



United States Department of the Interior

Fish and Wildlife Service
Arizona Ecological Services Office
9828 North 31st Avenue, Suite C3
Phoenix, Arizona 85051

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



In reply refer to:

AESO/SE
02EAAZ00-2017-F-0039-R001

September 30, 2019

Mr. Gordon Rogers
Garrison Manager
Department of the Army
Installation Management Command Headquarters
United States Army Garrison, Yuma
301 C Street
Yuma, Arizona 85365-9498

RE: Reinitiation of Formal Section 7 Consultation on the U.S. Army Yuma Proving Ground's Extended Range Cannon Artillery Test Program, Yuma, Pima, and Maricopa Counties, Arizona

Dear Mr. Rogers:

Thank you for your request for reinitiation of formal consultation with the U.S. Fish and Wildlife Service (FWS) pursuant to section 7 of the Endangered Species Act of 1973 (16 U.S.C. § 1531-1544), as amended (Act). Your request was dated June 26, 2019, and received by us on June 27, 2019. At issue are impacts that may result from proposed modifications to the Extended Range Cannon Artillery (ERCA) Test Program on Barry M. Goldwater Range (BMGR) East and West located in Yuma, Pima, and Maricopa Counties, Arizona. The proposed action may affect Sonoran pronghorn (*Antilocapra americana sonoriensis*).

Our original biological opinion (consultation number 02EAAZ00-2017-F-0039), issued on May 3, 2017, addressed the United States Army Yuma Proving Ground (YPG) ERCA Test Program. This biological opinion addresses updates to the ERCA Test Program described in the proposed action below. Herein we revise specific sections of the [2017 biological opinion](#) relating to the status and baseline of the Sonoran pronghorn, effects of the proposed action on Sonoran pronghorn, and incidental take statement for Sonoran pronghorn. Sections not addressed or revised herein remain as presented in the 2017 biological opinion.

In your letter, you requested our concurrence that the proposed action is not likely to adversely affect the acuña cactus (*Echinomastus erectocentrus* var. *acunensis*). We concur with your determination. The basis for our concurrence is found in Appendix A. You also concluded that the proposed action would have no effect on acuña cactus critical habitat. "No effect" determinations do not require review from the FWS, and are not addressed further.

This biological opinion is based on information provided in YPG's June 26, 2019, Biological Assessment of the Effects of the Extended Range Cannon Artillery/Long Range Precision Fire (**LRPF**) (herein referred to as **BA**), telephone conversations, field investigations, and other sources of information. Literature cited in this biological opinion is not a complete bibliography of all literature available on the species of concern, military activities and its effects, or on other subjects considered in this opinion. A complete record of this consultation is on file at this office.

Consultation History

- May 3, 2017: Our office issued a biological opinion (consultation number 02EAAZ00-2017-F-0039) for YPG's ERCA Test Program on BMGR East and West.
- August 14, 2018 to June 27, 2019: Personnel from YPG and our office regularly communicated regarding YPG's proposed updates to ERCA, including sharing, reviewing, and providing feedback on informal draft versions of the BA.
- June 27, 2019: We received your request for reinitiation of formal consultation.
- June to August 2019: Our offices regularly corresponded regarding the proposed action.
- September 6, 2019: We sent you the draft biological opinion.
- September 26, 2019: You informed us that YPG had no comments on the draft biological opinion.

BIOLOGICAL OPINION

DESCRIPTION OF PROPOSED ACTION

A complete description of the proposed action is found in the BA and is summarized below.

Background and Summary

The existing ERCA program test fires extended range artillery projectiles at distances ranging from approximately 55 kilometers (km) to 73 km within YPG and BMGR, which is jointly administered by Marine Corps Air Station Yuma (**MCASY**) and Luke Air Force Base (**LAFB**). As development advances on these weapon systems, YPG now proposes to expand the action to accommodate longer ranges. ERCA is a multi-element, multi-phase, long-range artillery test program that includes testing numerous advancements in the cannon, ammunition, and guidance systems. To evaluate these advancing technologies, YPG needs to fire at longer ranges (up to approximately 183 km) than previously identified and include the use of high explosive and guided munitions.

