

*Draft*

# Environmental Assessment

for Expanded WTI Ground Training  
Operations at Barry M. Goldwater Range  
East



November  
2020

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**FINDING OF NO SIGNIFICANT IMPACT (FONSI)  
FOR THE  
ENVIRONMENTAL ASSESSMENT  
ADDRESSING EXPANDED WTI GROUND TRAINING OPERATIONS  
AT BARRY M. GOLDWATER RANGE EAST (BMGR-EAST), ARIZONA**

Pursuant to provisions of the National Environmental Policy Act, 42 United States Code §§ 4321 to 4347, as amended; implementing Council on Environmental Quality Regulations, 40 Code of Federal Regulations (CFR) §§ 1500–1508; and 32 CFR § 989, Environmental Impact Analysis Process, the United States Marine Corps (USMC), Marine Corps Combat Development Command (MCCDC), Marine Air Ground Task Force Training Command (MAGTF-TC), Marine Aviation and Weapons Tactics Squadron One (MAWTS-1) prepared an Environmental Assessment (EA) to address the proposed expansion of the Weapons and Tactics Instructor (WTI) course ground-based training operations at Barry M. Goldwater Range (BMGR) East, Arizona.

This EA analyzes the potential impacts of the Proposed Action and the No Action Alternative, and also considers cumulative environmental impacts with other projects within the Region of Influence. The EA is attached to this document and is incorporated by reference.

**PROPOSED ACTION (EA § 2.2)**

The USMC proposes to expand the ground training component of the existing WTI course at BMGR East. Current WTI ground-based training occurs at existing airfields in North, South, and East Tactical Ranges (NTAC, STAC, and ETAC) at BMGR East. The purpose of the Proposed Action is to increase the allowable number of ground-based personnel participating in WTI course training events from 100 personnel to 500 personnel two times per year. The WTI ground-based training component currently takes place two times a year over six days in the Spring and Fall and includes up to two days annually of overnight operations. Existing training also includes overnight operations. MAWTS-1 is also proposing to increase the number of annual training days from six to eight. Under the proposed action, WTI ground-based training would occur at existing training locations in NTAC, STAC and ETAC and may require up to 500 personnel at one site or spread across the four distinct sites. The current limit of 100 ground-based personnel detracts from both aviation training and that of supporting ground units. Personnel currently simulate the actions of a full battalion during exercises, and additionally miss out on the lessons that come from planning and executing the insertion and extraction of a large force in a complex tactical environment.

Under the Proposed Action, MAWTS-1 would request up to eight (8) days per year for WTI ground-based training operations, an increase from the six (6) days currently utilized. Two overnight operations are already part of the WTI curriculum and would continue under the Proposed Action. According to MAWTS-1, 500 personnel could be located in a single training area up to two (2) days per year; however, based on the current training syllabus it would be rare and infrequent.

Current training limitations were established in the 2010 Final Environmental Impact Statement (EIS) for Proposed BMGR East Range Enhancements prepared by the 56 RMO (hereafter, 2010 EIS). In the 2013 Record of Decision for this EIS, it was found that training simulations including a ground component of up to 100 personnel and held no more than two or three times per year would result in no significant impacts to any environmental resources (56 RMO, 2010). Under the Proposed Action no other changes to MAWTS-1 training operations would occur; training would continue to take place at the same locations and with identical aerial support as otherwise discussed in the 2010 EIS.

### **NO ACTION ALTERNATIVE (EA § 2.3)**

The No Action alternative was analyzed to provide a baseline of the existing environmental, social, and economic conditions the Proposed Action was compared against. Under the No Action Alternative, MAWTS-1 would maintain the status quo. MAWTS-1 would continue to perform training and exercises with no more than 100 ground personnel. Types of training and support as well as the duration and frequency of training and exercises would remain unchanged from current operations; however, the USMC would not be able to provide full-battalion level training that is representative of the complexity required of real-world operations.

### **ALTERNATIVE ACTIONS REMOVED FROM CONSIDERATION (EA § 2.4)**

MAWTS-1 analyzed three (3) alternatives to the Proposed Action in the EA and concluded none were feasible:

- Relocate MAWTS-1 Exercises. MAWTS-1 would relocate training exercises to alternative sites that could support an increased ground component. The DoD maintains several active training ranges in the southwestern United States, such as BMGR West; YPG; the Chocolate Mountain Aerial Gunnery Range (CMAGR) near Niland, CA; Naval Air Weapons Station (NAWS) China Lake in the Western Mojave Desert of California; and the Nevada Test and Training Range (NTTR) north of Las Vegas, NV.
- Permanent Relocation of MAWTS-1. MAWTS-1 would permanently relocate to a location within reasonable distance of a major DoD training range that could support MAWTS-1 training initiatives. This would necessitate the creation of all facilities necessary to support at least 300 students, 200 permanent training staff, and 5,500 support personnel (e.g. command and control, aviation maintenance, logistics, temporary training staff, ground combat elements, etc.).
- Ground Component Increased to Other than 500 Personnel. The USMC initially evaluated alternatives that would increase the allowable ground component of MAWTS-1 training exercises at varying sizes, both greater than and less than 500 personnel.

### **SUMMARY OF FINDINGS**

Based upon the scope of the Proposed Action, resource areas with no impacts were identified through a preliminary screening process. The following describes those resource areas not being carried forward for detailed analysis: noise; air quality; earth resources; land use; outdoor recreation; socioeconomics, environmental justice, and water resources (EA § 3.0).

- Under the Proposed Action, there would be no change in associated noise because aircraft operations would not change. The same aircraft used for the current exercises contain sufficient capacity for all 500 personnel of the Proposed Action without altering the number of sorties or need for additional aircraft. The proposed increase of up to 500 ground personnel would result in an increase in localized noise at each of the four airfields. Potential increases in noise would likely occur from the increased presence of ground personnel and small arms fire. However, such impacts would be highly localized and would be limited to approximately 8 days per year. With the exception of the increased ground component, WTI training events would remain consistent with current operations and noise would primarily impact the personnel taking part in the event. For noise impacts to the Sonoran Pronghorn and other wildlife, please see Section 3.1.
- The Proposed Action would not impact air quality emissions as aircraft operations and ground vehicle usage would not change. Increasing the number of personnel engaging in ground movements may result in a slight increase in localized airborne particulate matter, but this increase would be negligible in comparison to the dust generated by the supporting aircraft and

other ongoing training activities. All activities occurring under the Proposed Action would occur within an unclassified / attainment area and therefore the General Conformity Rule does not apply. Furthermore, the Proposed Action would not result in a violation of the National Ambient Air Quality Standards (NAAQS), nor would any change in greenhouse gas emissions or climate change occur.

- The impact on earth resources would be minimal, and although increasing the number of ground personnel would result in a corresponding increase to soil disturbances (such as increased and/or more widespread compaction), such impacts would continue to be isolated to previously disturbed regions and would be a minor contribution to the use of the BMGR East airfields in general.
- The Proposed Action would continue to utilize established ranges of BMGR East for defense training purposes consistent with current land use designations and would result in no changes to current land use.
- None of the areas described in the Proposed Action are located in or near public access areas, therefore ground-based training activities would not impact existing outdoor recreation areas within BMGR East.
- Since the Proposed Action lies entirely within the borders of BMGR, no disproportionately high environmental or adverse human health impacts to minority, low-income, or child populations would occur, nor would the Proposed Action impact the socioeconomics of the nearby towns of Ajo, or Maricopa and Pima Counties.
- The Proposed Action is not expected to impact water resources. Water resources within BMGR East are limited and no permanent natural bodies of water exist in the operational portions of BMGR East. The closest naturally occurring and perennial bodies of water are located to the north and northwest of BMGR and east of State Route 85, and would not be impacted by the Proposed Action. The Proposed Action does not occur within a floodplain or wetland.

**Biological Resources (EA § 3.1).** Ongoing military training and testing operations within BMGR would likely result in continued short- and long-term impacts to biological resources. However, such disturbances are largely localized in the ten percent (10%) of the range that has previously been subjected to low to high levels of development (56 RMO, 2010). Additionally, many such disturbances are temporally short and limited in their nature (such as aircraft noise causing wildlife to temporarily relocate). Robust protocols regarding threatened, endangered, and sensitive wildlife are established and enforced for all personnel entering the range, and any new actions potentially impacting the Sonoran pronghorn or acuña cactus require Section 7 consultation with the US Fish and Wildlife Service (USFWS). The ecosystems within BMGR are also well represented in the nearby Cabeza Prieta National Wildlife Refuge, Organ Pipe Cactus National Monument, and the Sonoran Desert National Monument. Therefore, the Proposed Action, in conjunction with other foreseeable actions both on- and off-range, would not result in significant cumulative impacts to biological resources.

**Cultural Resources (EA § 3.2).** All activities under the Proposed Action would occur in previously disturbed areas. Utilization of existing landing zones and personnel movements would remain within existing training area boundaries and would remain consistent between exercises. Resources may be disturbed by ground movements and helicopter rotor wash during MAWTS exercises. Additionally, the Area of Potential Effect (APE) has been well surveyed and the one National Register Site, AZ Y:8:1 (ASM) would be fenced to ensure it is protected during each event. Exercise participants will be briefed on the fenced site during the planning process for each exercise. No National Register of Historic Places (NRHP)-eligible architectural resources and no traditional cultural properties (TCPs) are located within the APE (56 RMO, 2010) so impacts would not occur. If any cultural resources, such as human remains

or artifacts, should be inadvertently encountered during an exercise, personnel are instructed to mark the area, secure the immediate vicinity of the resource, and ensure the 56 RMO Cultural Resource Manager (CRM) is notified. This area would become off-limits for the duration of the exercise until such time the 56 RMO CRM evaluates the site and determines appropriate steps to move forward, following the guidance of the Integrated Cultural Resources Management Plan (ICRMP) to include engaging with local Native American Tribes (56 RMO, 2020).

**Hazardous Materials / Wastes and Solid Waste (EA § 3.3).** Under the Proposed Action, no storage or waste sites are located within the APE. Hazardous materials would be limited to those contained within aircraft and vehicles (fuels, antifreeze, lubricants, etc.). Contained hazardous materials necessary for maintenance of various equipment is handled off site. Increasing participation of the ground component would present a notable increase in the amount of lead reported annually in the BMGR Toxic Release Inventory (TRI). Lead already exceeded the TRI threshold in 2019 so an increase due to the Proposed Action would have a minor impact overall. All solid waste generated by exercise participants would be collected and taken with them upon departure from the range. Therefore, implementation of the Proposed Action would have a negligible impact on solid waste. Other than the materials described above, there would be no change to hazardous materials, hazardous waste, or solid waste under the Proposed Action.

**Health and Safety (EA § 3.4).** Live-fire training within the tactical ranges presents a potential hazard inherent in many training operations and is required to ensure personnel familiarity with the sights and sounds of a combat environment. The potential for injury is minimized through strict adherence to weapon use, target use, range scheduling, and range access procedures that include training requirements. No public access to tactical ranges is authorized. In addition to hazards created by unexploded ordnance, many weapon systems feature lasers used for target acquisition, including both visible and invisible (infrared) light. All personnel using laser target designators receive safety training specific to the hazard rating of the devices in use and understand the safety implications posed. The Sonoran Desert poses several serious environmental hazards to all personnel operating on the ground, including rugged terrain, extreme temperatures, sunlight exposure, risk of heat stress and heat exhaustion, lack of potable drinking water, flash floods, venomous wildlife, and hazardous driving conditions. All personnel entering the range receive a range safety brief discussing these hazards and methods to stay alert for each of them. Personnel taking part in MAWTS-1 exercises are exposed to several short-term health and safety risks unique to the military that can only be lessened by pre-exercise briefs and additional training. The Proposed Action and other military training taking place on the BMGR inherently poses a safety risk to participants to ensure personnel are prepared for deployment to active combat environments. The Proposed Action would contribute a minor change in overall health and safety at the BMGR.

**Cumulative Impacts (EA § 4.0).** The USMC and USAF have concluded that no significant adverse cumulative impacts would result from activities associated with implementation of the Proposed Action when considered with past, present, and reasonably foreseeable future projects at BMGR-East and the area of potential effect.

## CONCLUSION

Based on the description of the Proposed Action as set forth in the EA, all activities were found to comply with the criteria or standards of environmental quality and were coordinated with the appropriate federal, state, and local agencies. The attached EA and this FONSI were made available to the public for a 30-day review period. Agencies have been coordinated with throughout the EA development process and their comments were incorporated into the analysis of potential environmental impacts as appropriate in the EA.

**FINDING OF NO SIGNIFICANT IMPACT – LEAD AGENCY (USMC)**

Based on my review of the facts and analyses contained in the attached EA, conducted under the provisions of National Environmental Policy Act, Council on Environmental Quality Regulations, and Marine Corps Order 5090.2, I conclude that the Proposed Action would not have a significant environmental impact, either by itself or cumulatively, with other known projects. Accordingly, an Environmental Impact Statement is not required. The signing of this Finding of No Significant Impact completes the environmental impact analysis process.

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Steve E. Gillette, Colonel, USMC  
Commanding Officer, MAWTS-1

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Date

**FINDING OF NO SIGNIFICANT IMPACT – COOPERATING AGENCY (USAF)**

Based on my review of the facts and analyses contained in the attached EA, conducted under the provisions of National Environmental Policy Act, Council on Environmental Quality Regulations, and 32 CFR § 989, I conclude that the Proposed Action would not have a significant environmental impact, either by itself or cumulatively, with other known projects. Accordingly, an Environmental Impact Statement is not required. The signing of this Finding of No Significant Impact completes the environmental impact analysis process.

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Gregory Kreuder, Brigadier General, USAF  
Commander, 56<sup>th</sup> Fighter Wing

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Date

Attachment: *Environmental Assessment Addressing Expanded WTI Ground Training Operations at Barry M. Goldwater Range East (BMGR East), Arizona*



## COVER SHEET

### DRAFT ENVIRONMENTAL ASSESSMENT FOR EXPANDED WTI GROUND TRAINING OPERATIONS AT BARRY M. GOLDWATER RANGE EAST

**Responsible Agency:** United States Marine Corps (USMC), Marine Corps Combat Development Command (MCCDC), Marine Air Ground Task Force Training Command (MAGTF-TC), Marine Aviation and Weapons Tactics Squadron One (MAWTS-1)

**Cooperating Agency:** United States Air Force (USAF), Air Education and Training Command (AETC), 56th Fighter Wing, 56 Range Management Office

**Affected Location:** Barry M. Goldwater Range East, Arizona

**Report Designation:** Draft Environmental Assessment for Expanded Ground Training Operation in BMGR-East

**Abstract:** The USMC proposes to allow up to 500 personnel to participate in the Weapons and Tactics Instructor (WTI) course ground-level training at Barry M. Goldwater Range (BMGR) East. The findings of the 2010 Final Environmental Impact Statement (EIS) for Proposed BMGR East Range Enhancements limit existing WTI ground-training events to 100 personnel. Expanding this limit to 500 would allow training to be conducted at full battalion level, enhancing the realism of training scenarios and ensuring students and support personnel receive integrated combat training prior to deployment downrange. WTI events with such a ground component would occur no more than two times annually in accordance with the 2010 EIS.

All training events affected by the Proposed Action are part of the established MAWTS-1 WTI course curriculum. WTI ground-based training events would take place up to eight days per year, an increase from the current schedule of six days per year, including approximately two overnight operations. WTI ground-based training would be conducted at existing airfields (NTAC, STAC, ETAC and East Pass) provided the sum total of the ground component does not exceed 500 personnel. Additionally, training may be conducted with up to 500 personnel within a single distinct area of the range.

Under the No Action Alternative, the USMC would take no action, and the USMC would continue to perform WTI ground-based training events with no more than 100 ground personnel. The No Action Alternative does not provide the necessary flexibility to carry out large-scale integrated training exercises necessary to fully prepare personnel for deployment to active combat areas.

Written comments and inquiries regarding this document should be directed by mail to MAWTS-1 BMGR EA, 8461 W Farm Road, Suite 120 #244, Las Vegas, NV 89131, or submitted via email to [MAWTS-1BMGREA@hazair.com](mailto:MAWTS-1BMGREA@hazair.com).

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## ACRONYMS AND ABBREVIATIONS

|          |                                               |         |                                                      |
|----------|-----------------------------------------------|---------|------------------------------------------------------|
| AETC     | Air Education and Training Command            | MAWTS-1 | Marine Aviation Weapons and Tactics Squadron One     |
| AFI      | Air Force Instruction                         | MBTA    | Migratory Bird Treaty Act                            |
| APE      | Area of Potential Effect                      | MCASY   | Marine Corps Air Station Yuma                        |
| ASM      | Arizona State Museum                          | MCCDC   | Marine Corps Combat Development Command              |
| AZGFD    | Arizona Game and Fish Department              | MCO     | Marine Corps Order                                   |
| BGEPA    | Bald & Golden Eagle Protection Act            | MCOC    | Military Constituents of Concern                     |
| BMGR     | Barry M. Goldwater Range                      | MLWA    | Military Lands Withdrawal Act                        |
| BO       | Biological Opinion                            | NAAQS   | National Ambient Air Quality Standards               |
| CEQ      | Council on Environmental Quality              | NAWS    | Naval Air Weapons Station                            |
| CFR      | Code of Federal Regulations                   | NHPA    | National Historic Preservation Act                   |
| CMAGR    | Chocolate Mountain Aerial Gunnery Range       | NOA     | Notice of Availability                               |
| CRM      | Cultural Resources Manager                    | NRHP    | National Register of Historic Places                 |
| DoD      | Department of Defense                         | NTAC    | North Tactical (Range)                               |
| EA       | Environmental Assessment                      | P.L.    | Public Law                                           |
| EIAP     | Environmental Impact Analysis Process         | PR      | Personnel Recovery                                   |
| EIS      | Environmental Impact Statement                | RMO     | Range Management Office                              |
| EO       | Executive Order                               | ROCC    | Range Operations Control Center                      |
| EOD      | Explosive Ordnance Disposal                   | RSO&I   | Reception, Staging, Onward movement, and Integration |
| ERCA     | Extended Range Cannon Artillery               | SHPO    | State Historic Preservation Office                   |
| ESA      | Endangered Species Act                        | SGCN    | Species of Greatest Conservation Need                |
| ETAC     | East Tactical (Range)                         | STAC    | South Tactical (Range)                               |
| FINEX    | Final Exercise                                | TAC     | Tactical Range                                       |
| FONSI    | Finding of No Significant Impact              | TCP     | Traditional Cultural Place                           |
| ICRMP    | Integrated Cultural Resources Management Plan | TRI     | Toxic Release Inventory                              |
| INRMP    | Integrated Natural Resources Management Plan  | US      | United States                                        |
| LAFB     | Luke Air Force Base                           | USAF    | United States Air Force                              |
| LAFBI    | Luke Air Force Base Instruction               | U.S.C.  | United States Code                                   |
| MAGTF-TC | Marine Air Ground Task Force Training Command | USEPA   | United States Environmental Protection Agency        |

## ACRONYMS AND ABBREVIATIONS (CONTINUED)

|       |                                            |
|-------|--------------------------------------------|
| USFWS | United States Fish and<br>Wildlife Service |
| USMC  | United States Marine Corps                 |
| UXO   | Unexploded Ordnance                        |
| WTI   | Weapons and Tactics<br>Instructor (Course) |
| WTTP  | Weapons and Tactics<br>Training Program    |
| YPG   | Yuma Proving Ground                        |

# 1. Purpose of and Need for the Proposed Action

## 1.1 Introduction

The United States Marine Corps (USMC) proposes to allow up to 500 ground-based personnel to participate in military training events in support of the Weapons and Tactics Instructor (WTI) course at Barry M. Goldwater Range (BMGR) East. Conducted by the USMC Marine Aviation Weapons and Tactics Squadron One (MAWTS-1), the increase in personnel would allow training to be performed at full battalion level, ensuring students and supporting infantry units receive realistic integrated combat training before deployment downrange. As stipulated in the 2010 Final Environmental Impact Statement (EIS) for Proposed BMGR East Range Enhancements (hereafter 2010 EIS), prepared by the 56th Fighter Wing (56 FW) Range Management Office (56 RMO) at Luke Air Force Base (LAFB), MAWTS-1 currently limits ground participation to a maximum of 100 personnel (56 RMO, 2010).

This EA is prepared in accordance with the National Environmental Policy Act (NEPA) of 1969 (42 United States Code § 4321 et seq.), the Council on Environmental Quality (CEQ) regulations for implementing NEPA (40 Code of Federal Regulations [CFR] §§ 1500–1508) and the USMC's NEPA implementing procedures as specified in Marine Corps Order (MCO) 5090.2. As the Proposed Action would take place on an active training range managed by the 56 RMO, operated by the United States Air Force (USAF) at LAFB, this EA is also required to consider the USAF Environmental Impact Analysis Process (EIAP), 32 CFR § 989, as amended.

## 1.2 Purpose and Need

The purpose of the Proposed Action is to allow up to 500 ground-based personnel to participate in MAWTS-1 training events during WTI. Current training exercises overseen by MAWTS-1 limit ground components to a maximum of 100 personnel, which detracts from both aviation training and that of supporting ground units. Trainees must currently simulate the actions of a full battalion during exercises, and additionally fail to receive the lessons that come from planning and executing the insertion and extraction of a large force in a complex tactical environment.

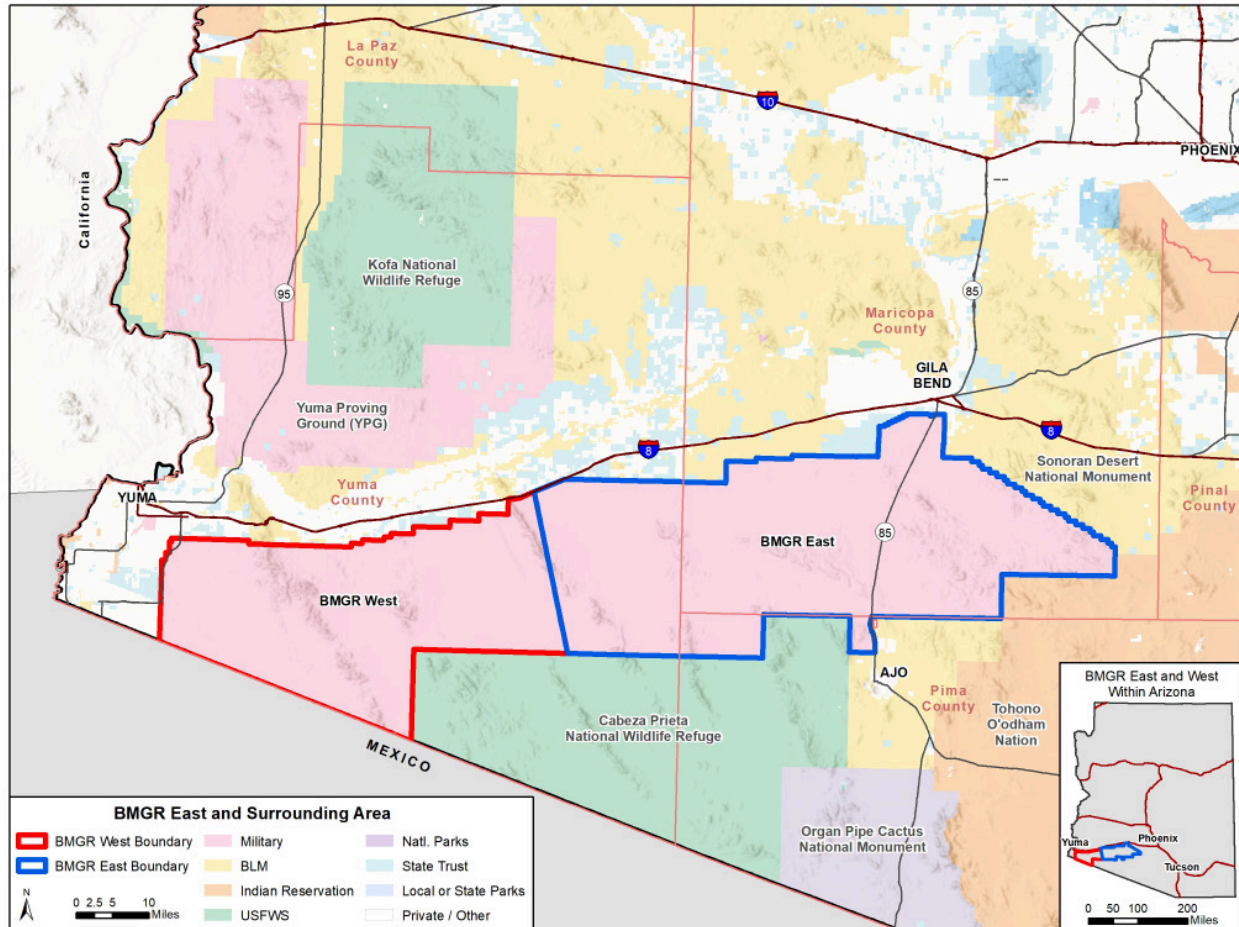
As a result of the Proposed Action, personnel taking part in WTI events would train in realistic, tactically accurate battalion-level environments, ensuring all participants receive and hone skills that are critical for combat readiness and cross-domain warfighting prior to deployment around the world. Furthermore, graduates from the MAWTS-1 WTI course would be better prepared to provide tactical training within the Fleet Marine Forces and planning at all levels of warfare within the USMC, Joint, and Coalition warfighting environments. All training events affected by the Proposed Action are well established components of the WTI course curriculum.

## 1.3 Project Location and Background

The BMGR was originally established in 1941 as a 1.1 million acre range to train and prepare air crews and was extended to 2.1 million acres during the height of World War II. The BMGR continues to be one of the most heavily used ranges in the United States (US), with over 64,000 training sorties flown in fiscal year 2018 across all Department of Defense (DoD) services and allied foreign militaries.

Today, the BMGR is a roughly 1.7 million acre military aviation training facility composed of airspace and lands located in southwestern Arizona, south of the Yuma Proving Ground (YPG). BMGR is used by the USAF and the USMC to train military aircrews to fly air combat missions for both air-to-ground and

air-to-air operations. To a lesser extent, the range is also used for other types of training, most of which support or are associated with air combat training. Examples of existing facilities used for training include an auxiliary airfield complex, realistic targets for air-to-ground attack, air-to-air firing ranges, and electronic warfare training ranges. The location of BMGR is shown in Figure 1-1.



*Figure 1-1: Barry M. Goldwater Range in relation to the state of Arizona*

The western portion of the range, known as BMGR West, is assigned to the Secretary of the Navy and is approximately 700,000 acres in size. Marine Corps Air Station Yuma (MCASY) operates and maintains BMGR West. The eastern portion of the BMGR, known as BMGR East, is assigned to the Secretary of the Air Force and is approximately 1,050,000 acres in size. LAFB, through the 56 RMO, operates and maintains BMGR East. Although the Marine Corps and Air Force are the primary users of their respective portions of the BMGR, all aviation branches of the Armed Services use both portions of the range (56 RMO, 2010).

BMGR East is subdivided into distinct training areas to enable scheduling multiple simultaneous range operations safely and without interference. These tactical subranges are: north tactical range (NTAC), south tactical range (STAC), and east tactical range (ETAC), and numbered ranges 1 through 4. Two small outlying airfields (Auxiliary Airfield 6 and Stoval Auxiliary Airfield) and other training infrastructure also lie within BMGR East. Locations of key training areas are shown in Figure 1-2.



In addition to military training operations, non-military entities, including other federal agencies such as the U.S. Border Patrol, utilize the land and airspace for ongoing operations and training. Public uses on BMGR East are largely limited to Area B, a public access area of approximately 130,000 acres located south of Range 3 and ETAC and east of State Route 85. Activities include hunting, camping, hiking, sightseeing, and photography. Two smaller areas, the Ajo Air Station parcel and Bender Spring, are also open to public access. Without exception, all BMGR recreational visitors are required to obtain an access permit prior to entering the range.

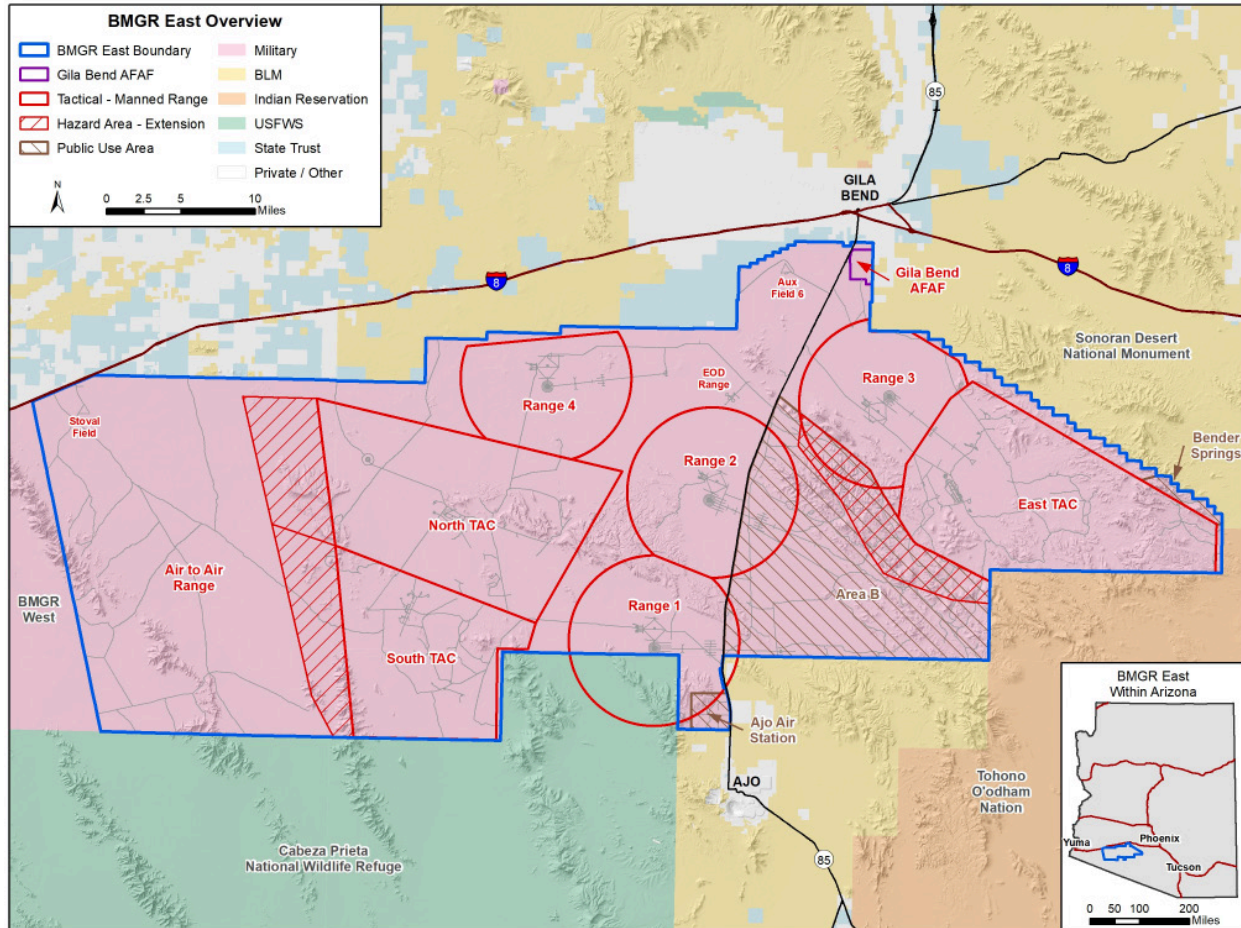


Figure 1-2: Detailed Barry M. Goldwater Range Map

## 1.4 Scope of the Environmental Assessment

The USMC prepared this EA in accordance with the CEQ Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act, 40 CFR §§ 1500–1508, the USMC NEPA Implementing Procedures, MCO 5090.2, and the USAF Environmental Impact Analysis Process, 32 CFR 989. The NEPA requires an assessment of the environmental impacts associated with proposed federal actions that may affect the quality of the human environment. The scope of the EA includes the actions proposed; alternatives considered; a description of the existing environment; and direct, indirect, and cumulative impacts. The scope of the Proposed Action and the range of alternatives to be considered are presented in Section 2. The MCO 5090.2 and the USAF EIAP, 32 CFR § 989 (as amended), require consideration of the No Action Alternative, which will be assessed to provide the baseline against which

the potential environmental impacts of implementing the range of alternatives can be compared. The EA will identify appropriate measures that are not already included in the Proposed Action or alternatives in order to avoid, minimize, or reduce adverse environmental impacts, if necessary. Based upon the potential for impacts described in this EA, the USMC would either publish a Finding of No Significant Impact or prepare an EIS.

Analysis of the potential environmental impacts of the Proposed Action and No Action Alternative on affected resource areas can be found in Section 3. Per CEQ regulations (40 CFR § 1501.7[a][3]), only those resource areas that apply to the Proposed Action and alternatives will be analyzed. The following resource areas were analyzed for potential impacts from implementation of the Proposed Action and No Action Alternative: Air Quality; Biological Resources; Cultural Resources; Earth Resources; Hazardous Materials and Wastes; Infrastructure; Land Use; Noise; Safety; Socioeconomics, Environmental Justice, and Sensitive Receptors; Visual Resources; and Water Resources.

#### 1.4.1 Relevant Plans, EISs, EAs, Laws, Regulations, and Other Documents

The 2010 EIS, specifically Proposal 7, included an extensive study of environmental impacts to ground-based training exercises. The EIS is incorporated by reference as it established the initial limits adhered to by the existing training program.

#### 1.4.2 Intergovernmental and Stakeholder Coordination

In compliance with NEPA, the USMC and USAF will notify relevant stakeholders about the Proposed Action and alternatives (see Appendix A for stakeholder coordination materials). The notification process will provide these stakeholders the opportunity to collaborate with the USMC and USAF and offer comments on the Proposed Action and alternatives.

Per the requirements of Section 106 of the National Historic Preservation Act (NHPA) and implementing regulations (36 CFR § 800), Section 7 of the Endangered Species Act and implementing regulations (50 CFR § 17), including the Migratory Bird Treaty Act (MBTA), findings of effect and a request for concurrence will be transmitted to the Arizona State Historic Preservation Officer (SHPO) and the US Fish and Wildlife Service (USFWS). Correspondence regarding the findings, concurrence, and resolution of any adverse effect will be included in Appendix A of the EA.

