 TO 2006 AND EXAMINED EVERY STATE EXCEPT HAWAII, FOR WHICH THEY LACKED DETAILED DATA.

THE PAPER WARNS THAT ITS ESTIMATES ARE SUBJECT TO AT LEAST A 50 PERCENT MARGIN OF ERROR DUE TO IMPRECISE INFORMATION ABOUT BOTH THE EXACT SIZE OF FIRES AND THE AMOUNT OF MERCURY EMITTED BY EACH FIRE. THE ESTIMATES FOR THE NATION AND EACH STATE ARE MIDPOINTS; ALASKA'S EMISSIONS, FOR EXAMPLE, ARE LIKELY TO BE FROM 6.3 TO 18.8 TONS, BUT 12.5 IS THE MIDPOINT.

"THESE ARE INITIAL ESTIMATES, BUT THEY CLEARLY POINT TO FIRES IN CERTAIN STATES EMITTING PARTICULARLY HIGH AMOUNTS OF MERCURY," WIEDINMYER SAYS.

HIGH AND LOW EMITTERS

ALASKA, WHICH EXPERIENCED VAST WILDFIRES FROM 2002 TO 2006, RELEASED FAR MORE MERCURY THAN OTHER STATES, WITH CALIFORNIA RELEASING THE MOST IN THE CONTINENTAL UNITED STATES. ALASKA'S ANNUAL EMISSIONS OVER THE FIVE-YEAR PERIOD WERE ESTIMATED AT ABOUT 12.5 METRIC TONS. CALIFORNIA AVERAGED 3.4 TONS, FOLLOWED BY OREGON (2.5 TONS), LOUISIANA (1.95) AND FLORIDA (1.89).

THE AUTHORS ALSO QUANTIFIED EMISSIONS BY REGIONS, AS DEFINED BY THE NATIONAL INTERAGENCY FIRE CENTER. THE SOUTHEAST, A REGION THAT ENCOMPASSES 13 STATES AND INCLUDES BORDER STATES SUCH AS KENTUCKY AND OKLAHOMA, EMITTED 14.4 TONS PER YEAR--THE MOST OF ANY OF THE NIFC REGIONS. IN ADDITION TO LOUISIANA AND FLORIDA, THREE OTHER SOUTHERN STATES RANKED IN THE TOP TEN: GEORGIA, TEXAS, AND ALABAMA.

IN CONTRAST, STATES IN THE MIDWEST AND GREAT LAKES EMITTED COMPARATIVELY LITTLE MERCURY FROM FIRES. HOWEVER, THEY COULD POTENTIALLY BE AFFECTED BY EMISSIONS FROM WESTERN WILDFIRES.

THE EMISSIONS VARIED WIDELY BY SEASON AND YEAR, DEPENDING ON THE EXTENT OF FIRES AND PRESCRIBED BURNS. WESTERN STATES IN GENERAL HAD FAR HIGHER EMISSIONS IN THE SUMMER AND EARLY FALL, WHEN WILDFIRES ARE MORE PREVALENT. IN THE SOUTHEAST, HOWEVER, EMISSIONS TYPICALLY PEAKED IN THE SPRING AND FALL, WHICH MAY REFLECT PRESCRIBED BURNING PRACTICES IN THE REGION.

THE ANNUAL AVERAGE OF 44 TONS FOR FIRES IN THE UNITED STATES AND ALASKA COMPARES TO A TOTAL OF ABOUT 108 TONS THAT IS RELEASED EACH YEAR FROM INDUSTRIAL SOURCES, SUCH AS POWER PLANTS, INCINERATORS, BOILERS, AND MINES. MERCURY ALSO COMES FROM NATURAL SOURCES, INCLUDING VOLCANOES AND OCEAN VENTS.

DOWNWIND IMPACTS?

ONE OF THE NEXT STEPS FOR THE RESEARCHERS WILL BE TO EXAMINE HOW MUCH MERCURY FROM FIRES IS DEPOSITED ON NEARBY DOWNWIND AREAS, COMPARED TO HOW MUCH TRAVELS AROUND THE HEMISPHERE. MOST OF THE MERCURY IN FIRE EMISSIONS IS IN GASEOUS FORM, TRAVELING THOUSANDS OF MILES BEFORE COMING DOWN IN SMALL AMOUNTS IN RAIN OR SNOW. BUT ABOUT 15 PERCENT OF THE MERCURY IS ASSOCIATED WITH AIRBORNE PARTICLES, SUCH AS SOOT, SOME OF WHICH MAY FALL TO EARTH NEAR THE FIRE.

"WE WOULD LIKE TO DETERMINE THE RISK OF MERCURY EXPOSURE FOR RESIDENTS WHO LIVE DOWNWIND OF LARGE-SCALE FIRES," FRIEDLI SAYS.

THE UNIVERSITY CORPORATION FOR ATMOSPHERIC RESEARCH MANAGES THE NATIONAL CENTER FOR ATMOSPHERIC RESEARCH UNDER PRIMARY SPONSORSHIP BY THE NATIONAL SCIENCE FOUNDATION (NSF).

OPINIONS, FINDINGS, CONCLUSIONS, OR RECOMMENDATIONS EXPRESSED IN THIS DOCUMENT ARE THOSE OF THE AUTHOR(S) AND DO NOT NECESSARILY REFLECT THE VIEWS OF THE NATIONAL SCIENCE FOUNDATION.

TITLE "MERCURY EMISSION ESTIMATES FROM FIRES: AN INITIAL INVENTORY FOR THE UNITED STATES"

AUTHORS CHRISTINE WIEDINMYER AND HANS FRIEDLI

Subject: Re: BLM CE settlement approved

Date: Thursday, July 30, 2009 4:38 PM

From: Michael J. Connor <mjconnor@westernwatersheds.org>

To: Laird Lucas <llucas@advocateswest.org>

Cc: Jon Marvel <jon@westernwatersheds.org>, Katie Fite <katie@westernwatersheds.org>, <ken@westernwatersheds.org>, <ttucci@advocateswest.org>, <nhavlina@advocateswest.org>, <lrule@advocateswest.org>, <kruether@advocateswest.org>

Laird:

Outstanding job! One question - does permanently discontinuing use of the 3 CE classes apply to projects that are in process but not final?

Mike

Laird Lucas wrote:

- > Folks --- I'm attaching the Stipulated Settlement Agreement resolving
- > WWP's challenges to BLM's 2007 Grazing and Vegetation Management CEs
- > and its 2003 Hazardous Fuels CE. This was approved by Judge Winmill
- > on Monday this week, so its now final.
- >
- > I'll ask DOJ to advise as to when BLM formally withdraws these CEs
- > pursuant to the settlement, but presumably BLM has already stopped
- > using them.
- >
- > Also note that BLM is withdrawing a number of grazing decisions
- > approved in Idaho and Nevada under the CEs, as we've previously gone
- > over.
- >
- > Laird J. Lucas
- > Executive Director
- > Advocates for the West
- > PO Box 1612
- > Boise ID 83701
- > 208-342-7024 x. 201
- > www.AdvocatesWest.org

--

 Michael J. Connor, Ph.D.
 California Director
 Western Watersheds Project
 P.O. Box 2364
 Reseda, CA 91337-2364
 (818) 345-0425
<http://www.westernwatersheds.org>



Elko County Board of Commissioners

569 Court Street • Elko, Nevada 89801
775-738-5398 Phone • 775-753-8535 Fax

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EXECUTIVE ASSISTANT
MICHELE A. PETTY

October 28, 2009

Colonel Peter Lee, Vice Commander
366th Fighter Wing
366 Gunfighter Avenue, Suite 314
Mountain Home, AFB ID 83648

RE: Paradise East and Paradise West Military Operations Airspace (MOA)

Dear Colonel Lee:

The Elko County Board of Commissioners thanks you for coming to Elko to meet with the Commission on this important issue. We appreciate the presentation on the MOA proposal that you, Byron Schmidt, Chief Airspace Manager, and Angelia Binder, Chief of Conservation, gave on October 7, 2009. We also appreciate the level of attention to our questions and concerns raised in our letter of July 30, 2009. The presentation was very helpful and we feel that it has sufficiently answered most of our major issues with this MOA proposal.

Please let us re-emphasize our strong support for the men and women of the Armed Forces. The July 30 letter was not in any way a statement of opposition to the military or current military actions taking place in various locations around the world. Our concerns at that time dealt directly with perceived impacts to Elko County. Your presentation alleviated our concerns.

Please accept this letter as Elko County's support for this proposal. Please feel free to contact me if you have any comments or question. We wish the 366th Fighter Wing Godspeed in its mission to protect our Country.

Sincerely,


Charlie Myers, Vice Chair
Elko County Board of Commissioners

**cc: Honorable Harry Reid, United States Senate
Honorable John Ensign, United States Senate
Honorable Dean Heller, United States House of Representatives
Honorable Jim Gibbons, Governor of Nevada
Honorable Dean Rhoads, Nevada State Senate
Honorable John Carpenter, Nevada State Assembly
BLM Elko Field Office
USFS Mt. City Ranger District
Nevada Department of Wildlife
Byron Schmidt, Chief Airspace Manager
Angelia Binder, Chief of Conservation**



United States Department of the Interior



FISH AND WILDLIFE SERVICE

Nevada Fish and Wildlife Office

1340 Financial Blvd., Suite 234

Reno, Nevada 89502

Ph: (775) 861-6300 ~ Fax: (775) 861-6301

August 26, 2009

File No. 2009-FA-0143

Mr. Peter A. Lee
366th Fighter Wing Public Affairs Office
Attention Airspace EA
366 Gunfighter Avenue, Suite 314
Mountain Home AFB Idaho 83648

Dear Mr. Lee:

Subject: Draft Environmental Impact Statement for Proposed Airspace Changes for Paradise East and Paradise West Military Operation Areas

This is in response to your letter of June 5, 2009, received in our office on June 11, requesting comments on the Draft Environmental Impact Statement (DEIS) for the proposed expansion of the lateral and vertical boundaries of Paradise East and Paradise West Military Operation Areas (MOAs). The floor of the MOAs would be lowered from 14,500 feet above mean sea level (MSL) to 10,000 feet MSL, or 3,000 feet above ground level, and would add approximately 16,985 cubic nautical miles of training airspace.