Executive Order (EO) 13175, *Consultation and Coordination with Indian Tribal Governments*, directs federal agencies to coordinate and consult with Native American tribal governments whose interests might be directly and substantially affected by activities on federally administered lands, including actions subject to NEPA. Consistent with this EO; DoD Instruction 4710.02, *DoD Interactions with Federally-Recognized Tribes*; and Air Force Instruction 90-2002, *Air Force Interactions with Federally-Recognized Tribes*, federally recognized tribes that are historically affiliated with the BMGR geographic region will be invited to consult on all proposed undertakings that potentially affect properties of cultural, historical, or religious significance to the tribes. The tribal consultation process is distinct from NEPA consultation or the intergovernmental coordination process, as it requires consultation with all relevant tribes. The timelines for tribal consultation are also distinct from those of other consultations. The USMC point-of-contact for Native American tribes is the MAWTS-1 Commanding Officer, and the LAFB Installation Tribal Liaison Officer is responsible for government-to-government consultation with federally recognized tribes. The Native American tribal governments to be coordinated or consulted with regarding the Proposed Action will be listed in Appendix A along with all correspondence.

EO 13007, *Indian Sacred Grounds*, requires consultation with Native American Tribes that claim cultural affiliation to areas potentially impacted by federal actions that could significantly affect tribal resources, tribal rights, and Indian lands before decisions are made by the respective services. Sacred sites are identified as any specific, discrete, or narrowly delineated location that is identified by an Indian tribe or individual as sacred by virtue of its established religious significance to or ceremonial use by an Indian religion, and the agency has been informed of the existence of such a site. Sacred sites are protected by EO 13007, and in conjunction with the Military Lands Withdrawal Act of 1999 (MLWA), DoD range facilities are required to accommodate access to and ceremonial use of sacred sites by Indian religious practitioners. Furthermore, the DoD must protect and avoid adversely affecting the physical integrity of sacred sites.

## 1.5 Cooperating Agencies and Intergovernmental Coordination/Consultations

### 1.5.1 Cooperating Agency

The USMC, MAWTS-1 is the proponent for this proposal and the NEPA Lead Agency responsible for evaluating the potential for direct, indirect, and cumulative effects to the natural, cultural, and human environment associated with the proposed action.

The USAF, 56 RMO, LAFB, is a cooperating agency in the preparation of this EA. In their role as a cooperating agency, 56 RMO is the lead agency responsible for complying with Title 54 United States Code (U.S.C.) § 306108 et seq., also known as Section 106 of the NHPA, and codified in 36 CFR 800, *Protection of Historic Properties*, in connection with this EA. The 56 RMO is responsible for consultation with federally recognized Native American tribes, the Arizona SHPO, determinations of eligibility, determinations of effect, and resolution of adverse effects (if identified). Compliance with the NHPA is being conducted separately from the NEPA process for this project. The Native American tribal governments to be coordinated or consulted with regarding the Proposed Action are listed in Appendix A along with associated correspondence.

56 RMO will additionally aid in providing historical information and documentation on environmental resources; facilitate and participate in site visits to BMGR if necessary; and review and provide comments on the EA. Finally, as BMGR East is managed by the USAF through 56 RMO, any decision document resulting from the EA will require joint signature authority by the 56 FW Commander. Correspondence regarding Cooperating Agencies is included in Appendix A.

### 1.5.2 Interagency and Intergovernmental Coordination and Consultations

Federal, state, and local agencies with jurisdiction that could be affected by the alternative actions were notified and consulted during the development of this EA. Examples of agencies contacted include the USAF; USFWS; and the Arizona SHPO. Appendix A contains the complete list of agencies consulted along with copies of correspondence.

### 1.5.3 Government-to-Government Consultations

Section 106 of the NHPA directs federal agencies to consult with Native American tribal governments when a federal undertaking occurs on or affects historic properties on tribal lands, as well as when any Native American tribe attaches religious or cultural significance to historic properties that may be affected by an undertaking. To comply with legal mandates, federally recognized tribes that claim cultural affiliation with the BMGR geographic region were invited to consult on all proposed undertakings that potentially affect properties of cultural, historical, or religious significance to the tribes. The tribal

coordination process is distinct from NEPA consultation or the Interagency Intergovernmental Coordination processes and requires separate notification of relevant tribes. The timelines for tribal consultation are also distinct from those of intergovernmental consultations.

The USAF, 56 RMO, LAFB, is the lead agency responsible for complying with Title 54 U.S.C. § 306108 *et seq.*, also known as Section 106 of NHPA, and codified in 36 CFR, 800, *Protection of Historic Properties*, in connection with this EA. The 56 RMO is responsible for consultation with federally recognized Native American tribes, the Arizona SHPO, and public stakeholders; determinations of eligibility, determinations of effect, and resolution of adverse effects (if identified).

Appendix A contains the complete list of the Native American tribal governments consulted with regarding the Proposed Action. Copies of correspondence can likewise be seen in Appendix A.

## 1.6 Public Agency Review of EA

A Notice of Availability (NOA) of the Draft EA and FONSI will be published in the following newspapers: *Ajo Copper News*, *Arizona Daily Star*, *The Arizona Republic*, *Gila Bend Sun*, and *Yuma Sun*. The NOA invites the public to review and comment on the Draft EA and initiates a review period of 30 days. Copies of the Draft EA will be made available for review at designated public libraries and online at <https://www.luke.af.mil/Units/56th-Range-Management-Office/> (under the Environmental Sciences Management link) and <https://www.29palms.marines.mil>. At the closing of the public review period, all comments received from the public, governmental and non-governmental agencies, and intergovernmental coordination and consultation will be incorporated into the analysis of potential environmental impacts performed as part of the EA, where applicable, and included as an appendix in the Final EA.

## 2. Proposed Action and Alternatives

This section describes the Proposed Action, the No Action Alternative, and alternatives considered but eliminated from further analysis. The NEPA process evaluates potential environmental impacts associated with a proposed action and considers alternative courses of action. Reasonable alternatives must satisfy the purpose of and need for the Proposed Action, as defined in Section 1.2.

### 2.1 Selection Standards

In accordance with 32 CFR § 989.8(c), the following selection standards were developed to be consistent with the purpose of and need for the Proposed Action and to address pertinent mission, environmental, safety, and health factors. These standards were used to identify reasonable alternatives for analysis:

- Meet current and future USMC training requirements for the Marine Corps Aviation Weapons and Tactics Training Program (WTTP).
- Utilize, to the maximum extent possible, existing infrastructure to support MAWTS-1 training programs, to include existing airfields, communications arrays, airfield instrumentation, and training facilities.
- Minimize travel requirements for instructors, trainees, and any other participants to maximize training efficiencies.
- Minimize impacts to cultural and natural resources.

### 2.2 Proposed Action

The USMC proposes to allow up to 500 personnel to participate in ground-level training events at BMGR East during the WTI. These enhanced training operations, as implemented by the MAWTS-1 WTI course, would allow training to be conducted at full battalion level, enhancing the realism of training scenarios and ensuring students and supporting infantry units receive integrated combat training prior to deployment downrange. Training is currently limited to no more than 100 ground personnel as stipulated in the 2010 EIS (56 RMO, 2010). WTI training events involving large ground parties would take place up to eight days per year, an increase from the current schedule of six days per year, including approximately two overnight operations.

The semiannual WTI course culminates in a final exercise (FINEX) that provides students an opportunity to plan, brief, and execute a strike, night air assault, and numerous contingency operations utilizing several air and ground components working in tandem. The WTI FINEX includes notable ground assault components in NTAC, STAC, and ETAC, all located in BMGR East. As modern Marine operations integrate both ground and aviation support, it is vital that each component is included to maximize synergistic operational capabilities between forces. Increasing the number of allowable ground personnel inherently increases the complexity of operations, allowing on the ground intelligence and maneuvering capabilities that mimic real-world engagements.

The Proposed Action would increase the number of allowable ground personnel participating in the WTI FINEX and other major evolutions from 100 to 500 personnel to ensure a tactically accurate representation of Marine deployment. Increases in ground personnel participation would be limited to operations taking place at four distinct locations shown in Figures 2-1 and 2-2. Events may include up to 500 personnel at any one site or at any combination of sites.



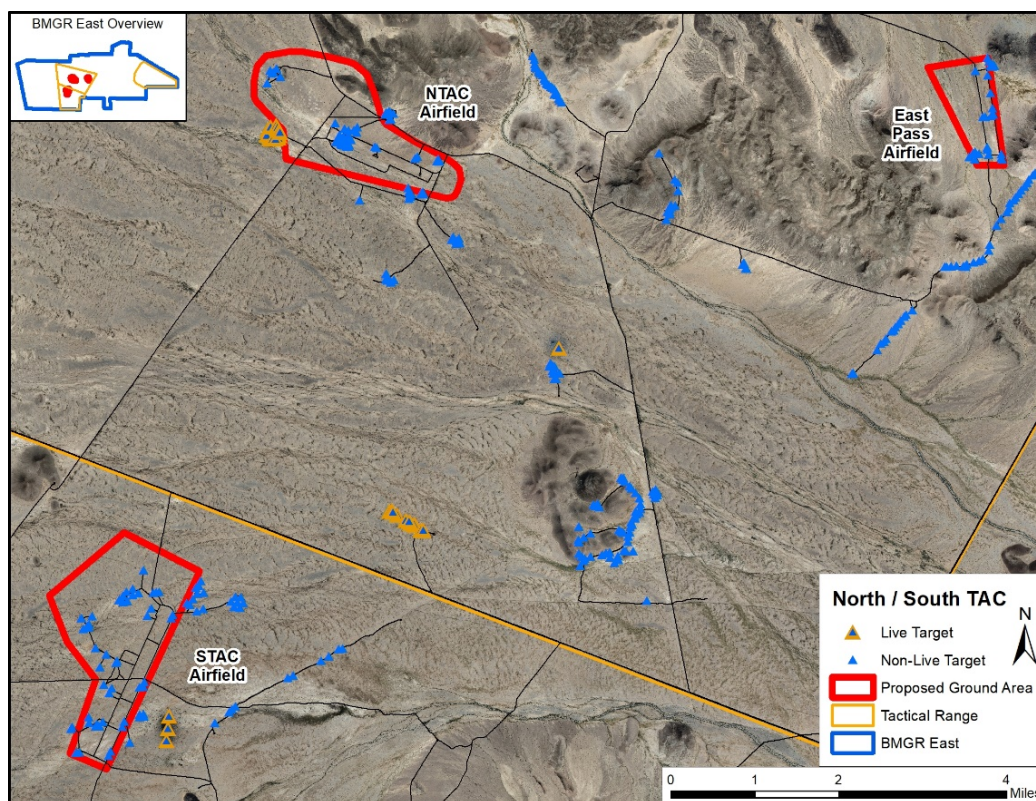


Figure 2-1: Boundaries of the Proposed Action, BMGR East, NTAC and STAC

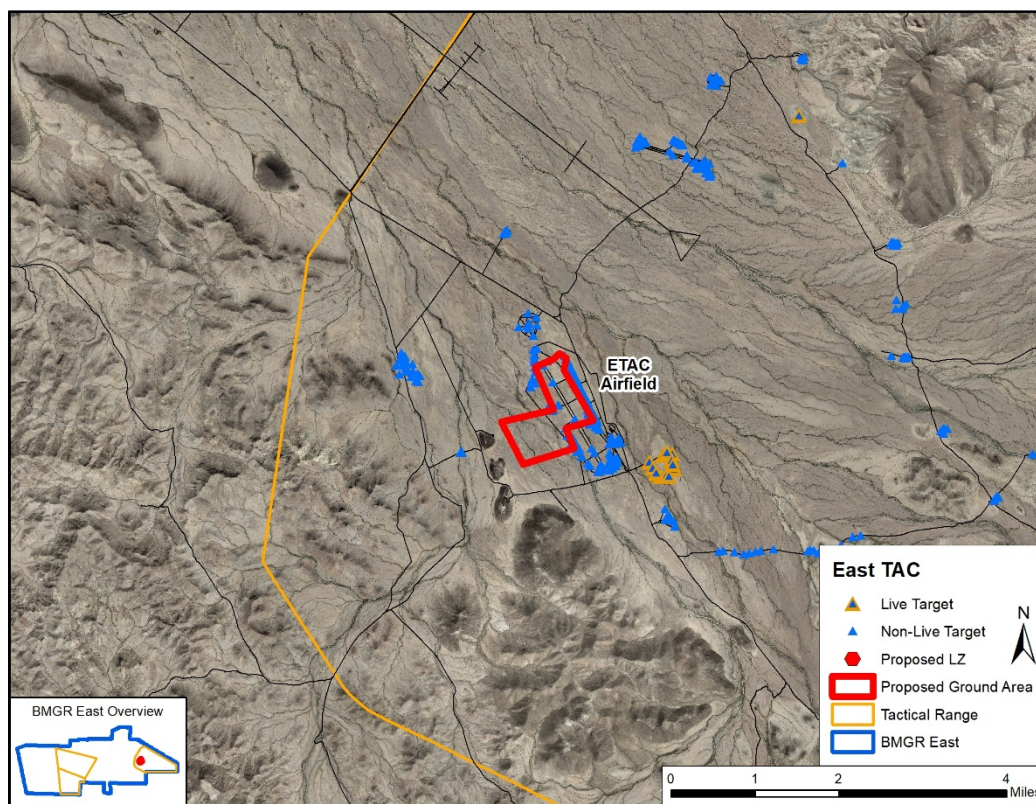


Figure 2-2: Boundaries of the Proposed Action, BMGR East, ETAC

No other changes to WTI events would occur; such training would continue to take place two times per year at the same locations and with identical aerial and vehicular support as otherwise discussed in the 2010 EIS.

## 2.3 No Action Alternative

Under the No Action Alternative, MAWTS-1 would maintain the status quo. MAWTS-1 would continue to perform training and exercises with no more than 100 ground personnel. Types of training and support as well as the duration and frequency of training and exercises would remain unchanged from current operations.

The No Action Alternative would not meet the purpose of and need for the Proposed Action as described in Section 1.3; however, 40 CFR § 1502.14(d), MCO 5090.2, and the USAF EIAP (32 CFR § 989.8[d]) all require consideration of the No Action Alternative. Therefore, this alternative will be carried forward for detailed analysis in the EA. The No Action Alternative also serves as a baseline against which the Proposed Action can be compared.

## 2.4 Alternatives Eliminated from Further Consideration

This section describes alternative actions considered by the USMC but eliminated from further analysis in this document. The alternative actions described in this section have been eliminated from further analysis because they would either not be feasible to execute or they would not support MAWTS-1 mission requirements for the reasons explained below.

### 2.4.1 Relocate MAWTS-1 Exercises

Under Alternative 1, MAWTS-1 would relocate training exercises to alternative sites that could support an increased ground component. The DoD maintains several active training ranges in the southwestern United States, such as BMGR West; YPG; the Chocolate Mountain Aerial Gunnery Range (CMAGR) near Niland, CA; Naval Air Weapons Station (NAWS) China Lake in the Western Mojave Desert of California; and the Nevada Test and Training Range (NTTR) north of Las Vegas, NV.

BMGR West, YPG and CMAGR: BMGR West, YPG and CMAGR are within 50 miles of the MAWTS-1 training center in Yuma, AZ and are already in use by the USMC for a variety of training missions. However, these ranges do not feature the size, target opportunities, and/or range capabilities to support large-scale exercises that MAWTS-1 requires.

NAWS China Lake: NAWS China Lake is a 1.1 million acre range complex located within 300 miles of MAWTS-1 training center. However, this range is largely reserved for research and testing operations and would not be able to support large-scale training exercises due to the size, scope, and duration that would necessitate lengthy range closures and would be detrimental to research and development. Additionally, NAWS China Lake is located only 10 miles away from the epicenter of two major earthquakes that occurred in July 2019 that caused several billion dollars of damage to supporting facilities. It is currently unknown when full operations will continue.

NTTR: NTTR is a range complex located in southern Nevada that exceeds 3 million acres and is largely used for aircraft training across all branches of the DoD and international allies. The range is managed by the USAF out of Nellis Air Force Base and likely features many of the same communication and sensor capabilities managed by the USAF at BMGR East. In addition to pilot training, the NTTR complex has supported ground training initiatives for both the USMC and the U.S. Army. However, much of the training range is over 400 miles from Yuma and limited roads are available north of Las Vegas. Due to the distances involved, transportation and temporary beddown of at least 50 aircraft and



over 1,000 supporting personnel to Nellis or Creech Air Force Base would be required for the duration of each exercise. Such transportation requirements would make scheduling and execution of large-scale exercises infeasible at the NTTR.

The DoD maintains several other large ranges that could possibly support the scope of MAWTS-1 training exercises, however they are all located at least as far away as NTTR making their use infeasible. As such, the USMC considers the relocation of exercises a non-viable alternative and will not be further evaluated in the EA.

## 2.4.2 Permanent Relocation of MAWTS-1

Under Alternative 2, MAWTS-1 would permanently relocate to a location within reasonable distance of a major DoD training range that could support MAWTS-1 training initiatives. This would necessitate the creation of all facilities necessary to support at least 300 students, 200 permanent training staff, and 5,500 support personnel (e.g. command and control, aviation maintenance, logistics, temporary training staff, ground combats elements, etc.). Given the cost, timeframe, and net environmental footprint for implementation, the USMC has dismissed permanent relocation as a non-viable alternative and will not be further evaluated in the EA.

## 2.4.3 Ground Component Increased to Other than 500 Personnel

The USMC initially evaluated alternatives that would increase the allowable ground component of MAWTS-1 training exercises at varying sizes:

Less than 500 Personnel: If implementation of the Proposed Action at less than 500 personnel was permitted, many of the same shortfalls would occur during training missions. Simulations would still be required of students and planning portions of the exercises would continue to lack much of the complexity required of real-world operations. A force of 500 personnel was determined to be the minimum necessary to treat the exercise as a full battalion.

Greater than 500 Personnel: If implementation of the Proposed Action at greater than 500 personnel was permitted, all the same benefits of the Proposed Action would be realized. However, such an exercise would exceed resources currently available to MAWTS-1, such as necessitating additional aircraft, equipment, and facility space that does not currently exist. Additional personnel would also not result in a quantifiable improvement as all training objective could be accomplished with minimal-to-no simulations using the 500 personnel as a baseline.

In order to maximize training efficiencies for students while leveraging currently available personnel, equipment, and facilities, the USMC has determined that 500 personnel would provide for current and future training operations. Anything less than 500 would not solve current gaps in training and anything exceeding 500 would provide no discernable benefits to students while straining existing resources. As such, ground components of other than 500 personnel have been dismissed from further review.

## 2.5 Summary of Proposed Action and Alternatives

Based upon the needs of the USMC and the selection standards shown in Section 2.1, no other feasible alternatives were identified. BMGR is the only training area near MAWTS-1 training facilities with sufficient space and the infrastructure necessary to support required exercises. No other alternatives would realistically meet all the selection criteria, therefore only the Proposed Action and the No Action Alternative will be considered in the EA.



### 3. Affected Environment and Environmental Consequences

This section of the EA describes the natural and human environments that exist within the project areas of BMGR and the consequences of the Proposed Action and No Action Alternative on affected resources within those environments. Only resources that have the potential to be affected by any of the alternatives considered are described, as per CEQ guidance (40 CFR 1501.7[3]).

Specific criteria for evaluating the potential environmental impacts of the Proposed Action and No Action Alternative are discussed by resource area. The significance of an action is measured in terms of its context and intensity and is described in terms of duration and the magnitude of the impact, and whether the effects are adverse or beneficial as summarized below:

- **Short-term or long-term.** In general, short-term impacts are those that would occur only with respect to a particular activity, for a finite period, or only during the time required for construction or installation activities. Long-term impacts are those that are more likely to be persistent and chronic.
- **Significant, moderate, minor, negligible, or no impact.** These relative terms are used to characterize the magnitude or intensity of an impact. Significant impacts are those effects that would result in substantial changes to the environment (as defined by 40 CFR 1508.27) and should receive the greatest attention in the decision-making process. Less than significant impacts are those that would be slight but detectable.
- **Adverse or beneficial.** An adverse impact is one having unfavorable or undesirable outcomes on the man-made or natural environment, whereas a beneficial impact is one having positive outcomes on the man-made or natural environment.

Based upon the scope of the Proposed Action, resource areas with no impacts were identified through a preliminary screening process. The following describes those resource areas not being carried forward for detailed analysis, along with the rationale for their elimination:

Table 3-1: Resource Areas not Evaluated in Detail

| Resource Area | Summary Rationale                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Noise         | <p>Noise from aircraft participating in WTI events measured less than 55 dBA day/night average noise level (56 RMO, 2010). Current exercises include personnel carriers, operating on a notional passenger count due to the 100 personnel limitation, meaning several sorties of aircraft operate with little to no passengers on board during training events. These same aircraft contain sufficient room for all 500 personnel of the Proposed Action without altering the number of sorties or need for additional aircraft. Since aircraft operations would not change under the Proposed Action there would be no change in associated aircraft noise.</p> <p>Increasing the number of personnel during training events may result in a slight increase in noise due to small arms fire and verbal communication, however such impacts would be highly localized and primarily impact the personnel taking part in the exercise – such exposures are discussed in Section 3.4, <i>Health and Safety</i>. Likewise, noise impacts to wildlife, in particular the Sonoran pronghorn, are discussed in Section 3.1, <i>Biological Resources</i>.</p> |

Table 3-1: Resource Areas not Evaluated in Detail

| Resource Area      | Summary Rationale                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Air Quality        | <p>Air quality analysis includes two components:</p> <ol style="list-style-type: none"> <li>1. Analysis of what air emissions may be generated by the Proposed Action (e.g. chemical vapors, metal fumes, dust, etc.) and how they impact the environment and surrounding community; and</li> <li>2. Analysis of regulatory components affecting the region, typically regarding compliance with the Clean Air Act and the Nation Ambient Air Quality Standards (40 CFR § 50) for what are known as criteria pollutants – carbon monoxide, nitrogen oxides, sulfur oxides, particulate matter, ozone, and lead. Either a region complies with these standards (known as being in an ‘attainment’ area) or a region is out of compliance (known as being in a ‘nonattainment’ area, usually regarding a specific criteria pollutant). If a given action were to lie in a nonattainment area, then an analysis to determine compliance with the United State Environmental Protection Agency (USEPA) General Conformity Rule would apply.</li> </ol> <p>In 2010, the USAF concluded that insertion of teams of approximately 100 personnel would result in negligible air emission impacts to localized areas as a result of dust kicked up by helicopter landing and takeoff operations (56 RMO, 2010). Current WTI events include personnel carriers, such as helicopters and the MV-22 Osprey, operating on a notional passenger count due to the 100 personnel limitation, meaning several sorties of aircraft operate with little to no passengers on board during training events. These same aircraft contain sufficient room for all 500 personnel of the Proposed Action without altering the number of sorties or need for additional aircraft. Since aircraft operations would not change under the Proposed Action there would be no change in air quality emissions and no impact to climate change.</p> <p>Increasing the number of personnel engaging in ground movements may result in a slight increase in particulate matter kicked up if operating on dirt, this increase would be negligible in comparison to the dust generated by the supporting aircraft.</p> <p>Finally, BMGR East is located in an unclassified / attainment area and therefore is not subject to the General Conformity Rule, nor would the Proposed Action result in a violation of the NAAQS. Furthermore, no change in greenhouse gas emissions would occur. As the Proposed Action would result in negligible changes in air quality this resource area is not carried forward for further analysis in this EA.</p> |
| Outdoor Recreation | <p>Public uses on BMGR East are largely limited to Area B, a public access area of approximately 130,000 acres located south of Range 3 and ETAC and east of State Route 85. Two smaller areas, the Ajo Air Station parcel and Bender Spring, are also open to public access. None of the areas described in the Proposed Action are located in or near public access areas, therefore it is unlikely that WTI related activities would impact existing recreational areas within the BMGR East.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

Table 3-1: Resource Areas not Evaluated in Detail

| Resource Area                                                   | Summary Rationale                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-----------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Earth Resources                                                 | The 2010 EIS concluded that localized erosion and soil disturbances associated with large ground personnel movements would largely be isolated to previously disturbed sites and roads, leading to a negligible overall impact (56 RMO, 2010). Increasing the number of ground personnel could result in a corresponding increase to soil disturbances (such as increased and/or more widespread compaction due to additional personnel in the area), however such impacts would continue to be isolated to previously disturbed training areas and would be a minor contribution to the use of the BMGR East airfields in general. No impact would be expected beyond the confines of the delineated movement areas as identified in Figures 2-1 and 2-2, and vegetation loss within those boundaries would be minimal. Therefore, the impact to earth resources is considered negligible. |
| Land Use                                                        | BMGR East is currently withdrawn for use by the Secretary of the Air Force for defense purposes under the <i>Military Lands Withdrawal Act of 1999</i> (Public Law [P.L.] 106-65). Specifically, the Marine ground training described by the Proposed Action would be considered “other defense-related purposes” under the MLWA (P.L. 106-65 § 3031(a)(2)(D)). Additionally, enhanced ground training would continue to use existing areas of BMGR East that have been historically used for WTI training events and would not require any modifications for increased numbers of personnel. As the Proposed Action continues to utilize established ranges of BMGR East for defense training purposes it is consistent with current land use designations and results in no impacts on land use.                                                                                          |
| Socioeconomics, Environmental Justice, and Sensitive Receptors. | As originally stated in the 2010 EIS, access to BMGR is limited to military personnel and assigned government and contract workers only (56 RMO, 2010). Since the Proposed Action lies entirely within the borders of BMGR, no disproportionately high environmental or adverse human health impacts to minority, low-income, or child populations would occur, nor would the Proposed Action impact the socioeconomics of the nearby towns of Ajo, or Maricopa and Pima Counties.                                                                                                                                                                                                                                                                                                                                                                                                          |
| Water Resources                                                 | The Area of Potential Effect (APE) does not fall within a wetland or floodplain. No permanent natural bodies of water exist in the operational portions BMGR East, with the nearest naturally occurring water being the Gila River (north of BMGR) and the Colorado River (northwest of BMGR). Perennial bodies of water include Bender Springs and Thanksgiving Day Tank, both located in recreational areas east of State Route 85. Ephemeral flows occur only during heavy precipitation events and flash flooding is possible during monsoon season. (56 RMO, 2018). There is a potential for increased sedimentation following a rainstorm in highly erodible areas, but only in close proximity to existing wash areas (56 RMO, 2010). Since water resources are limited and any impacts would be highly localized, the Proposed Action is not expected to impact water resources.    |

### 3.1 Biological Resources

This section assesses impacts to plants, wildlife, wetlands, and threatened or endangered species. Section 3.1.1 offers a brief discussion of each type of resource potentially located within the APE; further information on the biological resources across the BMGR can be found in the *2018 Integrated Natural Resources Management Plan* (INRMP) *Volume 1: Barry M. Goldwater Range* (56 RMO, 2018).

#### 3.1.1 Affected Environment

The APE for this analysis is centered on each of the four areas used during WTI events, to include landing zones at each site and areas identified for ground maneuvers. The boundaries of each APE for the Proposed Action were previously shown in Figures 2-1 and 2-2.

##### 3.1.1.1 Wildlife

Sonoran Desert wildlife includes over 270 species that potentially inhabit the BMGR (56 RMO, 2018). As there are no naturally occurring permanent water sources, the occurrence of amphibians is limited and there are no fish present on the range. The Arizona Game and Fish Department (AZGFD) manages about 30 artificial catchments on BMGR East that provide water to wildlife year-round. Diversity and population sizes of wildlife species and the amount of habitat have remained relatively stable for the Sonoran Desert, largely due to military operation of the region. Other land uses such as livestock grazing, farming, mining, and off-road vehicle recreation are excluded or limited, thus maintaining much of the pristine nature of the range (56 RMO, 2018).

##### **Threatened and Endangered Species.**

The Endangered Species Act of 1973 (16 U.S.C § 1531 *et seq.*) provides for the protection and conservation of plant and wildlife species with historically low populations or that are otherwise at risk of extinction. Species that are federally listed (i.e. specifically listed by the USFWS) as threatened or endangered have specific protections, and Section 7 of the Endangered Species Act (ESA) requires federal agencies to consult with the USFWS prior to implementation of an action that may impact a listed species.

Table 3-2 through Table 3-7 show all species identified through the USFWS Information and Consultation database for the project area. (USFWS, 2020). Species expected to be found in or around the APE are further detailed in Section 3.1.2.1.

##### **Sensitive Wildlife.**

The state of Arizona maintains its own list to ensure protections for those species that are not federally-listed. Arizona Species of Greatest Conservation Need (SGCN) that may reside within BMGR East are determined by the use of the Arizona HabiMap online database and the Arizona Heritage Data Management System are shown in

Table 3-2 through Table 3-7. Species that may be found in or around the APE are further detailed Section 3.1.2.1.

##### **Migratory Birds.**

The MBTA was established in 1918 in an effort to conserve migratory birds. The MBTA stands today as the primary legislation offering such protections in the US and prohibits taking, killing, or possessing migratory birds unless permitted by regulation. EO 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds*, further requires federal agencies that may negatively impact migratory birds to coordinate with the USFWS and draft a Memorandum of Understanding to promote the conservation of

migratory bird populations. DoD installations are exempt from incidental taking of migratory birds, pursuant to a final 2007 rulemaking in accordance with Section 315 of the National Defense Authorization Act for FY 2003 (Pub. L. 107-314, 116 Stat. 2458). Congress defined military readiness activities as all training and operations of the US Armed Forces that relate to combat and the adequate and realistic testing of military equipment, vehicles, weapons, and sensors for proper operation and suitability for combat use. However, if any of the Armed Forces determined a proposed or ongoing military readiness activity may result in a significant adverse effect on a population of a migratory bird species, then they must confer and cooperate with the USFWS to develop appropriate and reasonable conservation measures to minimize or mitigate identified significant adverse effects.

An activity has a significant adverse effect if, over a reasonable period of time, it diminishes the capacity of a population of a migratory bird species to maintain genetic diversity, to reproduce, and to function effectively in its native ecosystem.

Table 3-2: Threatened, Endangered, and AZ SGCN Mammals and their potential to occur at BMGR East

| Common Name ( <i>Scientific Name</i> )                             | Federal Status <sup>1</sup> | Arizona Status <sup>2</sup> / SGCN Tier <sup>3</sup> | Presence within APE <sup>4</sup> |             |              | Habitat or Potential Habitat                                                                                                                      |
|--------------------------------------------------------------------|-----------------------------|------------------------------------------------------|----------------------------------|-------------|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                    |                             |                                                      | Likely                           | Potentially | Not Expected |                                                                                                                                                   |
| Antelope Jackrabbit ( <i>Lepus alleni</i> )                        |                             | 1B                                                   | ✓                                |             |              | Savanna grassland, thornscrub, low relief mesquite with cacti as important habitat components less than 1200 m elevation                          |
| Arizona pocket mouse ( <i>Perognathus amplus</i> )                 |                             | 1B                                                   |                                  | ✓           |              | Desertscrub with sparse groundcover often consisting of mesquite bush, cacti, palo verde, greasewood, rabbitbrush, shortgrass, fescue and juniper |
| California leaf-nosed bat ( <i>Macrotus californicus</i> )         |                             | SC/1B                                                | ✓                                |             |              | Year-round resident that roosts in caves or mines and forages in desert scrub or xeroriparian vegetation                                          |
| Cave Myotis ( <i>Myotis velifer</i> )                              |                             | SC/1B                                                | ✓                                |             |              | Prefers cave habitat, but will also roost in mines, rock crevices, abandoned buildings, barns, and under bridges                                  |
| Desert bighorn sheep ( <i>Ovis canadensis mexicana</i> )           |                             | 1B                                                   | ✓                                |             |              | Desert mountain ledges and grassy basins                                                                                                          |
| Greater western mastiff bat ( <i>Eumops perotis californicus</i> ) |                             | NR/1B                                                | ✓                                |             |              | Lower and upper Sonoran desert scrub near cliffs, preferring the rugged rocky canyons with abundant crevices                                      |
| Harris' Antelope Squirrel ( <i>Ammospermophilus harrisi</i> )      |                             | 1B                                                   | ✓                                |             |              | Rocky desert habitats that contain cacti and shrubs, sandy open plains, valleys, canyons, and river bottoms (BMGR East and West)                  |
| Jaguar ( <i>Panthera onca</i> )                                    | LE                          | 1A                                                   |                                  |             | ✓            | Found in Sonoran desertscrub up through subalpine conifer forest between 1,600 and 9,000 feet elevation.                                          |
| Kit fox ( <i>Vulpes macrotis</i> )                                 |                             | NR/1B                                                | ✓                                |             |              | In valleys and on sandy plains in the Southwestern deserts                                                                                        |
| Lesser long-nosed bat ( <i>Leptonycteris curasoae yerbabuena</i> ) | Delisted April 2018         | SC/1A                                                | ✓                                |             |              | Summer resident that roosts in caves or mines and forages in desert scrub habitats.                                                               |
| Little pocket mouse ( <i>Perognathus longimembris</i> )            |                             | NR/1B                                                | ✓                                |             |              | Found in various types of desert scrub habitats (greasewood, rabbitbrush, creosote bush, cactus, mesquite, paloverde, etc.)                       |

Table 3-2: Threatened, Endangered, and AZ SGCN Mammals and their potential to occur at BMGR East

| Common Name ( <i>Scientific Name</i> )                                         | Federal Status <sup>1</sup> | Arizona Status <sup>2</sup> / SGCN Tier <sup>3</sup> | Presence within APE <sup>4</sup> |             |              | Habitat or Potential Habitat                                                                                                                                                                                                                                                                       |
|--------------------------------------------------------------------------------|-----------------------------|------------------------------------------------------|----------------------------------|-------------|--------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                |                             |                                                      | Likely                           | Potentially | Not Expected |                                                                                                                                                                                                                                                                                                    |
| Mexican free-tailed bat<br>( <i>Tadarida brasiliensis</i> )                    |                             | 1B                                                   |                                  | ✓           |              | Summer residents that primarily roost in caves, however, will roost in buildings, under bridges, and hollows of trees.                                                                                                                                                                             |
| Pale Townsend's big-eared bat<br>( <i>Corynorhinus townsendii pallescens</i> ) | S                           | SC/1B                                                |                                  | ✓           |              | Roosts in caves, and mines from desertscrub to woodlands and coniferous forests                                                                                                                                                                                                                    |
| Pocketed free-tailed bat<br>( <i>Nyctinomops femorosaccus</i> )                |                             | 1B                                                   |                                  | ✓           |              | Roosts in crevices on cliff faces and rugged canyons, buildings, water tanks, large and small stock tanks, creek pools, along rivers and washes, ephemeral pools, mountain lake, water trough, gravel pit, irrigation ditch, cave and crevices, concrete houses, in desert scrub and arid lowlands |
| Sonoran pronghorn<br>( <i>Antilocapra americana sonoriensis</i> )              | LE                          | SC/1A                                                | ✓                                |             |              | Southwestern Arizona: vegetation includes big galleta grass, six week three-awn, six weeks grama, creosote bush, bursage, and saltbush; Seen on BMGR east of the Gila and Tinajas Altas mountains                                                                                                  |
| Sonoran pronghorn<br>( <i>Antilocapra americana sonoriensis</i> )              | XN                          |                                                      | ✓                                |             |              | Experimental population.                                                                                                                                                                                                                                                                           |
| Spotted bat<br>( <i>Euderma maculatum</i> )                                    |                             | SC/1B                                                |                                  | ✓           |              | Riparian areas and rocky cliffs                                                                                                                                                                                                                                                                    |
| Southern yellow bat<br>( <i>Lasiurus ega</i> )                                 |                             | SC/1B                                                |                                  | ✓           |              | Ranging from low desert and rough desertscrub to high desert and riparian habitats roosting in crevices and cracks in cliff faces                                                                                                                                                                  |
| Yuma Myotis ( <i>Myotis yumanensis</i> )                                       |                             | SC/1B                                                |                                  | ✓           |              | Roosts in caves, attics, buildings, under bridges, and under loose tree bark ranging from low desert habitats to redwood canyons and coniferous forests, with high probability of being near any open water, rivers, streams, ponds, lakes, or stock tanks.                                        |

1. Federal Status: BGEPA=Bald and Golden Eagle Protection Act, LE=Endangered (USFWS), LT=Threatened (UFWS), NL=Not listed, S=Sensitive species (BLM and/or U.S. Forest Service), SC=Species of Concern (USFWS)2. Arizona Status: LE=Listed endangered, HS=Highly Safeguarded, SC=Species of Concern, NA=Not Applicable, NR=Not Rated, XN=Experimental non-essential population.