We have reviewed the DEIS and are providing the following comments for the airspace changes in Humboldt and Elko Counties, Nevada, pursuant to the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*); Migratory Bird Treaty Act (MBTA), 16 U.S.C. 703; and the Bald and Golden Eagle Protection Act. Wetlands are afforded protection under Executive Orders 11990 (wetland protection) and 11988 (floodplain management), as well as section 404 of the Clean Water Act. Other fish and wildlife resources are considered under the Fish and Wildlife Coordination Act, 48 Stat. 401, as amended, 16 U.S.C. 661 *et seq.*, and the Fish and Wildlife Act of 1956, as amended, 70 Stat. 1119, 16 U.S.C. 742a.

TAKE PRIDE
IN AMERICA 

General Comments

The DEIS acknowledges several listed species that are known to occur within the defined expansion area. These include: bull trout (*Salvelinus confluentus*; threatened), Lahontan cutthroat trout (*Oncorhynchus clarkii henshawi*; threatened), and Columbia spotted frog (*Rana luteiventris*; candidate, Great Basin Distinct Population Segment). In addition to listed species there are a number of sensitive species or species-at-risk that are known to occur in the expansion area and may be affected by activities related to the proposed action; they are discussed further below.

Research on the effects of supersonic flight on wildlife species has presented varying conclusions. Impacts are species or taxa dependent and range from negligible to substantial. These examinations have typically focused on repeated, low-altitude overflights. Given that the airspace of the MOA begins at 10,000 feet mean sea level, impacts to wildlife species from aircraft noise including sonic booms will likely depend on the topography of the underlying terrain. Several mountain ranges in the area have peaks that exceed 11,000 feet elevation with intervening basins being substantially lower. Depending on the aircraft altitude above ground level and ultimately the associated noise level, species response will likely vary. Additionally, species response to the action will likely be influenced by the extent of the activity and the time of year it occurs. For example, a large raptor migration occurs in late summer and early fall along the Goshute Mountain Range at approximately 9,000 feet elevation. A thorough review and analysis of the best available information on this topic should be included in the EIS process.

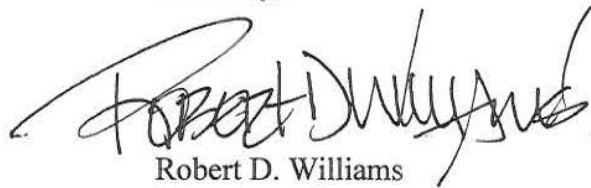
Specific Comments

Page 2-12, 2.4.3, Chaff and Flare Use and Page 3-2, 3.1, Noise: Impacts from the deployment of chaff and flares will likely prove limited. However, we recommend an analysis of the potential for wildfire and chemical alteration to aquatic and terrestrial resources. The pygmy rabbit (*Brachylagus idahoensis*), greater sage-grouse (*Centrocercus urophasianus*) and American pika (*Ochotona princeps*) have been petitioned for listing under the Act and may be negatively influenced by loss of habitat due to wildfire and/or impacts from noise. Close inspection of the potential wildfire hazard is warranted. Although a cursory literature review suggests the chemical composition of chaff and flares are likely benign to terrestrial habitats (*i.e.*, soils), impacts to aquatic resources appear to be less clear. Several aquatic species recognized under the Act occur in the area. Additionally, there are several fish and aquatic macroinvertebrate species with special management status recognized by other Federal land management agencies (*i.e.*, Bureau of Land Management, U.S. Forest Service) present. It appears reasonable and prudent to include analysis of potential impacts to these aquatic resources from any anticipated "fallout."

The MBTA is the primary legislation in the United States established to conserve migratory birds. The Service is the Federal agency within the United States responsible for administering and enforcing the statute. In addition to the potential impact to migratory birds described above (*i.e.*, noise disturbance, habitat loss), direct bird mortality from collision may be realized during the course of the action. The extent of this potential impact is not known. A full review of this topic and quantification of the scope of this impact would be warranted.

The Service appreciates the efforts undertaken by the U.S. Air Force to engage us in the National Environmental Policy Act process, especially during the early phase of planning. Furthermore, we appreciate your awareness of the need for species conservation in the area. Based on our review of the limited materials provided for the proposed action, it appears that through proper planning and implementation of appropriate mitigation measures, potential impacts are readily avoidable. If you have any questions or require additional information, please contact me or Kathleen Erwin at 775-861-6300.

Sincerely,

A handwritten signature in black ink, appearing to read "Robert D. Williams". The signature is fluid and cursive, with a large initial "R" and "W".

Robert D. Williams
State Supervisor

cc:

Field Manager, Elko District Office, Bureau of Land Management Elko, NV
Field Manager, Winnemucca District Office, Bureau of Land Management, Winnemucca, NV
District Ranger, Jarbidge Ranger District, U.S. Forest Service, Wells, NV
Field Supervisor, Boise Field Office, U.S. Fish and Wildlife Service, Boise ID

Appendix D
Responses to Public Review Comments



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 366TH FIGHTER WING (ACC)
MOUNTAIN HOME AIR FORCE BASE IDAHO

Colonel Peter A. Lee
Vice Commander
366 Gunfighter Avenue Ste 331
Mountain Home AFB ID 83648

DEC 18 2009

Peter Humm
PO Box 1377
Mountain Home ID 83647

Dear Mr. Humm

Thank you for your 16 June 2009 letter in support of the proposed airspace expansion in the Draft Environmental Assessment (EA) for Proposed Airspace Changes for Paradise East and Paradise West Military Operations Areas at Mountain Home Air Force Base, Idaho, June 2009.

We agree that training airspace is critical to maintain our national defense and air superiority. We appreciate your time and effort in reviewing the Draft EA, and thank you for your years of dedicated military service and continued support.

Respectfully

A handwritten signature in black ink, appearing to read "P. Lee", is positioned above the typed name.

PETER A. LEE, Colonel, USAF



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 366TH FIGHTER WING (ACC)
MOUNTAIN HOME AIR FORCE BASE IDAHO

DEC 18 2009

Colonel Peter A. Lee
Vice Commander
366 Gunfighter Avenue Ste 331
Mountain Home AFB ID 83648

Robert J. Edwards
Field Manager
Bureau of Land Management, Humboldt Field Office
5100 East Winnemucca Boulevard
Winnemucca NV 89445

Dear Mr. Edwards

Thank you for your comments expressed in the 29 July 2009 letter from the Winnemucca District Office, Humboldt Field Office, Letter 1790 NV010.00, in regards to the Draft Environmental Assessment (EA) for Proposed Airspace Changes for Paradise East and Paradise West Military Operations Areas (MOAs) at Mountain Home Air Force Base (MHAFB), Idaho, June 2009.

We understand your concerns with chaff and flare use under the Proposed Action and the Action Alternatives.

Your comment states:

Fire is discussed in 3.9.2 Safety, page 3-40. Even with the "unlikely to occur" wildfires have the potential to destroy large areas of critical habitat in both Paradise West and Paradise East MOAs. These areas are critical habitat for wildlife and wild horses. Due to the remoteness of the area a wildfire has the potential to become very widespread before discovery and fire fighting will be very difficult in this remote area. The potential for habitat loss of these areas is of great concern.

As a mitigating measure the Air Force may want to consider ceasing chaff and flare operations if the Forest Service or BLM fire warnings are above moderate and/or fire restrictions are in place within this MOA.

Your comment states that critical habitats occur in Paradise East and Paradise West MOAs. There are no US Fish and Wildlife Service designated critical habitats for threatened or endangered species within Paradise East or Paradise West existing or proposed expansion areas.

We share your concern over the potential for wildfire and the loss of valuable wildlife habitats. For that reason, flares would never be dropped below 3,000' Above Ground Level (AGL). Dropping flares at this height is three times the required height for safe use; that is, three

times the altitude needed to ensure flares are extinguished before they hit the ground. The action is mitigated already by the height of the proposed floor of the MOAs and the altitude at which flares could be dropped.

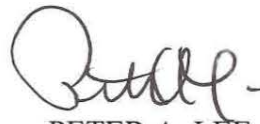
We do employ a mitigation measure for flares during fire season when the BLM or MHAFB fire category rating for Jarbidge MOA is the Category 4 or above, according to the MHAFB Wildland Fire Management Plan, signed 18 January 2008. The voluntary restriction in Category 4 states: Flares and chaff will be dropped only above 5,000 feet AGL on Saylor Creek Range, Juniper Butte Range and in the MOAs.

We will include this information in the Final EA. Chaff and flares will be deployed only above 5,000' AGL under the Proposed Action or Alternative D if fire Category 4 is issued by MHAFB or the BLM South Central Interagency Dispatch Center, Shoshone, Idaho.

Your comment expressed concerns about the release of chaff. Chaff is not incendiary, and therefore unlikely to cause a wildfire as the explosive charge that expels the chaff remains in the aircraft after deployment. Chaff fires are extremely unlikely to occur.

We thank you for reviewing the Draft EA, providing your comments in a timely manner and identifying a mitigation measure we already employ that was overlooked. Your comments will help us provide a better analysis of the Proposed Action.

Respectfully

A handwritten signature in black ink, appearing to read "Peter A. Lee". The signature is fluid and cursive, with a large initial "P" and a long horizontal stroke at the end.