2. Arizona Status: LE=Listed endangered, HS=Highly Safeguarded, SC=Species of Concern, NA=Not Applicable, NR=Not Rated, XN=Experimental non-essential population.

3. SGCN Tiers: 1A = Scored 1 for vulnerability in at least one of eight vulnerability categories and matches at least one of the following: federally listed as E, T, or Candidate species; specifically covered under a signed conservation agreement or a signed conservation agreement with assurance; recently delisted federally and requires post-delisting monitoring; closed-season species (i.e., no take permitted), as identified in Arizona Game and Fish; 1B = Scored 1 for vulnerability, but matches none of the criteria listed under 1A; 1C = Unknown status species.

4. Presence/absence was determined by leveraging several data sources including the USFWS IPaC database, the AZGFD HabiMap Arizona database, the AZGFD Heritage Data Management System's (HDMS) GIS interface (AZGFD, 2020), the AZ State Wildlife Action Plan (2012-2022) and the 2018 BMGR INRMP



Table 3-3: Threatened, Endangered, and AZ SGCN Migratory Birds and their potential to occur at BMGR East

| Common Name ( <i>Scientific Name</i> )                                     | Federal Status <sup>1</sup> | Arizona Status <sup>2</sup> / SGCN Tier <sup>3</sup> | Presence within APE <sup>4</sup> |             |              | Habitat or Potential Habitat                                                                                                                                                                                                 |
|----------------------------------------------------------------------------|-----------------------------|------------------------------------------------------|----------------------------------|-------------|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                            |                             |                                                      | Likely                           | Potentially | Not Expected |                                                                                                                                                                                                                              |
| American Bittern<br>( <i>Botaurus lentiginosus</i> )                       |                             | 1B                                                   |                                  |             | ✓            | Marshlands and very wet meadows                                                                                                                                                                                              |
| Bald eagle<br>( <i>Haliaeetus leucocephalus</i> )                          | BGEPA                       | SC/1A                                                |                                  |             | ✓            | Aquatic habitat not found at BMGR.                                                                                                                                                                                           |
| Cactus ferruginous pygmy-owl<br>( <i>Glaucidium brasilianum cactorum</i> ) |                             | SC/1A                                                |                                  | ✓           |              | Streamside cottonwoods and willows and adjacent mesquite bosques, usually with saguaros on nearby slopes from 1,300 to 4,000 feet elevation. Also found in dry washes with large mesquite, paloverde, ironwood, and saguaro. |
| California least tern<br>( <i>Sterna antillarum browni</i> )               | LE                          | 1A                                                   |                                  |             | ✓            | Open beaches free of vegetation                                                                                                                                                                                              |
| Crested caracara ( <i>Caracara cheriway</i> )                              |                             | SC/NA                                                |                                  | ✓           |              | Semi-desert, in both arid and moist habitats, but is more common in the former. Observed in near BMGR East.                                                                                                                  |
| Desert Purple Martin<br>( <i>Progne subis hesperia</i> )                   |                             | NR/1B                                                | ✓                                |             |              | Desert Southwest in saguaro cacti cavities                                                                                                                                                                                   |
| Ferruginous hawk ( <i>Buteo regalis</i> )                                  |                             | SC/1B                                                | ✓                                |             |              | In Arizona, the open scrublands and woodlands, grasslands, and Semidesert Grassland from 3,500 to 6,000 feet elevation in the northern and southeastern parts of the state.                                                  |
| Gila woodpecker<br>( <i>Melanerpes uropygialis</i> )                       |                             | NR/1B                                                | ✓                                |             |              | All desert habitats, nesting in saguaro cacti                                                                                                                                                                                |
| Gilded flicker ( <i>Colaptes chrysoides</i> )                              |                             | NR/1B                                                | ✓                                |             |              | All desert habitats, nesting in saguaro cacti                                                                                                                                                                                |
| Golden eagle<br>( <i>Aquila chrysaetos canadensis</i> )                    | BGEPA                       | SC/1A                                                | ✓                                |             |              | Cliffs or in large trees that afford an unobstructed view. Confirmed to nest on BMGR East.                                                                                                                                   |
| Le Conte's Thrasher<br>( <i>Toxostoma lecontei</i> )                       |                             | NR/1B                                                | ✓                                |             |              | In the Sonoran desert, open, flat to gently rolling hills and shallow braided washes with very sparse vegetation from 150 to 1500 feet elevation. Confirmed to nest on BMGR East.                                            |

Table 3-3: Threatened, Endangered, and AZ SGCN Migratory Birds and their potential to occur at BMGR East

| Common Name ( <i>Scientific Name</i> )                | Federal Status <sup>1</sup> | Arizona Status <sup>2</sup> / SGCN Tier <sup>3</sup> | Presence within APE <sup>4</sup> |             |              | Habitat or Potential Habitat                                                                                                                                                                                                                                                                                                   |
|-------------------------------------------------------|-----------------------------|------------------------------------------------------|----------------------------------|-------------|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                       |                             |                                                      | Likely                           | Potentially | Not Expected |                                                                                                                                                                                                                                                                                                                                |
| Lincoln's Sparrow ( <i>Melospiza lincolnii</i> )      |                             | 1B                                                   |                                  | ✓           |              | Winters in dense thickets, overgrown fields.                                                                                                                                                                                                                                                                                   |
| Mountain plover ( <i>Charadrius montanus</i> )        |                             | NR/1B                                                | ✓                                |             |              | Xeric or disturbed uplands; short vegetation, bare ground, and a flat topography. Not on the AZGFD Heritage Data Management System for Maricopa, Pima, and Yuma counties. However, known to occur on BMGR East, and surveys in 2011 and early 2012 identified the plover in Maricopa County (Gila Bend AFAF), and Yuma County. |
| Pacific Wren ( <i>Troglodytes pacificus</i> )         |                             | 1B                                                   |                                  |             | ✓            | Dense coniferous forests and woodlands, wintering in the brush of the southwest                                                                                                                                                                                                                                                |
| Peregrine Falcon ( <i>Falco peregrinus anatum</i> )   |                             | SC/1A                                                |                                  | ✓           |              | Isolated cliffs; winter migrant                                                                                                                                                                                                                                                                                                |
| Savannah Sparrow ( <i>Passerculus sandwichensis</i> ) |                             | 1B                                                   |                                  |             | ✓            | Open meadows, pastures, edges of marshes, alfalfa fields, pastures, and weedy vacant lots in winter. Only found in deserts with years of abundant winter rains.                                                                                                                                                                |
| Sprague's pipit ( <i>Anthus spragueii</i> )           |                             | SC/1A                                                |                                  | ✓           |              | In migration and winter, found in pastures, weedy fields, grasslands with dense herbaceous vegetation, or grassy agricultural fields from 4,285 to 4,960 feet elevation. Winters along lower Colorado River from north of Yuma to Parker.                                                                                      |
| Snowy egret ( <i>Egretta thula</i> )                  |                             | SC/NA                                                |                                  | ✓           |              | Marshes, lakes, ponds, lagoons, mangroves, and shallow coastal habitats; may appear during seasonal migration                                                                                                                                                                                                                  |
| Western Burrowing Owl ( <i>Athene cunicularia</i> )   |                             | SC/1C                                                |                                  | ✓           |              | Flat, open, low-stature grasslands, sparsely vegetated desertscrub, and edges of human disturbed lands. They primarily rely on fossorial mammals to provide suitable nest burrows. Unobstructed perching locations are required.                                                                                               |
| Yellow-billed cuckoo ( <i>Coccyzus americanus</i> )   | LT                          | SC/1A                                                |                                  |             | ✓            | Riparian cottonwood-willow galleries; salt cedar, dense understory foliage; cottonwood-willow galleries, and in Arizona can be found in larger mesquite bosques.                                                                                                                                                               |

Table 3-3: Threatened, Endangered, and AZ SGCN Migratory Birds and their potential to occur at BMGR East

| Common Name ( <i>Scientific Name</i> )                                   | Federal Status <sup>1</sup> | Arizona Status <sup>2</sup> / SGCN Tier <sup>3</sup> | Presence within APE <sup>4</sup> |             |              | Habitat or Potential Habitat                                                                                                                                                                                                                                         |
|--------------------------------------------------------------------------|-----------------------------|------------------------------------------------------|----------------------------------|-------------|--------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                          |                             |                                                      | Likely                           | Potentially | Not Expected |                                                                                                                                                                                                                                                                      |
| Yuma clapper rail ( <i>Rallus obsoletus [=longirostris] yumanensis</i> ) | LE                          | SC/1A                                                |                                  |             | ✓            | Fresh water and brackish marshes below 4,500 feet elevation. In Arizona, habitat studies determined that sites with high coverage by surface water, low stem density, and moderate water depth were used for foraging during the nesting season (November- December) |

1. Federal Status: BGEPA=Bald and Golden Eagle Protection Act, LE=Endangered (USFWS), LT=Threatened (UFWS), NL=Not listed, S=Sensitive species (BLM and/or U.S. Forest Service), SC=Species of Concern (USFWS)

2. Arizona Status: LE=Listed endangered, HS=Highly Safeguarded, SC=Species of Concern, NA=Not Applicable, NR=Not Rated, XN=Experimental non-essential population.

3. SGCN Tiers: 1A = Scored 1 for vulnerability in at least one of eight vulnerability categories and matches at least one of the following: federally listed as E, T, or Candidate species; specifically covered under a signed conservation agreement or a signed conservation agreement with assurance; recently delisted federally and requires post-delisting monitoring; closed-season species (i.e., no take permitted), as identified in Arizona Game and Fish; 1B = Scored 1 for vulnerability, but matches none of the criteria listed under 1A; 1C = Unknown status species.

4. Presence/absence was determined by leveraging several data sources including the USFWS IPaC database, the AZGFD HabiMap Arizona database, the AZGFD HDMS GIS interface (AZGFD, 2020), the AZ State Wildlife Action Plan (2012-2022) and the 2018 BMGR INRMP

Table 3-4: Threatened, Endangered, and AZ SGCN Reptiles and their potential to occur at BMGR East

| Common Name ( <i>Scientific Name</i> )                               | Federal Status <sup>1</sup> | Arizona Status <sup>2</sup> / SGCN Tier <sup>3</sup> | Presence within APE <sup>4</sup> |             |              | Habitat or Potential Habitat                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|----------------------------------------------------------------------|-----------------------------|------------------------------------------------------|----------------------------------|-------------|--------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                      |                             |                                                      | Likely                           | Potentially | Not Expected |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Desert Tortoise (Sonoran population)<br>( <i>Gopherus morafkai</i> ) |                             | SC/1A                                                | ✓                                |             |              | Mountainous regions of BMGR East and West; rocky slopes and bajadas where there are adequate shelter sites or burrowing substrate. This tortoise generally increases in abundance east of SR 85 on BMGR East. The Sonoran Desert tortoise was a candidate species under the ESA, but was removed from candidate status in 2015 and is now managed under a Candidate Conservation Agreement between USFWS and several other federal, state, and local agencies including the USMC and USAF (56 RMO, 2018). |
| Gila Monster<br>( <i>Heloderma suspectum</i> )                       |                             | 1A                                                   |                                  | ✓           |              | Flats in rocky drainages and on rugged bajadas, hillsides, and mountain slopes.                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Goode's Horned Lizard<br>( <i>Phrynosoma goodei</i> )                |                             | 1B                                                   |                                  | ✓           |              | Flat, open, areas with sandy or loamy soil and is less frequently encountered on rocky bajadas and foothills,                                                                                                                                                                                                                                                                                                                                                                                             |
| Mexican rosy boa<br>( <i>Lichanura trivirgata trivirgata</i> )       | SC                          | NR/NA                                                |                                  | ✓           |              | On or near rocky mountains or hillsides in desert ranges, where they inhabit the granite rock outcroppings that absorb the sun's rays providing heat and cover.                                                                                                                                                                                                                                                                                                                                           |
| Northern Mexican gartersnake<br>( <i>Thamnophis eques megalops</i> ) | LT                          | 1A                                                   |                                  |             | ✓            | Primarily resides in wetlands and forested regions south of Tucson, Arizona and near the border with Mexico. The BMGR is located outside the proposed critical habitat for this species.                                                                                                                                                                                                                                                                                                                  |
| Red-back whiptail<br>( <i>Aspidoscelis xanthonota</i> )              |                             | 1B                                                   |                                  | ✓           |              | Canyons and hills in juniper-oak woodlands, down to Sonoran upland desert habitats, among dense shrubby vegetation near and on the banks of semi-arid permanent streams and arroyos.                                                                                                                                                                                                                                                                                                                      |
| Regal horned lizard<br>( <i>Phrynosoma solare</i> )                  |                             | 1B                                                   | ✓                                |             |              | Sonoran and Chihuahuan desertscrub, foothills and coastal thornscrub, tropical deciduous forest, semi-desert and Plains grasslands, and oak or oak-juniper savanna at elevations from near sea level to 1400 m                                                                                                                                                                                                                                                                                            |
| Saddled leaf-nosed snake<br>( <i>Phyllorhynchus browni</i> )         |                             | 1B                                                   | ✓                                |             |              | Burrows in coarse, loose, rocky soils as well as in sandy gravelly areas, in upland rocky or sandy desert dominated by mesquite, creosote bush, saltbush, paloverde, and saguaro.                                                                                                                                                                                                                                                                                                                         |
| Sonoran Collared Lizard<br>( <i>Crotaphytus nebrius</i> )            |                             | 1B                                                   | ✓                                |             |              | Rocky bajadas, hillsides, canyons, and mountain slopes, in areas with numerous large rocks and boulders which are used for basking spots and lookouts.                                                                                                                                                                                                                                                                                                                                                    |

Table 3-4: Threatened, Endangered, and AZ SGCN Reptiles and their potential to occur at BMGR East

| Common Name ( <i>Scientific Name</i> )                             | Federal Status <sup>1</sup> | Arizona Status <sup>2</sup> / SGCN Tier <sup>3</sup> | Presence within APE <sup>4</sup> |             |              | Habitat or Potential Habitat                                                                                                                                                                                                                                                       |
|--------------------------------------------------------------------|-----------------------------|------------------------------------------------------|----------------------------------|-------------|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                    |                             |                                                      | Likely                           | Potentially | Not Expected |                                                                                                                                                                                                                                                                                    |
| Sonoran Coralsnake ( <i>Micruroides euryxanthus</i> )              |                             | 1B                                                   |                                  | ✓           |              | Flats in or near rocky or gravelly drainages, mesquite lined washes, and canyons; most abundant in rocky Arizona upland desert and bajadas where there are diverse soil types, from loose sand to rock.                                                                            |
| Sonoyta Mud Turtle ( <i>Kinosternon sonoriense longifemorale</i> ) | LE                          | 1A                                                   |                                  |             | ✓            | Pond and stream habitats with perennial or near perennial water. Known from a pond and limited watercourse habitat from the springs to the pond at Quitobaquito Springs in Organ Pipe Cactus National Monument, Pima County.                                                       |
| Sonoran whipsnake ( <i>Masticophis bilineatus</i> )                |                             | 1B                                                   |                                  | ✓           |              | Rocky canyons, riparian areas, foothills and mountains with dense vegetation in elevations up to 6100 feet (1800 m); open creosote bush flats, low shrubby vegetation, and in chaparral, cottonwood, juniper and pine-oak forests.                                                 |
| Tiger rattlesnake ( <i>Crotalus tigris</i> )                       |                             | 1B                                                   |                                  | ✓           |              | Arizona Upland Sonoran desertscrub, Chihuahuan desertscrub, interior chaparral, and Madrean Evergreen Woodland on rocky slopes or in washes within rocky mountains and foothills; desert flatlands but rarely strays more than a mile from foothills, mountains, or rocky habitat. |
| Variable sandsnake ( <i>Chilomeniscus stramineus</i> )             |                             | 1B                                                   | ✓                                |             |              | Sandy and sandy-gravelly soils, prefers open and sandy creosote habitats, also in sandy soils of washes and arroyos in rocky upland                                                                                                                                                |

1. Federal Status: BGEPA=Bald and Golden Eagle Protection Act, LE=Endangered (USFWS), LT=Threatened (UFWS), NL=Not listed, S=Sensitive species (BLM and/or U.S. Forest Service), SC=Species of Concern (USFWS)2. Arizona Status: LE=Listed endangered, HS=Highly Safeguarded, SC=Species of Concern, NA=Not Applicable, NR=Not Rated, XN=Experimental non-essential population.

2. Arizona Status: LE=Listed endangered, HS=Highly Safeguarded, SC=Species of Concern, NA=Not Applicable, NR=Not Rated, XN=Experimental non-essential population.

3. SGCN Tiers: 1A = Scored 1 for vulnerability in at least one of eight vulnerability categories and matches at least one of the following: federally listed as E, T, or Candidate species; specifically covered under a signed conservation agreement or a signed conservation agreement with assurance; recently delisted federally and requires post-delisting monitoring; closed-season species (i.e., no take permitted), as identified in Arizona Game and Fish; 1B = Scored 1 for vulnerability, but matches none of the criteria listed under 1A; 1C = Unknown status species.

4. Presence/absence was determined by leveraging several data sources including the USFWS IPaC database, the AZGFD HabiMap Arizona database, the AZGFD HDMS GIS interface (AZGFD, 2020), the AZ State Wildlife Action Plan (2012-2022) and the 2018 BMGR INRMP

Table 3-5: Threatened, Endangered, and AZ SGCN Amphibians and their potential to occur at BMGR East

| Common Name ( <i>Scientific Name</i> )        | Federal Status <sup>1</sup> | Arizona Status <sup>2</sup> /<br>SGCN Tier <sup>3</sup> | Species of Greatest Conservation Need | Presence within APE <sup>4</sup> |             |              | Habitat or Potential Habitat                                                                                                                                                                                                    |
|-----------------------------------------------|-----------------------------|---------------------------------------------------------|---------------------------------------|----------------------------------|-------------|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                               |                             |                                                         |                                       | Likely                           | Potentially | Not Expected |                                                                                                                                                                                                                                 |
| Sonoran Desert Toad ( <i>Bufo alvarius</i> )  |                             | 1B                                                      |                                       |                                  | ✓           | ✓            | Sonoran Desert; creosote bush desertscrub, grasslands up into oak-pine woodlands, and thornscrub and tropical deciduous forest in Mexico.                                                                                       |
| Sonoran Green Toad ( <i>Bufo retiformis</i> ) |                             | 1B                                                      |                                       |                                  | ✓           | ✓            | Sonoran desertscrub, but also in semi-desert grasslands that have been invaded by mesquite and other desert trees, shrubs, and cacti; places where water accumulates in large arroyos, roadside ditches, and mesquite thickets. |

1. Federal Status: BGEPA=Bald and Golden Eagle Protection Act, LE=Endangered (USFWS), LT=Threatened (UFWS), NL=Not listed, S=Sensitive species (BLM and/or U.S. Forest Service), SC=Species of Concern (USFWS)2. Arizona Status: LE=Listed endangered, HS=Highly Safeguarded, SC=Species of Concern, NA=Not Applicable, NR=Not Rated, XN=Experimental non-essential population.

2. Arizona Status: LE=Listed endangered, HS=Highly Safeguarded, SC=Species of Concern, NA=Not Applicable, NR=Not Rated, XN=Experimental non-essential population.

3. SGCN Tiers: 1A = Scored 1 for vulnerability in at least one of eight vulnerability categories and matches at least one of the following: federally listed as E, T, or Candidate species; specifically covered under a signed conservation agreement or a signed conservation agreement with assurance; recently delisted federally and requires post-delisting monitoring; closed-season species (i.e., no take permitted), as identified in Arizona Game and Fish; 1B = Scored 1 for vulnerability, but matches none of the criteria listed under 1A; 1C = Unknown status species.

4. Presence/absence was determined by leveraging several data sources including the USFWS IPaC database, the AZGFD HabiMap Arizona database, the AZGFD HDMS GIS interface (AZGFD, 2020), the AZ State Wildlife Action Plan (2012-2022) and the 2018 BMGR INRMP

Table 3-6: Threatened, Endangered, and AZ SGCN Plants at BMGR East

| Common Name ( <i>Scientific Name</i> )                                   | Federal Status <sup>1</sup> | Arizona Status <sup>2</sup> | Species of Greatest Conservation Need | Presence within APE <sup>3</sup> |             |              | Habitat or Potential Habitat                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|--------------------------------------------------------------------------|-----------------------------|-----------------------------|---------------------------------------|----------------------------------|-------------|--------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                          |                             |                             |                                       | Likely                           | Potentially | Not Expected |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Acuña cactus ( <i>Echinomastus erectocentrus</i> var. <i>acunensis</i> ) | LE                          | HS                          |                                       |                                  |             | ✓            | The acuña cactus ( <i>Echinomastus erectocentrus</i> var. <i>acunensis</i> ) is a small cactus with straight central spines and a single plump stem that can reach 30 cm in height. The acuña cactus is known to occur in valleys and on small knolls and gravel ridges of up to a 30 percent slope. It is found in the Palo-Verde-Saguaro Association of the Arizona Upland subdivision of the Sonoran Desert scrub at 1,198 to 3,773 feet in elevation (Abbate, Scobie, Diamond, & Ingraldi, 2018). |

1. Federal Status: BGEPA=Bald and Golden Eagle Protection Act, LE=Endangered (USFWS), LT=Threatened (UFWS), NL=Not listed, S=Sensitive species (BLM and/or U.S. Forest Service), SC=Species of Concern (USFWS)

2. Arizona Status: LE=Listed endangered, HS=Highly Safeguarded, SC=Species of Concern, NA=Not Applicable, NR=Not Rated, XN=Experimental non-essential population.

3. Presence/absence was determined by leveraging several data sources including the USFWS IPaC database, the AZGFD HabiMap Arizona database, the AZGFD HDMS GIS interface (AZGFD, 2020), the AZ State Wildlife Action Plan (2012-2022) and the 2018 BMGR INRMP

From 2012 to 2014, AZGFD completed the Sonoran Desert breeding bird survey, which included surveys on BMGR East (AZGFD, 2018). Most species of birds found at the BMGR fall under MBTA protection. MCAS Yuma and Luke AFB have prepared a bird check lists that are provided to visitors if requested (56 RMO, 2010). A list of bird SGCN that have the potential to occur within BMGR East is shown along with potential endangered and threatened birds in Table 3-3.

### *3.1.1.2 Vegetation*

Vegetation includes both native plants and plant communities (i.e. groups of varying types of plants that live in the same habitat and influence each other and the ecosystem as a whole). Nearly 290 species of Sonoran Desert plants characteristic of the Arizona Upland Subdivision and of the Lower Colorado River Valley Subdivision have been reported to inhabit the BMGR as a whole, with the former more likely to be found on slopes and higher elevations while the latter occurs in the many valleys across the range (56 RMO, 2018). Thirteen (13) natural communities, described by ecological characteristics such as soils, composition, and other identifiers, were identified by The Nature Conservancy, two (2) of which are likely found within the APE – the Creosote-Bursage Desert Scrub community and the Paloverde-Mixed Cacti Scrub community:

Creosote-Bursage Desert Scrub Community: Vegetation is primarily creosote bush, with woody and non-woody cacti and rosette succulents found on rocky slopes. Soil is typically sandy or gravelly alluvium (56 RMO, 2020).

Paloverde-Mixed Cacti-Mixed Scrub Community: Vegetation includes a sparse layer of saguaro cactus and short tree/tall shrub canopy primarily comprised of paloverde and creosote bush. Vegetation is found on rocky slopes of low mountain ranges where soil consists of gravelly alluvium (56 RMO, 2020).

The former occupies the bulk of area within the APE while the latter may be found scattered on the outskirts near the base of sloped regions (56 RMO, 2018).

### **Invasive Plants.**

Invasive plant species are of concern in the Sonoran Desert ecosystem due to their propensity to reduce native plant species diversity and habitat and increase wildfire risk. Such species are a threat to the natural biodiversity in the region as they easily colonize disturbed areas and often feature specialized mechanisms that allow them to outcompete native plants for resources and habitat. As a result, if left unchecked they can become the dominant plant species in an area and impact the entire ecosystem. Invasive species can be brought inadvertently into an area by vehicular traffic, livestock and people, so care must be made to prevent such transportation from occurring. Species known to occur at BMGR are shown on the following page in Table 3-7.

Table 3-7: Invasive Plant Species at BMGR East

| Invasive Plant Species                                                  | Notes                                                                                                                                                                                                                                                                                                                                                                                   |
|-------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Sahara mustard ( <i>Brassica tournefortii</i> )                         | <ul style="list-style-type: none"> <li>• Cool season, annual herb, flowers December – February</li> <li>• Most prevalent invasive species at BMGR</li> <li>• Capitalizes on soil moisture early in the growing season before native plants begin to bloom</li> <li>• One plant can produce 16,000 seeds</li> </ul>                                                                      |
| Buffelgrass ( <i>Pennisetum ciliare</i> , <i>Cenchrus ciliaris</i> )    | <ul style="list-style-type: none"> <li>• Arizona Prohibited and Regulated Noxious Weed (AZ Admin Code 3-4-244)</li> <li>• Displaces native plants and forms monoculture</li> <li>• Spreads rapidly</li> <li>• Found sporadically across BMGR, with largest populations along State Route 85</li> </ul>                                                                                  |
| Fountain Grass ( <i>Pennisetum setaceum</i> )                           | <ul style="list-style-type: none"> <li>• Perennial, thick growth, can reach 5 feet in height</li> <li>• Popular ornamental plant</li> <li>• Easily dispersed by vehicles, people, animals, wind, and water</li> <li>• Fire tolerant</li> </ul>                                                                                                                                          |
| Mediterranean grass ( <i>Schismus arabicus</i> and <i>S. barbatus</i> ) | <ul style="list-style-type: none"> <li>• Well established in the southwestern United States</li> <li>• Widespread on BMGR</li> <li>• Likes fine-grained soil</li> </ul>                                                                                                                                                                                                                 |
| Colocynth ( <i>Citrullus colocynthis</i> )                              | <ul style="list-style-type: none"> <li>• The “Desert gourd” is an invasive desert melon that thrives in sandy, arid soils</li> <li>• Deep tap root outcompetes native flora</li> <li>• May have initially been brought into BMGR on excavation equipment for an archaeology site</li> <li>• Upon discovery, the plants were uprooted and area is being monitored and treated</li> </ul> |

### 3.1.2 Environmental Consequences

#### 3.1.2.1 Proposed Action

##### Threatened and Endangered Species.

There are two endangered species that may be found within the APE – the Sonoran pronghorn and the acuña cactus.

**Sonoran Pronghorn:** Sonoran pronghorn are regularly reported in BMGR East and could be encountered by ground personnel or disturbed by noise from aircraft or live-fire exercises during the proposed MAWTS-1 training. However, the 56 RMO and MAWTS-1 have established controls in place to minimize such disturbance as originally stated in the 2010 Biological Opinion (BO) (AESO, 2010). Formal Section 7 consultation with the USFWS on the 2010 BMGR East military training BO was reinitiated on 12 June 2020 and concluded on 15 September 2020.

##### Ground Operations:

Ground operations for the Proposed Action would occur in regions of the range MAWTS-1 and other agencies already utilize, including previously established landing zones and target areas. Land maneuvers executed by personnel inserted at each landing zone would primarily be performed on foot and limited to the regions shown in Figures 2-1 and 2-2. Training event boundaries will remain unchanged under the proposed action, and no activities exceeding ten (10) personnel would take place outside of these boundaries. The MAWTS-1 ground-based APE relative to pronghorn habitat is extremely small, as shown in Table 3-8.



**Table 3-8: APE Area Relative to Sonoran Pronghorn Habitat**

| MAWTS-1 APE         | APE<br>( <i>acres</i> ) | TAC Impact<br>Range | TAC Impact<br>Range<br>( <i>acres</i> ) | APE as %<br>of TAC<br>Range | BMGR<br>East<br>( <i>acres</i> ) | APE as %<br>BMGR East |
|---------------------|-------------------------|---------------------|-----------------------------------------|-----------------------------|----------------------------------|-----------------------|
| NTAC Airfield       | 1,438                   | NTAC                | 117,493                                 | 1.22%                       | 1,052,121                        | 0.14%                 |
| East Pass Aux Field | 420                     |                     |                                         | 0.36%                       |                                  | 0.04%                 |
| STAC Airfield       | 1,622                   | STAC                | 74,519                                  | 2.18%                       |                                  | 0.15%                 |
| ETAC Airfield       | 403                     | ETAC                | 111,957                                 | 0.36%                       |                                  | 0.04%                 |
| Total               | 3,883                   | ALL 3 Ranges        | 303,970                                 | 1.28%                       | 1,052,121                        | 0.37%                 |

Visibility in the area is high due to the low saturation of vegetation, providing personnel a wide field of view during training activities. Pronghorn can be observed from long distances, providing ground personnel ample opportunity to respond accordingly and avoid contact as much as possible.

Personnel would continue to utilize up to four (4) all-terrain vehicles within the APE and on established roads between sites. Any support vehicles used by exercise participants and observers must adhere to the guidelines stated in the 2010 BO and outlined in Operating Instruction 13-01, *Sonoran Pronghorn Monitoring* (OI-13-01) as implemented by the 56 RMO:

1. Vehicle speed limits are 45 mph on paved roads leading to the numbered ranges, 35 mph on improved dirt roads, and 25 mph on all other roads.
2. If a vehicle is within 1-2 km from a Sonoran pronghorn, the speed limit is 15 mph.
3. If a vehicle is less than 1 km from a Sonoran pronghorn, every effort is made to use an alternate route; if no practical alternatives are available and movement is mission essential, then the speed limit is 15 mph.
4. If Sonoran pronghorn are observed running due to ground disturbance, vehicles near Sonoran pronghorn locations shall stop until animals have stopped running, moved at least 100 m from the vehicles, or moved out of sight.
5. Only approved DoD civilians on foot may approach to within 0.5 km of a known Sonoran pronghorn location and only if postponing their work could result in a work stoppage.
6. All ground personnel operating on the range are required to receive training regarding their responsibilities to comply with environmental laws and regulations. All new personnel receive this training upon arrival at the MAWTS-1 training center as part of their reception, staging, onward movement, and integration (RSO&I). This training specifically includes information regarding the importance of minimizing potential impacts to the Sonoran pronghorn. Training rosters are maintained by each unit's Operations department.
7. Personnel formations shall maintain a minimum buffer of at least 1 km from Sonoran pronghorn. Ground parties may not fire weapons within 0.5 km of a known pronghorn location, and Explosive Ordnance Disposal (EOD) detonations are prohibited within 1.5 km.
8. Monitoring is required on days when ground parties exceed 50 personnel during a training exercise.
9. All discarded matter generated during each exercise will be removed and disposed of in a manner consistent with State and Federal regulations.

*Aircraft Operations:*

Sonoran pronghorn could potentially be disturbed by military aircraft overflights. Numerous sorties are flown on a daily basis throughout BMGR East, within the pronghorn's range. This includes but is not limited to overflights within the Air-to-Air Range, Manned Range 1, NTAC, STAC and the northern portion of the Cabeza Prieta National Wildlife Refuge. However, as pronghorn have historically occupied and continue to occupy all of these areas, the disturbance potentially created by overflights do not appear to be affecting pronghorn in a detrimental manner. Additionally, a 2001 study noted that pronghorn throughout BMGR are likely habituated to noise from aircraft overflights (Krausman, Harris, & Francine, 2001).

Aircraft operations under the Proposed Action would continue with the same number of aircraft, same number of sorties, and for similar durations as the current implementation MAWTS-1 WTI event. Each engagement would continue to use approximately 22 rotary-wing aircraft that would land at the affected training areas shown in Figures 2-1 and 2-2 and insert or retrieve ground-based personnel.

Additional support would continue to be provided by approximately 34 other aircraft, both fixed-wing and rotary-wing, that would be in the airspace but would not land in the training areas. Low-flying helicopter use in the area could result in the temporary displacement of pronghorn in the vicinity of training operations. The potential for encounters cannot be completely eliminated; however, impacts will be minimized to the maximum extent possible by following existing conservation measures and those outlined in OI-13-01 as summarized below.

1. All aircrews operating on the range are required to receive training regarding their responsibilities to comply with environmental laws and regulations. All new personnel receive this training upon arrival at the MAWTS-1 training center as part of their RSO&I. This training specifically includes information regarding the importance of minimizing potential impacts to the Sonoran pronghorn. Training rosters are maintained by each unit's Operations department.
2. Low-flying helicopters would continue to utilize established corridors designed to avoid or minimize effects to the Sonoran pronghorn to the maximum extent possible.
3. Two monitors are required per tactical range to monitor for Sonoran pronghorn prior to air to ground delivery of any type of ordnance. Monitoring would include visual and telemetry surveillance from the ground, hillsides, and/or observation towers.
4. No ordnance deliveries of any kind would occur within 1 km of a known Sonoran pronghorn location. Monitors would report locations to the Range Operations Coordination Center, who would then determine if any targets necessitate closure for the day and notify all users.

#### *Overnight Operations:*

Pronghorn could potentially be disturbed by overnight operations. Overnight operations for the proposed action would occur up to two times per year. The overnight operations training scenario would typically include inserting personnel Friday evening and extracting them the following day in the late afternoon. Personnel would be inserted at the proposed landing zone and move overland until reaching their staging area. Such maneuvers would largely only take place during the insertion and extraction phases. Potential impacts to pronghorn would be low based on the size of the training area boundary and that it only occurs two times per year.

#### *Summary:*

The US pronghorn population is much greater than it was during the development of the 2010 BO. Therefore, the importance of individual pronghorn is significantly reduced by comparison. The effect to pronghorn from 100 ground-based personnel versus 500 is likely the same in that an individual or a group of pronghorn will move away from the area once it reacts to the first wave of personnel and aircraft. Pronghorn may very likely be some distance away from the APE by the time overland movements reach ideal battalion level numbers of up to 500 personnel.

Because the ongoing WTI training exercise and the Proposed Action would continue to utilize previously disturbed impact areas and aircraft operations remain unchanged from the current implementation of the WTI training events, and specific conservation measures and training are in place to minimize and prevent impacts to the Sonoran pronghorn, the proposed operations at BMGR East would have no affect above and beyond what was previously analyzed in the 2010 BO for Sonoran pronghorn. The USFWS provided a concurrence letter dated 15 September 2020 indicating the Proposed Action is not likely to adversely affect the pronghorn.

Acuña Cactus: The acuña cactus (*Echinomastus erectocentrus* var. *acunensis*) can be found in some remote areas of BMGR East, primarily in the eastern and southeastern corners of the range. Informal consultation with the USFWS on the Proposed Action began on 12 June 2020 and concluded on 15 September 2020.

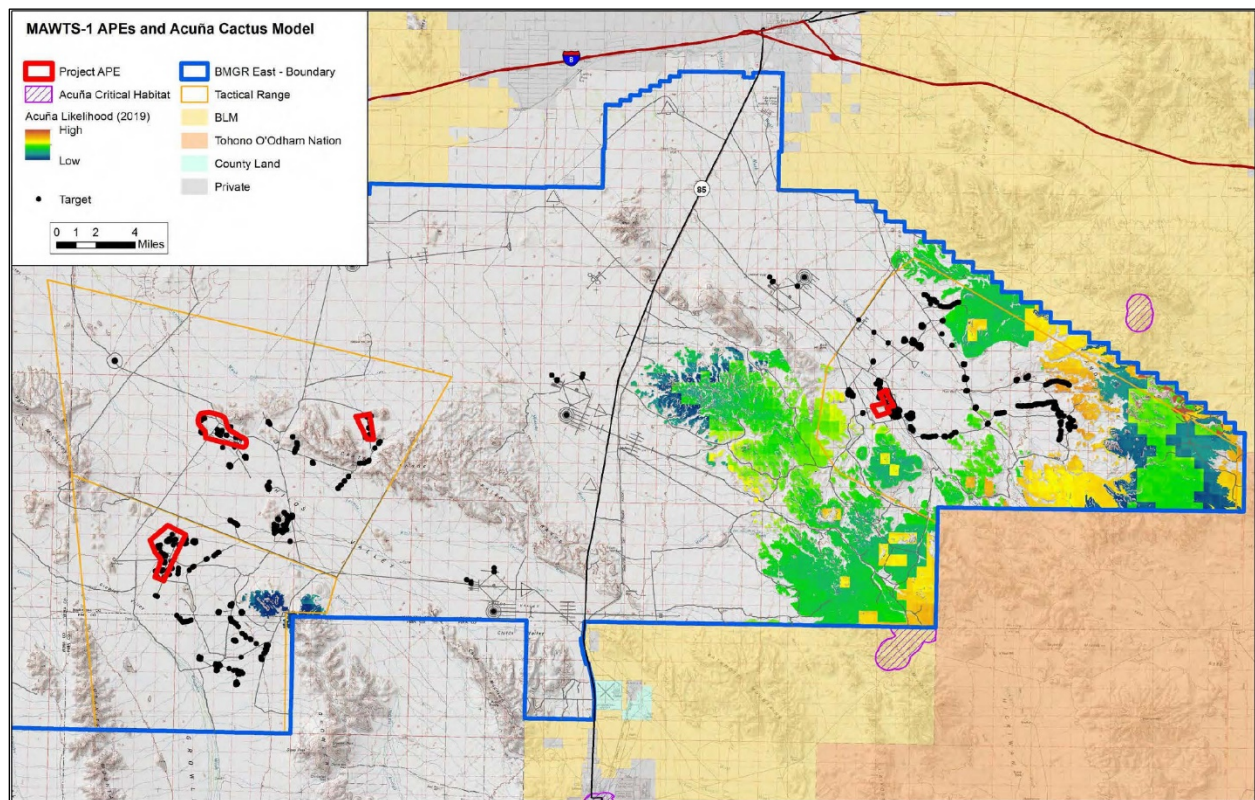


Figure 3-1: Logistical Regression Model for Acuña Cactus in BMGR East

The acuña cactus occurs under specific and limited habitat requirements, resulting in its rarity. The cactus occurs at elevations between 1,200 and 3,800 feet above mean sea level (AMSL), along rocky hillsides and ridges (AZGFD 2011 and USFWS 2016). A November 2018 report by the AZGFD, *Acuña Cactus Investigations on the Barry M. Goldwater Range East: Model Based Surveys in 2018* (Abbate, Scobie, Diamond, & Ingraldi, 2018), employed a logistic regression model on known populations to determine

the factors that impact acuña cactus occurrence, and concluded a “combination of elevation, mean annual solar radiation, and minimum temperature of the coldest month” were key indicators. These indicators, when extrapolated in GIS across southwestern Arizona, resulted in a preliminary habitat map suitability model for the acuña cactus. An updated version of this habitat map is shown in Figure 3-1, along with an overlay demonstrating the location of BMGR East and the proposed boundaries for enhanced training operations.

The exercises would continue to take place at four established sites across BMGR East, all of which fall outside of likely habitat zones. None of the sites identified in the Proposed Action have known occurrences of the acuña cactus within the project areas designated in Figures 2-1 and 2-2. Consequently, the proposed operations in BMGR East are not likely to adversely affect the acuña cactus. The USFWS provided a concurrence letter dated 15 September 2020.

### **Sensitive Wildlife**

All species listed in

Table 3-2 through Table 3-5 would likely be temporarily displaced from the APE at the sounds of approaching aircraft, ground maneuvers, vehicle use, and small arms fire. As with current operations, wildlife would be expected to return to the region upon conclusion of the exercise and departure of personnel and equipment. Such impacts to wildlife would be considered negligible. Those species identified as likely to be present and classified as a SGCN Tier 1A species are further described below.

Sonoran Desert Tortoise: Populations of the Sonoran Desert tortoise (*Gopherus morafkai*) can be found in the mountainous regions of BMGR East and West. Their habitat mostly consists of rocky slopes and bajadas where there are adequate shelter sites or burrowing substrate. This tortoise generally increases in abundance east of SR 85 on BMGR East. The Sonoran Desert tortoise was a candidate species under the ESA, but was removed from candidate status in 2015 and is now managed under a Candidate Conservation Agreement between USFWS and several other federal, state, and local agencies including the USMC and USAF (56 RMO, 2018). Ground personnel are briefed on the presence of the desert tortoise prior to each exercise and, if encountered, are instructed to leave the tortoise alone and communicate the location to RMO personnel.

Lesser Long-Nosed Bat: The lesser long-nosed bat was previously identified as an endangered species by the USFWS but was delisted in April 2018. The state of Arizona continues to consider the bat a species of concern. At BMGR, the lesser long-nosed bat is a summer resident that sleeps during the day in abandoned facilities or mines and forages at night for nectar in the desert scrub habitat (56 RMO, 2018). As the creatures are nocturnal, they may avoid contact with MAWTS-1 training teams entirely; teams are often flown in during the early afternoon and camp overnight, then continue with the training the following day. Overnight operations would be limited to two (2) nights per year. There remains the possibility of disturbance from loud noises (e.g. aircraft, small arms fire) but the disturbance would be temporary. No other impacts are expected.

Upon exercise completion it is expected wildlife would return to the area. Given the use-case of the airfields, the limited source of food for wildlife within the APE, and the temporary nature of exercise operations, impacts to wildlife under the Proposed Action are considered negligible.

### **Migratory Birds.**

All migratory birds listed in Table 3-3 would likely be temporarily displaced from the APE at the sounds of approaching aircraft, ground maneuvers, vehicle use, and small arms fire. As with current operations,

birds would be expected to return to the region upon conclusion of the exercise and departure of personnel and equipment. Such impacts would be considered negligible. Those species identified as potentially present within the APE and classified as a SGCN Tier 1A species are further described below.

Golden Eagles: Golden Eagles (*Aquila chrysaetos*) are protected under the Bald and Golden Eagle Protection Act and have been seen flying over large parts of the range when hunting and during migration (YPG, 2017). In early 2020, the USAF and the AZGFD conducted occupancy surveys on Golden Eagle nests across the range; five active breeding areas were discovered on BMGR East (Shepherd, 2020). Based on this new finding, avoidance measures will be followed to prevent disturbances to the nests. Measures will include (1) seasonal restriction on human ground activity within 0.5 miles from active nests (1 Dec to 30 June) and (2) keeping all aircraft activity at least 2,000 ft from known nest locations (1 Dec to 30 June). No element of the Proposed Action occurs near 2020 eagle nesting sites so avoidance measures are not required at this time. However, avoidance measures will be required if new breeding areas are discovered near the APE. Additionally, eagles hunting around the APE as aircraft approach would be temporarily displaced by the noise. No other impacts to the golden eagle are expected.

Upon exercise completion it is expected migratory birds would return to the APE. Given the temporary nature of exercise operations and lack of population-level impacts, impacts to migratory birds under the Proposed Action are considered negligible.

### **Vegetation.**

Vegetation cover is minimal within the APE as the area is largely developed for aircraft and general training usage. Small grasses and bushes would be most likely to occur in the predesignated landing zones and on the outskirts of each airfield. Vegetation is most likely to suffer damage from landing aircraft and deploying personnel.

Under the Proposed Action, increasing the ground component to 500 personnel would potentially increase the amount of vegetation directly impacted during an exercise. However, given the terrain most personnel movements would seek to avoid disturbing vegetation from both a safety standpoint (i.e. trips and falls) and operational impact (vegetation could slow progress or give away their position if moved through, and could be utilized as cover if sufficiently large). Additionally, the landing zones used by aircraft are the same for each exercise, ensuring any impacts from landing aircraft and deploying personnel remains highly localized.

The presence of additional personnel on the ground may also pose an increased risk of wildfires due to the extra ammunition expended during live-fire exercises. This risk is minimized through training prevention and emergency response preparation. Prior to WTI events, participating personnel are briefed on the risk of wildfires in the region and instructed to ensure they only use small arms weapons within allowed areas at distinct targets. Should a small flame or smoking vegetation be noticed, it is critical for nearby personnel to communicate the problem and smother the affected vegetation as quickly as possible. Fire extinguishers are stored in each aircraft and government vehicles if they are needed. All personnel are briefed on the Wildland Fire Management Plan prior to entering the range and are provided contact information for the range fire department to use as necessary.

### *Invasive Species*

Vehicles have been identified as a major contributor to the spread of invasive plants on BMGR (56 RMO, 2018). Seeds from invasive species caught in soils can get lodged in vehicle wheel wells, undercarriages,

and deep tire treads and transported long distances. To curb the spread of invasive plants, exercise participants will ensure aircraft landing gear, ground vehicles, and footwear are free from dirt and debris prior to entering the range.

Given the relative scarcity of vegetation in the exercise areas and the abundance of vegetation within BMGR East as a whole, the overall impact to vegetation is considered negligible.

### 3.1.2.2 No Action Alternative

Under the No Action Alternative, MAWTS-1 would continue to perform the WTI with a ground component consisting of no more than 100 personnel. Impacts to vegetation; wildlife; or threatened, endangered, and candidate species as discussed in the 2010 EIS would continue without change.

## 3.2 Cultural Resources.

The term 'cultural resource' refers to any prehistoric or historic resource, such as settlement sites, historic archaeological sites, or other evidence of our cultural heritage. 'Historic property' refers specifically to cultural resources that are fifty years old or more that have been recommended or determined eligible for inclusion in the National Register of Historic Places (NRHP). These resources are protected and identified under several federal laws and EOs. Federal laws include the National Historic Preservation Act (NHPA, 54 U.S.C. 306108 et seq.), the Archaeological and Historic Preservation Act of 1974 (AHPA, 16 U.S.C. §§ 469-469c), the American Indian Religious Freedom Act of 1978 (AIRFA, 42 U.S.C. § 1996), the Archaeological Resources Protection Act of 1979 (ARPA, 16 U.S.C. §§ 470aa-470mm), the Native American Graves Protection and Repatriation Act of 1990 (NAGPRA, 25 U.S.C 3001 et seq.), EO 13007, *Indian Sacred Sites*, and EO 13175, *Consultation and Coordination With Indian Tribal Governments*.

Under Section 106 of the NHPA, federal agencies are required to evaluate the effects of their undertakings on historic properties within the APE that are on or may be eligible for the NRHP (36 CFR 800). The APE is defined as the geographic area(s) "within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist." 36 CFR 800. 4(c)(1 and 2) defines the criteria used to establish significance and eligibility for the NRHP. Under this process, the USAF identified and evaluated the NRHP eligibility of resources within the proposed undertaking's APE and assessed any possible Adverse Effects or impacts of the proposed undertaking on prehistoric and historical period Historic Properties. Eligibility determinations were done in consultation with the Arizona SHPO and tribes associated with the region.

### 3.2.1 Affected Environment

The 56 FW/RMO has an Integrated Cultural Resources Management Plan (ICRMP January 2020) in place that integrates the Cultural Resources Management Program with ongoing mission activities, provides measures for the identification of conflicts between mission activities and cultural resources management, provides guidance for mitigating any such conflicts and identifies projects and funding for a 5 year period. Additionally, the ICRMP provides guidelines and standard operating procedures to managers and planners in order to comply with the legal responsibilities for the preservation of significant archaeological and historic resources (56 RMO, 2020).

In compliance with Section 106 of the NHPA, the 56 FW/RMO has completed more than 30 comprehensive cultural resource studies across the range (56 RMO, 2010). Additional cultural resources surveys, as required by Section 110 of the NHPA, have been conducted primarily in public use areas.

Most recently, the NTAC airfield, STAC airfield, and East Pass were assessed as part of a 2012 EA for control of the invasive Sahara mustard (56 RMO, 2012).

Archaeologists have confirmed that people first inhabited the present-day BMGR over 13,000 years ago when the climate was colder and wetter and the major vegetation consisted of Pinyon pine, juniper, Joshua tree, and grasses. Early hunters stalked mammoth and other now extinct mammals. About 10,000 years ago the region began an 8,000 year transition to the Sonoran Desert we see today. Humans had to adapt to a changing environment and new food sources. New tools were developed for grinding seeds and grasses and for hunting deer, bighorn sheep, and pronghorn. Farming appeared about 2,000 years ago in surrounding areas where permanent sources of water were available. On the BMGR East farmers dug canals and diverted the water from rain storms into fields where corn, beans, and squash were grown. Both farmsteads (temporary habitations where farming was conducted) and year-round villages with walk-in wells are present. In addition, prehistoric desert dwellers were actively involved in the trade of shell and salt from the Sea of Cortez and obsidian from the BMGR East. By the mid-1500s, the region was an important route for the Spanish military, beginning in the 1690s the area was an important route for missionaries and by 1849 it was the route of the 49ers. Beginning in the mid-1880s, ranching and mining became prevalent. The first military use of the area is documented by the 1941 auxiliary airfields where pilots trained for WWII.

Prehistoric archaeological sites on the range contain a variety of artifact scatters that include various flaked and ground stone tools and manufacturing debris, ceramics and shell and features (such as linear and circular rock alignments, sleeping circles, and numerous thermal features. Historic archaeological sites contain artifact scatters and structural remains, such as corrals and wells, as well as the auxiliary air fields and specific historical-period targets that are eligible for the NRHP. While many of these sites occur within the undeveloped or unused portions of BMGR East, there is potential to encounter surface artifacts that may represent buried sites throughout the range.

Sixteen (16) federally recognized tribes and two (2) non-federally recognized group have historic ties to the region and have an interest in identifying and protecting cultural resources, including Traditional Cultural Properties and Sacred Sites, located on the range. The NHPA requires federal agencies to engage in consultation with federally recognized Native American tribes on proposed undertakings that have the potential to affect properties of cultural, historical, or religious significance. A list of consulted tribes and responses received for the Proposed Action are included in Appendix A.

### 3.2.2 Environmental Consequences

Consultation with the Arizona SHPO and local tribes began in the early stages of project planning and was completed on 23 May 2020. On 3 April 2020 the Arizona SHPO concurred with a finding of “No Adverse Effect” for the project. Likewise, twelve (12) of the tribes contacted responded concurring with a finding of “No Adverse Effect”. One NRHP-eligible site, AZ Y:8:1 (ASM) will need to be fenced and surrounded by Carsonite poles to prevent adverse effects during the WTI event.

#### 3.2.2.1 Proposed Action

##### **Archaeological Resources.**

All impacts would occur in previously disturbed areas such as landing zones and personnel movement zones. Resources may be disturbed by ground personnel movements and helicopter rotor wash during MAWTS exercises. The APE has been completely surveyed for historic properties/cultural resources and a single NRHP-eligible site, AZ Y:8:1 (ASM), would be fenced to ensure it is protected during each



event. Participating personnel will be briefed on avoiding the fenced site during the planning process for each exercise.

If any cultural resources, such as human remains or artifacts, should be inadvertently encountered during ground operations, exercise participants are instructed to mark the area, secure the immediate vicinity of the resource, and ensure the 56 RMO Cultural Resource Manager (CRM) is immediately notified. All participants are instructed not to touch and/or move any features or items found. This area would become off-limits for the duration of the exercise until such time the 56 RMO CRM evaluates the site and determines appropriate steps to move forward, following the guidance of the ICRMP to include engaging with local Native American Tribes (56 RMO, 2020).

### **Architectural Resources.**

No NRHP-eligible architectural resources are located within the APE.

### **Traditional Cultural Properties.**

TCPs are defined as historic properties eligible for inclusion in the NRHP for their traditional cultural value, and can include archaeological resources, buildings, neighborhoods, prominent topographic features, habitats, plants, animals, and minerals that Native Americans and other groups consider essential for the continuance of traditional cultures. There are no TCPs currently identified within the APE (56 RMO, 2010) so impacts would not occur.

#### *3.2.2.2 No Action Alternative*

Under the No Action Alternative, MAWTS-1 would continue to perform the WTI with a ground component consisting of no more than 100 personnel. No impacts to cultural resources beyond those discussed in the 2010 EIS would occur. Should human remains or cultural artifacts be discovered, similar reporting procedures as described in Section 3.2.2.1 and the current iteration of the ICRMP would be followed.

## **3.3 Hazardous Materials / Wastes and Solid Waste**

Hazardous materials are defined by 49 CFR §171.8 as “hazardous substances, hazardous wastes, marine pollutants, elevated temperature materials, materials designated as hazardous in the Hazardous Materials Table (49 CFR §172.101), and materials that meet the defining criteria for hazard classes and divisions” in 49 CFR §173. Transportation of hazardous materials is regulated by the US Department of Transportation regulations within 49 CFR §§ 105–180.

Solid wastes are defined as any discarded waste that meets the requirements in 40 CFR § 261.2. Military munitions have some exemptions that fall under the Military Munitions Rule (62 FR 6621) that defines when munitions become a waste and how waste munitions are handled.

Hazardous wastes are defined by the Resource Conservation and Recovery Act (RCRA) in 42 U.S.C. § 6903(5), as amended by the Hazardous and Solid Waste Amendments, as: “a solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may (a) cause, or significantly contribute to an increase in, mortality or an increase in serious irreversible, or incapacitating reversible, illness; or (b) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed.”



If handled inappropriately, hazardous materials, hazardous wastes, and solid waste may negatively impact human health and the environment through contact with water, soil, or air.

### 3.3.1 Affected Environment

**USMC / USAF Policy.** USMC and USAF policies aim to prevent pollution, meet or exceed all regulatory requirements, minimize or eliminate the use of hazardous materials, and prevent the release of hazardous materials into the environment. USMC and USAF implementation of federal regulations is outlined in MCO 5090.2 and 32 CFR 989, *USAF Environmental Impact Analysis Process*, respectively. At BMGR East, management of hazardous materials and wastes is handled by a contractor overseen by the LAFB 56 Civil Engineering Squadron, Environmental Element (56 CES/CEIE). All users of BMGR East are required to meet or exceed LAFB policies.

The Air Force management approach emphasizes minimizing or eliminating the release of hazardous materials or wastes into the environment. Users of hazardous materials and generators of hazardous waste are educated about the proper transportation, handling, use, disposal, and pollution prevention. Waste minimization through source reduction is a key component for all waste generator. Training also addresses prevention, control, management, and responses to hazardous material/waste releases.

As BMGR East is an active training range with sorties flown almost daily, LAFB has several plans in place in the event of an aircraft crash. The protocol for responding to such an emergency includes multiple considerations for hazardous materials and waste management at a crash site, to include estimating the environmental damage to the site as compared to the derived benefits from various levels of waste removal or mitigation measures.

**Hazardous Materials.** Use of hazardous materials at numbered and tactical ranges is generally limited to petroleum, oils, and lubricants. Paints are also sometimes used in the construction and repair of simulated targets. Other hazardous materials required for aircraft and vehicle maintenance are located off range, such as at LAFB or MCAS Yuma. Hazardous materials that are part of munitions used on the range are discussed below.

**Hazardous Waste.** Hazardous waste generated at BMGR East is generally limited to two categories (1) empty or expended containers of hazardous materials (e.g. paint cans, lubricant canisters, etc.) and (2) spills or leaks of hazardous materials (i.e. fuel/oil leak from aircraft, construction equipment, or government vehicles).

**Munition Constituents of Concern.** Munitions constituents of concern (MCOC) are hazardous constituents associated with munitions. Expended munitions such as artillery rounds, obscurants, bombs, missiles, targets, pyrotechnics, flares, as well as small, medium, to large munitions could release contaminants to the environment upon use or leach small amounts of toxic substances as they explode and decompose. MCOC are found in the explosive, propellant, and pyrotechnic elements of munitions, and may also leak from munitions that do not detonate on impact as intended. Most MCOC are located within firing ranges, training ranges, and air-to-ground targeting ranges.

**Solid Waste.** Municipal solid wastes from administrative, support, and temporary field facilities are collected and transported off-range to approved landfills. Human sewage from temporary field facilities is contained in portable toilets and removed by a commercial contractor and discharged through approved sewage treatment facilities. Municipal solid wastes are collected and transported off BMGR for disposal by a commercial contractor in accordance with all applicable rules and regulations.

### 3.3.2 Environmental Consequences

#### 3.3.2.1 Proposed Action

The APE for hazardous materials and waste management encompasses the area where hazardous materials and hazardous and solid waste would be stored, transported, and used to implement the Proposed Action. Under the Proposed Action, no storage or waste sites are located within the APE. Except for an increase in expended small arms munitions within designated areas, the changes under Proposed Action would not generate any pollutants in excess of current operations.

**Hazardous Materials.** Under the Proposed Action, Hazardous materials would be limited to those contained within aircraft and vehicles (fuels, antifreeze, lubricants, etc). Contained hazardous materials necessary for maintenance of various equipment is handled off site. Compared to range operations as a whole, an increase in the number of exercise participants would result in no discernable change to the overall usage of hazardous materials in BMGR East.

**Hazardous Waste.** Other than the MCOC described below, no hazardous waste is generated in BMGR East during the Proposed Action.

**MCOC - Infantry Munitions.** Small caliber munitions expended by ground personnel during WTI events present an MCOC primarily in metals such as lead, antimony, copper, and zinc, along with trace residues of propellant (typically a form of smokeless powder) that contain nitroglycerin. Munitions and munitions debris are handled in accordance with DoD Manual 4715.26, *DoD Military Munitions Rule (MR) Implementation Procedures*. Only munitions that have been certified as ‘Material Determined as Safe’ as outlined in the DoD Explosive Safety Board Technical Paper TP-18 are allowed to be removed from the range.

Since expended munitions contain toxic metals and are left to remain within the dedicated firing areas, they must be reported on the annual Toxic Release Inventory (TRI) under the Emergency Planning and Community Right-to Know Act (EPCRA). The small arms contribution from the WTI event is shown below for 100 and 500 personnel, using a conservative estimate of 60 NATO 5.56mm M193 rounds expended per Marine per semiannual WTI event. Numbers shown in Table 3-9 show the composition of a single round for selected reportable materials. Also shown are estimated contributions to the annual TRI report by current operations and the Proposed Action.

Increased participation of the ground component would present a corresponding increase in the materials reported to the EPA annually. However, the materials with the largest contributions (copper, lead, and nitroglycerin) all exceeded EPCRA reporting thresholds in 2019 (56 RMO, 2019). While reported under EPCRA, the additional metals are contained in distinct areas of the range already subject to such use. Transport mechanisms that currently exist due to heavy rainfall may be impacted by the additional metals available. However, this would contribute a minor impact to the range overall.

**MCOC - Aircraft Munitions.** While aircraft expend training ammunition as part of WTI operations, these impacts were evaluated as “negligible” in the 2010 EIS since they are only discharged at very specific targets established within BMGR East for this purpose. Such targets are used by other units when training on the range and EOD teams periodically clean the targets of debris. Since there would be no change in aircraft operations under the Proposed Action there would be no corresponding impact.

Table 3-9: Estimated Contribution to the BMGR TRI by the Proposed Action

| Material          | NATO 5.56mm M193<br>Bullet Composition<br>(lbs) | 100 Personnel<br>60 rounds each WTI Event,<br>over two events (lbs/year) | 500 personnel<br>60 rounds each WTI Event,<br>over two events (lbs/year) |
|-------------------|-------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|
| Aluminum powder   | 3.90E-06                                        | 0.047                                                                    | 0.23                                                                     |
| Antimony          | 9.63E-05                                        | 1.155                                                                    | 5.78                                                                     |
| Antimony sulfide  | 8.36E-06                                        | 0.100                                                                    | 0.50                                                                     |
| Barium nitrate    | 1.78E-05                                        | 0.214                                                                    | 1.07                                                                     |
| Copper            | 1.21E-02                                        | 144.960                                                                  | 724.80                                                                   |
| Dibutyl phthalate | 1.83E-04                                        | 2.198                                                                    | 10.99                                                                    |
| Diphenylamine     | 4.60E-05                                        | 0.552                                                                    | 2.76                                                                     |
| Lead              | 5.30E-03                                        | 63.624                                                                   | 318.12                                                                   |
| Lead styphnate    | 2.06E-05                                        | 0.247                                                                    | 1.24                                                                     |
| Nitroglycerin     | 4.07E-04                                        | 4.885                                                                    | 24.43                                                                    |
| PETN <sup>1</sup> | 2.79E-06                                        | 0.033                                                                    | 0.17                                                                     |

1. Pentaerythritol tetranitrate

**Solid Waste.** Solid waste is generated during longer events, largely from food packages, however all waste is collected by generating personnel and taken with them upon departure. Therefore, implementation of the Proposed Action would have no impact on solid waste at the BMGR.

### 3.3.2.2 No Action Alternative

Under the No Action Alternative, MAWTS-1 would continue to perform WTI events with a ground component consisting of no more than 100 personnel. No impacts to hazardous materials, hazardous waste, and solid waste beyond those discussed in the 2010 EIS would occur.

## 3.4 Health and Safety

This section addresses public health and worker safety concerns that may result from the Proposed Action. Site safety requires adherence to regulatory requirements imposed for the benefit of participating personnel, and may include implementation of engineering and administrative practices that aim to reduce the risks of illness, injury, death, and property damage. The health and safety of onsite military and civilian workers are safeguarded by numerous DoD and military branch-specific requirements designed to comply with standards issued by the Occupational Safety and Health Administration, USEPA, and local Occupational Safety and Health agencies. These standards specify overall health, safety, and training requirements, to include DoD and USMC standards regarding aircraft and weapons safety.

Health and safety hazards can often be identified and reduced or eliminated before an activity begins. Necessary elements for an accident-prone situation or environment include the presence of the hazard itself, together with the exposed (and possibly susceptible) population or public. The degree of exposure depends primarily on the proximity of the hazard to the population.

For the purposes of this EA, health and safety impacts are not re-assessed for tasks that would not substantially change as a part of the Proposed Action, such as aircrew and exercise support personnel.

### 3.4.1 Affected Environment

The BMGR was created to provide a secure training location where inherently hazardous air warfare training activities can occur. By design, active ranges are isolated from public access to protect public safety, minimize risk to military personnel, and prevent military and civilian elements from interfering with each other. The range accomplishes these missions by excluding land-based public access and civil air travel to and from land and airspace areas where hazardous activities occur. Through policies and procedures enforced by 56 RMO, the range also minimizes the risks to military personnel (56 RMO, 2010).

56 RMO is responsible for determining if activities on or proposed for BMGR East are compatible with current operations and for controlling all surface entry into the area. The implementing arm of RMO is the Range Operations Control Center (ROCC), located at LAFB. The ROCC maintains a master range schedule for all air and ground military and non-military operations and activities on BMGR East and ensures no incompatibilities exist. Access to BMGR East is controlled by the ROCC to minimize safety conflicts among multiple range users.

Personnel, vehicles, and aircraft that are not scheduled participants in a training exercise or support activity are excluded from range areas where such activities are occurring. By eliminating extraneous personnel from the range, personnel participating in training exercises can focus their attention on their tasks without concern for the safety of non-participants.

Each branch of the military has its own policies and regulations that act to protect its personnel, but each branch ultimately implements safety programs and policies required by DoDI 6055.01, *DoD Safety and Occupational Health Program*. While on BMGR East, all personnel and visitors must adhere to the programs outlined in LAFB Instruction 13-212 (LAFBI 13-212), *Range Planning and Operation*.

Per LAFBI 13-212, all individuals that require access to any portion of BMGR East for military or non-military purposes must receive a range safety briefing. Training includes an overview of hazards that could be encountered such as poisonous wildlife, unexploded ordnance, and severe weather. Training also includes appropriate procedures to notify the ROCC when requesting entry and departing from the range. Annual training is required for all users of the range.

#### **Military Hazards (Tactical Ranges)**

Live-fire training within the tactical ranges presents a potential hazard inherent in many training operations and is required to ensure personnel familiarity with the sights and sounds of a combat environment. Munitions may originate from small arms fire from the ground or air-to-ground weapons systems. In order to ensure safety of all personnel, zones where munitions are expended are strictly adhered to. Small arms fire can only be expended within designated areas at each APE, and larger munitions used by ground personnel can only be expended within specific target areas, including one high-explosive (HE) target in each of NTAC, STAC, and ETAC. Aircraft expending munitions can only do so at distinct air-to-ground targets in NTAC and STAC.

Since the BMGR is an active training range it is expected that unexploded ordnance (UXO) may be present in any location. Marine EOD teams perform a sweep for UXOs prior to each exercise, however EOD teams cannot perform a 100% clearance sweep due to the size of the region and time constraint, so personnel participating in the WTI event could encounter UXOs during the training. All range users are briefed on the dangers and presence of UXOs prior to entering the range and are instructed to “not pick anything up they didn’t put down” to ensure all personnel are aware of the potential hazard.

In addition to hazards created by expended munitions, many weapon systems feature lasers used for target acquisition, including both visible and invisible (infrared) light. All personnel using laser target designators receive safety training specific to the hazard rating of the devices in use and understand the safety implications posed. If aircraft are painting targets with airborne acquisition lasers ground personnel operating within the same tactical range must wear OD6+ rated eye protection. The potential for injury is minimized through strict adherence to weapon use, target use, range scheduling, and range access procedures. No public access to tactical ranges is authorized.

### **Non-Military Hazards**

Environmental Hazards: The Sonoran Desert poses several serious environmental hazards to all personnel operating on the ground. Much of BMGR is covered in rugged terrain, and extreme temperatures, intense sunlight, lack of potable drinking water on the range, and extreme remoteness can make heat exhaustion and heat stress a major concern. Additionally, flash floods commonly wash out roads, abandoned deep mineshafts are often unstable and difficult to see, and a multitude a venomous wildlife (rattlesnakes, scorpions, spiders, etc.) call the desert their home. All personnel entering the range receive a range safety brief discussing these hazards and methods to stay alert for each of them.

Road Hazards: Almost all roads on BMGR East are unpaved and many are seldom or never maintained. A four-wheel drive vehicle is usually necessary for travel on the range. There are few road signs and no other developed navigational aids to assist those who are unfamiliar with the area. Driving on BMGR East is most hazardous after rain, when muddy conditions make many roads impassable. Very dry conditions can lead to dust that greatly reduces visibility. Some roads have developed deep ruts into which vehicle tires can fall, leaving the vehicle suspended in the intervening high ground. While infrequent, vehicle collisions caused by dust-obscured visibility have led to major accidents with injuries on the BMGR.

## **3.4.2 Environmental Consequences**

### ***3.4.2.1 Proposed Action***

A significant portion of health and safety impacts remain unchanged from the 2010 EIS as ground personnel participating in WTI exercises would be exposed to several health and safety concerns that are independent of the size of the ground component or frequency of the exercise. Exercise participants would be required to move through rough terrain on the outskirts of the APE and may be exposed to extreme temperatures (both hot and cold) depending on the season and time of day. Intense sunlight and limited water availability coupled with high temperatures and requisite body armor and kit would subject personnel to heat stress of varying degrees, making monitoring for heat cramps, heat exhaustion, and heat stroke extremely important. Participants may encounter venomous wildlife during any part of the exercise. Personnel supporting the ground component of WTI exercises are instructed to bring plenty of water with them as potable water is unavailable on the range. For those events in the summer months additional water resupply is brought to ground personnel as needed.

Extreme weather has resulted in MAWTS-1 delaying or cancelling exercises, or limiting the scope of the exercise to ensure personnel safety. However, such occurrences are rare and personnel may be inserted after severe weather passes, making movement through wet and muddy environment difficult. Night operations may result in limited visibility even when using night vision devices.

Personnel inserted during WTI exercises utilize a variety of small arms during training; increasing the number of participants to 500 inherently increases the number of weapons as well. Weapons are only discharged in specific areas at designated targets and with all projectiles being contained within the

appropriate Surface Danger Zones. Observing trainers and other exercise support personnel may be within the APE during the exercise, but would be located clearly out of potential lines of fire and wear high visibility clothing (such as white engineers tape during the day and visible chemlights at night). Personnel that are not required as part of WTI events are not allowed within the APE until training operations have ended.

Support personnel and exercise observers may arrive to the exercise area in light trucks or other vehicles. All drivers are equipped with radios to contact the ROCC when entering/departing the range or if an emergency is encountered (flat tire, stuck vehicle, etc). If muddy or unsafe conditions exist drivers would attempt an alternate path to their destination on approved existing roads.