PETER A. LEE, Colonel, USAF



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 366TH FIGHTER WING (ACC)
MOUNTAIN HOME AIR FORCE BASE IDAHO

DEC 18 2009

Colonel Peter A. Lee
Vice Commander
366 Gunfighter Avenue Ste 331
Mountain Home AFB ID 83648

Tom Fransway
Chairman, Humboldt County Board of Commissioners
50 W 5th Street
County Courthouse
Winnemucca NV 89445

Dear Mr. Fransway

Thank you for your 4 August 2009 letter in regards to the Draft Environmental Assessment (EA) for Proposed Airspace Changes for Paradise East and Paradise West Military Operations Areas (MOAs) at Mountain Home Air Force Base (MHAFB), Idaho, June 2009. We understand you have concerns on potential impacts to the Humboldt County economy and quality of life. Many of the concerns you state in this letter we addressed in the Humboldt County Commissioner's Meeting on 8 September 2009.

On 29 June 2006, my staff sent an email to the following email address: administrator@humboldt-county-nv.net. The email contained the Description of the Proposed Action and Alternatives and maps of the alternatives. An excerpt of the email text follows:

"Any information from your agency about resources underlying the proposed expanded airspace will be valuable and necessary to help us perform the analysis. Information regarding, but not limited to, the following resources would be useful:

- 1. Population Statistics, Economics in the Region, Land Ownership, Land Use, Industry*
- 2. Plant Community Types, Vegetation Maps*
- 3. Threatened and Endangered Species, Special Status Species/Species of Concern*
- 4. Special Status Natural Areas such as Wilderness Study Areas, Wildlife Management Areas, Conservation Areas, and Areas of Critical Environmental Concern*
- 5. Special Recreation Use Areas, State Parks, National Parks, Historic Landmarks, and National Monuments*
- 6. Documented Traditional Cultural Properties and other Cultural Resources*

Please let me know if you have any questions regarding the proposed action or alternatives. If you have information to contribute to the [Draft Environmental Assessment] DEA, please let me know the type and availability of the information."

Any information you have regarding the negative effects on the economy, agriculture, or recreation in Humboldt County would be helpful for the analysis in the EA.

The current airspace overlies several general aviation airstrips, noted in Table 2.1 of the Draft EA. Under the Proposed Action, one additional general aviation airstrip would fall under the proposed expanded airspace, noted in Table 2.3 of the Draft EA. Use of these airstrips should not be impacted

by lowering the floor of the Paradise MOAs from 14,500' Mean Sea Level (MSL) to 3,000' Above Ground Level (AGL) or 10,000' MSL, whichever is higher.

Military aircraft currently use established Military Training Routes (MTRs) over the Santa Rosa-Paradise Peak Wilderness, Orovada and Paradise Valley, specifically Instrument Route (IR) 300 and IR 313. These MTRs are for high-speed, subsonic, low-level aircraft training and have an established use at 100' AGL. The Proposed Action would increase military aircraft use over the Santa Rosa-Paradise Peak Wilderness, Orovada and Paradise Valley, but at 3,000' AGL, or 10,000' MSL, whichever is higher.

Also, the Santa Rosa-Paradise Peak Wilderness is overlain by the Sodhouse Air Traffic Control Assigned Airspace (ATCAA) area. Sodhouse has an operating altitude of 18,000' to 28,000' MSL. Military aircraft regularly use this airspace by permission from Salt Lake Center for refueling and marshalling during large force exercises. This discussion will be added to the final EA to clarify that military use of airspace over the Santa Rosa-Paradise Peak Wilderness Area, Orovada and Paradise Valley has occurred and will continue to occur, and that implementing the Proposed Action would not be a new use, but a modified use.

To clarify a major point, supersonic aircraft operations in Alternatives B, C and D would only occur as they currently do in Alternative A. Supersonic overflight would continue to occur above the existing MOAs in ATCAA areas, above 30,000' MSL. In the Proposed Action, subsonic aircraft operations would occur from 3,000' AGL, or 10,000' MSL, whichever is higher, up to 50,000' MSL. This will be clarified in the final EA, as it is lacking in the discussion of Alternatives B, C and D.

Throughout the drafting of the EA, the indication from the analysis is that the action may warrant a Finding of No Significant Impact (FONSI). For this reason, we continue to pursue an EA and FONSI to fulfill our National Environmental Policy Act obligation. 32 CFR Part 989.14 states:

(k) A few examples of actions that normally require preparation of an EA (except as indicated in the CATEX list) include:

(4) Minor modifications to Military Operating Areas (MOAs), air-to-ground weapons ranges, and military training routes.

We thank you for your review and written comments on the Draft EA. Thank you for meeting with us on 8 September 2009 and giving us the opportunity to further clarify the proposal.

Respectfully

A handwritten signature in black ink, appearing to read "Peter A. Lee", with a horizontal line extending to the right.

PETER A. LEE, Colonel, USAF



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 366TH FIGHTER WING (ACC)
MOUNTAIN HOME AIR FORCE BASE IDAHO

DEC 18 2009

Colonel Peter A. Lee
Vice Commander
366 Gunfighter Avenue Ste 331
Mountain Home AFB ID 83648

Skip Canfield, AICP
Nevada Division of State Lands
c/o Nevada State Clearinghouse
Department of Administration, Budget and Planning Division
209 East Musser Street Room 200
Carson City NV 89701

Dear Mr. Canfield

Thank you for your comments in the 28 July 2009 letter from the Nevada State Clearinghouse, SAI NV # E2009-297, Reference: Airspace Environmental Assessment (EA).

Your comments included discussion of the Jarbidge Wilderness and the Santa Rosa-Paradise Peak Wilderness, both of which fall under the proposed Paradise East and Paradise West Military Operations Areas (MOAs) expansion. You state:

"While the Wilderness Act does not address existing commercial or military plane overflights, it does have the following language:

Special Provisions

(d) The following special provisions are hereby made:

(1) Within wilderness areas designated by this Act the use of aircraft or motorboats, where these uses have already become established, may be permitted to continue subject to such restrictions as the Secretary of Agriculture deems desirable. In addition, such measures may be taken as may be necessary in the control of fire, insects, and diseases, subject to such conditions as the Secretary deems desirable.

This new proposal does represent a CUMULATIVE increase in NEW aircraft activities (noise, visual) over existing wilderness that did not previously have this impact. I did not see a discussion in this regard.

- Why is it necessary for the expansion area to include those two wilderness areas, and is there a way to create an Alternative B that avoids those wilderness areas?"*

Military aircraft currently use established Military Training Routes (MTRs) over the Jarbidge Wilderness and the Santa Rosa-Paradise Peak Wilderness, specifically Instrument Route (IR) 300 and IR 313 over the Santa Rosa-Paradise Peak Wilderness, and IR 302 and IR 303 over the Jarbidge Wilderness. These MTRs are for high-speed, subsonic, low-level aircraft training, and have an established use at 100' Above Ground Level (AGL). The Proposed Action would increase military aircraft use over the Jarbidge Wilderness and the Santa Rosa-Paradise Peak Wilderness, but at 3,000' AGL or 10,000' Mean Sea Level (MSL), whichever is higher.

Also, the Jarbidge Wilderness is currently overlain by the Elko Air Traffic Control Assigned Airspace (ATCAA) areas, and the Santa Rosa-Paradise Peak Wilderness is overlain by the Sodhouse ATCAA. Both Sodhouse and Elko have an operating altitude of 18,000' to 28,000' MSL. Military aircraft regularly use this airspace by permission from Salt Lake Center for refueling and marshalling during large force exercises. This discussion will be added to the final EA to clarify that military use of airspace over these Wilderness Areas has occurred and will continue to occur, and that implementing the Proposed Action would not be a new use, but a modified use.

According to Section 11 of the Nevada Wilderness Protection Act of 1989 (P.L. 101-195) discussed in the Draft EA, Section 3.3.3: "*Nothing in this Act shall preclude low level overflights of military aircraft, the designation of new units of special airspace, or the use or establishment of military flight training routes over the Alta Toiyabe, Arc Dome, Currant Mountain, or Table Mountain Wilderness areas.*" The Santa Rosa-Paradise Peak and Jarbidge Wilderness Areas are not specifically cited in Section 11 of P.L. 101-195. Jose Noriega, District Ranger of the Santa Rosa District on the Humboldt-Toiyabe National Forest stated that military overflights are neither precluded nor guaranteed. Based on this interpretation and the citations in Section 3.3.3 of the Draft EA, the conclusion is that military overflights are not prohibited over these Wilderness Areas. The Federal Aviation Administration does not restrict aircraft flight over designated Wilderness Areas or Wilderness Study Areas, but does restrict aircraft flight over National Wildlife Refuges and National Monuments.

One thing that was not clear in the Draft EA is the altitude of supersonic overflight. The No Action Alternative states that supersonic overflight occurs in the ATCAA areas above Paradise East and Paradise West MOAs at 30,000' MSL and above. All action alternatives (Alternatives B, C and D) would continue to keep supersonic overflight above 30,000' MSL. This was not clear in the Draft EA and will be added to the Final EA.

Noise is addressed in the Draft EA in Section 4.1. Site 16 in the noise analysis is nearest to the Jarbidge Wilderness, Site 12 is nearest to the Santa Rosa-Paradise Peak Wilderness (see Figure 13 and Table 4.1). Under the Proposed Action, L_{dn} for both locations would increase only slightly. Site 12 would encounter an increase in L_{dn} from 44.2 to 44.6. Site 16 would experience an increase in L_{dn} from 44.2 to 45.1. Neither of these increases is significant.

Two Alternatives were developed that avoid these Wilderness Areas. The No Action Alternative would keep the MOAs to the existing boundaries and altitudes. However, this would not fulfill the need discussed in Section 1.4. Alternative D keeps the lateral boundaries of the airspace the same as the No Action Alternative but lowers the floor of the MOAs to 3,000' AGL

or 10,000' MSL, whichever is higher. Alternative D contains the vertical but not lateral expansion and avoids the Wilderness Areas altogether. However, this Alternative is less than optimal and provides minimal operational benefits as discussed in Section 2.6.2 of the Draft EA.

Thanks for your time and effort to review and provide comments on the Draft EA. Your comments help accomplish a better analysis.

Respectfully

A handwritten signature in black ink, appearing to read 'P. Lee', written in a cursive style.