Most health and safety concerns that exist for the ground component are by design. WTI exercises expose personnel to a variety of conditions in a controlled environment they may encounter again in an active combat situation. While the chances of having an injury on the training team may be higher with additional personnel, the individual hazards remain unchanged from the 2010 EIS. The Proposed Action would contribute a minor change in overall health and safety at the BMGR.

#### *3.4.2.2 No Action Alternative*

Under the No Action Alternative, MAWTS-1 would continue to perform the WTI with a ground component consisting of no more than 100 personnel. No impacts to health and safety beyond those discussed in the 2010 EIS would occur.

## 4. Cumulative Impacts

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 (federal or non-federal) or person undertakes such other actions” (40 CFR §1508.7). Informed decision-making is served by consideration of cumulative impacts resulting from projects that are proposed, under construction, recently completed, or anticipated to be implemented in the reasonably foreseeable future. Reasonably foreseeable future actions consist of activities that have been approved and can be evaluated with regard to their impacts.

This section briefly summarizes past, present, and reasonably foreseeable future projects within the same general geographic scope as the Proposed Action. The geographic scope of the analysis varies by resource area. For example, the geographic scope of the cumulative impacts on noise, earth resources, and safety is narrow and focused on the location of the resource. The geographic scope of air quality, infrastructure, and socioeconomics is broader and considers more county- or region-wide activities.

The past, present, and reasonably foreseeable future projects, identified below, make up the cumulative impact scenario for the Proposed Action. The Proposed Action’s impacts on the individual resource areas analyzed in Sections 3.1 through 3.4 are added to the cumulative impact scenario to determine the cumulative impacts of the Proposed Action. In accordance with CEQ guidance, the impacts of past actions are considered in aggregate as appropriate for each resource area without delving into the historical details of individual past actions.

### 4.1 Effects of Past, Present, and Reasonably Foreseeable Future Actions

BMGR East has been used for military missions since the 1940s and has continuously been developed as DoD needs and strategies have evolved. Development and operation of BMGR has impacted thousands of acres with synergistic and cumulative impacts to a variety of environmental resources areas. Some impacts are acute and others take time to be realized. This section tracks other planned and possible actions that may take place within the same APE to determine if any conflicts exist that may create an environmental problem.

Table 4-1: Present and Reasonably Foreseeable Future Action in BMGR East

| Project Name / Year / Location(s)                                                                         | Description                                                                                                                                                                                                                                                                         | Potential Relevance to Proposed Action                                                                                                                                             |
|-----------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Final Environmental Impact Statement for Proposed Barry M. Goldwater Range East Range Enhancements (2010) | Range 3 has been converted to a helicopter gunnery range. A new taxiway at Gila Bend Air Force Auxiliary Airfield has been approved but not constructed and the construction of a moving vehicle target range in the North Tactical Range has also been approved but not completed. | Several projects listed under the 2010 EIS have yet to be implemented as of July 2020. However, none of the open actions specifically occur within the APE of the Proposed Action. |

**Table 4-1: Present and Reasonably Foreseeable Future Action in BMGR East**

| Project Name / Year / Location(s)                                                                            | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Potential Relevance to Proposed Action                                                                                                                                                                                                                                    |
|--------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Extended Range Cannon Artillery (ERCA) / 2017 / YPG, BMGR West, BMGR East                                    | The ERCA Project is a multi-element, multi-phase test program of the U.S. Army's next generation 155 mm artillery system. As part of the project, a new 495 acre impact area would be established at YPG to accommodate test firings of extended range artillery projectiles ranging from approximately 55 km to 73 km. Existing operational areas at BMGR East and West would be used to conduct additional test firings up to three times per year (each) and approximately 24 test rounds fired per event.        | ERCA firings would not coincide with WTI exercises due to safety concerns. The targets established within BMGR East are not located within the APE for this EA.                                                                                                           |
| Personnel Training Recovery Program / 2020 / 181 sites including BMGR for the Biannual Large Force exercises | Personnel recovery (PR) training activities would be centered out of Davis-Monthan AFB and hosted by various organizations depending on the PR training event. Comprehensive training involves ground, flight, and water activities. PR forces would train through the full spectrum of PR capabilities with ground recovery personnel, air assets, Special Forces teams, and federal agents. Training activities would comply with Special Use permit stipulations for specific PR training locations. (USAF, 2020) | The "Large Force" exercise at BMGR leverages at least dozen different sites across several ranges, including the South TAC airfield used during WTI exercises. Given the scope of the PR exercises it would be scheduled so it would not coincide with MAWTS-1 exercises. |
| BMGR East Land Withdrawal Legislative EIS / 2024 / BMGR East                                                 | The BMGR East land withdrawal will terminate in October 2024. The USAF and Navy have filed applications to extend the land withdrawal to serve the continuing military need for this range (OFR, 2020b), and for an additional parcel of land extending from Yuma to 25 miles east of Gila Bend, Arizona (OFR, 2020a).                                                                                                                                                                                               | The BMGR land withdrawal would be necessary to continue military training exercises within BMGR East.                                                                                                                                                                     |
| Continuing Environmental Maintenance Activities / Ongoing / BMGR                                             | 56 RMO outlines several ongoing initiatives in the 2018 INRMP that impact several areas across the BMGR including 17 management elements categorized into five general types of actions: resource management, motorized access (road maintenance), public uses, realty management, and perimeter land use (encroachment prevention).                                                                                                                                                                                 | The measures described in the INRMP are in place to preserve the untouched lands, maximize use of previously disturbed grounds, and ultimately protect the environment.                                                                                                   |

## 4.2 Cumulative Impact Analysis by Resource Area

### 4.2.1 Biological Resources

Ongoing military training and testing operations within BMGR would likely result in continued short- and long-term impacts to biological resources. However, such disturbances are largely localized in the ten



(10) percent of the range that has previously been subjected to varying levels of development (56 RMO, 2010). Additionally, many such disturbances are temporally short and limited in their nature (such as aircraft noise causing wildlife to temporarily relocate). Robust protocols regarding threatened, endangered, and sensitive wildlife are established and enforced for all personnel entering the range, and any new actions potentially impacting the Sonoran pronghorn or acuña cactus require Section 7 consultation with the USFWS. The ecosystems within BMGR are also well represented in the nearby Cabeza Prieta National Wildlife Refuge, Organ Pipe Cactus National Monument, and the Sonoran Desert National Monument. Therefore, the Proposed Action, in conjunction with other foreseeable actions both on- and off-range, would not result in significant cumulative impacts to biological resources.

#### 4.2.2 Cultural Resources

The areas utilized under the Proposed Action have been 100 percent surveyed in previous years due to extensive use by a variety of training missions in BMGR East. The majority of the sites are small artifacts scatters that are not eligible for the NRHP. However, AZ Y:8:1 (ASM) located in the APE for the NTAC main airfield is eligible. The site will need to be permanently fenced prior to the exercise to ensure no one mistakenly enters the area.

#### 4.2.3 Hazardous Materials / Wastes and Solid Waste

Training operations under the Proposed Action would contribute to an increased concentration of MCOC in designated target areas. Migration of MCOC from target areas off range at concentrations that would present a health and safety concern to the public or the environment. Additionally, EOD clearance operations periodically remove sources of MCOC from the range, curbing migration from the source. Given the large variety and number of munitions used within BMGR East, the Proposed Action presents a negligible increase in target usage and an ultimately negligible impact by itself or in combination with future actions.

#### 4.2.4 Health and Safety

Personnel taking part in MAWTS-1 exercises are exposed to several short-term health and safety risks that can only be lessened by pre-exercise briefs and additional training. The Proposed Action and other military training taking place on the BMGR inherently poses a safety risk to participants to ensure personnel are prepared for deployment to active combat environments. The Proposed Action would contribute a minor change in overall health and safety at the BMGR.

## 5. Avoidance, Minimization, and Mitigation Measures

This section summarizes avoidance, minimization, and mitigation measures discussed throughout this document.

Table 5-1: Avoidance, Minimization, and Mitigation Measures

| Resource Area | Potential Impact                                   | Avoidance, Minimization and/or Mitigation Measures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|---------------|----------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Biological    | Sonoran Pronghorn<br>( <i>Ground Vehicle Ops</i> ) | <ol style="list-style-type: none"> <li>1. Vehicle speed limits are 45 mph on paved roads leading to the numbered ranges, 35 mph on improved dirt roads, and 25 mph on all other roads.</li> <li>2. If a vehicle is within 1-2 km from a Sonoran pronghorn, the speed limit is 15 mph.</li> <li>3. If a vehicle is less than 1 km from a Sonoran pronghorn, every effort is made to use an alternate route; if no practical alternatives are available and movement is mission essential, then the speed limit is 15 mph.</li> <li>4. If Sonoran pronghorn are observed running due to ground disturbance, vehicles near Sonoran pronghorn locations shall stop until animals have stopped running, moved at least 100 m from the vehicles, or moved out of sight.</li> <li>5. Only approved non-military personnel on foot may approach to within 0.5 km of a known Sonoran pronghorn location and only if postponing their work could result in a work stoppage.</li> <li>6. All ground personnel operating on the range are required to receive training regarding their responsibilities to comply with environmental laws and regulations. All new personnel receive this training upon arrival at the MAWTS-1 training center as part of their reception, staging, onward movement, and integration (RSO&amp;I). This training specifically includes information regarding the importance of minimizing potential impacts to the Sonoran pronghorn. Training rosters are maintained by each unit's Operations department.</li> <li>7. Personnel formations shall maintain a minimum buffer of at least 1 km from Sonoran pronghorn. Ground parties may not fire weapons within 0.5 km of a known pronghorn location, and EOD detonations are prohibited within 1.5 km.</li> <li>8. Monitoring is required on days when ground parties exceed 50 personnel during a training exercise.</li> <li>9. All discarded matter generated during each exercise will be removed and disposed of in a manner consistent with State and Federal regulations.</li> </ol> |

Table 5-1: Avoidance, Minimization, and Mitigation Measures

| Resource Area | Potential Impact                             | Avoidance, Minimization and/or Mitigation Measures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|---------------|----------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Biological    | Sonoran Pronghorn<br>( <i>Aircraft Ops</i> ) | <ol style="list-style-type: none"> <li>1. All aircrews operating on the range are required to receive training regarding their responsibilities to comply with environmental laws and regulations. All new personnel receive this training upon arrival at the MAWTS-1 training center as part of their RSO&amp;I. This training specifically includes information regarding the importance of minimizing potential impacts to the Sonoran pronghorn. Training rosters are maintained by each unit's Operations department.</li> <li>2. Low-flying helicopters would continue to utilize established corridors designed to avoid or minimize effects to the Sonoran pronghorn to the maximum extent possible.</li> <li>3. Two monitors are required per tactical range to monitor for Sonoran pronghorn prior to air to ground delivery of any type of ordnance. Monitoring would include visual and telemetry surveillance from the ground, hillsides, and/or observation towers.</li> <li>4. No ordnance deliveries of any kind would occur within 1 km of a known Sonoran pronghorn location. Monitors would report locations to the Range Operations Coordination Center, who would then determine if any targets necessitate closure for the day and notify all users.</li> </ol> |
| Biological    | Sonoran Desert Tortoise                      | Prior to each training event, all exercise participants are instructed to avoid the desert tortoise if encountered during an exercise and to not disturb them in any form.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Biological    | Golden Eagle                                 | <p>In early 2020, the USAF and the Arizona Game and Fish Department (AZGFD) conducted occupancy surveys on Golden Eagle nests across the range; five active breeding areas were discovered on BMGR East (Shepherd, 2020). Based on this new finding, avoidance measures will be followed to prevent disturbances to the nests. Measures will include (1) seasonal restriction on human ground activity within 0.5 miles from active nests (1 Dec to 30 June) and (2) keeping all aircraft activity at least 2,000 ft from known nest locations (1 Dec to 30 June).</p> <p>No element of the Proposed Action occurs near 2020 nesting sites so avoidance measures are not required at this time. However, they will be required if new breeding areas are discovered near the APE.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Biological    | Invasive Plants                              | Exercise participants are instructed to ensure aircraft landing gear, ground vehicles, and footwear are free from dirt and debris prior to entering the range.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Cultural      | Site AZ Y:8:1 (ASM)                          | As this site is located within the APE and is eligible for the NRHP it will need to be permanently fenced and surrounded by Carsonite poles to prevent impacts to the area.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

Table 5-1: Avoidance, Minimization, and Mitigation Measures

| Resource Area     | Potential Impact | Avoidance, Minimization and/or Mitigation Measures                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-------------------|------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Health and Safety | Personnel Safety | <ol style="list-style-type: none"><li>1. Personnel must receive a range safety brief prior to entering the range. This brief identifies common hazards on the range such as dangerous wildlife, heat stress/heat stroke, and UXO awareness.</li><li>2. Small arms weapons are only discharged in distinct areas at specific targets.</li><li>3. Engineer's tape or chemlights are worn by observers and support personnel to ensure visibility to exercise participants.</li></ol> |

## 6. Persons Consulted

For organizations, tribes, and other entities consulted outside the DoD please see Appendix A.

### United States Marine Corps

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## 8. References

- 56 RMO. (2010). *Final Environmental Impact Statement for Proposed Barry M. Goldwater Range East Range Enhancements*. 56th Fighter Wing Range Management Office, Luke Air Force Base, Arizona.
- 56 RMO. (2012). *Environmental Assessment: Proposed Sahara Mustard Control on the Barry M. Goldwater Range - East*. 56th Fighter Wing Range Management Office, Luke Air Force Base, Arizona.
- 56 RMO. (2018). *Integrated Natural Resources Management Plan, Volume 1: Barry M. Goldwater Range*. 56th Fighter Wing Range Management Office, Luke Air Force Base, Arizona.
- 56 RMO. (2019). *TRI Information Report Summary for Luke AFB*.
- 56 RMO. (2020). *Integrated Cultural Resources Management Plan, Volume 1: Barry M. Goldwater Range*. 56th Fighter Wing Range Management Office, Luke Air Force Base, Arizona.
- Abbate, D. J., Scobie, E. H., Diamond, J. M., & Ingraldi, M. F. (2018). *Acuña cactus investigations on the Barry M. Goldwater Range East: Model Based Surveys in 2018*. Arizona Game and Fish Department Wildlife Contract Branch, Phoenix, Arizona.
- AESO. (2010). *Re: Reinitiation of Formal Section 7 Consultation on Military Training on the BMGR East, Maricopa, Pima, and Yuma Counties, AZ*. Arizona Ecological Services Field Office, United States Fish and Wildlife Service.
- AZGFD. (2011). *Echinomastus erectocentrus var. acunensis*. Phoenix, Arizona: Arizona Game and Fish Department.
- AZGFD. (2018). *Sonoran Desert Breeding Bird Monitoring 2012-2014 Summary Report*. Nongame and Endangered Wildlife Program, Arizona Game and Fish Department.
- AZGFD. (2020). *Heritage Data Management System [map]*. Retrieved from Arizona Game and Fish Department: <http://ert.azgfd.gov/content/map>
- Krausman, P. R., Harris, L. K., & Francine, J. (2001). *Noise Effects of Military Overflights on Sonoran Pronghorn*. Barry M. Goldwater Range, Luke Air Force Base, Arizona. U.S. Air Force Contract F41624-98-C-8020-P00003.
- OFR. (2020a). *Notice of Application for Withdrawal Extension; Notice of Application for Withdrawal Addition; Notice of Segregation; and, Opportunity for Public Meeting for the Barry M. Goldwater Range, Arizona*. Retrieved from Federal Register: The Daily Journal of the United States Government: <https://www.federalregister.gov/documents/2020/04/20/2020-08298/notice-of-application-for-withdrawal-extension-notice-of-application-for-withdrawal-addition-notice>
- OFR. (2020b). *Notice of Intent To Prepare a Legislative Environmental Impact Statement and Notice of Scoping Meetings for the Proposed Extension of the Military Land Withdrawal at Barry M. Goldwater Range, Arizona*. Retrieved from Federal Register: The Daily Journal of the United States Government: <https://www.federalregister.gov/documents/2020/03/18/2020-05576/notice-of-intent-to-prepare-a-legislative-environmental-impact-statement-and-notice-of-scoping>
- Shepherd, T. (2020, June). Wildlife Biologist, 56 RMO. (D. Taylor, Interviewer)

- USAF. (2020). *Final Environmental Assessment: Davis Monthan AFB Personnel Recovery Training Program*. Air Combat Command, Civil Engineer Division (ACC/A4C).
- USFWS. (2016). *Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Acuña Cactus and the Fickeisen Plains Cactus*. 81 Federal Register 55265.
- USFWS. (2020). *List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project*. Retrieved July 5, 2020, from U.S. Fish and Wildlife Service Information for Planning and Consultation (IPaC): <https://ecos.fws.gov/ipac/>
- YPG. (2017). *Environmental Assessment: Extended Range Cannon Artillery Project*. U.S. Army Garrison Yuma Proving Ground, Environmental Sciences Division, Yuma, AZ.



## APPENDIX A: COORDINATION AND CONSULTATION

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**APPENDIX A**  
**INTERAGENCY AND INTERGOVERNMENTAL COORDINATION**  
**FOR ENVIRONMENTAL PLANNING AND**  
**PUBLIC INVOLVEMENT MATERIALS**

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**Public Notice announcing public availability of the Draft EA, found in the legal section of the following papers:**

Ajo Copper News - November 10, 2020

Yuma Sun - November 08, 2020 & November 08, 2020

Arizona Daily Star - November 08, 2020 & November 08, 2020

Arizona Republic - November 08, 2020 & November 08, 2020

Gila Bend Sun - November 12, 2020

## PUBLIC NOTICE

### DRAFT ENVIRONMENTAL ASSESSMENT for Expanded WTI Ground Training Operations at Barry M. Goldwater Range East

The U.S. Marine Corps (USMC) Marine Aviation Weapons and Tactics Squadron One (MAWTS-1) announces the availability of and invites public comments on its Draft Environmental Assessment (EA) evaluating the proposed expansion of the ground-based training component associated with the Weapons and Tactics Instructor (WTI) course. The Proposed Action would increase the current allowance of ground-based personnel participating in biannual large-scale training events from 100 personnel to 500 personnel. The proposed expansion of the ground-based training component would utilize existing training sites within the Barry M. Goldwater Range East (BMGR East) which have historically been used as part of WTI training events.

MAWTS-1 invites public participation through this solicitation for comments on the Draft EA and unsigned Finding of No Significant Impact (FONSI). Comments are invited and will be accepted through **14 December 2020**. The Draft EA and FONSI are available online at <https://www.29palms.marines.mil> and at [https://www.luke.af.mil/Units/56th-Range-](https://www.luke.af.mil/Units/56th-Range-Management-Office/)

[Management-Office/](https://www.luke.af.mil/Units/56th-Range-Management-Office/) under Environmental Sciences Management.

Copies of the Draft EA and FONSI are available for review at the following locations:

Salazar-Ajo Library  
15 Plaza 179  
Ajo, AZ 85321

Gila Bend Branch Library  
202 N Euclid Ave  
Gila Bend, AZ 85337

Foothills Branch Library  
2951 S 21st Dr  
Yuma, AZ 85364

Joel D Valdez Library  
101 N Stone Ave  
Tucson, AZ 85701

Civic Center Library  
3839 N. Drinkwater Blvd.  
Scottsdale, AZ 85251

MAWTS-1 is aware of the potential impact of the ongoing coronavirus (COVID-19) pandemic on the usual methods of access to information and ability to communicate, such as the mass closure of local public libraries and challenges with the sufficiency of an increasingly-overburdened internet. MAWTS-1 seeks to implement appropriate additional measures to ensure that the public and all interested stakeholders have the opportunity to participate fully in this Environmental Assessment process. Accordingly, please do not hesitate to contact us directly at the email address provided below; we are available to discuss and help resolve issues involving access to the Draft EA and Proposed FONSI, or the ability to comment.

The Draft EA is provided for public comment in accordance with the National Environmental Policy Act (NEPA), the Presidents Council on Environmental Quality (CEQ) NEPA regulations (40 CFR 1500 -1508), Marine Corps Order 5090.2, and 32 CFR 989, Environmental Impact Analysis Process (EIAP). MAWTS-1 will consider all substantive comments, which include comments that challenge the environmental analysis, methodologies, or information in the Draft EA as being inaccurate or inadequate; identify impacts not analyzed, or mitigations not considered. Non-substantive comments are considered those that express a conclusion, an opinion, or a vote for or against the proposal or some aspect of it, state a political position, or otherwise state a personal preference.

#### PRIVACY ADVISORY NOTICE

Letters or other written comments provided may be published in the EA and made available to the public. Providing personal information is voluntary. Only the names of the individuals making comments and specific comments will be disclosed; personal home addresses and phone numbers will not be published in the EA.

The comment period is from **8 November 2020** through **14 December 2020**. All comments must be received by 14 December 2020. Written comments regarding the Draft EA and FONSI should be directed by mail to MAWTS-1 BMGR EA, 8461 W Farm Road, Suite 120 #244, Las Vegas, NV 89131, or via email to [MAWTS-1BMGREAH@hazair.com](mailto:MAWTS-1BMGREAH@hazair.com).  
Yuma Sun: November 8, 9, 2020 - 12846

## **Cooperating Agency Letters**



UNITED STATES MARINE CORPS  
MARINE AVIATION WEAPONS AND TACTICS SQUADRON ONE  
BOX 99200  
YUMA ARIZONA 85369-9200

IN REPLY REFER TO:  
5090  
CO  
21 Feb 19

From: Commanding Officer  
To: Charles Buchanan, Director, Range Management Office, 56 RMO  
Subj: COOPERATING AGENCY REQUEST, ENVIRONMENTAL ASSESSMENT (EA) FOR  
BATTALION-LEVEL TRAINING OPERATIONS AT THE BARRY M. GOLDWATER RANGE  
(BMGR) EAST, AZ

1. The United States Marine Corps, Marine Aviation Weapons and Tactics Squadron One (MAWTS-1) formally requests the participation and assistance of the United States Air Force 56th Range Management Office (56 RMO) in the preparation of an environmental assessment (EA) for battalion-level training operations at the Barry M. Goldwater Range (BMGR) East. This EA would be performed according to National Environmental Policy Act (NEPA) regulations outlined in 40 CFR 1500-1508, Marine Corps Order 5090.2A, and the USAF Environmental Impact Analysis Process (EIAP) (32 CFR 989).

2. MAWTS-1 utilizes BMGR-East for the final integrated exercise of the Weapons and Tactics Instructor (WTI) program held several times annually. This event combines a battalion sized air assault into multiple objective areas and is the capstone event of the WTI course. This simulation is currently restricted to a maximum participation of 100 ground-based personnel as stipulated in the BMGR-East Range Enhancements Environmental Impact Statement (EIS) conducted in 2010. We have determined that this limitation inherently reduces mission realism for course attendees. The Proposed Action, as described in the EA, would increase this training limit to 500 ground-based personnel in order to ensure a tactically accurate simulation.

2. With the exception of increasing ground support participation, the Proposed Action is not anticipated to change any other aspect of this training scenario. Operations would continue within previously disturbed areas of the range and can be expected to occur at the same frequency and duration. However, since it has been nearly ten years since the EIS was completed, and this training scenario was only a small portion of activities evaluated within the EIS, we have begun the NEPA planning process and invite the 56 RMO as a cooperating agency in this endeavor. This would ensure subject matter experts familiar with the BMGR are included in evaluating potential environmental impacts, and would result in a robust EA to support the decision-making process.

3. This participation arrangement is described by Council on Environmental Quality (CEQ) NEPA Regulations, 40 CFR Part 1501.6, *Cooperating Agencies*. As a cooperating agency, the USMC requests the 56 RMO support this EA by:

- a. Participating in the scoping process,
- b. Providing data necessary for the completion of the EA upon request, including other recent NEPA documentation, environmental surveys of the affected region, and contact information for other government agencies and

Subj: COOPERATING AGENCY REQUEST, ENVIRONMENTAL ASSESSMENT (EA) FOR  
BATTALION-LEVEL TRAINING OPERATIONS AT THE BARRY M. GOLDWATER RANGE  
(BMGR) EAST, AZ

Native American tribes affiliated with the region,

c. Making staff available for interdisciplinary review and comment of all documents generated in support of the EA, and ensure the EA meets the requirements of the USAF EIAP, and

d. Providing joint signature authority on the final decision document

4. I believe participation of the 56 RMO is necessary to ensure all potential impacts are appropriately evaluated and result in a thorough and complete EA. I request a written confirmation at your earliest convenience to formally establish the environmental planning partnership under NEPA.

5. Thank you for your assistance. Our POC is LtCol Timothy M. Miller, Operations officer, MAWTS-1, (928) 304-3403, timothy.m.miller1@usmc.mil and Maj Brian Green, Ground Combat Department Head, MAWTS-1, (928)269-0292, brian.d.green1@usmc.mil.



K. W. GALLMAN



## DEPARTMENT OF THE AIR FORCE AIR EDUCATION AND TRAINING COMMAND

HQ AETC/A4P  
266 F Street West  
Randolph AFB, Texas 78150-4440

Col Kelvin Gallman  
Marine Aviation Weapons and Tactics Squadron One  
Box 99200  
Yuma, Arizona 85396-9200

Dear Col Gallman

The Air Force accepts the United States Marine Corps' invitation, dated 21 Feb 2019, to be a cooperating agency in preparation of an Environmental Assessment (EA) to evaluate potential direct, indirect, and cumulative impacts to the natural and human environment associated with the Marine Aviation Weapons and Tactics Squadron One (MAWTS-1) battalion-level training operations associated with the Weapons and Tactics Instructor program on the Barry M. Goldwater Range (BMGR) East as prescribed in National Environmental Policy Act regulations, 40 CFR 1501.6, *Cooperating Agencies*. It is understood this cooperation is in support of an existing program with a need to assess an increase in the training limit of up to 500 ground-based personnel. The training limit of 100 ground-based personnel was previously analyzed in the BMGR East Range Enhancements Environmental Impact Statement (EIS) in 2010, for which the US Marine Corps was a cooperating agency.

It is necessary for the Air Force to participate in the preparation of this EA as the proposal is on the BMGR-East, which is administered by Luke Air Force Base. As the land managing agency, the Air Force will review and approve the document to support determinations it must make consistent with Air Force Environmental Impact Analysis Process (EIAP) (32 CFR Part 989). As a cooperating agency, the Air Force understands it will be expected to participate in various portions of EA development to the extent practicable:

- a. Participate in the scoping process as required;
- b. Provide data necessary for the completion of the EA, including other recent NEPA documentation, environmental surveys of the affected region, and contact information for other government agencies and Native American tribes affiliated with the region;
- c. Make staff available for interdisciplinary review and comment of all documents generated in support of the EA, and ensure the EA meets the requirements of the USAF EIAP; and
- d. Provide joint signature authority on the final decision document.

Please work directly with Mr. Chas Buchanan and his staff at the 56th Range Management Office. He can be reached at (623) 856-8520 or email at [charles.buchanan@us.af.mil](mailto:charles.buchanan@us.af.mil).

OLIVA.CYNTHIA  
A.HAWTHORN  
E.1121150774

Digitally signed by  
OLIVA.CYNTHIA.HAWTHORN  
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Date: 2019.05.16  
10:47:37 -05'00'

CYNTHIA OLIVA, GS-15  
Chief Resource Integration Division

cc:

AFLOA/JACE (AETC)



**National Historic Preservation Act Section 106 Consultation Letter**



**DEPARTMENT OF THE AIR FORCE  
56TH RANGE MANAGEMENT OFFICE  
LUKE AIR FORCE BASE, ARIZONA**

6 March 2020

Lisa McCarrick  
Chief, Environmental Sciences Management  
56th Range Management Office/ESM  
7101 Jerstad Lane, Bldg 500  
Luke AFB, AZ 85309-1647

Ms. Kathryn Leonard  
State Historic Preservation Officer  
Arizona State Historic Preservation Office  
1100 W. Washington Street  
Phoenix, AZ 85007

RE: MAWTS-1 Project, 56 RMO-SHPO Consultation

Dear Ms. Leonard:

The United States Marine Corps is proposing to allow up to 500 personnel to participate in ground-level training operations up to six times per year at four locations on the Barry M. Goldwater Range (BMGR) East. The proposed project would allow training to be conducted at full battalion level, thus enhancing the realism of training scenarios and ensuring students receive integrated combat training that fully prepares them and enhances combat readiness for deployment to active combat areas. The 56th Range Management Office (56 RMO) at Luke Air Force Base, which manages the BMGR East, is assisting the Marine Corps effort by consulting on their behalf for the purpose of Section 106 compliance.

An earlier smaller version of the current proposal limited training to 100 personnel no more than three times per year. A 2010 Environmental Impact Statement for "Proposed Barry M. Goldwater East Range Enhancements" that described and analyzed the original project was consulted on with your office and concluded with a determination of "no historic properties will be affected," [SHPO-2010-0012(93946), Howard (SHPO) to Heathington (BMGR East), 9 August 2011]. The proposed project mirrors the scope and Area of Potential Effect (APE) of the original project, and would generally occur within the tactical ranges in areas of existing disturbance. The changes in the scope of the original project solely involve increasing the number of personnel and frequency of training activities within the same footprint as the earlier project.

The scope of the 2010 project described the use of groups of personnel ranging in size from small special tactics or combat search and rescue teams up to a total of 100 troops at any one time. Training could involve clandestine insertions/extractions utilizing helicopters, parachutes, or vehicles driven on existing roads. No regular or permanent drop zones would be established. Vehicles would be parked within 50' of existing roads. Other activities could involve cross-country

navigation, reconnaissance patrols, and shooting at targets while traveling on foot. Targets for these on-the-ground activities may be made of wood, metal, stucco, mud, sea-land containers, concrete, or other materials. No native plants or other natural features would be utilized as targets. Targets would generally be established within tactical ranges along existing roads. Teams may remain in these areas for several days, camping at night. Troops would be self-contained, they would carry out all trash (including parachutes), and they would bury human waste. Actual ground disturbance is and would be minimal.

An overview of the four APE components is shown in Figs. 1 and 2. The four individual APE locations are found in:

|                          |                                                     |          |
|--------------------------|-----------------------------------------------------|----------|
| North TAC AUX Airfield   | T9S, R8W Portions of S9, 10, 15, 16, 20             | (Fig. 3) |
| North TAC Main Airfield  | T9S, R9W, Portions of S16, 17, 20, 21, 22           | (Fig. 4) |
| South TAC Main Airfield: | T10S, R10W, portions of S14, 13, 14, 23, 24, 25, 26 | (Fig. 5) |
|                          | T10S, R9W, portions of S7, 18                       |          |
| East TAC Main Airfield:  | T9S , R4W, portions of S1, 2, 12                    | (Fig. 6) |
|                          | T9S, 3W, portion of S6                              |          |

The entirety of the four project areas has been previously surveyed for cultural resources, and the results reported in the following, which should be on file in your office:

Doolittle, C. J., et al.

2000 *STAC 2000: Intensive Archaeological Survey of 5,575 Acres on the South Tactical Range, Barry M. Goldwater Range East, Arizona*. Barry M. Goldwater Range East Cultural Resource Management Program Cultural Resource Studies in the Western Papagueria 6. Statistical Research, Inc.

Huckell, B. B., et al.

1979 *The Coronet Real Project: Archaeological Investigations on the Luke Range, Southwestern Arizona*. Arizona State Museum Archaeological Series No. 129. Arizona State Museum.

Roberts, H., R. V. N. Ahlstrom, and D. B. Tucker, eds.

2000 *East TAC: An Archaeological Survey of 7,792 Acres on the Barry M. Goldwater Range in Southwestern Arizona*. SWCA Cultural Resource Report No. 99-7. SWCA Environmental Consultants, Inc.

Tagg, M. D., and M. H. Heilen

2008 *STAC 2003: Intensive Archaeological Survey of 4,945 Acres on the South Tactical Range, Barry M. Goldwater Range East, Arizona*. Barry M. Goldwater Range East Cultural Resource Management Program Cultural Resource Studies in Western Papagueria 16. Statistical Research, Inc.

Tucker, D. B., ed.

2000 *Footsteps on the Bajada: An Archaeological Survey of 15,813 Acres on the North Tactical Range of the Barry M. Goldwater 56th RMO Range in Southwestern Arizona*. SWCA Cultural Resource Report No. 99-140. SWCA Environmental Consultants.

The 56 RMO believes that the above-cited works adequately meet current professional standards. A recent review of these reports indicated that there are eight cultural resources/historic properties located within the four project areas (Figs. 1-6):

At the North TAC Aux Airfield, site [AZ Y:8:93(ASM) aka. (BMGR-98-X-004)] (Tucker 2000) is described as a historic O'odham artifact scatter with four thermal features. Artifacts consist of four flaked stone artifacts and two ceramic sherds. Three of the four features were excavated in whole or in part and little information came from these excavations. The consultant recommended the site as eligible to the National Register of Historic Places (NRHP) under Criterion D. Consultation between your office and ours determined this site to be eligible for the NRHP under Criterion D [SHPO-2018-1890(145634), Davis (SHPO) to Buchanan (56 RMO), 11 December 2018]. The 56 RMO has recently reexamined the site description and results of data recovery at the site and as a result disagrees with the earlier eligibility determination. The 56 RMO now believes the site to be not eligible for the NRHP due to the substantial lack of information contained by the site, and also believes that what little data potential the site may have had has been exhausted through extensive data recovery. A recent phone conversation with the Tribal Historic Preservation Officer of the Tohono O'odham Nation, Mr. Peter Steere, indicated that the Tohono O'odham Nation concurs with this reconsideration of eligibility [Shumaker (56 RMO) to Steere (Tohono O'odham Nation), personal communication, 25 February 2020].

Also at the North TAC Aux Airfield, site [AZ Y:8:94(ASM) a.k.a. (BMGR-98-X-21)] (Tucker 2000) is described as a Native American thermal feature with one flaked stone artifact. The site and feature were both significantly disturbed by modern two-tracks, and the consultant noted that damage to the site was "heavy." Half of the feature was excavated. The consultant recommended the site as eligible to the NRHP under Criterion D. While earlier consultation between your office and the 56 RMO determined the site eligible under Criterion D [SHPO-2018-1890(145634), Davis (SHPO) to Buchanan (56 RMO) 11 December 2018], our office has reconsidered this determination and believes the site to be not eligible to the NRHP because of poor site condition, because little data came from the excavation, and also because any data potential the site might have had has been thoroughly exhausted through data recovery.

At the North TAC Main Airfield, site [AZ Y:8:1(ASM) a.k.a. (BMGR-78-A)] (Huckell 1979)] is described as two spatially and temporally distinct late prehistoric components. Component 1 consisted of a few probable Lower Colorado Buff Ware sherds, and a "sizeable number" of rhyolite flakes. Component 2 consisted of two rock cluster hearths and a few sherds that included one Sonora Brown Ware (Tanque Verde Red-on-Brown), a Tonto Polychrome sherd, and some plain and redware types of possible Patayan origin. Additionally there were fragments of what appeared to be heavily calcined human bone. The site was subsequently excavated. Component 1 was found to consist of three separate rock cluster hearths in, one of which consisted of three small pits close to one another and filled with finely shattered burned rock. A number of stone artifacts of various material types were recovered, consisting of a projectile point, unifacially retouched tools, utilized

flakes a hammerstone, cores, and debitage. Various ceramic sherds from at least three vessels were also recovered, as well as a spindle whorl. Component 2 consisted of three rock cluster hearths, a primary cremation of a 40-ish male, and the remains of four ceramic vessels including a Tanque Verde Red-on-Brown jar, part of a Tonto Polychrome Bowl, part of a Colorado Beige jar, and part of a Colorado Red bowl. The Tanque Verde Red-on-Brown jar and a bone awl were associated with the cremation. Consultation with your office [SHPO-2018-1890(145634), Davis (SHPO) to Buchanan (56 RMO), 11 December 2018] determined the site to be eligible under Criterion D.

Also at the North TAC Main Airfield, site [AZ Y:8:2(ASM) a.k.a. (BMGR-78-A)] is described as consisting of four discrete concentrations of fire-cracked cobbles and a sparse artifact scatter approximately 45 meters southeast of the four features. One of the rock clusters was excavated completely, and the other three were partially excavated. The artifact scatter was mapped and collected. There had been some recent damage to the site consisting of munitions debris and abundant vehicle tracks through the site (Huckell 1979). The excavations revealed little data. A single grinding slab fragment was recovered in one of the fire-cracked cobble features. A date of roughly 1775 +/- 190 B.P. came from charcoal recovered from another of the fire-cracked cobble features. The artifact scatter consisted of a single possibly Archaic (Amargosa II) projectile point, a utilized flake, three cores, 21 unmodified flakes, and a single grinding slab fragment that likely was related to the slab fragment found in one of the fire-cracked cobble features. No faunal or floral information was recovered. Huckell interpreted the site as having “an indefinite temporal or cultural status.” Consultation with your office [SHPO-2018-1890(145634), Davis (SHPO) to Buchanan (56 RMO), 11 December 2018] determined the site to be not eligible for the NRHP.

Also at the North TAC Main Airfield, site [AZ Y:8:20(ASM) a.k.a. (BMGR-98-X-33)] is described as a resource processing site consisting of three well-defined Native American prehistoric or Historic period thermal features, three fire-cracked rock scatters located in rills, and a single plain ware sherd. A two-track crosses the site. The consultant recommended the site as being eligible to the NRHP under Criterion D. (Tucker 2000). Based upon the consultant’s description that there is sheet wash across the site and as a result they did not designate the three rock scatters as features, and that they believe the sherd had likely washed in from elsewhere, the 56 RMO believes this site has no significance and little integrity, so is not eligible for the NRHP.

Also at the North TAC Main Airfield, site [AZ Y:8:38(ASM) a.k.a. (BMGR-98-X-029)] is described as a Native American lithic scatter with thermal features. The consultant reports there are two thermal features, six chipped stone artifacts of three material types, one piece of burned faunal bone, and a slab metate. While the elongate site is roughly 150 meters by 28 meters, one of the features is at the far end of the site while the other is at the opposite end. The very sparse artifact scatter is roughly in the middle of the site. There are a number of two-tracks crossing through the site. The consultant recommends the site as being eligible for the NRHP under Criterion D. The 56 RMO believes that due to the very sparse and widely scattered nature of the site, it has little data potential and is therefore not eligible for the NRHP.

At the South TAC Main Airfield, site [AZ Y:8:226(ASM) a.k.a. (BMGR-00-D-01)] (Doolittle, et al. 2000) is described as a 10 X 20 meter artifact scatter with a single thermal feature. Artifacts consist of two pieces of flaked stone and a plain ware ceramic sherd. The feature was excavated by Statistical Research and has been interpreted as an in situ late prehistoric roasting pit. The

consultant recommended the site as not eligible for the NRHP. Consultation with your office [SHPO-2019-2461(151737), Davis (SHPO) to McCarrick (56 RMO), 30 December 2019] determined the site to be ineligible.

Also at the South TAC Main Airfield, site [(no ASM #) (BMGR-03-F-15)] (Tagg and Heilen 2003) is described as a collection of four probably prehistoric thermal features with no associated artifacts. Site condition is described as being very poor, with two-tracks damaging some 90% of the site. The consultant reported the features as being surficial, so they have been mostly destroyed. The consultant recommended the site as not eligible to the NRHP, and the 56 RMO concurs.

To summarize the 56 RMO determinations of eligibility:

**North TAC Aux Airfield (Fig. 4):**

|                                       |                                  |
|---------------------------------------|----------------------------------|
| AZ Y:8:93(ASM) a.k.a. (BMGR-98-X-004) | Not eligible, newly redetermined |
| AZ Y:8:94(ASM) a.k.a. (BMGR-98-X-21)  | Not eligible, newly redetermined |

**North TAC Main Airfield (Fig. 5):**

|                                       |                                     |
|---------------------------------------|-------------------------------------|
| AZ Y:8:1(ASM) a.k.a. (BMGR-78-A)      | Eligible D, previously determined   |
| AZ Y:8:2(ASM) a.k.a. (BMGR-78-A)      | Not-eligible, previously determined |
| AZ Y:8:20(ASM) a.k.a. (BMGR-98-X-33)  | Not eligible, newly determined      |
| AZ Y:8:38(ASM) a.k.a. (BMGR-98-X-029) | Not eligible, newly determined      |

**South TAC Main Airfield (Fig. 2)**

|                                       |                                     |
|---------------------------------------|-------------------------------------|
| AZ Y:8:226(ASM) a.k.a. (BMGR-00-D-01) | Not eligible, previously determined |
| (No ASM #) a.k.a. (BMGR-03-F-15)      | Not eligible, newly determined      |

**East TAC Main Airfield (Fig. 3):**

|          |     |
|----------|-----|
| No Sites | N/A |
|----------|-----|

The 56 RMO is consulting concurrently with the Native American tribes that have indicated a relationship with the BMGR East per the Arizona SHPO Government to Government Consultation Toolkit. We will notify your office of the results of these consultations should any concerns or disputes arise.

Pending the results of consultation with the various parties, the 56 RMO finds that this project will have No Adverse Effect upon historic properties. While the earlier project found that “no historic properties will be affected” [SHPO-2010-0012(93946), Howard (SHPO) to Heathington (BMGR East), 9 August 2011], we believe that the current review and finding of effect is more thorough and accurate.

Please review the contents of this letter, the attached maps, and the proposed determinations/redeterminations of eligibility and finding of effect for this project. If you concur with our description of the APE, our efforts to identify historic properties, the adequacy recommendations regarding the original survey reports, our determinations/redeterminations of eligibility, and our finding of effect, please respond at your soonest convenience. If you have any

further technical questions or issues, please contact Jon Shumaker at [jon.shumaker@us.af.mil](mailto:jon.shumaker@us.af.mil) or 623-856-7423.

As always, the 56 RMO appreciates this opportunity to consult with your office.

Sincerely,

A handwritten signature in black ink, appearing to read 'Lisa McCarrick', with a stylized flourish at the end.

Lisa McCarrick  
Chief, Environmental Sciences Management

Encl.: Maps

**NHPA Consultation Concurrence Letter from AZ SHPO**





**DEPARTMENT OF THE AIR FORCE  
56TH RANGE MANAGEMENT OFFICE  
LUKE AIR FORCE BASE, ARIZONA**

SHPO-2020-0345(152999)

6 March 2020

Received 3/6/2020

Lisa McCarrick  
Chief, Environmental Sciences Management  
56th Range Management Office/ESM  
7101 Jerstad Lane, Bldg 500  
Luke AFB, AZ 85309-1647

Ms. Kathryn Leonard  
State Historic Preservation Officer  
Arizona State Historic Preservation Office  
1100 W. Washington Street  
Phoenix, AZ 85007

RE: MAWTS-1 Project, 56 RMO-SHPO Consultation

Dear Ms. Leonard:

The United States Marine Corps is proposing to allow up to 500 personnel to participate in ground-level training operations up to six times per year at four locations on the Barry M. Goldwater Range (BMGR) East. The proposed project would allow training to be conducted at full battalion level, thus enhancing the realism of training scenarios and ensuring students receive integrated combat training that fully prepares them and enhances combat readiness for deployment to active combat areas. The 56th Range Management Office (56 RMO) at Luke Air Force Base, which manages the BMGR East, is assisting the Marine Corps effort by consulting on their behalf for the purpose of Section 106 compliance.

An earlier smaller version of the current proposal limited training to 100 personnel no more than three times per year. A 2010 Environmental Impact Statement for "Proposed Barry M. Goldwater East Range Enhancements" that described and analyzed the original project was consulted on with your office and concluded with a determination of "no historic properties will be affected," [SHPO-2010-0012(93946), Howard (SHPO) to Heathington (BMGR East), 9 August 2011]. The proposed project mirrors the scope and Area of Potential Effect (APE) of the original project, and would generally occur within the tactical ranges in areas of existing disturbance. The changes in the scope of the original project solely involve increasing the number of personnel and frequency of training activities within the same footprint as the earlier project.

The scope of the 2010 project described the use of groups of personnel ranging in size from small special tactics or combat search and rescue teams up to a total of 100 troops at any one time. Training could involve clandestine insertions/extractions utilizing helicopters, parachutes, or vehicles driven on existing roads. No regular or permanent drop zones would be established. Vehicles would be parked within 50' of existing roads. Other activities could involve cross-country

navigation, reconnaissance patrols, and shooting at targets while traveling on foot. Targets for these on-the-ground activities may be made of wood, metal, stucco, mud, sea-land containers, concrete, or other materials. No native plants or other natural features would be utilized as targets. Targets would generally be established within tactical ranges along existing roads. Teams may remain in these areas for several days, camping at night. Troops would be self-contained, they would carry out all trash (including parachutes), and they would bury human waste. Actual ground disturbance is and would be minimal.

An overview of the four APE components is shown in Figs. 1 and 2. The four individual APE locations are found in:

|                          |                                                     |          |
|--------------------------|-----------------------------------------------------|----------|
| North TAC AUX Airfield   | T9S, R8W Portions of S9, 10, 15, 16, 20             | (Fig. 3) |
| North TAC Main Airfield  | T9S, R9W, Portions of S16, 17, 20, 21, 22           | (Fig. 4) |
| South TAC Main Airfield: | T10S, R10W, portions of S14, 13, 14, 23, 24, 25, 26 | (Fig. 5) |
|                          | T10S, R9W, portions of S7, 18                       |          |
| East TAC Main Airfield:  | T9S, R4W, portions of S1, 2, 12                     | (Fig. 6) |
|                          | T9S, 3W, portion of S6                              |          |

The entirety of the four project areas has been previously surveyed for cultural resources, and the results reported in the following, which should be on file in your office:

Doolittle, C. J., et al.

2000 *STAC 2000: Intensive Archaeological Survey of 5,575 Acres on the South Tactical Range, Barry M. Goldwater Range East, Arizona*. Barry M. Goldwater Range East Cultural Resource Management Program Cultural Resource Studies in the Western Papagueria 6. Statistical Research, Inc.

Huckell, B. B., et al.

1979 *The Coronet Real Project: Archaeological Investigations on the Luke Range, Southwestern Arizona*. Arizona State Museum Archaeological Series No. 129. Arizona State Museum.

Roberts, H., R. V. N. Ahlstrom, and D. B. Tucker, eds.

2000 *East TAC: An Archaeological Survey of 7,792 Acres on the Barry M. Goldwater Range in Southwestern Arizona*. SWCA Cultural Resource Report No. 99-7. SWCA Environmental Consultants, Inc.

Tagg, M. D., and M. H. Heilen

2008 *STAC 2003: Intensive Archaeological Survey of 4,945 Acres on the South Tactical Range, Barry M. Goldwater Range East, Arizona*. Barry M. Goldwater Range East Cultural Resource Management Program Cultural Resource Studies in Western Papagueria 16. Statistical Research, Inc.

Tucker, D. B., ed.

2000 *Footsteps on the Bajada: An Archaeological Survey of 15,813 Acres on the North Tactical Range of the Barry M. Goldwater 56th RMO Range in Southwestern Arizona*. SWCA Cultural Resource Report No. 99-140. SWCA Environmental Consultants.

The 56 RMO believes that the above-cited works adequately meet current professional standards. A recent review of these reports indicated that there are eight cultural resources/historic properties located within the four project areas (Figs. 1-6):

At the North TAC Aux Airfield, site [AZ Y:8:93(ASM) aka. (BMGR-98-X-004)] (Tucker 2000) is described as a historic O’odham artifact scatter with four thermal features. Artifacts consist of four flaked stone artifacts and two ceramic sherds. Three of the four features were excavated in whole or in part and little information came from these excavations. The consultant recommended the site as eligible to the National Register of Historic Places (NRHP) under Criterion D. Consultation between your office and ours determined this site to be eligible for the NRHP under Criterion D [SHPO-2018-1890(145634), Davis (SHPO) to Buchanan (56 RMO), 11 December 2018]. The 56 RMO has recently reexamined the site description and results of data recovery at the site and as a result disagrees with the earlier eligibility determination. The 56 RMO now believes the site to be not eligible for the NRHP due to the substantial lack of information contained by the site, and also believes that what little data potential the site may have had has been exhausted through extensive data recovery. A recent phone conversation with the Tribal Historic Preservation Officer of the Tohono O’odham Nation, Mr. Peter Steere, indicated that the Tohono O’odham Nation concurs with this reconsideration of eligibility [Shumaker (56 RMO) to Steere (Tohono O’odham Nation), personal communication, 25 February 2020].

Also at the North TAC Aux Airfield, site [AZ Y:8:94(ASM) a.k.a. (BMGR-98-X-21)] (Tucker 2000) is described as a Native American thermal feature with one flaked stone artifact. The site and feature were both significantly disturbed by modern two-tracks, and the consultant noted that damage to the site was “heavy.” Half of the feature was excavated. The consultant recommended the site as eligible to the NRHP under Criterion D. While earlier consultation between your office and the 56 RMO determined the site eligible under Criterion D [SHPO-2018-1890(145634), Davis (SHPO) to Buchanan (56 RMO) 11 December 2018], our office has reconsidered this determination and believes the site to be not eligible to the NRHP because of poor site condition, because little data came from the excavation, and also because any data potential the site might have had has been thoroughly exhausted through data recovery.

At the North TAC Main Airfield, site [AZ Y:8:1(ASM) a.k.a. (BMGR-78-A)] (Huckell 1979)] is described as two spatially and temporally distinct late prehistoric components. Component 1 consisted of a few probable Lower Colorado Buff Ware sherds, and a “sizeable number” of rhyolite flakes. Component 2 consisted of two rock cluster hearths and a few sherds that included one Sonora Brown Ware (Tanque Verde Red-on-Brown), a Tonto Polychrome sherd, and some plain and redware types of possible Patayan origin. Additionally there were fragments of what appeared to be heavily calcined human bone. The site was subsequently excavated. Component 1 was found to consist of three separate rock cluster hearths in, one of which consisted of three small pits close to one another and filled with finely shattered burned rock. A number of stone artifacts of various material types were recovered, consisting of a projectile point, unifacially retouched tools, utilized

flakes a hammerstone, cores, and debitage. Various ceramic sherds from at least three vessels were also recovered, as well as a spindle whorl. Component 2 consisted of three rock cluster hearths, a primary cremation of a 40-ish male, and the remains of four ceramic vessels including a Tanque Verde Red-on-Brown jar, part of a Tonto Polychrome Bowl, part of a Colorado Beige jar, and part of a Colorado Red bowl. The Tanque Verde Red-on-Brown jar and a bone awl were associated with the cremation. Consultation with your office [SHPO-2018-1890(145634), Davis (SHPO) to Buchanan (56 RMO), 11 December 2018] determined the site to be eligible under Criterion D.

Also at the North TAC Main Airfield, site [AZ Y:8:2(ASM) a.k.a. (BMGR-78-A)] is described as consisting of four discrete concentrations of fire-cracked cobbles and a sparse artifact scatter approximately 45 meters southeast of the four features. One of the rock clusters was excavated completely, and the other three were partially excavated. The artifact scatter was mapped and collected. There had been some recent damage to the site consisting of munitions debris and abundant vehicle tracks through the site (Huckell 1979). The excavations revealed little data. A single grinding slab fragment was recovered in one of the fire-cracked cobble features. A date of roughly 1775 +/- 190 B.P. came from charcoal recovered from another of the fire-cracked cobble features. The artifact scatter consisted of a single possibly Archaic (Amargosa II) projectile point, a utilized flake, three cores, 21 unmodified flakes, and a single grinding slab fragment that likely was related to the slab fragment found in one of the fire-cracked cobble features. No faunal or floral information was recovered. Huckell interpreted the site as having “an indefinite temporal or cultural status.” Consultation with your office [SHPO-2018-1890(145634), Davis (SHPO) to Buchanan (56 RMO), 11 December 2018] determined the site to be not eligible for the NRHP.

Also at the North TAC Main Airfield, site [AZ Y:8:20(ASM) a.k.a. (BMGR-98-X-33)] is described as a resource processing site consisting of three well-defined Native American prehistoric or Historic period thermal features, three fire-cracked rock scatters located in rills, and a single plain ware sherd. A two-track crosses the site. The consultant recommended the site as being eligible to the NRHP under Criterion D. (Tucker 2000). Based upon the consultant’s description that there is sheet wash across the site and as a result they did not designate the three rock scatters as features, and that they believe the sherd had likely washed in from elsewhere, the 56 RMO believes this site has no significance and little integrity, so is not eligible for the NRHP.

Also at the North TAC Main Airfield, site [AZ Y:8:38(ASM) a.k.a. (BMGR-98-X-029)] is described as a Native American lithic scatter with thermal features. The consultant reports there are two thermal features, six chipped stone artifacts of three material types, one piece of burned faunal bone, and a slab metate. While the elongate site is roughly 150 meters by 28 meters, one of the features is at the far end of the site while the other is at the opposite end. The very sparse artifact scatter is roughly in the middle of the site. There are a number of two-tracks crossing through the site. The consultant recommends the site as being eligible for the NRHP under Criterion D. The 56 RMO believes that due to the very sparse and widely scattered nature of the site, it has little data potential and is therefore not eligible for the NRHP.

At the South TAC Main Airfield, site [AZ Y:8:226(ASM) a.k.a. (BMGR-00-D-01)] (Doolittle, et al. 2000) is described as a 10 X 20 meter artifact scatter with a single thermal feature. Artifacts consist of two pieces of flaked stone and a plain ware ceramic sherd. The feature was excavated by Statistical Research and has been interpreted as an in situ late prehistoric roasting pit. The

consultant recommended the site as not eligible for the NRHP. Consultation with your office [SHPO-2019-2461(151737), Davis (SHPO) to McCarrick (56 RMO), 30 December 2019] determined the site to be ineligible.

Also at the South TAC Main Airfield, site [(no ASM #) (BMGR-03-F-15)] (Tagg and Heilen 2003) is described as a collection of four probably prehistoric thermal features with no associated artifacts. Site condition is described as being very poor, with two-tracks damaging some 90% of the site. The consultant reported the features as being surficial, so they have been mostly destroyed. The consultant recommended the site as not eligible to the NRHP, and the 56 RMO concurs.

To summarize the 56 RMO determinations of eligibility:

**North TAC Aux Airfield (Fig. 4):**

|                                       |                                  |        |
|---------------------------------------|----------------------------------|--------|
| AZ Y:8:93(ASM) a.k.a. (BMGR-98-X-004) | Not eligible, newly redetermined | concur |
| AZ Y:8:94(ASM) a.k.a. (BMGR-98-X-21)  | Not eligible, newly redetermined | concur |

**North TAC Main Airfield (Fig. 5):**

|                                       |                                     |            |
|---------------------------------------|-------------------------------------|------------|
| AZ Y:8:1(ASM) a.k.a. (BMGR-78-A)      | Eligible D, previously determined   | 12/11/2018 |
| AZ Y:8:2(ASM) a.k.a. (BMGR-78-A)      | Not-eligible, previously determined | 12/11/2018 |
| AZ Y:8:20(ASM) a.k.a. (BMGR-98-X-33)  | Not eligible, newly determined      | concur     |
| AZ Y:8:38(ASM) a.k.a. (BMGR-98-X-029) | Not eligible, newly determined      | concur     |

**South TAC Main Airfield (Fig. 2)**

|                                       |                                     |            |
|---------------------------------------|-------------------------------------|------------|
| AZ Y:8:226(ASM) a.k.a. (BMGR-00-D-01) | Not eligible, previously determined | 12/30/2019 |
| (No ASM #) a.k.a. (BMGR-03-F-15)      | Not eligible, newly determined      | concur     |

**East TAC Main Airfield (Fig. 3):**

|          |     |
|----------|-----|
| No Sites | N/A |
|----------|-----|

The 56 RMO is consulting concurrently with the Native American tribes that have indicated a relationship with the BMGR East per the Arizona SHPO Government to Government Consultation Toolkit. We will notify your office of the results of these consultations should any concerns or disputes arise.

Pending the results of consultation with the various parties, the 56 RMO finds that this project will have No Adverse Effect upon historic properties. While the earlier project found that “no historic properties will be affected” [SHPO-2010-0012(93946), Howard (SHPO) to Heathington (BMGR East), 9 August 2011], we believe that the current review and finding of effect is more thorough and accurate.

Please review the contents of this letter, the attached maps, and the proposed determinations/redeterminations of eligibility and finding of effect for this project. If you concur with our description of the APE, our efforts to identify historic properties, the adequacy recommendations regarding the original survey reports, our determinations/redeterminations of eligibility, and our finding of effect, please respond at your soonest convenience. If you have any

further technical questions or issues, please contact Jon Shumaker at [jon.shumaker@us.af.mil](mailto:jon.shumaker@us.af.mil) or 623-856-7423.

As always, the 56 RMO appreciates this opportunity to consult with your office.

Sincerely,



Lisa McCarrick  
Chief, Environmental Sciences Management

Encl.: Maps

NO ADVERSE EFFECT



4/3/2020

State Historic Preservation Office

We concur with the new National Register of Historic Places eligibility determinations and re-determinations.

**United States Fish & Wildlife Section 7 Consultation Letter**



**DEPARTMENT OF THE AIR FORCE  
AIR EDUCATION AND TRAINING COMMAND**

8 September 2020

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References: Biological Opinion 22410-1996-F-0094-R003, Reinitiation of Formal Section 7 Consultation on Military Training on the Barry M. Goldwater Range East, 4 May 2010; Biological Assessment for Ongoing Operations and Proposed Enhancements of the Barry M. Goldwater Range East, December 2009

Dear Ms. Fernandez

The United States Air Force (USAF), Luke Air Force Base, 56th Range Management Office (56 RMO) requests reinitiation of consultation with the U.S. Fish and Wildlife Service (USFWS) under Section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq) (ESA), as well as a compatibility determination. This request addresses potential effects of ongoing and proposed actions to the Acuña cactus (*Echinomastus erectocentrus* var. *acunensis*) and Sonoran pronghorn (*Antilocapra americana sonoriensis*) at the Barry M. Goldwater Range (BMGR) East. This request addresses both ongoing USAF operations at BMGR East as well as a proposed expansion of ground training operations at BMGR East by the U.S. Marine Corps (USMC) Marine Aviation Weapons and Tactics Squadron One (MAWTS-1) Weapons and Tactics Instructor (WTI) course, which is currently being analyzed under the National Environmental Policy Act of 1969, as amended (41 U.S.C. 4321 et seq.).

The 56 RMO has determined that these ongoing and proposed actions at BMGR East *may affect, but are not likely to adversely affect* the Acuña cactus and would have *no effect above and beyond what was previously analyzed* in the 2010 BO for Sonoran pronghorn.

As provided in 50 CFR 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently



modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation. As such, the 56 RMO has determined that the ongoing military training at BMGR East and proposed expansion of ground-based personnel in support of MAWTS-1 WTI training events *may affect, but are not likely to adversely affect* the Acuña cactus and *would have no effect above and beyond what was previously analyzed* in the 2010 BO for Sonoran pronghorn and we request your concurrence with these determinations.

## **Project Description**

### **Ongoing Operations**

The description of ongoing military operations at BMGR East found within the USAF 2009 Biological Assessment and USFWS 2010 Biological Opinion is incorporated by reference.

### **MAWTS-1 Proposed Expansion**

The USMC MAWTS-1 is preparing an Environmental Assessment (EA) to evaluate expanded ground training exercises at BMGR East. Ongoing WTI training is located in BMGR East, at existing airfields located in North, South, and East Tactical Ranges (NTAC, STAC, and ETAC). The purpose of the Proposed Action is to allow up to 500 ground-based personnel to participate in WTI course training events two times per year. This training takes place up to eight days per year, including overnight operations in some instances, and may require up to 500 personnel at one site or WTI spread across four distinct sites during the course of the training. Current training exercises overseen by MAWTS-1 limit ground components to a maximum of 100 personnel, which detracts from both aviation training and that of supporting ground units. Personnel currently simulate the actions of a full battalion during exercises, and additionally miss out on the lessons that come from planning and executing the insertion and extraction of a large force in a complex tactical environment.

Currently, MAWTS is utilizing only 6 days per year for the ground-based exercises. Under the proposed action, they would request up to 8 days per year (1 extra day for both fall and spring WTI events). Two overnights at NTAC (Friday evening to Saturday late afternoon) per year (1 spring, 1 fall) is already part of the WTI curriculum, and would continue under the proposed action. According to MAWTS, 500 personnel could be located in one single training area up to 2 days per year (1 spring, 1 fall), however based on USMC's current training exercise construct, it would be rare and infrequent. If scheduled, NTAC and STAC would be the primary locations as the footprint for these areas are larger than ETAC and East Pass. The inclusion of this expanded training event in the WTI exercise would be determined months in advance, with flexibility in location.

The current training limits were established in the 2010 Final Environmental Impact Statement (EIS) for Proposed BMGR East Range Enhancements prepared by the 56 RMO. In the 2013 Record of Decision for this EIS, it was found that training simulations including a ground component of up to 100 Marines and held no more than three times per year would result in no significant impacts to any environmental resources. The EA for the Proposed Action will re-

evaluate the environmental impacts of large-scale WTI training exercises scaled up to 500 ground-based personnel. Additionally, the large-scale ground components of these exercises will be limited in scope to four distinct areas within BMGR East, all located around existing airfields in NTAC, STAC, and ETAC ranges. These four areas have historically been utilized to support WTI events. See Figures 1 and 2 for the boundaries used for current on-the-ground training operations at each airfield. These boundaries will remain unchanged under the Proposed Action, and no activities exceeding 10 personnel would take place outside of these boundaries. Currently there are two major training exercises that involve airfield assaults and these are the ones with large ground elements. Both of the major training exercises occur in the Spring and Fall WTI events. Historically, these training events occur one-two days in late April (Spring) and late October (Fall) and take place on the NTAC and STAC main airfields. All training boundaries and training exercise dates will remain unchanged under the proposed action.

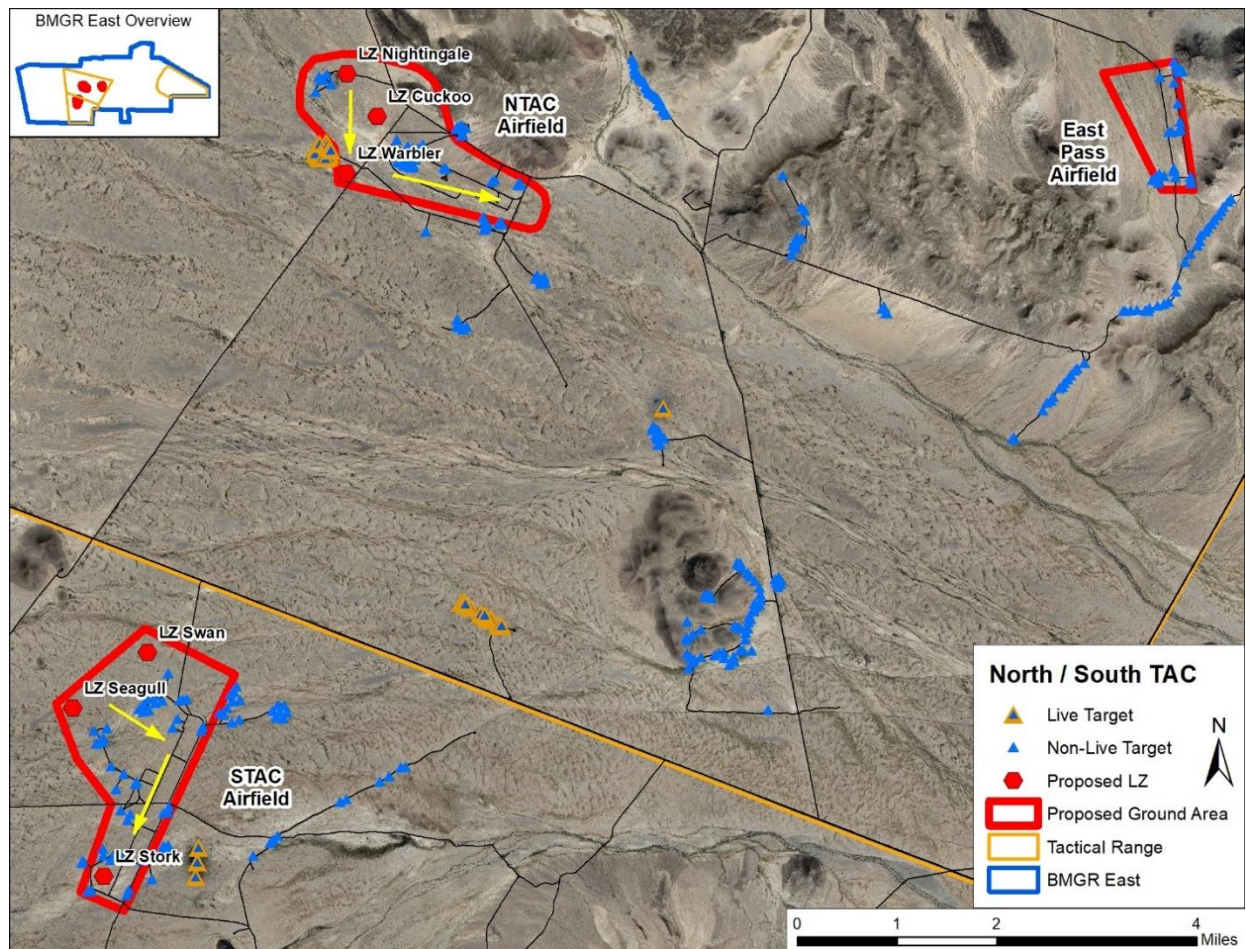


Figure 1: Boundaries of the Proposed Action in BMGR East, NTAC and STAC



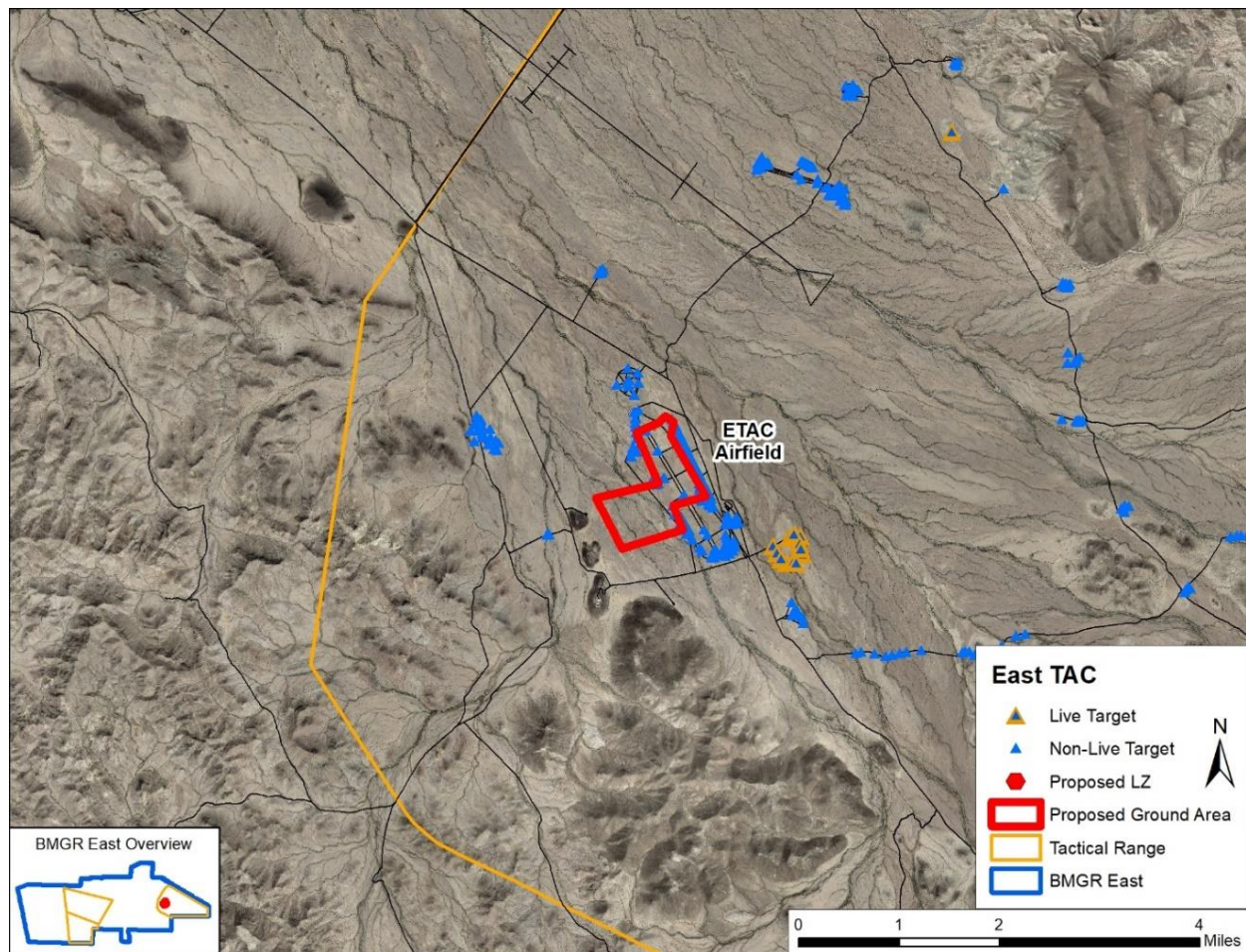


Figure 2: Boundaries of the Proposed Action in BMGR East, ETAC

### Threatened, Endangered, and Candidate Species and Critical Habitat

The BMGR 2018 Integrated Natural Resource Management Plan (INRMP) and the USFWS Information for Planning and Consultation System were reviewed to determine which federally-listed species potentially occur in the vicinity of the Proposed Action. The following species are federally listed and known to occur on BMGR East (Table 1). No designated critical habitat or candidate species occur on BMGR East.