PETER A. LEE, Colonel, USAF



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 366TH FIGHTER WING (ACC)
MOUNTAIN HOME AIR FORCE BASE IDAHO

DEC 18 2009

Colonel Peter A. Lee
Vice Commander
366 Gunfighter Avenue Ste 331
Mountain Home AFB ID 83648

Rebecca Lynn Palmer
Review and Compliance Officer, Archaeologist
State Historic Preservation Office
c/o Nevada State Clearinghouse
Department of Administration, Budget and Planning Division
209 East Musser Street Room 200
Carson City NV 89701

Dear Ms. Palmer

Thank you for your comments expressed in the 28 July 2009 letter from the Nevada State Clearinghouse, SAI NV # E2009-297, Reference: Airspace Environmental Assessment (EA).

Your letter suggested we conduct further investigation of archaeological records held by the State of Nevada, statewide archaeological inventory (NVCRIS) and the archaeological inventory archive at the Nevada State Museum. A thorough review of federal agency data was made, specifically the U.S. Forest Service and the Bureau of Land Management. The area underlying the Proposed Airspace Expansion is 81.4% federally owned. 18.6% of the land underlying the Proposed Airspace Expansion is private land. We will conduct a records search using the two sources you suggest and report any additional documented eligible sites in an addendum to our original Section 106 report for further consultation. Any additionally discovered sites that have been determined eligible will be included in discrete language in the Final EA.

We sought to initiate government-to-government consultation for future proposed undertakings with local tribes by letter on 2 September 2004 and 1 October 2004. Letters were sent to the Burns Paiute Tribe, Shoshone-Bannock Tribes of Fort Hall, Paiute-Shoshone Tribes of Fort McDermitt and the Northwestern Band Shoshone Tribe. We received no responses. We have conducted government-to-government consultation with the Shoshone-Paiute Tribes of Duck Valley since the late 1990s.

We continue to pursue consultation with local tribes associated with the proposed airspace expansion. The Description of the Proposed Action and Alternatives (DOPAA) and maps were sent with a cover letter requesting information and any tribal interest in reviewing the Draft EA prior to release to the public. The DOPAA and maps were sent to the Burns Paiute Tribes, the Shoshone-Bannock Tribes of Fort Hall, Paiute-Shoshone Tribes of Fort McDermitt and the Northwestern Band Shoshone Tribes on 14 June 2006. The DOPAA and maps were hand delivered in a government-to-government consultation meeting with the Shoshone-Paiute Tribes of Duck Valley on 12 June 2006. We received no responses.

On 12 June 2007, we sent the Cultural Resource Investigation (CRI) Report for Proposed Airspace Changes for MHAFB, Owyhee County, Idaho (1 March 2007) to the Shoshone-Paiute Tribes of Duck Valley. We did not receive written comments.

On 1 August 2008, we sent the Draft EA and the CRI Report to the Shoshone-Paiute Tribes of Duck Valley. We did not receive written comments on either document, but twice in October 2008, a member of the Shoshone-Paiute Tribes of Duck Valley came to Mountain Home AFB and expressed verbal comments on the Draft EA to one of our commanders.

A second Draft EA was prepared in January 2009. This Draft EA was sent to the Shoshone-Paiute Tribes of Duck Valley on 21 May 2009, prior to its release to the public. No written comments were received. No discussion of the Draft EA occurred in the government-to-government consultation of 29 June 2009, although the item was an agenda topic. The Shoshone-Paiute Tribes deferred the discussion to a later date.

The Draft EA was sent to the public, agency reviewers, the Federal Aviation Administration, the Shoshone-Paiute Tribes of Duck Valley, and the Paiute-Shoshone Tribes of Fort McDermitt on 12 June 2009. The CRI Report and Draft EA were sent to the Paiute-Shoshone Tribes of Fort McDermitt, the Nevada SHPO and the Oregon SHPO. We received no responses from the Shoshone-Paiute Tribes of Duck Valley or the Paiute-Shoshone Tribes of Fort McDermitt.

In addition to the presentation of documents to the Shoshone-Paiute Tribes of Duck Valley recounted above, the Proposed Airspace Expansion was a topic of discussion at several government-to-government consultations with the Shoshone-Paiute Tribes of Duck Valley. The Proposed Airspace Expansion was discussed on 12 June 2006, 27 April 2007, 19 November 2007, 11 January 2008 and 18 April 2008.

We continue to request government-to-government consultation with tribes in order to identify and respect traditional cultural properties (TCPs). No TCPs have ever been identified to the US Air Force (USAF) by any federally recognized tribes.

Your letter indicated that you will not continue Section 106 consultation with the USAF on the Proposed Action until we "consult with the affected Native American tribal representatives and compile this information for your submission." We will include this letter in an Appendix in the Final EA to describe our consultation efforts with local tribes. Any additional documented eligible sites will be included in an addendum to our original Section 106 report and we will conduct further consultation with your office.

Respectfully

A handwritten signature in black ink, appearing to read "Peter A. Lee", with a horizontal line extending to the right.

PETER A. LEE, Colonel, USAF



DEPARTMENT OF THE AIR FORCE
366th CIVIL ENGINEER SQUADRON (ACC)
MOUNTAIN HOME AFB, IDAHO

4 March 2010

Lt Col David W. Bruce
Commander, 366th Civil Engineer Squadron
1030 Liberator Street Bldg 1300
Mountain Home AFB ID 83648

Rebecca Lynn Palmer
Review and Compliance Officer, Archaeologist
State of Nevada, Department of Cultural Affairs
State Historic Preservation Office
100 N Stewart Street
Carson City NV 89701

Dear Ms. Palmer

Reference your 15 July 2009 letter (Atch 1), which was received as an attachment to a letter from the Nevada State Clearinghouse dated 28 July 2009, SAI NV #E2009-297, Reference: *Airspace Environmental Assessment (EA)*. After consulting Nevada's online statewide archaeological inventory (NVCRIS), Mountain Home AFB has determined the compilation of data reported in the *Final Cultural Resource Investigation for Proposed Airspace Changes for Mountain Home Air Force Base, Owyhee County, Idaho (2007)* is an accurate assessment of the resources within the proposed Airspace EA's area of potential effect (APE). We have also determined the proposed airspace expansion will not adversely affect documented cultural resources underlying the proposed airspace.

With this in mind, enclosed are the results of our recent NVCRIS document search, the Cultural Resource Section of the *Interim Final EA for Proposed Airspace Changes for Paradise East and Paradise West Military Operations Areas (MOAs) at MHAFB, Idaho, February 2010*, and the *Final Cultural Resource Investigation for Proposed Airspace Changes for MHAFB, Owyhee County, Idaho (2007)* for your review and comment.

In addition to the request in your letter for us to consult the NVCRIS, you also provided guidance concerning our consultation requirements with potentially affected federally recognized Native American Tribes. We actually addressed Native American consultation in our 18 December 2009 letter to the Nevada State Historic Preservation Office (Atch 2).

We appreciate your guidance this process; and we will continue to pursue government-to-government consultation with all potentially affected federally recognized Native American Tribes. In fact, in accordance with provisions of the National Historic Preservation Act, we are requesting Section 106 consultation with your office.

If you have any additional questions or concerns on this matter, please feel free to contact Ms. Sheri Mattoon, Cultural Resources Program Manager, at (208) 828-4247.

Sincerely



DAVID W. BRUCE, Lt Col, USAF

5 Attachments:

1. 15 July 2009 Letter to MHAFB from NV SHPO
2. 18 December 2009 Letter from MHAFB to NV SHPO
3. NVCRIS Search Results
4. Cultural Resource Section of the *Interim Final Environmental Assessment for Proposed Airspace Changes for Paradise East and Paradise West Military Operations Areas (MOAs) at Mountain Home Air Force Base (MHAFB), Idaho, February 2010*
5. *Final Cultural Resource Investigation for Proposed Airspace Changes for Mountain Home Air Force Base, Owyhee County, Idaho (2007)*

cc:

Dr. Paul Green, Archaeologist, Headquarters Air Combat Command, United States Air Force



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 366TH FIGHTER WING (ACC)
MOUNTAIN HOME AIR FORCE BASE IDAHO

DEC 18 2009

Colonel Peter A. Lee
Vice Commander
366 Gunfighter Avenue Ste 331
Mountain Home AFB ID 83648

Matt Diederich, MAIS
SHPO Archaeologist
Oregon State Historic Preservation Office
725 Summer Street NE Ste C
Salem OR 97301

Dear Mr. Diederich

Thank you for your 3 August 2009 letter in regards to SHPO Case No. 09-1195, Paradise East/West Military Operations Areas at Mountain Home AFB/Malheur County. We acknowledge your concurrence with our Section 106 determination of no effect on any known cultural resource and that no further archaeological research is needed for this proposal. We consider our Section 106 consultation with the Oregon SHPO to be complete. We acknowledge that if any cultural resources or cultural resource issues are identified to us in the future, we shall act in accordance with all applicable laws and regulations.

The Proposed Action does not include any on-the-ground activities under the airspace. The Proposed Action includes subsonic flight above 3,000 feet above ground level, or 10,000 feet mean sea level, whichever is higher. Supersonic flight would only occur above 30,000 feet mean sea level in the Air Traffic Control Assigned Airspace above Paradise East and Paradise West Military Operations Areas.

Respectfully

A handwritten signature in black ink, appearing to read "Peter A. Lee", followed by a horizontal line.

PETER A. LEE, Colonel, USAF



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 366TH FIGHTER WING (ACC)
MOUNTAIN HOME AIR FORCE BASE IDAHO

DEC 18 2009

Colonel Peter A. Lee
Vice Commander
366 Gunfighter Avenue Ste 331
Mountain Home AFB ID 83648

Rose Strickland
Sierra Club, Toiyabe Chapter
PO Box 8096
Reno NV 89507

Dear Ms. Strickland

Thank you for your letter dated 31 July 2009 in regards to the Draft Environmental Assessment (EA) for Proposed Airspace Changes for Paradise East and Paradise West Military Operations Areas (MOAs) at Mountain Home Air Force Base (MHAFB), Idaho, June 2009.