**Table 1: Federally Listed Species Known to Occur on BMGR East**

| Common Name                                                                                                                                                                                                         | Scientific Name                             | Status*  | Habitat                                                                                                                                                                                |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Sonoran pronghorn                                                                                                                                                                                                   | <i>Antilocapra americana sonoriensis</i>    | E<br>X/N | Broad inter-mountain alluvial valleys in low elevation Sonoran desertscrub with creosote-bursage and paloverde-mixed cacti associations at elevations between 400 and 1,600 feet AMSL. |
| Acuña cactus                                                                                                                                                                                                        | <i>Echinomastus erectocentrus acunensis</i> | E        | Occurs along rocky hillsides and ridges on soil overlaying various bedrock at elevations between 1,200 and 3,800 feet AMSL.                                                            |
| <i>Source:</i> USFWS October 15, 2019 and December 3, 2019, <a href="http://ecos.fws.gov/ipac">http://ecos.fws.gov/ipac</a> .<br>* E = ESA Endangered; T = ESA Threatened; X/N Experimental/Nonessential Population |                                             |          |                                                                                                                                                                                        |

## **Sonoran Pronghorn**

The Sonoran pronghorn (*Antilocapra americana sonoriensis*) are generally found throughout most of BMGR East. Given this distribution, animals often occur in close proximity to ongoing military activities. Military training on the range has occurred for over seven decades and pronghorn appear to have become habituated to many of the associated disturbances. The MAWTS-1 proposed action involves both troop ground-based and aircraft operations in which pronghorn could be encountered. The direct and indirect effects to pronghorn from the proposed action include disturbance from air activities; disturbance from ground-based activities and disturbance from night-time activities. However, the USAF has implemented measures to substantially reduce these risks to pronghorn.

The USAF's Operating Instruction, 56 RMO Operating Instruction 13-01 (RMO OI 13-01), *Sonoran Pronghorn Monitoring* (July 2020) outlines the necessary precautions that are to be taken by all personnel using the Range. The OI also establishes standardized scheduling, monitoring and reporting procedures for pronghorn on NTAC and STAC Ranges and specific target restrictions if a pronghorn is detected.

The USAF proposes to implement or continue implementation of the following conservation measures:

1. All BMGR East ground personnel operating on the range are required to receive training regarding their responsibilities to comply with environmental laws and regulations. All new personnel receive this training upon arrival at the MAWTS-1 training center as part of their reception, staging, onward movement, and integration (RSO&I). This training specifically includes information regarding the importance of minimizing potential impacts to pronghorn. Training rosters are maintained by each units Operations department.

2. All vehicles are restricted to designated roads except as required by EOD, maintenance, emergency response and environmental sciences personnel including authorized contractors while conducting required mission support activities.
3. When actions require new surface disturbance in current pronghorn habitat, every effort will be made to minimize the extent of surface disturbance and to restore the area to the previous grade when such work is practicable. The USAF will make every effort to minimize the impacts of operations to vegetation and friable soils, and for operations to be consistent with the conservation measures and terms and conditions of the most recent BO.
4. Low speed limits on roadways will continue to be enforced to ensure that no pronghorn are injured due to vehicles. The RMO OI 13-01 specifies that vehicle speed limits for all ground personnel will be reduced when approaching known pronghorn locations--speed limits on BMGR East within pronghorn habitat are 45 mph on paved roads, 35 mph on major graded roads and 25 mph on all other roads.
5. The USAF will continue to revise and update OI 13-01 and the BMGR East section of the USFWS Sonoran Pronghorn Incident Response Protocol document.

#### Ground Operations:

Pronghorn could potentially be disturbed by ground-based military activities. Ground-based activities occur regularly throughout BMGR East, within the pronghorn's range. This includes but is not limited to actions such as driving through the range for equipment maintenance activities, road maintenance, target maintenance or construction, EOD activities, and troops on the ground involved in training missions. However, pronghorn have historically occupied and continue to occupy nearly half of BMGR East, the disturbances potentially created by ground-based activities do not appear to be affecting pronghorn in a detrimental manner. The USAF also enforces OI 13-01 requirements for vehicle speed restrictions and personnel on foot restrictions within pronghorn habitat.

Ground operations for the Proposed Action would occur in and be limited to four small distinct areas within BMGR East, all located around existing airfields in NTAC, STAC and ETAC ranges. MAWTS-1 and multiple other users already utilize these impact areas, which includes previously established landing zones, roads, and target areas. Land maneuvers executed by Marines inserted at NTAC and STAC would be performed on foot and limited to the regions shown in Figure 1. Training event boundaries will remain unchanged under the proposed action, and no activities exceeding 10 personnel would take place outside of these boundaries. The MAWTS-1 ground-based area of potential effect relative to pronghorn habitat is extremely small. See table below for comparative summaries.

| <b>MAWTS-1 APE</b>                                 | <b>APE<br/>(Acres)</b> | <b>TAC Impact<br/>Range</b> | <b>TAC Impact<br/>Range<br/>(Acres)</b> | <b>APE as %<br/>of TAC<br/>Impact</b> | <b>BMGR<br/>East<br/>(Acres)</b> | <b>APE as %<br/>of BMGR<br/>East</b> |
|----------------------------------------------------|------------------------|-----------------------------|-----------------------------------------|---------------------------------------|----------------------------------|--------------------------------------|
| NTAC Airfield Ground Maneuver Area                 | 1,438                  | NTAC                        | 117,493                                 | 1.22%                                 | 1,052,121                        | 0.14%                                |
| East Pass Aux Field (also in NTAC) Ground Maneuver | 420                    | NTAC                        | 117,493                                 | 0.36%                                 | 1,052,121                        | 0.04%                                |
| STAC Airfield Ground Maneuver Area                 | 1,622                  | STAC                        | 74,519                                  | 2.18%                                 | 1,052,121                        | 0.15%                                |
| ETAC Airfield Ground Maneuver Area                 | 403                    | ETAC                        | 111,957                                 | 0.36%                                 | 1,052,121                        | 0.04%                                |
| <b>TOTAL</b>                                       | <b>3,883</b>           | <b>ALL 3<br/>Combined</b>   | <b>303,970</b>                          | <b>1.28%</b>                          | <b>1,052,121</b>                 | <b>0.37%</b>                         |

The MAWTS-1 proposed action is to increase ground-based Marines from 100 up to 500 total, spread out across multiple training areas/events two times per year. Current training exercises overseen by MAWTS-1 limit the ground component to a maximum of 100 personnel which does not meet WTI mission readiness requirements. According to MAWTS, the proposed action's ground-based training scenario would most likely be up to 250 Marines each on NTAC and STAC up to 8 days per year (~ 4 days/WTI Event). Also, 500 personnel could be located in one single training area up to 2 days per year (1 spring, 1 fall), however based on current training exercise construct, this would be rare and infrequent. If scheduled, NTAC and STAC would be the primary locations as the footprint for these areas are larger than ETAC and East Pass. The inclusion of this expanded training event in the WTI exercise would be determined months in advance, with flexibility in location

Visibility in the area is high due to the low saturation of vegetation, providing personnel a wide and long field of view during training activities. Pronghorn can be observed from long distances, providing ground personnel ample opportunity to respond accordingly and avoid contact as much as possible. Any support vehicles used by exercise observers, and support personnel must adhere to the guidelines stated in the 2010 BO and outlined in RMO OI-13-01 as implemented by the 56 RMO:

1. Vehicle speed limits are 45 mph on paved roads leading to manned ranges, 35 mph on dirt roads, and 25 mph on all other roads.
2. If a vehicle is within 1-2 km from a Sonoran pronghorn, the speed limit is 15 mph.
3. If a vehicle is less than 1 km from a Sonoran pronghorn, every effort is made to use an alternate route; if no practical alternatives are available and movement is mission essential, then the speed limit is 15 mph.

4. If Sonoran pronghorn are observed running due to ground disturbance, vehicles near Sonoran pronghorn locations shall stop until animals have stopped running, moved at least 100 m from the vehicles, or moved out of sight.
5. Only approved non-military personnel on foot may approach to within 0.5 km of a known Sonoran pronghorn location and only if postponing their work could result in a work stoppage.
6. All ground personnel operating on the range are required to receive training regarding their responsibilities to comply with environmental laws and regulations. All new personnel receive this training upon arrival at the MAWTS-1 training center as part of their reception, staging, onward movement, and integration (RSO&I). This training specifically includes information regarding the importance of minimizing potential impacts to the Sonoran pronghorn. Training rosters are maintained by each unit's Operations department.
7. Troop formations shall maintain a minimum buffer of at least 1 km from Sonoran pronghorn. Ground parties may not fire weapons within 0.5 km of a known pronghorn location, and EOD detonations are prohibited within 1.5 km.
8. Monitoring is required on days when ground parties exceed 50 personnel during a training exercise.
9. All discarded matter generated during each exercise will be removed and disposed of in a manner consistent with State and Federal regulations.

#### Aircraft Operations:

Pronghorn could potentially be disturbed by military aircraft overflights. Numerous sorties are flown on a daily basis throughout BMGR East, within the pronghorn's range. This includes but is not limited to overflights within the Air-to-Air Range, Manned Range 1, NTAC, STAC and the northern portion of the Cabeza Prieta National Wildlife Refuge. However, as pronghorn have historically occupied and continue to occupy all of these areas, the disturbance potentially created by overflights do not appear to be affecting pronghorn in a detrimental manner. Additionally, Krausman (2001) noted that pronghorn throughout BMGR are likely habituated to noise from aircraft overflights.

Aircraft operations for the Proposed Action would continue and remain unchanged from the current implementation of the WTI training events. Using the current WTI course final exercise (FINEX) as a large-scale example that would immediately benefit from the Proposed Action, each engagement would include approximately seventeen (17) rotary-wing aircraft that would land at the affected training areas shown in Figures 1 and 2. Additional support would be provided by approximately 34 other aircraft, both fixed-wing and rotary-wing, that would be in the airspace but would not land in the training areas. Currently, WTI aircraft operations have been simulating insertions and extractions. Under the proposed action, instead of simulation, these aircraft would actually insert and extract ground-based personnel. No additional aircraft are required to meet the training mission requirement.

Low-flying helicopter use in the area could result in the temporary displacement of pronghorn in the vicinity of training operations. The potential for encounters cannot be completely eliminated; however, impacts will be minimized to the maximum extent possible by 1). Following existing conservation measures listed in the 2010 BO, 2). Complying with Sonoran Pronghorn Monitoring OI (Operating Instruction 13-01) and 3). Observing operational procedures summarized below.

1. All aircrews operating on the range are required to receive training regarding their responsibilities to comply with environmental laws and regulations. All new personnel receive this training upon arrival at the MAWTS-1 training center as part of their RSO&I. This training specifically includes information regarding the importance of minimizing potential impacts to the Sonoran pronghorn. Training rosters are maintained by each unit's Operations department.
2. Low-flying helicopters will continue to utilize established corridors designed to avoid or minimize effects to the Sonoran pronghorn to the maximum extent possible.

#### Overnight Operations:

Pronghorn could potentially be disturbed by overnight operations. Overnight operations for the proposed action would occur two times per year. The overnight operations training scenario would include inserting personnel Friday evening and extracting them the next day at around 1600. Marines would be inserted at the proposed landing zone and move overland until reaching their staging area. Troop movements would largely only take place during the insertion and extraction phases. Potential impacts to pronghorn would be quite low based on the size of the training area boundary and that it only occurs two times per year.

The US pronghorn population is much greater than it was during the development of the Ongoing Operations and Proposed Enhancements of the Barry M. Goldwater Range East 2010 Biological Opinion. Therefore the value / importance of each pronghorn is significantly reduced by comparison. The effect to pronghorn from 100 ground-based troops vs. up to 250 or up to 500 personnel is likely the same in that an individual or a group of pronghorn will move away from the area once it reacts to the first wave of troops. Pronghorn may very likely move away and be some distance away by the time troop overland movements reach ideal battalion level numbers of up to 500 personnel.

Because the ongoing WTI training exercise and the MAWTS-1 proposed action would continue to utilize previously disturbed impact areas and aircraft operations remain unchanged from the current implementation of the WTI training events, and specific conservation measures and training are in place to minimize and prevent impacts to the Sonoran pronghorn, we conclude that the proposed operations at BMGR East would have no effect above and beyond what was previously analyzed in the 2010 BO for Sonoran pronghorn.



## Acuña Cactus

Acuña cactus occurs under specific and limited habitat requirements, resulting in its rarity. The cactus occurs at elevations between 1,200 and 3,800 feet AMSL, along rocky hillsides and ridges (AZGFD 2011, USFWS 2016). The Acuña cactus is found primarily on the BMGR East, on the Organ Pipe Cactus National Monument, and in a few areas southeast of Phoenix (USAF and USMC 2018). The Organ Pipe Cactus National Monument population appears to be the healthiest but has seen continuous declines since the 1970s (AZGFD 2011). Comparisons of BMGR East population sampling between 2012-13 and 2016-17 indicate the percentage of mortalities and live cacti between these timeframes were similar (Abbate 2017). However, range wide population trends indicate a decline of the cactus. USFWS designated critical habitat for the cactus in 2016; lands on the BMGR were exempted (USFWS 2016) because the USAF had existing and planned conservation measures in place as noted in the 2012 INRMP Revision.

The USAF, in collaboration with Arizona Game and Fish Department (AZGFD), has been conducting surveys and modeling potential habitat of Acuña cactus in order to more fully understand the distribution of the plant on the BMGR East. A probabilistic habitat model using plant occurrence data on the BMGR East and range-wide was developed by AZGFD in conjunction with 56 RMO, to evaluate Acuña cactus habitat suitability (Abbate et al. 2018 and 2019). In general, good habitat occurs in the mountain ranges and poor habitat occurs in the valleys. Good habitat occurs in the far eastern and northeastern portions of the BMGR East, and habitat worsens to the north and west as elevations decrease. According to the model, high-quality habitat occurs within BMGR East in the Sand Tank Mountains and the southern portion of the Saucedas Mountains. This predicted habitat is located to the north, east, and south of ETAC as well as in the public use area referred to as Bender Springs and the southeast portion of the public use area called Area B. Survey methods were modified in 2019 to encompass more area based on refinement of the habitat suitability model, but 2019 surveys within the predicted habitat in the Sand Tanks and Saucedas did not locate new sites (Abbate et al. 2019). Likewise, additional surveys of predicted habitat both east and south of ETAC were conducted by AZGFD in early 2020 but did not locate new sites (T. Shepherd, pers. comm., 6 July 2020). Additional surveys are planned to occur within Area B in July 2020 followed by further surveys of predicted habitat within the Sand Tank Mountains in early 2021. To date, the Acuña cactus has only been recorded on BMGR East within the far southeast corner of public use Area B (Abbate et al. 2019).

Under current BMGR East operations as well as proposed expansion of ground operations by MAWTS-1, no ground disturbing activities would occur within Acuña cactus habitat and no direct effects to Acuña cactus are anticipated. The latest habitat model (2019) and completed surveys indicate that Acuña cactus is not expected to occur within areas directly impacted by ongoing or proposed military operations. The predicted habitat map is shown in Figure 3, along with an overlay showing the location of BMGR East, the boundaries for MAWTS-1 WTI enhanced training operations, and current military target locations. The MAWTS-1 WTI exercises would continue to take place at four established sites across NTAC, STAC, and ETAC, all of which are not predicted to support Acuña cactus habitat. A few established targets within ETAC are located near moderate likelihood modeled habitat, but surveys to date have not found any Acuña cactus within ETAC.

Under current and ongoing BMGR East operations, Acuña cactus habitat or individual cacti may be indirectly affected by wildfires, which are regularly ignited by military training operations; however, this potential impact is considered discountable. At BMGR East, fires are often ignited during delivery of air-to-ground artillery within the three tactical and four manned ranges. In addition, illumination flares, which fall to the ground before completely burning out, have been documented to ignite a handful of fires in the past 15 years (A. Alvidrez, pers. comm., 7 July 2020) and may be used throughout BMGR East. However, flare release altitude restrictions are in place based on the USDA fire danger rating in order to reduce the likelihood of ignition. The vast majority of military-ignited fires smolder and burn out quickly or are extinguished by Gila Bend Air Force Auxiliary Field Fire and Emergency Services. Still, wildfires ignited by military operations have the potential to spread over large tracts of land and can be exacerbated by the expansion of non-native, invasive grasses and persistent, reoccurring droughts that may be related to climate change (USAF and USMC 2018). Fire records from 2006-2019 indicate that approximately 77% of all wildfires on BMGR East were military mission-related starts and 43% were at ETAC (USAF 2020). Although fires have the potential to spread, the probability is very low that a military-ignited fire could spread as far as known Acuña cactus locations (southeast Area B). In addition to the distance, the rocky terrain surrounding and within known Acuña cactus locations does not generally support high densities of invasive grasses or other flammable groundcover, further reducing the potential for a military-ignited fire to reach Acuña cactus. Because only a handful of flare-ignited fires have been documented on BMGR East, the probability that a flare could fall close to or on an Acuña cactus and ignite a fire is considered to be extremely low.

The USAF will continue to implement measures that benefit the conservation and recovery of the Acuña cactus. These measures include: monitoring and controlling invasive plant species; developing and implementing a wildland fire management plan; continuing to conduct Acuña cactus surveys; continuing to refine the habitat model for BMGR East; implementing procedures to control trespass livestock; monitoring illegal immigration, contraband trafficking, and border-related law enforcement; and continuing informal coordination with law enforcement authorities. In addition, the USAF agrees to prevent new impacts, such as establishing new military targets and off-road vehicle use within high likelihood habitat and avoid disturbing vegetation and pollinators within 2,952 feet (900 meters) of known or newly discovered Acuña cactus plants. In order to reduce incursion of trespass livestock and to protect Acuña cactus from livestock trampling, the 56 RMO is currently planning the installation of a pronghorn-friendly barbed-wire fence along the southern boundary of Area B. Informal consultation with USFWS has been initiated to ensure the proposed fence avoids impacts to Acuña cactus prior, during, and following construction.

Because ongoing and proposed training exercises would continue to occur within areas that are unlikely to support the Acuña cactus and the potential indirect effect of fire is considered discountable, we conclude that the ongoing and proposed operations at BMGR East *may affect, but are not likely to adversely affect* this species.

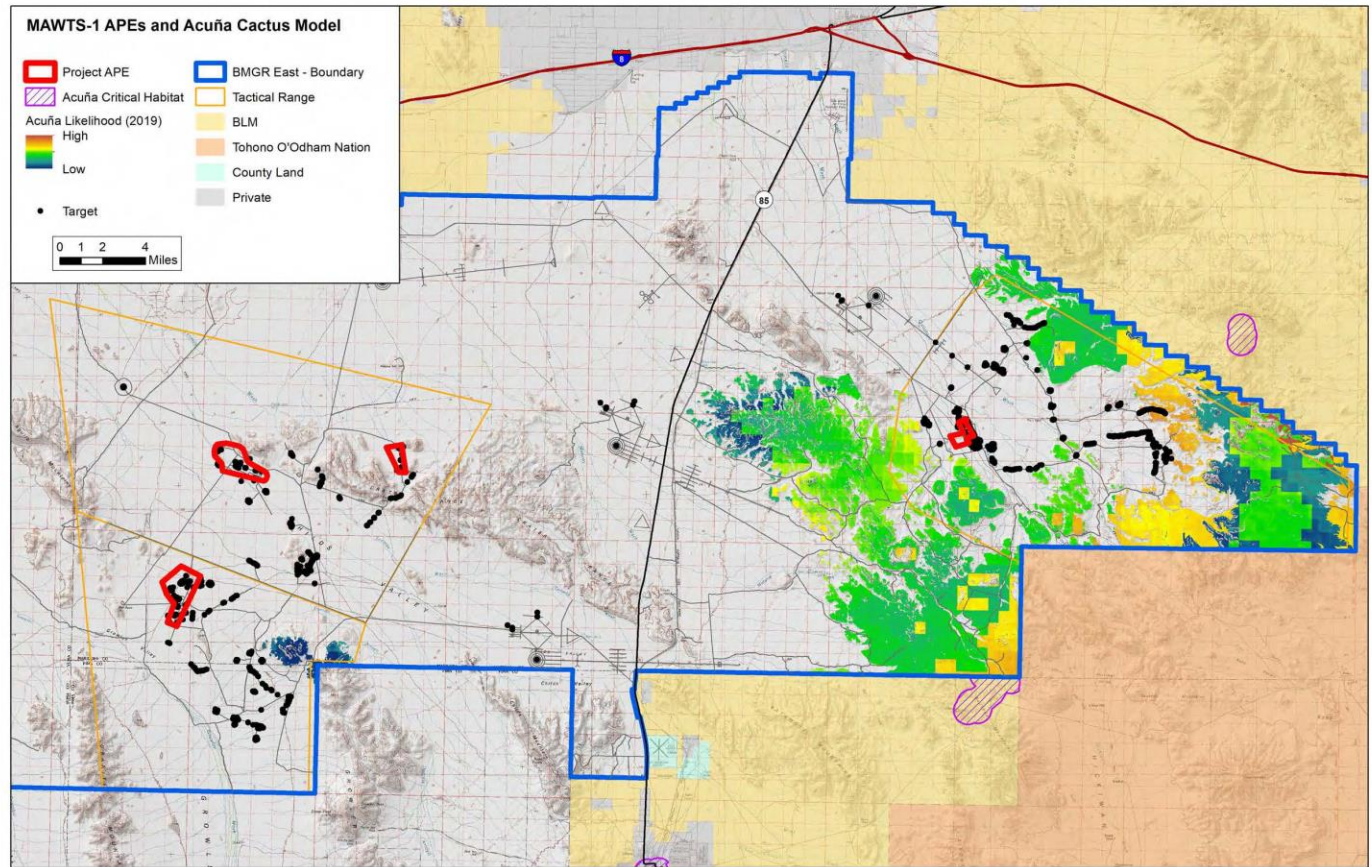


Figure 3: Landscape-scale Habitat Suitability Model for Acuña Cactus on BMGR East and Military Training Areas

In summary, the 56 RMO has determined that the ongoing military training at BMGR East and proposed expansion of ground-based personnel in support of MAWTS-1 WTI training events *may affect, but are not likely to adversely affect* the Acuña cactus and *would have no effect above and beyond what was previously analyzed* in the 2010 BO for Sonoran pronghorn and we request your concurrence with these determinations. A copy of the MAWTS-1 EA of Battalion-Level Training Operations at BMGR East, Arizona will be available online at <https://www.luke.af.mil/Units/56th-Range-Management-Office/> under Environmental Sciences Management and at <https://www.29palms.marines.mil>. Our office will also send you a courtesy copy of the EA as soon as it is available. As we move forward through this process we welcome your participation and input.

We appreciate your support of military training while minimizing impacts to endangered species at BMGR East. If you have any questions, please contact Ms. Tiffany Shepherd, Wildlife Biologist at 623-856-8491, [tiffany.shepherd.3@us.af.mil](mailto:tiffany.shepherd.3@us.af.mil), or Mr. Aaron Alvidrez, Wildlife Biologist at 623-856-8487, [aaron.alvidrez@us.af.mil](mailto:aaron.alvidrez@us.af.mil).

Sincerely

CHARLES E. BUCHANAN, GS-14, DAF  
Director, 56th Range Management Office

## Literature Cited

- Abbate, D. J. 2017. Acuña cactus surveys on the Barry M. Goldwater Range East: 2016-17. Arizona Game and Fish Department, Wildlife Contracts Branch, Phoenix, AZ.
- Abbate, D.J., E.H. Scobie, J.M. Diamond, M.F. Ingraldi. 2018. Acuña Cactus Investigations on the Barry M. Goldwater Range East: Model Based Surveys in 2018. Arizona Game and Fish Department. Prepared for Luke Air Force Base.
- Abbate, D.J., E.H. Scobie, J.M. Diamond, M.F. Ingraldi. 2019. Acuña Cactus Investigations on the Barry M. Goldwater Range East: Model Based Surveys in 2019. Arizona Game and Fish Department. Prepared for Luke Air Force Base.
- Arizona Game and Fish Department (AZGFD). 2011. *Echinomastus erectocentrus* var. *acunensis*. Unpublished abstract compiled and edited by the Heritage Data Management System, Arizona Game and Fish Department, Phoenix, Arizona. 7 pp.
- U.S. Air Force (USAF). 2020. Draft Luke Air Force Base Barry M. Goldwater Range East Wildlife Fire Management Plan. U.S. Department of the Air Force, Luke Air Force Base, Arizona. Prepared by Chloeta, Midwest City, Oklahoma.
- U.S. Air Force (USAF) and U.S. Marine Corps (USMC). 2018. Integrated Natural Resources Management Plan - Public Report. Barry M. Goldwater Range (BMGR). U.S. Department of the Air Force, Luke Air Force Base, U.S. Department of the Navy, U.S. Marine Corps, Marine Corps Air Station Yuma, Arizona.
- U.S. Fish and Wildlife Service (USFWS). 2016. Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Acuña Cactus and the Fickeisen Plains Cactus. 81 Federal Register 55265. August 18.

**United States Fish & Wildlife Section 7 Concurrence Letter**



## United States Department of the Interior

### Fish and Wildlife Service Arizona Ecological Services Office

9828 North 31<sup>st</sup> Avenue, Suite C3

Phoenix, Arizona 85051

Telephone: (602) 242-0210 Fax: (602) 242-2513



#### In reply refer to:

AESO/SE

22410-1996-F-0094-R005

September 15, 2020

Charles E. Buchanan  
Director  
56th Range Management Office (RMO)  
7101 Jerstad Lane, Bldg 500  
Luke AFB, AZ 85309-1647

Re: Compatibility Determination and Concurrence on the Ongoing Operations at Barry M. Goldwater Range (BMGR) East and Proposed Expansion of Ground Training Operations at BMGR East by the U.S. Marine Corps Marine Aviation Weapons and Tactics Squadron One, Maricopa, Pima, and Yuma Counties, Arizona

Thank you for your correspondence of September 8, 2020, received by us on the same day. This letter documents our review of the Ongoing Operations at Barry M. Goldwater Range (BMGR) East and Proposed Expansion of Ground Training Operations at BMGR East by the U.S. Marine Corps (USMC) Marine Aviation Weapons and Tactics Squadron One (MAWTS-1) Weapons and Tactics Instructor (WTI) course, Maricopa, Pima, and Yuma Counties, Arizona, in compliance with section 7 of the Endangered Species Act of 1973 (ESA) as amended (16 U.S.C. 1531 et seq.). Your letter concluded that the proposed expansion of ground training operations at BMGR East by the USMC MAWTS-1 is compatible with the analysis of effects for the endangered Sonoran pronghorn (*Antilocapra americana sonoriensis*) found within the existing 2010 biological opinion related to BMGR's Ongoing Operations (Consultation # 22410-1996-F-0094-R003). In addition, your letter concluded that the proposed project may affect, but is not likely to adversely affect the endangered acuña cactus (*Echinomastus erectocentrus* var. *acunensis*). We concur with your determinations and provide our rationales below.

#### Description of the Proposed Action

A complete description of the proposed action is found in your September 8, 2020, letter/biological evaluation.

#### *Ongoing Operations*

The description of ongoing military operations at BMGR East found within the U.S. Air Force

(USAF) 2009 Biological Assessment and USFWS 2010 Biological Opinion is incorporated by reference.

### *MAWTS-1 Proposed Expansion*

The USMC MAWTS-1 proposes to expand ground training exercises at BMGR East to allow up to 500 ground-based personnel to participate in WTI course training events two times per year. Ongoing and proposed WTI training is located in BMGR East, at existing airfields located in North, South, and East Tactical Ranges (NTAC, STAC, and ETAC). Current training exercises overseen by MAWTS-1 take place 6 days per year for the ground-based exercises and limit ground components to a maximum of 100 personnel. Under the proposed action, they will request up to 8 days per year (1 extra day for both fall and spring WTI events). Two overnights at NTAC (Friday evening to Saturday late afternoon) per year (1 spring, 1 fall) are currently part of the WTI curriculum and will continue under the proposed action.

According to MAWTS, 500 personnel could be located in one single training area up to 2 days per year (1 spring, 1 fall), however based on USMC's current training exercise construct, it will be rare and infrequent. If scheduled, NTAC and STAC will be the primary locations as the footprint for these areas are larger than ETAC and East Pass. The inclusion of this expanded training event in the WTI exercise will be determined months in advance, with flexibility in location.

Additionally, the large-scale ground components of these exercises will be limited in scope to four distinct areas within BMGR East, all located around existing airfields in NTAC, STAC, and ETAC ranges (Figures 1 and 2). The boundaries of these areas will remain unchanged under the proposed action, and no activities exceeding 10 personnel will take place outside of these boundaries (which is the same as the current action). Currently there are two major training exercises that involve airfield assaults with large ground elements. Both of the major training exercises occur in the Spring and Fall WTI events. Historically, these training events occurred one to two days in late April (Spring) and late October (Fall) on the NTAC and STAC main airfields. All training boundaries and training exercise dates will remain unchanged under the proposed action.

## DETERMINATION OF EFFECTS

### Sonoran pronghorn

Regarding Sonoran pronghorn, you determined that the May 4, 2010 biological opinion should remain in effect for the species because the proposed expansion of ground training operations at BMGR East by the USMC MAWTS-1 WTI will not cause an effect to Sonoran pronghorn not already considered in the 2010 opinion.

We concur with your determination that the May 4, 2010 biological opinion for Sonoran pronghorn remains compatible with the anticipated effects of the proposed expansion of ground training operations and should remain in effect for the reasons you provided. Because the timing and spatial footprint for activities will remain essentially the same between the current action and the proposed action and because all conservation measures will continue to be implemented, we



agree that the proposed action is compatible with that in the 2010 biological opinion.

Acuña cactus

We concur with your determination that the proposed action may affect, but is not likely to adversely affect the acuña cactus for the following reasons:

- No ground disturbing activities will occur within acuña cactus habitat. Therefore, any potential direct effects to the species and its habitat are discountable.
- Although wildfires can impact acuña cactus, measures are in place to reduce the likelihood of military-ignited wildfires and to control nonnative species that can carry fire. Additionally, the distance between military operations and acuña cactus habitat and the rocky terrain surrounding known acuña cactus locations further reduce the chance that military-ignited wildfire can reach acuña cactus. Therefore, any potential indirect effects (from military-ignited wildfire) to the species and its habitat are discountable.
- The USAF will continue to implement conservation measures to contribute to the recovery of the species. The effects of these actions are anticipated to be beneficial to acuña cactus and its habitat.

In keeping with our trust responsibilities to American Indian Tribes, by copy of this letter we are notifying Tribes (the Tohono O'odham Nation) that may be affected by this proposed action and encourage you to invite the Bureau of Indian Affairs to participate in the review of your proposed action. We also encourage you to coordinate the review of this project with the Arizona Game and Fish Department.

Thank you for your continued coordination. No further section 7 consultation is required for this project at this time. Should project plans change, or if information on the distribution or abundance of listed species or critical habitat becomes available, this determination may need to be reconsidered. In all future correspondence on this project, please refer to consultation number 22410-1996-F-0094-R005.

If you require further assistance or you have any questions, please contact Erin Fernandez (520-670-6150 x 238) or Julie McIntyre (520-670-6150 x 223).