We understand you are concerned about military aircraft overflight over the Santa Rosa-Paradise Peak Wilderness and the Jarbidge Wilderness. The noise analysis provided in Appendix A and Appendix B of the Draft EA uses noise data from a study of actual noise in the Owyhee and Jarbidge MOAs, where aircraft overflight occurs from 500' Above Ground Level (AGL) up to 17,999' AGL and in the Air Traffic Control Assigned Airspace (ATCAA) areas above 18,000' Mean Sea Level (MSL). Noise levels over the Santa Rosa-Paradise Peak Wilderness and the Jarbidge Wilderness would not significantly increase if the Proposed Action was implemented. The L_{dn} for points 12 and 16 near the Wilderness Areas increase from 44.2 to 44.6 for the Santa Rosa-Paradise Peak Wilderness and 44.2 to 45.1 for the Jarbidge Wilderness. These increases are not significant.

Military aircraft currently use established Military Training Routes (MTRs) for training over the Jarbidge Wilderness and the Santa Rosa-Paradise Peak Wilderness, specifically Instrument Route (IR) 300 and IR 313 over the Santa Rosa-Paradise Peak Wilderness, and IR 302 and IR 303 over the Jarbidge Wilderness. These MTRs are for high-speed, subsonic, low-level aircraft training and have an established use at 100' AGL. The Proposed Action would increase military aircraft use over the Jarbidge Wilderness and the Santa Rosa-Paradise Peak Wilderness, but at 3,000' AGL or 10,000' MSL, whichever is higher.

Also, the Jarbidge Wilderness is currently overlain by the Elko ATCAA, and the Santa Rosa-Paradise Peak Wilderness is overlain by the Sodhouse ATCAA. Both Sodhouse and Elko have an operating altitude of 18,000' to 28,000' MSL. Military aircraft regularly use this airspace by permission from Salt Lake Center for refueling and marshalling during large force exercises. This discussion will be added to the Final EA to clarify that military use of airspace over these

Wilderness Areas has occurred and will continue to occur, and that implementing the Proposed Action would not be a new use, but a modified use.

To clarify a major point, supersonic aircraft operations in Alternatives B, C and D would only occur as they currently do in Alternative A. Supersonic overflight would continue to occur above the existing MOAs in ATCAA, above 30,000' MSL. In the Proposed Action, subsonic aircraft operations would occur from 3,000' AGL or 10,000' MSL, whichever is higher, up to 50,000' MSL. This will be clarified in the final EA, as it is lacking in the discussion of Alternatives B, C and D.

Throughout the drafting of the EA, the indication from the analysis is that the action may warrant a Finding of No Significant Impact (FONSI). For this reason, we continue to pursue an EA and FONSI to fulfill our National Environmental Policy Act obligation. 32 CFR Part 989.14 states:

(k) A few examples of actions that normally require preparation of an EA (except as indicated in the CATEX list) include:

(4) Minor modifications to Military Operating Areas (MOAs), air-to-ground weapons ranges, and military training routes.

Thank you for taking time to review the Draft EA. Your thoughtful comments will help us accomplish a better analysis.

Respectfully

A handwritten signature in black ink, appearing to read 'P. Lee', with a horizontal line extending to the right.

PETER A. LEE, Colonel, USAF



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 366TH FIGHTER WING (ACC)
MOUNTAIN HOME AIR FORCE BASE IDAHO

DEC 18 2009

Colonel Peter A. Lee
Vice Commander
366 Gunfighter Avenue Ste 331
Mountain Home AFB ID 83648

Susan Juetten
Friends of Nevada Wilderness
PO Box 9754
Reno NV 89507

Dear Ms. Juetten

Thank you for your letter dated 30 July 2009 in regards to the Draft Environmental Assessment (EA) for Proposed Airspace Changes for Paradise East and Paradise West Military Operations Areas (MOAs) at Mountain Home Air Force Base (MHAFB), Idaho, June 2009. Thank you for expressing your support for military training and military action to protect our nation.

As noted in your letter, chaff and flare use would occur in the Proposed Action, but would not increase from current numbers projected in other actions, namely the Base Realignment and Closure (BRAC) action of 2005 and the recent beddown of the Republic of Singapore (RSAF) at MHAFB in 2009. Chaff and flare use will be 74,519 bundles and 62,070 units, respectively, regardless of the implementation of the proposed action. The Proposed Action does not include an increase of these numbers, previously analyzed for BRAC and RSAF actions.

We share your concern over the potential for wildfire and the loss of valuable wildlife habitats. For that reason, flares would never be dropped below 3,000' Above Ground Level (AGL). Dropping flares at this height is three times the required height for safe use; that is, three times the altitude needed to ensure flares are extinguished before they hit the ground. The action is mitigated already by the height of the proposed floor of the MOAs and the altitude at which flares could be dropped.

We do employ a mitigation measure for flares during fire season when the Bureau of Land Management (BLM) or MHAFB fire category rating for Jarbidge MOA is Category 4 or above, according to the MHAFB Wildland Fire Management Plan, signed 18 January 2008. The voluntary restriction in Category 4 states: Flares and chaff will be dropped only above 5,000 feet on Saylor Creek Range, Juniper Butte Range and in the MOAs.

We will include this information in the Final EA. Chaff and flares will be deployed only above 5,000' AGL under the Proposed Action or Alternative D if fire Category 4 is issued by MHAFB or the BLM South Central Interagency Dispatch Center, Shoshone, Idaho.

We understand you are concerned about visual, recreational, wildlife resources and military aircraft overflight over the Santa Rosa-Paradise Peak Wilderness and the Jarbidge Wilderness. The noise analysis provided in Appendix A and Appendix B of the Draft EA uses data from a study of actual noise in the Owyhee and Jarbidge MOAs, where aircraft overflight occurs from 500' to 17,999' AGL and in the Air Traffic Control Assigned Airspace (ATCAA) areas above 18,000' Mean Sea Level (MSL). Noise levels over the Santa Rosa-Paradise Peak Wilderness and the Jarbidge Wilderness would not significantly increase if the Proposed Action was implemented. The L_{dn} for points 12 and 16 near the Wilderness Areas increases from 44.2 to 44.6 for the Santa Rosa-Paradise Peak Wilderness and 44.2 to 45.1 for the Jarbidge Wilderness. These increases are not significant.


Military aircraft currently use established Military Training Routes (MTRs) over the Jarbidge Wilderness and the Santa Rosa-Paradise Peak Wilderness, specifically Instrument Route (IR) 300 and IR 313 over the Santa Rosa-Paradise Peak Wilderness and IR 302 and IR 303 over the Jarbidge Wilderness. These MTRs are for high-speed, subsonic, low-level aircraft training and have an established use at 100' AGL. The Proposed Action would increase military aircraft use over the Jarbidge Wilderness and the Santa Rosa-Paradise Peak Wilderness, but at 3,000' AGL or 10,000' MSL, whichever is higher.

Also, the Jarbidge Wilderness is currently overlain by the Elko ATCAA, and the Santa Rosa-Paradise Peak Wilderness is overlain by the Sodhouse ATCAA. Both Sodhouse and Elko have an operating altitude of 18,000' AGL to 28,000' AGL. Military aircraft regularly use this airspace by permission from Salt Lake Center for refueling and marshalling during large force exercises. This discussion will be added to the Final EA to clarify that military use of airspace over these Wilderness Areas has occurred and will continue to occur, and that implementing the Proposed Action would not be a new use, but a modified use.

To clarify a major point, supersonic aircraft operations in Alternatives B, C and D would only occur as they currently do in Alternative A. Supersonic overflight would continue to occur above the Paradise MOAs in ATCAA areas, above 30,000' MSL. In the Proposed Action, subsonic aircraft operations would occur from 3,000' AGL or 10,000' MSL, whichever is higher, up to 50,000' MSL. This will be clarified in the final EA, as it is lacking in the discussion of Alternatives B, C and D.

Thank you for taking the time to review the Draft EA. Your thoughtful comments will help us accomplish a better analysis. We will include you in our mailing list for future proposed actions that may affect Wilderness or Wilderness Study Areas in Nevada and for subsequent public documents generated by the proposed airspace expansion.

Respectfully



PETER A. LEE, Colonel, USAF



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 366TH FIGHTER WING (ACC)
MOUNTAIN HOME AIR FORCE BASE IDAHO

DEC 18 2009

Colonel Peter A. Lee
Vice Commander
366 Gunfighter Avenue Ste 331
Mountain Home AFB ID 83648

Katie Fite
Western Watersheds Project
PO Box 2863
Boise ID 83701

Dear Ms. Fite

We received your letter dated 28 July 2009 regarding the Draft Environmental Assessment (EA) for Proposed Airspace Changes for Paradise East and Paradise West Military Operations Areas (MOAs) at Mountain Home Air Force Base (MHAFB), Idaho, June 2009.

We reviewed your 45 pages of comments, 15 pages of articles, 1-page email on a Bureau of Land Management (BLM) settlement and a CD of journal articles and other information. Most of these comments were not relevant to the Draft EA. Comments regarding grazing practices, fences, BLM activities, White Elk MOA, Utah Test and Training Range, Nellis and other actions by other agencies, users, publics or any other entities are beyond the scope of the Proposed Action. This response is limited to comments specific to the text of the Draft EA included in your letter, pages 35-42.

Comments regarding the Environmental Impact Statement for Enhanced Training in Idaho (EIS for ETI) as a baseline are incorrect. Since the EIS for ETI (1998) there have been subsequent National Environmental Policy Act (NEPA) actions: the Force Structure Change EA (2002), Base Realignment and Closure Actions (2005) and the Republic of Singapore Air Force (RSAF) Beddown EA (2007) that have modified the baseline discussed in the EIS for ETI. The mitigation measures for the EIS for ETI are still in effect. The Proposed Action does not change or intersect any of these measures.

The following responses correspond to the page numbers in your letter:

Page 2. MOAs do not prevent commercial or civil aircraft use. See Sections 3.10 and 4.3 of the Draft EA. Commercial traffic corridors are set by the FAA. The proposed airspace expansion would overlap 7 Nautical Miles (NM) with Jet route J523 and come within 5 NM of Class E Victor Airway Segment V113, both west of Paradise West, and come within 5 NM of Class E Victor Airway Segment V293 located southeast of Paradise East. Commercial and civil aircraft are not excluded from operating in MOAs. See discussion in the Draft EA, Sections 2.2 and 2.4.1.

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Safety issues are discussed in Section 3.9.2 of the Draft EA.

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Alternatives must fit the purpose and need. Other areas did not meet the purpose and need for the expansion. There is no available airspace contiguous to our current airspace in Idaho, which extends from the Snake River south to the Nevada state line and east to the Oregon state line. North of the Snake River is the relatively densely populated I-84 corridor and a primary east-west commercial air traffic route. A section explaining this will be added to the Final EA under Alternatives Considered But Not Carried Forward.

Page 1-3. The purpose of expanding the airspace is to provide sufficient special use airspace to meet the 366th Fighter Wing requirement to train fighter aircrews in offensive and defensive operations. The 428th Fighter Squadron is part of the 366th Fighter Wing and therefore, trains as the rest of the wing and utilizes all its assets. Fighter aircraft are more sophisticated than 10 years ago. Improvements have been made in avionics and weapons systems, and larger airspace is now needed to use system capabilities. Weapons systems, aircraft and aircrew skills will continue to improve and must be accommodated by changing training and training spaces for maximum training efficiency and effectiveness.

Page 1-4. When military aircraft are restricted to only one MOA, it significantly reduces training capabilities. Expanding the MOAs would allow for more available training airspace if restricted to only one Paradise MOA because of rerouting. Rerouting refers to commercial air traffic rerouting into the MOA because of bad weather, not military aircraft rerouting.

Page 1-4. Having more airspace to train in would allow more training scenarios to occur simultaneously, thereby potentially shortening the flying day and reducing the manpower needed to accommodate a longer flying day.

Military aircraft currently use established Military Training Routes (MTRs) for training over the Jarbidge Wilderness and the Santa Rosa-Paradise Peak Wilderness, specifically Instrument Route (IR) 300 and IR 313 over the Santa Rosa-Paradise Peak Wilderness and IR 302 and IR 303 over the Jarbidge Wilderness. These MTRs are for high-speed, subsonic, low-level aircraft training, and have an established use at 100' Above Ground Level (AGL). The Proposed Action would increase general military aircraft use over the Jarbidge Wilderness and the Santa Rosa-Paradise Peak Wilderness, but at 3,000' AGL or 10,000' Mean Sea Level (MSL), whichever is higher.

Also, the Jarbidge Wilderness is currently overlain by the Elko Air Traffic Control Assigned Airspace (ATCAA) areas, and the Santa Rosa-Paradise Peak Wilderness is overlain by the Sodhouse ATCAA. Both Sodhouse and Elko have an operating altitude of 18,000' to 28,000' MSL. Military aircraft regularly use this airspace by permission from Salt Lake Center for refueling and marshalling during large force exercises. This discussion will be added to the final EA to clarify that military use of airspace over these Wilderness Areas has occurred and will continue to occur, and that implementing the Proposed Action would not be a new use, but a modified use.

One thing that was not clear in the Draft EA is the altitude of supersonic overflight. The No Action Alternative states that supersonic overflight occurs in the ATCAA areas above Paradise East and Paradise West MOAs at 30,000' MSL and above. All the action alternatives (Alternatives B, C and D) would continue to keep supersonic overflight above 30,000' MSL. This was not clear in the Draft EA and will be added to the Final EA.

Section 2.2: Airspace units, MTRs, IR and VR routes can be viewed on aeronautical charts available online at <http://skyvector.com/>.

Chaff and flare usage has been proposed and analyzed in subsequent EAs since the EIS for ETI. Chaff and flare increases are not part of this proposed action.

Table 2.2: The RSAF beddown is not linked to this action. The need for expanded airspace was recognized in 2004. In 2005, a Test/Training Space Needs Statement (T/TSNS) was prepared by the MHAFB Airspace Manager and submitted to Air Combat Command (ACC) for approval to begin the process for proposing an expanded airspace. This clearly pre-dates the action by ACC to bed down the RSAF on MHAFB. The need for expanded airspace was, and continues to be, based on the current need, beginning in 2004 and continuing to present, not on

any future potential action. At the time this process was started, the BRAC actions and the proposed RSAF beddown were not even formulated.

Page 2-14: Information about F-15 aircraft and other military aircraft can be found at <http://www.af.mil/information/factsheets/index.asp>.

Page 2-17: Theoretically, chaff and flare use will be proportionally divided among all airspace units. There is no way to determine how many chaff bundles and flares will be used at any given point, as training scenarios are not static. Under the Proposed Action, chaff and flare use will not increase from the number established in the RSAF EA.

Table 3.1: The table accurately lists the resource categories that are detailed in depth and carried forward in Chapter 4. Resource categories not carried forward are discussed in enough detail in Chapter 3 to determine if further discussion is warranted in Chapter 4.

Section 3.1: The Air Force Owyhee study was done as a mitigation measure to settle the lawsuit brought by the Greater Owyhee Legal Defense (GOLD). The noise study was funded by the USAF and the GOLD members chose the noise professionals to do the analysis. The noise study correctly captured actual noise in the MOAs and accurately portrayed the level of ambient noise by recording 98,582,200 continuous seconds of noise at 8 locations for a total of 788,659,200 seconds. The noise study was accepted and no further legal action was pursued upon completion of this study. Chaff and flare use are not a component of a noise study.

Section 3.3: Conclusions in Section 3.3 are supported by the noise analysis presented in 4.1 and Appendices A and B.

Figure 8: The commenters wish that BLM designate new and expanded Wilderness Study Areas should be directed to the BLM.

Section 3.3.3: As stated in Comment 1-4 above, the two Wilderness Areas are currently overflowed by military aircraft utilizing MTRs and ATCAA areas. Air quality is discussed in Section 3.4.1 of the Draft EA. As Paradise East and Paradise West MOAs and the proposed expansion area are not in Non-Attainment areas, and aircraft are not stationary sources, a conformance analysis is not required for the Proposed Action. The Owyhee Wilderness will be separated from the Jarbidge Wilderness, placed in bold and described accordingly.

Section 3.4: The commenter repeatedly uses language such as “jarring ear-splitting noise”, “fast-appearing horrifically loud planes”, and “blasted by sonic booms and grinding incessant plant (plane?) noise”. This language is in contrast to known aircraft subsonic approach and overflight noise levels. Table 4.2 lists noise levels of certain activities. A jet flyover at 1,000’ AGL has a decibel (dB) level of 103, a level just over the threshold where no more than 15 minutes of unprotected exposure is recommended. As overflight at even 1,000’ AGL would not be expected to affect a person on the ground for more than a few seconds, your comments are an inaccurate assumption of the noise conditions under MOAs with an overflight at 3,000’ AGL. The quote in your discourse “the effects on a visitor’s perception of solitude is quite temporary, but extreme” fails to include the entire quote or the type of overflight. The entire quote from the

Draft EA is as follows: “.....the influence of low-level military flights ‘*on a visitor’s perception of solitude is quite temporary, but extreme for a short period of time (one minute or less). These flights do not have a significant, long-lasting adverse effect on a visitor’s opportunity to find solitude.*’ ” (See Section 3.4 of the Draft EA.)

Impacts to visual resources and noise increases would not be significant. Any military aircraft may use the airspace according to specific rules, and the USAF is not proposing any wind towers in the MOAs. No on-the-ground actions are part of the Proposed Action.

Air quality is discussed in Section 3.4 of the Draft EA. Under the Proposed Action, the maximum estimated quantity of pollutants per cubic mile per year is 258 pounds. This includes all federal and state criteria pollutants that are generated by an F-15 aircraft. No further analysis is required.

Section 3.5: Shrub-steppe habitat is not altered by aircraft overflight. Potential effects on wildlife species, including sensitive, candidate, threatened or endangered species are discussed in Section 3.5 and 4.2. Based on the analysis presented in the Draft EA, no significant impacts are expected to any wildlife within the existing or proposed expansion area. There are no quantifiable effects from military training on wildlife species documented, even in MOAs where subsonic aircraft overflight occurs much more frequently and at altitudes of 100’ AGL or higher. There are no studies specific to the subject matter or locations that you requested. The USAF is not required to fund or produce such studies. The Council on Environmental Quality (CEQ) regulations does not require expenditure of agency funds to provide new information for EAs where significant adverse effects on the human environment are not reasonably foreseeable. Furthermore, the agency shall include a summary of existing credible scientific evidence which is relevant to evaluating the reasonably foreseeable significant adverse impacts on the human environment, and the agency’s evaluation of such impacts based upon theoretical approaches or research methods generally accepted in the scientific community. The commenter’s suggestion that the USAF expend “\$500,000,000 or more” of taxpayer dollars “to conduct shrubsteppe restoration and to purchase and retire public lands properties” (BLM and US Forest Service lands) “and base properties” (private lands) “from grazing disturbance across the affected area or region” is not required by NEPA.

You infer that declines in sage grouse leks in the vicinity of Saylor Creek and across the MOAs are due to military overflight. The documented and scientifically accepted reason for sage grouse lek declines and sage grouse population declines across areas of the Great Basin is loss of sagebrush due to fire. There is no scientific study, documented evidence or even casual observation on record that military overflights flush sage grouse into barbed wire fences or give predators an advantage that results in “significant adverse effects”.

Section 3.9.1: Light Emissions: You assume that because 40 aircraft are stationed at MHAFB, all 40 can be in the MOAs at the same time, or that night-flying aircraft are lighted. Large night missions are not visible for “hundreds if not thousands of square miles with intense bright flashing lights accompanied by loud noises.”