Sincerely,

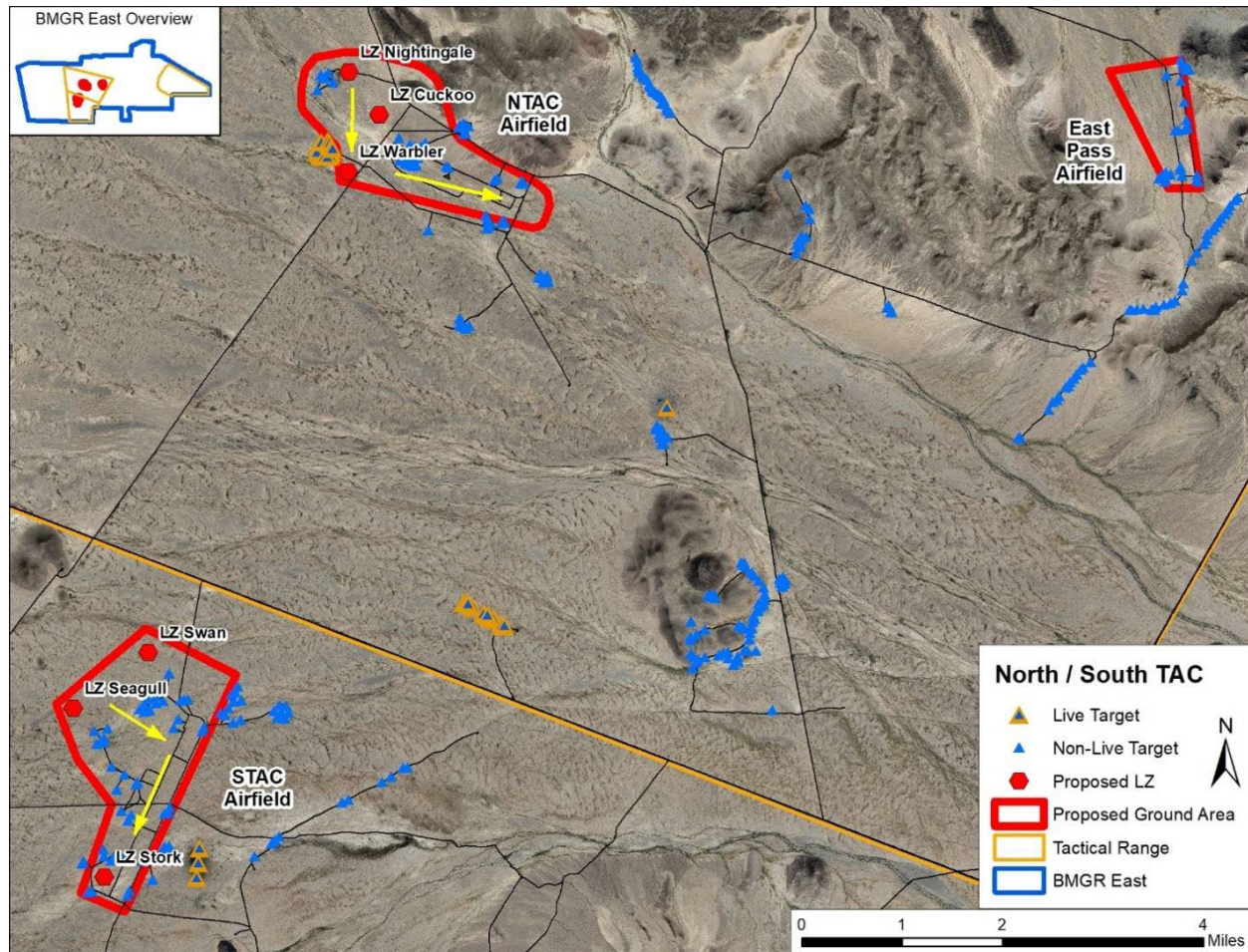
Jeffrey A. Humphrey  
Field Supervisor

cc (electronic):

Assistant Field Supervisor, Fish and Wildlife Service, Tucson (Attn: Erin Fernandez)  
Refuge Manager, Cabeza Prieta National Wildlife Refuge, Ajo, AZ (Attn: Sid Slone)  
Sonoran Pronghorn Recovery Coordinator, Cabeza Prieta National Wildlife Refuge, Ajo, AZ  
(Attn: Stephanie Doerries)

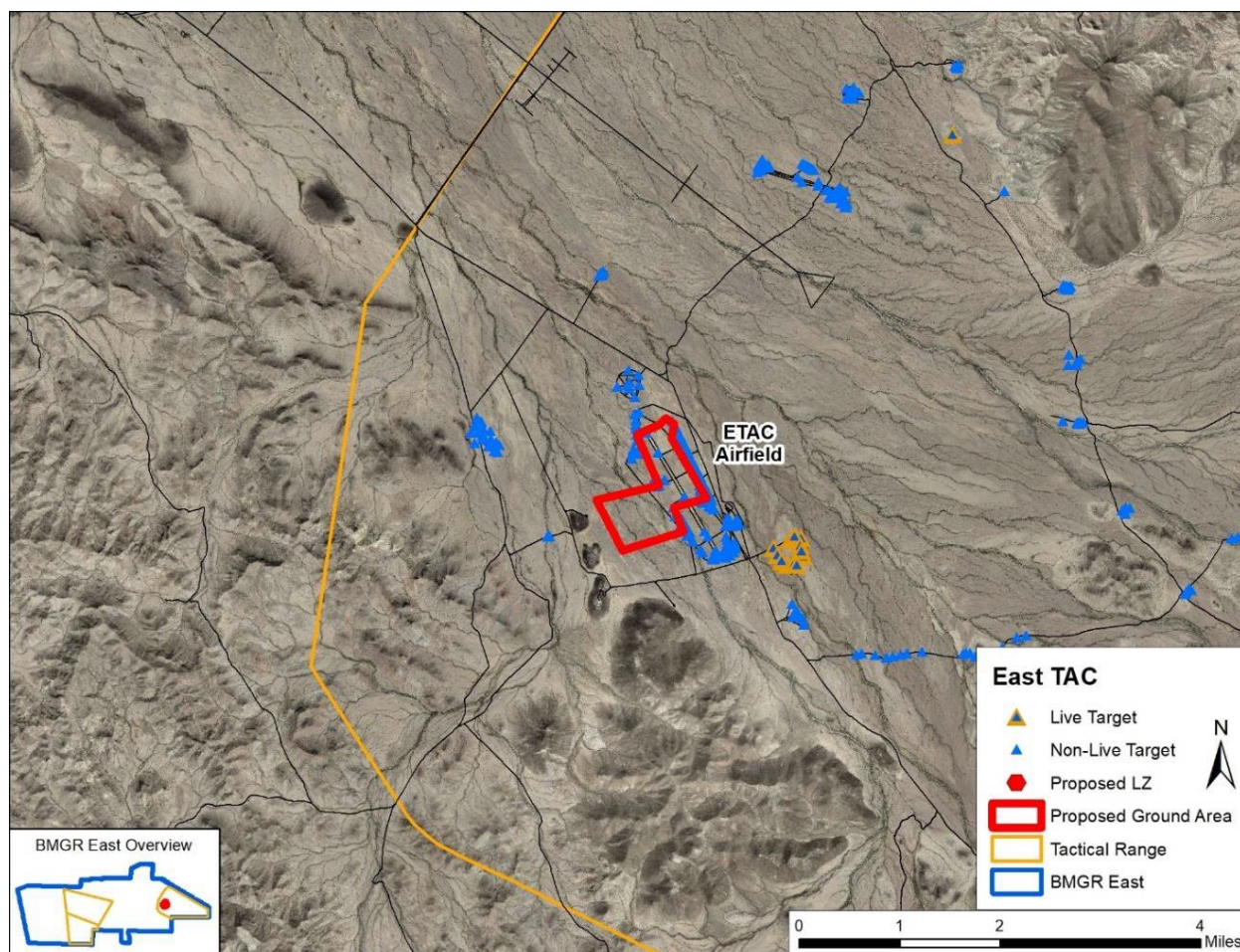
Honorable Chairman, Ned Norris Jr., Tohono O'odham Nation, Sells, AZ (Attn: Alex Cruz)  
Chief, Habitat Branch, Arizona Game and Fish Department, Phoenix, AZ

## Figures



**Figure 1.** Boundaries of the Proposed Action in BMGR East, NTAC and STAC (USAF 2020).

This is an image of the boundaries of the training areas within the northern and southern tactical ranges on the Barry M. Goldwater Range in Arizona.



**Figure 2.** Boundaries of the Proposed Action in BMGR East, ETAC (USAF 2020).



**Example Federal State and Local Agency NOA Letter  
and Distribution List**



**UNITED STATES MARINE CORPS**  
MARINE AVIATION WEAPONS AND TACTICS SQUADRON ONE  
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Colonel Steve E. Gillette, USMC  
Commanding Officer  
Marine Aviation Weapons and Tactics Squadron One  
Box 99200  
Yuma, AZ 85369

Mr. John MacDonald, Field Office Manager  
Bureau of Land Management  
Yuma Field Office  
Colorado River District Office  
7341 E. 30th Street  
Yuma, AZ 85365

Dear Mr. MacDonald

In accordance with the National Environmental Policy Act (NEPA) of 1969, the Council on Environmental Quality regulations, and Department of Defense NEPA regulations, the United States Marine Corps (USMC) Marine Aviation Weapons and Tactics Squadron One (MAWTS-1) is preparing an Environmental Assessment (EA) to evaluate expanded ground training operations supporting the Weapons and Tactics Instructor (WTI) course at Barry M. Goldwater Range (BMGR) East, located in southwestern Arizona.

The Proposed Action would allow up to 500 ground-based personnel to participate in WTI course training events at BMGR East. The findings of the 2010 Final Environmental Impact Statement (EIS) for Proposed BMGR East Range Enhancements currently limit existing training events to no more than 100 ground-based personnel. Expanding this limit to 500 would allow training to be conducted at full battalion level, enhancing the realism of training events and ensuring students and support personnel receive integrated combat training prior to deployment downrange. WTI events with such a ground component would occur no more than two times annually as stipulated in the 2010 EIS.

All training events affected by the Proposed Action are part of the established MAWTS-1 WTI course curriculum. Such training events would occur up to eight days per year, an increase from the current schedule of six days per year, including approximately two overnight operations annually. WTI ground-based training would be conducted at existing airfields provided the total ground component does not exceed 500 personnel. Additionally, training may be conducted with up to 500 personnel at a single airfield on the range.

As a result of the Proposed Action, personnel taking part in WTI training events would train in realistic, tactically accurate battalion-level environments, ensuring all participants receive and hone skills that are critical for combat readiness and cross-domain warfighting prior to

deployment around the world. Furthermore, graduates from the MAWTS-1 WTI course would be better prepared to provide tactical training within the Fleet Marine Forces and planning at all levels of warfare within the USMC, Joint, and Coalition warfighting environments.

In accordance with Executive Order (EO) 12372, *Intergovernmental Review of Federal Programs*, as amended, by EO 12416, *Intergovernmental Review of Federal Programs*, I am requesting your participation in the NEPA document review and comment process. Copies of the Draft EA and the proposed Finding of No Significant Impact (FONSI) are available at <https://www.luke.af.mil/Units/56th-Range-Management-Office/> under “Environmental Sciences Management” and also at <https://www.29palms.marines.mil>. Hardcopies are available upon request, please reach us at [MAWTS-1BMGREA@hazair.com](mailto:MAWTS-1BMGREA@hazair.com) if a hardcopy is required. If, after review of the Draft EA and proposed FONSI, you have additional information regarding impacts of the Proposed Action on the natural environment or other environmental aspects of which we are unaware, we would appreciate receiving such information for inclusion and consideration during the NEPA process. Please respond within 30 days of receipt of this letter to ensure your concerns are adequately addressed in the EA.

Please send your written responses to MAWTS-1 BMGR EA, 8461 W Farm Road, Suite 120 #244, Las Vegas, NV 89131, or via email to [MAWTS-1BMGREA@hazair.com](mailto:MAWTS-1BMGREA@hazair.com).

Sincerely

Steve E. Gillette, Colonel, USMC  
Commanding Officer, MAWTS-1

## **AGENCY DISTRIBUTION LIST**

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Mr. Farhad Moghimi  
Executive Director  
Pima Association of Governments  
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Tucson AZ 85701

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Mayor of Gila Bend  
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Gila Bend AZ 85337

The Honorable Cecilia McCollough  
Mayor of Welton  
P.O. Box 67 28634 Oakland Avenue  
Welton AZ 85356

The Honorable Doug Ducey  
Governor of Arizona  
Capitol West Wing - 9th Floor 1700 West  
Washington  
Phoenix AZ 85007

The Honorable Tom O'Halleran  
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The Honorable Ann Kirkpatrick  
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The Honorable Raúl Grijalva  
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The Honorable Jon Kyle  
United States Senator  
2201 East Camelback Road  
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**Example Native American Tribes Scoping Letter  
and Distribution List**



**DEPARTMENT OF THE AIR FORCE  
AIR EDUCATION AND TRAINING COMMAND**

9 March 2020

Charles E. Buchanan, Director  
56th Range Management Office  
7101 Jerstad Lane, Bldg 500  
Luke AFB, AZ 85309-1647

Mr. Timothy L. Nuvangyaoma, Chairman  
Hopi Tribe  
P.O. Box 123  
Kykotsmovi, AZ 86039

RE: MAWTS-1 Project, 56 RMO-SHPO Consultation

Dear Chairman Nuvangyaoma,

The United States Marine Corps is proposing to allow up to 500 personnel to participate in ground-level training operations up to six times per year at four locations on the Barry M. Goldwater Range (BMGR) East. The proposed project, Marine Aviation Weapons and Tactics Squadron 1 (MAWTS-1), would allow training to be conducted at full battalion level, thus enhancing the realism of training scenarios and ensuring students receive integrated combat training that fully prepares them and enhances combat readiness for deployment to active combat areas. The 56th Range Management Office (56 RMO) at Luke Air Force Base, which manages the BMGR East, is assisting the Marine Corps effort by consulting on their behalf for the purpose of Section 106 compliance.

An earlier smaller version of the current proposal limited training to 100 personnel no more than three times per year. A 2010 Environmental Impact Statement for "Proposed Barry M. Goldwater East Range Enhancements" that described and analyzed the original project was consulted on with your office and concluded with a determination of "no historic properties will be affected," [SHPO-2010-0012(93946), Howard (SHPO) to Heathington (BMGR East), 9 August 2011]. The proposed project mirrors the scope and Area of Potential Effect (APE) of the original project, and would generally occur within the tactical ranges in areas of existing disturbance. The changes in the scope of the original project solely involve increasing the number of personnel and frequency of training activities within the same footprint as the earlier project.

The scope of the 2010 project described the use of groups of personnel ranging in size from small special tactics or combat search and rescue teams up to a total of 100 troops at any one time. Training could involve clandestine insertions/extractions utilizing helicopters, parachutes, or vehicles driven on existing roads. No regular or permanent drop zones would be established. Vehicles would be parked within 50' of existing roads. Other activities could involve cross-country navigation, reconnaissance patrols, and shooting at targets while traveling on foot. Targets for

these on-the-ground activities may be made of wood, metal, stucco, mud, sea-land containers, concrete, or other materials. No native plants or other natural features would be utilized as targets. Targets would generally be established within tactical ranges along existing roads. Teams may remain in these areas for several days, camping at night. Troops would be self-contained, they would carry out all trash (including parachutes), and they would bury human waste. Actual ground disturbance is and would be minimal.

An overview of the four APE components is shown in Figs. 1 and 2. The four individual APE locations are found in:

|                          |                                                     |          |
|--------------------------|-----------------------------------------------------|----------|
| North TAC AUX Airfield   | T9S, R8W Portions of S9, 10, 15, 16, 20             | (Fig. 3) |
| North TAC Main Airfield  | T9S, R9W, Portions of S16, 17, 20, 21, 22           | (Fig. 4) |
| South TAC Main Airfield: | T10S, R10W, portions of S14, 13, 14, 23, 24, 25, 26 | (Fig. 5) |
|                          | T10S, R9W, portions of S7, 18                       |          |
| East TAC Main Airfield:  | T9S, R4W, portions of S1, 2, 12                     | (Fig. 6) |
|                          | T9S, 3W, portion of S6                              |          |

The entirety of the four project areas has been previously surveyed for cultural resources, and the results reported in the following, which should be on file in your office:

Doolittle, C. J., et al.

2000 *STAC 2000: Intensive Archaeological Survey of 5,575 Acres on the South Tactical Range, Barry M. Goldwater Range East, Arizona*. Barry M. Goldwater Range East Cultural Resource Management Program Cultural Resource Studies in the Western Papagueria 6. Statistical Research, Inc.

Huckell, B. B., et al.

1979 *The Coronet Real Project: Archaeological Investigations on the Luke Range, Southwestern Arizona*. Arizona State Museum Archaeological Series No. 129. Arizona State Museum.

Roberts, H., R. V. N. Ahlstrom, and D. B. Tucker, eds.

2000 *East TAC: An Archaeological Survey of 7,792 Acres on the Barry M. Goldwater Range in Southwestern Arizona*. SWCA Cultural Resource Report No. 99-7. SWCA Environmental Consultants, Inc.

Tagg, M. D., and M. H. Heilen

2008 *STAC 2003: Intensive Archaeological Survey of 4,945 Acres on the South Tactical Range, Barry M. Goldwater Range East, Arizona*. Barry M. Goldwater Range East Cultural Resource Management Program Cultural Resource Studies in Western Papagueria 16. Statistical Research, Inc.

Tucker, D. B., ed.

2000 *Footsteps on the Bajada: An Archaeological Survey of 15,813 Acres on the North Tactical Range of the Barry M. Goldwater 56th RMO Range in Southwestern Arizona*. SWCA Cultural Resource Report No. 99-140. SWCA Environmental Consultants.

The 56 RMO believes that the above-cited works adequately meet current professional standards. A recent review of these reports indicated that there are eight cultural resources/historic properties located within the four project areas (Figs. 1-6):

At the North TAC Aux Airfield, site [AZ Y:8:93(ASM) aka. (BMGR-98-X-004)] (Tucker 2000) is described as a historic O'odham artifact scatter with four thermal features. Artifacts consist of four flaked stone artifacts and two ceramic sherds. Three of the four features were excavated in whole or in part and little information came from these excavations. The consultant recommended the site as eligible to the National Register of Historic Places (NRHP) under Criterion D. Consultation between your office and ours determined this site to be eligible for the NRHP under Criterion D [SHPO-2018-1890(145634), Davis (SHPO) to Buchanan (56 RMO), 11 December 2018]. The 56 RMO has recently reexamined the site description and results of data recovery at the site and as a result disagrees with the earlier eligibility determination. The 56 RMO now believes the site to be not eligible for the NRHP due to the substantial lack of information contained by the site, and also believes that what little data potential the site may have had has been exhausted through extensive data recovery. A recent phone conversation with the Tribal Historic Preservation Officer of the Tohono O'odham Nation, Mr. Peter Steere, indicated that the Tohono O'odham Nation concurs with this reconsideration of eligibility [Shumaker (56 RMO) to Steere (Tohono O'odham Nation), personal communication, 25 February 2020].

Also at the North TAC Aux Airfield, site [AZ Y:8:94(ASM) a.k.a. (BMGR-98-X-21)] (Tucker 2000) is described as a Native American thermal feature with one flaked stone artifact. The site and feature were both significantly disturbed by modern two-tracks, and the consultant noted that damage to the site was "heavy." Half of the feature was excavated. The consultant recommended the site as eligible to the NRHP under Criterion D. While earlier consultation between your office and the 56 RMO determined the site eligible under Criterion D [SHPO-2018-1890(145634), Davis (SHPO) to Buchanan (56 RMO) 11 December 2018], our office has reconsidered this determination and believes the site to be not eligible to the NRHP because of poor site condition, because little data came from the excavation, and also because any data potential the site might have had has been thoroughly exhausted through data recovery.

At the North TAC Main Airfield, site [AZ Y:8:1(ASM) a.k.a. (BMGR-78-A)] (Huckell 1979)] is described as two spatially and temporally distinct late prehistoric components. Component 1 consisted of a few probable Lower Colorado Buff Ware sherds, and a "sizeable number" of rhyolite flakes. Component 2 consisted of two rock cluster hearths and a few sherds that included one Sonora Brown Ware (Tanque Verde Red-on-Brown), a Tonto Polychrome sherd, and some plain and redware types of possible Patayan origin. Additionally there were fragments of what appeared to be heavily calcined human bone. The site was subsequently excavated. Component 1 was found to consist of three separate rock cluster hearths in, one of which consisted of three small pits close to one another and filled with finely shattered burned rock. A number of stone artifacts of various material types were recovered, consisting of a projectile point, unifacially retouched tools, utilized flakes a hammerstone, cores, and debitage. Various ceramic sherds from at least three vessels were also recovered, as well as a spindle whorl. Component 2 consisted of three rock cluster hearths, a primary cremation of a 40-ish male, and the remains of four ceramic vessels including a Tanque Verde Red-on-Brown jar, part of a Tonto Polychrome Bowl, part of a Colorado Beige jar, and part of a Colorado Red bowl. The Tanque Verde Red-on-Brown jar and a bone awl were associated

with the cremation. Consultation with your office [SHPO-2018-1890(145634), Davis (SHPO) to Buchanan (56 RMO), 11 December 2018] determined the site to be eligible under Criterion D.

Also at the North TAC Main Airfield, site [AZ Y:8:2(ASM) a.k.a. (BMGR-78-A)] is described as consisting of four discrete concentrations of fire-cracked cobbles and a sparse artifact scatter approximately 45 meters southeast of the four features. One of the rock clusters was excavated completely, and the other three were partially excavated. The artifact scatter was mapped and collected. There had been some recent damage to the site consisting of munitions debris and abundant vehicle tracks through the site (Huckell 1979). The excavations revealed little data. A single grinding slab fragment was recovered in one of the fire-cracked cobble features. A date of roughly 1775 +/- 190 B.P. came from charcoal recovered from another of the fire-cracked cobble features. The artifact scatter consisted of a single possibly Archaic (Amargosa II) projectile point, a utilized flake, three cores, 21 unmodified flakes, and a single grinding slab fragment that likely was related to the slab fragment found in one of the fire-cracked cobble features. No faunal or floral information was recovered. Huckell interpreted the site as having "an indefinite temporal or cultural status." Consultation with your office [SHPO-2018-1890(145634), Davis (SHPO) to Buchanan (56 RMO), 11 December 2018] determined the site to be not eligible for the NRHP.

Also at the North TAC Main Airfield, site [AZ Y:8:20(ASM) a.k.a. (BMGR-98-X-33)] is described as a resource processing site consisting of three well-defined Native American prehistoric or Historic period thermal features, three fire-cracked rock scatters located in rills, and a single plain ware sherd. A two-track crosses the site. The consultant recommended the site as being eligible to the NRHP under Criterion D. (Tucker 2000). Based upon the consultant's description that there is sheet wash across the site and as a result they did not designate the three rock scatters as features, and that they believe the sherd had likely washed in from elsewhere, the 56 RMO believes this site has no significance and little integrity, so is not eligible for the NRHP.

Also at the North TAC Main Airfield, site [AZ Y:8:38(ASM) a.k.a. (BMGR-98-X-029)] is described as a Native American lithic scatter with thermal features. The consultant reports there are two thermal features, six chipped stone artifacts of three material types, one piece of burned faunal bone, and a slab metate. While the elongate site is roughly 150 meters by 28 meters, one of the features is at the far end of the site while the other is at the opposite end. The very sparse artifact scatter is roughly in the middle of the site. There are a number of two-tracks crossing through the site. The consultant recommends the site as being eligible for the NRHP under Criterion D. The 56 RMO believes that due to the very sparse and widely scattered nature of the site, it has little data potential and is therefore not eligible for the NRHP.

At the South TAC Main Airfield, site [AZ Y:8:226(ASM) a.k.a. (BMGR-00-D-01)] (Doolittle, et al. 2000) is described as a 10 X 20 meter artifact scatter with a single thermal feature. Artifacts consist of two pieces of flaked stone and a plain ware ceramic sherd. The feature was excavated by Statistical Research and has been interpreted as an in situ late prehistoric roasting pit. The consultant recommended the site as not eligible for the NRHP. Consultation with your office [SHPO-2019-2461(151737), Davis (SHPO) to McCarrick (56 RMO), 30 December 2019] determined the site to be ineligible.

Also at the South TAC Main Airfield, site [(no ASM #) (BMGR-03-F-15)] (Tagg and Heilen 2003) is described as a collection of four probably prehistoric thermal features with no associated artifacts. Site condition is described as being very poor, with two-tracks damaging some 90% of the site. The consultant reported the features as being surficial, so they have been mostly destroyed. The consultant recommended the site as not eligible to the NRHP, and the 56 RMO concurs.

To summarize the 56 RMO determinations of eligibility:

**North TAC Aux Airfield (Fig. 4):**

AZ Y:8:93(ASM) a.k.a. (BMGR-98-X-004)]

Not eligible, newly redetermined

AZ Y:8:94(ASM) a.k.a. (BMGR-98-X-21)

Not eligible, newly redetermined

**North TAC Main Airfield (Fig. 5):**

AZ Y:8:1(ASM) a.k.a. (BMGR-78-A)

Eligible D, previously determined

AZ Y:8:2(ASM) a.k.a. (BMGR-78-A)

Not-eligible, previously determined

AZ Y:8:20(ASM) a.k.a. (BMGR-98-X-33)

Not eligible, newly determined

AZ Y:8:38(ASM) a.k.a. (BMGR-98-X-029)]

Not eligible, newly determined

**South TAC Main Airfield (Fig. 2)**

AZ Y:8:226(ASM) a.k.a. (BMGR-00-D-01)]

Not eligible, previously determined

(No ASM #) a.k.a. (BMGR-03-F-15)]

Not eligible, newly determined

**East TAC Main Airfield (Fig. 3):**

No Sites

N/A

The 56 RMO is consulting concurrently with Federally recognized Native American tribes that have indicated a relationship with the BMGR East. We will notify your office of the results of these consultations should any concerns or disputes arise.

Pending the results of consultation with the various parties, the 56 RMO finds that this project will have No Adverse Effect upon historic properties. While the earlier project found that "no historic properties will be affected" [SHPO-2010-0012(93946), Howard (SHPO) to Heathington (BMGR East), 9 August 2011], we believe that the current review and finding of effect is more thorough and accurate.

Please review the contents of this letter, the attached maps, and the proposed determinations/redeterminations of eligibility and finding of effect for this project. If you concur with our description of the APE, our efforts to identify historic properties, the adequacy recommendations regarding the original survey reports, our determinations/redeterminations of eligibility, and our finding of effect, please respond by April 20, 2020. If you have any further technical questions, comments, or issues, please contact Jon Shumaker at [jon.shumaker@us.af.mil](mailto:jon.shumaker@us.af.mil) or 623-856-7423.

As always, the 56 RMO appreciates this opportunity to consult with you.

concur

*Jon Shumaker*  
for

Kayla [unclear]

3-17-20

Sincerely,



CHARLES E. BUCHANAN  
GS-14, DAF  
Director, 56th Range Management Office

cc:

Mr. Stewart Koyiyumtewa, Tribal Historic Preservation Officer

**6 Attachments:**

Figure 1. Overview of APE North and South TAC

Figure 2. Overview of APE East TAC

Figure 3. North TAC Aux Airfield APE

Figure 4. North TAC Main Airfield APE

Figure 5. South TAC Main Airfield APE

Figure 6. East TAC Main Airfield APE



## **Native American Tribes**

Mr. Robert Miguel, Chairman  
Ak-Chin Indian Community  
42507 West Peters & Nall Road  
Maricopa AZ 85138

Ms. Sherry Cordova, Chairwoman  
Cocopah Indian Tribe  
14515 South Veterans Drive  
Somerton AZ 85350

Mr. Dennis Patch, Chairman  
Colorado River Indian Tribes  
26600 Mohave Road  
Parker AZ 85344

Ms. Bernadine Burnette, President  
Fort McDowell Yavapai Nation  
P.O. Box 17779  
Fountain Hills AZ 85269

Mr. Timothy Williams, Chairman  
Fort Mojave Indian Tribe  
500 Merriman Ave.  
Needles CA 92363

Mr. Jordan Joaquin, President  
Fort Yuma Quechan Tribe  
P.O. Box 1899  
Yuma AZ 85366

Mr. Stephen Roe Lewis, Governor  
Gila River Indian Community  
P.O. Box 97  
Sacaton AZ 85147

Mrs. Lorraine Eiler, President  
Hia Ced O'odham Alliance  
320 W Estrella  
Ajo AZ 85321

Ms. Christina Andrews  
Hia-Ced Hemajkam, LLC.  
10710 E Pathside Dr.  
Tucson AZ 85748

Mr. Timothy L. Nuvangyaoma, Chariman  
Hopi Tribe  
P.O. Box 123  
Kykotsmovi AZ 86039

Mr. Robert Valencia, Chairman  
Pascua Yaqui Tribe  
7474 S. Camino de Oeste  
Tucson AZ 85746

Mr. Val Panteah, Governor  
Pueblo of Zuni  
P.O. Box 339  
Zuni NM 87327

Mr. Martin Harvier, President  
Salt River Pima-Maricopa Indian Tribe  
10005 E. Osborn Rd  
Scottsdale AZ 85256

Mr. Terry Rambler, Chairman  
San Carlos Apache Tribe  
P.O. Box O  
San Carlos AZ 85550

Mr. Ned Norris Jr., Chairman  
Tohono O'odham Nation  
P.O. Box 837  
Sells AZ 85634

Mr. Jon Huey, Chairman  
Yavapai-Apache Nation  
2400 W Datsi St.  
Camp Verde AZ 86322

Ms. Gwendina Lee Gaewood, Chairwoman  
White Mountain Apache Tribe  
P.O. Box 700  
Whiteriver AZ 85941

Mr. Robert Ogo, Acting President  
Yavapai-Prescott Indian Tribe  
530 E. Merritt St.  
Prescott AZ 85301

## **Native American Tribes - Scoping Letter Responses**



Received from Tribal Admin 03/25/20

E-mailed 03/24/20 (initials & date)

Scanned 03/24/20 (initials & date)

SAN CARLOS APACHE TRIBE  
Historic Preservation & Archaeology Department  
P.O. Box 0  
San Carlos Arizona 85550  
Tel. (928) 475-5797, [apachevern@yahoo.com](mailto:apachevern@yahoo.com)

### Tribal Consultation Response Letter

Date: 3/19/20

Contact Name: Jon Shumaker

Company: Department of the Air Force, Air Education & Training Command

Address: 56th Range Management Office, 7101 Jerstad Lane, Bldg. 500, Luke LAB, AZ

Project Name/#: MAWTS-1 Project, 56 RMO-STPO Consultation. 85309

Dear Sir or Madam:

Under Section 106 and 110 of the National Historic Preservation Act, we are replying to the above referenced project. Please see the appropriate marked circle, including the signatures of Vernelda Grant, Tribal Historic Preservation Officer (THPO), and the concurrence of the Chairman of the San Carlos Apache Tribe:

☒ **NO INTEREST/NO FURTHER CONSULTATION/NO FUTURE UPDATES**

We defer to the Tribe located nearest to the project area.

☒ **CONCURRENCE WITH REPORT FINDINGS & THANK YOU**

☐ **ADDITIONAL INFORMATION or FURTHER REQUEST FOR PROJECT**

I require additional information in order to provide a finding of effect for this proposed undertaking, i.e.

Project description \_\_\_ Map \_\_\_ Photos \_\_\_ Other \_\_\_\_\_

☒ **NO EFFECT**

I have determined that there are no properties of religious and cultural significance to the San Carlos Apache Tribe that are listed on the National Register within the area of potential effect or that the proposed project will have no effect on any such properties that may be present.

☐ **NO ADVERSE EFFECT**

Properties of cultural and religious significance within the area of effect have been identified that are eligible for listing in the National Register for which there would be no adverse effect as a result of the proposed project.

☐ **ADVERSE EFFECT**

I have identified properties of cultural and religious significance within the area of potential effect that are eligible for listing in the National Register. I believe the proposed project would cause an adverse effect on these properties. Please contact the THPO for further discussion.

We were taught traditionally not to disturb the natural world in a significant way, and that to do so may cause harm to oneself or one's family. Apache resources can be best protected by managing the land to be as natural as it was in pre-1870s settlement times. Please contact the THPO, if there is a change in any portion of the project, especially if Apache cultural resources are found at any phase of planning and construction. Thank you for contacting the San Carlos Apache Tribe, your time and effort is greatly appreciated.

DIRECTOR/THPO: \_\_\_\_\_

Vernelda J. Grant, Tribal Historic Preservation Officer

03/19/20  
Date

CONCURRENCE: \_\_\_\_\_

Terry Rambler, Tribal Chairman

3/20/20  
Date



# White Mountain Apache Tribe

Office of Historic Preservation

PO Box 1032

Fort Apache, AZ 85926

Ph: (928) 338-3033 Fax: (928) 338-6055

**To:** Charles E. Buchanan, GS-14, DAF Director, 56<sup>th</sup> Range Management Office

**Date:** May 01, 2020

**Re:** MAWTS-1 Project, 56 RMO-SHPO Consultation - BMGR

.....

The White Mountain Apache Tribe Historic Preservation Office appreciates receiving information on the project dated; March 09, 2020. In regards to this, please attend to the following statement below.

Thank you for allowing the White Mountain Apache tribe the opportunity to review and respond to the above proposed plans to allow up to 500 personnel to participate in ground-level training operations up to six times a year at four locations on the Barry M. Goldwater Ranger East, on the Luke Air Force Base, in southern Arizona. We concur the project will not impact any cultural heritage resources.

Considering, we concur with the determination of "***No Historic Properties Affected***" in regards the White Mountain Apache tribe's historic properties and/or traditional cultural resources.

Thank you for your continued collaborations in protecting and preserving places of cultural and historical importance.

Sincerely,

*Mark T. Altaha*

White Mountain Apache Tribe – THPO  
Historic Preservation Office

**Example Native American Tribes Public Notice Letter  
and Distribution List**



**DEPARTMENT OF THE AIR FORCE  
AIR EDUCATION AND TRAINING COMMAND**

4 November 2020

Charles E. Buchanan, Director  
56th Range Management Office  
7101 Jerstad Lane, Bldg 500  
Luke AFB, AZ 85309-1647

Mr. Val R. Panteah, Governor  
Pueblo of Zuni  
P.O. Box 339  
Zuni, NM 87327

Dear Governor Panteah,

In accordance with the National Environmental Policy Act (NEPA) of 1969, the Council on Environmental Quality regulations, and Department of Defense NEPA regulations, the United States Marine Corps (USMC) Marine Aviation Weapons and Tactics Squadron One (MAWTS-1) is preparing an Environmental Assessment (EA) to evaluate expanded ground training operations supporting the Weapons and Tactics Instructor (WTI) course at Barry M. Goldwater Range (BMGR) East, located in southwestern Arizona.

The Proposed Action would allow up to 500 ground-based personnel to participate in WTI course training events at BMGR East. The findings of the 2010 Final Environmental Impact Statement (EIS) for Proposed BMGR East Range Enhancements currently limit existing training events to no more than 100 ground-based personnel. Expanding this limit to 500 would allow training to be conducted at full battalion level, enhancing the realism of training events and ensuring students and support personnel receive integrated combat training prior to deployment downrange. WTI events with such a ground component would occur no more than two times annually as stipulated in the 2010 EIS.

All training events affected by the Proposed Action are part of the established MAWTS-1 WTI course curriculum. Such training events would occur up to eight days per year, an increase from the current schedule of six days per year, including approximately two overnight operations annually. WTI ground-based training would be conducted at existing airfields provided the total ground component does not exceed 500 personnel. Additionally, training may be conducted with up to 500 personnel at a single airfield on the range.

As a result of the Proposed Action, personnel taking part in the WTI training events would train in realistic, tactically accurate battalion-level environments, ensuring all participants receive and hone skills that are critical for combat readiness and cross-domain warfighting prior to deployment around the world. Furthermore, graduates from the MAWTS-1 WTI course would

be better prepared to provide tactical training within the Fleet Marine Forces and planning at all levels of warfare within the USMC, Joint, and Coalition warfighting environments.

Pursuant to Section 106 of the National Historic Preservation Act (36 Code of Federal Regulations Part 800), the USAF has previously consulted with your cultural resource manager on this project. We would like to invite you and your designee the opportunity to identify any further comments, concerns, and suggestions relevant to the NEPA compliance process concerning the Proposed Action. Copies of the Draft EA and proposed Finding of No Significant Impact (FONSI) are available at <https://www.luke.af.mil/Units/56th-Range-Management-Office/> under Environmental Sciences Management and at <https://www.29palms.marines.mil>. Hardcopies are available upon request.

Please send your written responses to MAWTS-1 BMGR EA, 8461 W Farm Road, Suite 120 #244, Las Vegas, NV 89131, or via email to [MAWTS-1BMGREA@hazair.com](mailto:MAWTS-1BMGREA@hazair.com).

Sincerely,

BUCHANAN.CHAR  
LES.E.1135115858

Digitally signed by  
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Date: 2020.11.04 18:02:35 -07'00'

CHARLES E. BUCHANAN  
GS-14, DAF  
Director, 56th Range Management Office

cc:  
Mr. Kurt Dongoske, Director

## **Native American Tribes**

Mr. Robert Miguel, Chairman  
Ak-Chin Indian Community  
42507 West Peters & Nall Road  
Maricopa AZ 85138

Ms. Sherry Cordova, Chairwoman  
Cocopah Indian Tribe  
14515 South Veterans Drive  
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Needles CA 92363

Mr. Jordan Joaquin, President  
Fort Yuma Quechan Tribe  
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Gila River Indian Community  
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Ajo AZ 85321

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10710 E Pathside Dr.  
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Mr. Timothy L. Nuvangyaoma, Chariman  
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Kykotsmovi AZ 86039

Mr. Robert Valencia, Chairman  
Pascua Yaqui Tribe  
7474 S. Camino de Oeste  
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