With regard to flare usage, flares would never be dropped below 3,000' AGL. Dropping flares at this height is three times the required height for safe use, that is, three times the altitude needed to ensure flares are extinguished before they hit the ground. The action is mitigated already by the height of the proposed floor of the MOAs and the altitude at which flares could be dropped.

We do employ a mitigation measure for flares during fire season when the BLM or MHAFB fire category rating for Jarbidge MOA is Category 4 or above, according to the MHAFB Wildland Fire Management Plan, signed 18 January 2008. The voluntary restriction in Category 4 states: Flares and chaff will be dropped only above 5,000' AGL on Saylor Creek Range, Juniper Butte Range and in the MOAs.

We will include this information in the Final EA. Chaff and flares will be deployed only above 5,000' AGL under the Proposed Action or Alternative D if fire Category 4 is issued by MHAFB or the BLM South Central Interagency Dispatch Center, Shoshone, Idaho.

The Proposed Action would cause temporary, not significant effects to sage grouse, bighorn sheep and other species, based on the analysis present in the Draft EA. Overflight at 3,000' AGL is not a significant impact and therefore, does not require mitigation. The infrequent nature of overflights results in a slightly elevated 24-hour sound level, which is not a significant impact. A few seconds of noise in 86,400 seconds in a day is not a significant impact. See discussion, Draft EA, Section 4.1.3 and Table 4.1.

In the Owyhee River system in Idaho, seasonal restrictions in the Owyhee MOA would still apply during April, May and June. Over the Owyhee River in Oregon, overflight would be 3,000' AGL or 10,000' MSL, whichever is higher. Military overflight over rivers would have a negligible effect on recreationists based on the noise analysis conducted in Appendix A and B. Contrails are not a significant effect to visual resources, as they are temporary.

The US Fish and Wildlife Service (USFWS) has provided their own comments on the Draft EA. We have not found any USFWS designated critical habitats within the proposed airspace expansion area. Military overflight and use of chaff and flares will not jeopardize the continued existence of listed species, nor destroy or adversely modify designated critical habitat.

We appreciate your time and effort to comment on the Draft EA.

Respectfully

A handwritten signature in black ink, appearing to read "Peter A. Lee", with a horizontal line extending to the right.

PETER A. LEE, Colonel, USAF



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 366TH FIGHTER WING (ACC)
MOUNTAIN HOME AIR FORCE BASE IDAHO

DEC 18 2009

Colonel Peter A. Lee
Vice Commander
366 Gunfighter Avenue Ste 331
Mountain Home AFB ID 83648

Dave Becker
Oregon Natural Desert Association
917 SW Oak Street Suite 409
Portland OR 97205

Dear Mr. Becker

We received your letter dated 28 July 2009 regarding the Draft Environmental Assessment (EA) for Proposed Airspace Changes for Paradise East and Paradise West Military Operations Areas (MOAs) at Mountain Home Air Force Base (MHAFB), Idaho, June 2009.

We reviewed your 45 pages of comments, 15 pages of articles, 1-page email on a Bureau of Land Management (BLM) settlement and a CD of journal articles and other information. Most of these comments were not relevant to the Draft EA. Comments regarding grazing practices, fences, BLM activities, White Elk MOA, Utah Test and Training Range, Nellis and other actions by other agencies, users, publics or any other entities are beyond the scope of the Proposed Action. This response is limited to comments specific to the text of the Draft EA included in your letter, pages 35-42.

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Section 2.2: Airspace units, MTRs, IR and VR routes can be viewed on aeronautical charts available online at <http://skyvector.com/>.

Chaff and flare usage has been proposed and analyzed in subsequent EAs since the EIS for ETI. Chaff and flare increases are not part of this proposed action.

Table 2.2: The RSAF beddown is not linked to this action. The need for expanded airspace was recognized in 2004. In 2005, a Test/Training Space Needs Statement (T/TSNS) was prepared by the MHAFB Airspace Manager and submitted to Air Combat Command (ACC) for approval to begin the process for proposing an expanded airspace. This clearly pre-dates the action by ACC to bed down the RSAF on MHAFB. The need for expanded airspace was, and continues to be, based on the current need, beginning in 2004 and continuing to present, not on

any future potential action. At the time this process was started, the BRAC actions and the proposed RSAF beddown were not even formulated.

Page 2-14: Information about F-15 aircraft and other military aircraft can be found at <http://www.af.mil/information/factsheets/index.asp>.

Page 2-17: Theoretically, chaff and flare use will be proportionally divided among all airspace units. There is no way to determine how many chaff bundles and flares will be used at any given point, as training scenarios are not static. Under the Proposed Action, chaff and flare use will not increase from the number established in the RSAF EA.

Table 3.1: The table accurately lists the resource categories that are detailed in depth and carried forward in Chapter 4. Resource categories not carried forward are discussed in enough detail in Chapter 3 to determine if further discussion is warranted in Chapter 4.

Section 3.1: The Air Force Owyhee study was done as a mitigation measure to settle the lawsuit brought by the Greater Owyhee Legal Defense (GOLD). The noise study was funded by the USAF and the GOLD members chose the noise professionals to do the analysis. The noise study correctly captured actual noise in the MOAs and accurately portrayed the level of ambient noise by recording 98,582,200 continuous seconds of noise at 8 locations for a total of 788,659,200 seconds. The noise study was accepted and no further legal action was pursued upon completion of this study. Chaff and flare use are not a component of a noise study.

Section 3.3: Conclusions in Section 3.3 are supported by the noise analysis presented in 4.1 and Appendices A and B.

Figure 8: The commenters wish that BLM designate new and expanded Wilderness Study Areas should be directed to the BLM.

Section 3.3.3: As stated in Comment 1-4 above, the two Wilderness Areas are currently overflown by military aircraft utilizing MTRs and ATCAA areas. Air quality is discussed in Section 3.4.1 of the Draft EA. As Paradise East and Paradise West MOAs and the proposed expansion area are not in Non-Attainment areas, and aircraft are not stationary sources, a conformance analysis is not required for the Proposed Action. The Owyhee Wilderness will be separated from the Jarbidge Wilderness, placed in bold and described accordingly.

Section 3.4: The commenter repeatedly uses language such as “jarring ear-splitting noise”, “fast-appearing horrifically loud planes”, and “blasted by sonic booms and grinding incessant plant (plane?) noise”. This language is in contrast to known aircraft subsonic approach and overflight noise levels. Table 4.2 lists noise levels of certain activities. A jet flyover at 1,000’ AGL has a decibel (dB) level of 103, a level just over the threshold where no more than 15 minutes of unprotected exposure is recommended. As overflight at even 1,000’ AGL would not be expected to affect a person on the ground for more than a few seconds, your comments are an inaccurate assumption of the noise conditions under MOAs with an overflight at 3,000’ AGL. The quote in your discourse “the effects on a visitor’s perception of solitude is quite temporary, but extreme” fails to include the entire quote or the type of overflight. The entire quote from the

Draft EA is as follows: “.....the influence of low-level military flights ‘on a visitor’s perception of solitude is quite temporary, but extreme for a short period of time (one minute or less). These flights do not have a significant, long-lasting adverse effect on a visitor’s opportunity to find solitude.’ ” (See Section 3.4 of the Draft EA.)

Impacts to visual resources and noise increases would not be significant. Any military aircraft may use the airspace according to specific rules, and the USAF is not proposing any wind towers in the MOAs. No on-the-ground actions are part of the Proposed Action.

Air quality is discussed in Section 3.4 of the Draft EA. Under the Proposed Action, the maximum estimated quantity of pollutants per cubic mile per year is 258 pounds. This includes all federal and state criteria pollutants that are generated by an F-15 aircraft. No further analysis is required.

Section 3.5: Shrub-steppe habitat is not altered by aircraft overflight. Potential effects on wildlife species, including sensitive, candidate, threatened or endangered species are discussed in Section 3.5 and 4.2. Based on the analysis presented in the Draft EA, no significant impacts are expected to any wildlife within the existing or proposed expansion area. There are no quantifiable effects from military training on wildlife species documented, even in MOAs where subsonic aircraft overflight occurs much more frequently and at altitudes of 100’ AGL or higher. There are no studies specific to the subject matter or locations that you requested. The USAF is not required to fund or produce such studies. The Council on Environmental Quality (CEQ) regulations does not require expenditure of agency funds to provide new information for EAs where significant adverse effects on the human environment are not reasonably foreseeable. Furthermore, the agency shall include a summary of existing credible scientific evidence which is relevant to evaluating the reasonably foreseeable significant adverse impacts on the human environment, and the agency's evaluation of such impacts based upon theoretical approaches or research methods generally accepted in the scientific community. The commenter’s suggestion that the USAF expend “\$500,000,000 or more” of taxpayer dollars “to conduct shrubsteppe restoration and to purchase and retire public lands properties” (BLM and US Forest Service lands) “and base properties” (private lands) “from grazing disturbance across the affected area or region” is not required by NEPA.

You infer that declines in sage grouse leks in the vicinity of Saylor Creek and across the MOAs are due to military overflight. The documented and scientifically accepted reason for sage grouse lek declines and sage grouse population declines across areas of the Great Basin is loss of sagebrush due to fire. There is no scientific study, documented evidence or even casual observation on record that military overflights flush sage grouse into barbed wire fences or give predators an advantage that results in “significant adverse effects”.

Section 3.9.1: Light Emissions: You assume that because 40 aircraft are stationed at MHAFB, all 40 can be in the MOAs at the same time, or that night-flying aircraft are lighted. Large night missions are not visible for “hundreds if not thousands of square miles with intense bright flashing lights accompanied by loud noises.”

With regard to flare usage, flares would never be dropped below 3,000' AGL. Dropping flares at this height is three times the required height for safe use, that is, three times the altitude needed to ensure flares are extinguished before they hit the ground. The action is mitigated already by the height of the proposed floor of the MOAs and the altitude at which flares could be dropped.

We do employ a mitigation measure for flares during fire season when the BLM or MHAFB fire category rating for Jarbidge MOA is Category 4 or above, according to the MHAFB Wildland Fire Management Plan, signed 18 January 2008. The voluntary restriction in Category 4 states: Flares and chaff will be dropped only above 5,000' AGL on Saylor Creek Range, Juniper Butte Range and in the MOAs.

We will include this information in the Final EA. Chaff and flares will be deployed only above 5,000' AGL under the Proposed Action or Alternative D if fire Category 4 is issued by MHAFB or the BLM South Central Interagency Dispatch Center, Shoshone, Idaho.

The Proposed Action would cause temporary, not significant effects to sage grouse, bighorn sheep and other species, based on the analysis present in the Draft EA. Overflight at 3,000' AGL is not a significant impact and therefore, does not require mitigation. The infrequent nature of overflights results in a slightly elevated 24-hour sound level, which is not a significant impact. A few seconds of noise in 86,400 seconds in a day is not a significant impact. See discussion, Draft EA, Section 4.1.3 and Table 4.1.

In the Owyhee River system in Idaho, seasonal restrictions in the Owyhee MOA would still apply during April, May and June. Over the Owyhee River in Oregon, overflight would be 3,000' AGL or 10,000' MSL, whichever is higher. Military overflight over rivers would have a negligible effect on recreationists based on the noise analysis conducted in Appendix A and B. Contrails are not a significant effect to visual resources, as they are temporary.

The US Fish and Wildlife Service (USFWS) has provided their own comments on the Draft EA. We have not found any USFWS designated critical habitats within the proposed airspace expansion area. Military overflight and use of chaff and flares will not jeopardize the continued existence of listed species, nor destroy or adversely modify designated critical habitat.

We appreciate your time and effort to comment on the Draft EA.

Respectfully

A handwritten signature in black ink, appearing to read "P. Lee", with a horizontal line extending to the right.

PETER A. LEE, Colonel, USAF



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 366TH FIGHTER WING (ACC)
MOUNTAIN HOME AIR FORCE BASE IDAHO

DEC 18 2009

Colonel Peter A. Lee
Vice Commander
366 Gunfighter Avenue Ste 331
Mountain Home AFB ID 83648

Charlie Myers
Vice Chair, Elko County Board of Commissioners
569 Court Street
Elko NV 89801

Dear Mr. Myers

Thank you for your 28 October 2009 letter in support of the proposed airspace expansion in the Draft Environmental Assessment (EA) for Proposed Airspace Changes for Paradise East and Paradise West Military Operations Areas at Mountain Home Air Force Base, Idaho, June 2009.

We appreciate the Elko County Commissioners meeting with us on 7 October 2009. We are grateful to have had the opportunity to clarify our proposal and address your expressed concerns on the Proposed Action. We look forward to meeting with you again to discuss any other issues or concerns you may have about the 366th Fighter Wing's operations.

We appreciate your time and effort in reviewing the Draft EA. Thank you for your continued strong support of the 366th Fighter Wing and all men and women of the Armed Forces.

Respectfully

A handwritten signature in black ink, appearing to read "P. Lee", is positioned above the typed name.

PETER A. LEE, Colonel, USAF



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 366TH FIGHTER WING (ACC)
MOUNTAIN HOME AIR FORCE BASE IDAHO

DEC 16 2009

Colonel Peter A. Lee
Vice Commander
366 Gunfighter Avenue Ste 331
Mountain Home AFB ID 83648

Robert D. Williams
US Fish and Wildlife Service, State of Nevada Supervisor
1340 Financial Boulevard Suite 234
Reno NV 89502

Dear Mr. Williams

Thank you for your letter dated 26 August 2009, File No. 2009-FA-0143, in regards to the Draft Environmental Assessment (EA) for Proposed Airspace Changes for Paradise East and Paradise West Military Operations Areas (MOAs) at Mountain Home Air Force Base (MHAFB) Idaho, June 2009.

You provided general and specific comments on the Draft EA regarding species listed under the Endangered Species Act (ESA) within the defined expansion area including bull trout and Lahontan cutthroat trout; candidate species Columbia spotted frog; and species petitioned for listing including greater sage grouse, pygmy rabbit, and American pika. We will add American pika to Table 3.3.

Military aircraft currently use established Military Training Routes (MTRs) for low level training over the Jarbidge Wilderness and the Santa Rosa-Paradise Peak Wilderness, specifically Instrument Route (IR) 300 and IR 313 over the Santa Rosa-Paradise Peak Wilderness, and IR 302 and IR 303 over the Jarbidge Wilderness. These MTRs are for high-speed, subsonic, low-level aircraft training, and have an established use at 100' Above Ground Level (AGL). The Proposed Action would increase military aircraft use over the Jarbidge Wilderness and the Santa Rosa-Paradise Peak Wilderness, but at 3,000' AGL, or 10,000' Mean Sea Level (MSL), whichever is higher.

Also, the Jarbidge Wilderness is currently overlain by the Elko Air Traffic Control Assigned Airspace (ATCAA) areas, and the Santa Rosa-Paradise Peak Wilderness is overlain by the Sodhouse ATCAA. Both Sodhouse and Elko have an operating altitude of 18,000' to 28,000' MSL. Military aircraft regularly use this airspace by permission from Salt Lake Center for refueling and marshalling during large force exercises. This discussion will be added to the final EA to clarify that military use of airspace over these Wilderness Areas has occurred and will continue to occur, and that implementing the Proposed Action would not be a new use, but a modified use.

One thing that was not clear in the Draft EA is the altitude of supersonic overflight. The No Action Alternative states that supersonic overflight occurs in the ATCAA areas above Paradise East and Paradise West MOAs at 30,000' MSL and above. All the action alternatives (Alternatives B, C, and D) would continue to keep supersonic overflight above 30,000' MSL, and will be added to the Final EA.

Noise is addressed in the Draft EA in Section 4.1. Site 16 in the noise analysis is nearest to the Jarbidge Wilderness, Site 12 is nearest to the Santa Rosa-Paradise Peak Wilderness (see Figure 13 and Table 4.1). Under the Proposed Action, L_{dn} for both locations would increase only slightly. Site 12 would encounter an increase in L_{dn} from 44.2 to 44.6. Site 16 would experience an increase in L_{dn} from 44.2 to 45.1. Neither of these increases is significant.

We share your concern over the potential for wildfire and the loss of valuable wildlife habitats. For that reason, flares would never be dropped below 3,000' AGL. Dropping flares at this height is three times the required height for safe use; that is, three times the altitude needed to ensure flares are extinguished before they hit the ground. The action is mitigated already by the height of the proposed floor of the MOAs and the altitude at which flares could be dropped.

We do employ a mitigation measure for flares during fire season when the Bureau of Land Management (BLM) or MHAFB fire category rating for Jarbidge MOA is Category 4 or above, according to the MHAFB Wildland Fire Management Plan, signed 18 January 2008. The voluntary restriction in Category 4 states: Flares and chaff will be dropped only above 5,000 feet AGL on Saylor Creek Range, Juniper Butte Range, and in the MOAs.

We will include this information in the Final EA. Chaff and flares will be deployed only above 5,000' AGL under the Proposed Action or Alternative D if fire Category 4 is issued by MHAFB or the BLM South Central Interagency Dispatch Center, Shoshone, Idaho.

The use of chaff and flares over aquatic habitats is not a significant impact. In the study, Environmental Effects of RF Chaff, Naval Research Laboratory, 1999, the following Summary Findings are listed:

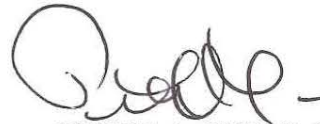
- Chaff particle concentrations in air of chaff-affected areas are 1/100th of allowable limits set by the EPA and less than 1/10th of the natural background concentration for suspended soil particles.
- Deposition of chaff, even under areas of intensive use, is hundreds of times less than the annual deposition of dust in the southwestern U.S. The chemical composition of chaff is very similar to the chemical composition of desert dust.
- Deposition of chaff does not result in the accumulation of toxic or otherwise undesirable substances in soils.
- The risk of exposure for humans through inhalation or ingestion is considered negligible because chaff fibers are too large to pass through the nose or mouth or do not exceed known toxic thresholds.
- Marine and freshwater organisms exposed to relevant levels of chaff are unlikely to exhibit effects in their growth or development.

Flare usage is widespread and would occur above 3,000' AGL. The likelihood that flare ash or flare residue would accumulate in aquatic environments in a quantity that would measurably affect species is rare. Flares are primarily magnesium, which is a common metal and nutritional necessity. In the USAF-Air Combat Command report, Environmental Effects of Chaff and Flares, August 1997, tests on flare ash and flare duds revealed that magnesium is most unstable in acidic environments. Trace amounts of aluminum, boron, barium, and chromium were generally sufficiently low to preclude concerns in aquatic environments with a pH above 7. Laboratory mixtures were 1:20 material to solution, a much higher ratio than could occur as a result of military training. Impacts from flares would only be of potential concern in small confined water bodies subject to repeat, intense use of flares. This information on chaff and flares will be included in the Final EA.

Impacts to migratory birds protected under the Migratory Bird Treaty Act would be negligible based on the noise analysis provided in Appendices A and B and proposed overflight altitudes. MHAFB has an active Bird Air Strike Hazard (BASH) avoidance program, and we are currently working with the Idaho Department of Fish and Game, radio collaring raptors and tracking them seasonally through the MOAs. With more information about migratory bird routes and use times, aircrews will be better able to avoid collisions. From 2007-2009, only three bird-aircraft collisions have occurred in the MOAs. All occurred 900 feet AGL or below. Two of the collisions were over/near our air-to-ground training ranges where aircraft fly lower during ordnance deliveries and much more frequently than other sectors of the MOAs. This information will be included in the Final EA.

We appreciate the time and effort you expended to review and comment on the Draft EA. Your comments will help us provide a better analysis of the Proposed Action.

Respectfully

A handwritten signature in black ink, appearing to read "Peter A. Lee". The signature is stylized and cursive, with a large initial "P" and a long horizontal stroke at the end.

PETER A. LEE, Colonel, USAF