Modifications to the existing ERCA program (see Table 1), described in greater detail below, include: 1) the addition of gun positions on BMGR West; 2) the use of high explosive (HE) munitions on existing HE targets on BMGR East; and 3) the use of guided projectiles.

Testing Locations (Gun Positions and Impact Areas)

Tests will be conducted on the BMGR and similar to the existing program, the revised ERCA program will fire extended range artillery projectiles from gun positions on BMGR West (administered by MCASY) to targets on BMGR East (administered by LAFB). Figures 1a and 1b show the new proposed gun positions and target areas as well as the currently used gun positions and targets. During any firing event, only one gun position and target will be used. Additional gun position sites on BMGR West will be utilized to meet the extended range requirements. In addition to the existing temporary gun positions, new ones will be established on BMGR West at existing Ground Support Areas (GSAs), specifically sites 50, 58, 59, 60, Tracker, and Aux Airfield 2. These newly proposed gun positions are located greater than 8 miles west from the western boundary of the Sonoran pronghorn range. The gun positions will have similar setup, dimensions, and duration of use to those currently used by ERCA. They have a footprint of approximately 1.5 acres and do not require permanent infrastructure or utilities to meet the mission requirements. The gun positions will serve as multi-purpose use locations for the emplacement of the weapon system under test, data collection equipment, and support vehicles and equipment such as mobile temperature conditioning chambers for ammunition and blast shields.

The ERCA program will fire munitions into previously approved/existing targets on BMGR East North Tactical Range (NTAC), South Tactical Range (STAC), and East Tactical Range (ETAC). For inert rounds, targets 106 and 111 in NTAC and targets 208, 211, and 215 in STAC will continue to be used. In addition, existing inert targets 302, 305, and 306 on ETAC may be used for inert rounds. Use of HE munitions will require the use of existing HE Hill targets 110 and 207 within NTAC and STAC and HE Hill target 320 within ETAC. The HE targets will have a 100-meter Circular Error of Probability (CEP) radius, as well as a 100-meter fragmentation zone around the CEP. The CEP maximum envelope for the target site will be approximately 300 meters.

Safety Buffer Zones

Under the existing ERCA program, only inert rounds are tested. In the proposed revision, both inert rounds and HE munitions will be tested. All HE munitions will be guided rounds, while the inert rounds will be guided or unguided. Similar to current ERCA testing, standard safety protocols require use of statistically developed safety buffer zones along the line of fire designed to contain the munition impact in the event it veers off course or fragments midflight as a result of a firing or flight malfunction. Activation of the safety buffer zone along this line of fire will require temporary closure of any access roads that enter the safety buffer zone. In order to avoid conflicts with use of air space over BMGR, test firings will be limited to periods when aircraft operations are not scheduled such as weekends at both BMGR East and West.

Figures 1a and 1b provide examples of typical firing scenarios and associated safety buffer zones. The safety buffer zones depict the predicted ground and airspace where a projectile and all fragments or debris could return to earth. During the developmental testing of these munition technologies, the exact dimensions of their safety buffer zones will vary by munition type, and

gradually evolve and shrink over time. There is a potential for some buffer zones to overlap portions of the Cabeza Prieta National Wildlife Refuge (CPNWR) in which case, close coordination with the refuge will occur. During actual usage, only a portion of the buffer zone pertaining to a specific munition/test event will be closed.

Test Frequency and Duration

A total of up to 6 long range tests per year could occur on BMGR; this includes testing executed under the original 2017 ERCA biological opinion. Of the maximum possible 6 tests per year, use of ETAC will occur a maximum of 4 times per year (most likely it will only be used once or twice per year). Table 2 includes a summary of proposed testing frequency and details by range. The typical duration for each test will be up to about seven days: three days for mobilization, up to two days for test firings, and two days for demobilization. Munitions will be fired into previously approved targets on NTAC and STAC on BMGR East. Three additional targets—one each on NTAC, STAC, and ETAC—are proposed to accommodate use of HE munitions. A maximum of up to 12 rounds could be fired over the course of each firing day. Therefore, the total maximum number of rounds that could be fired per year at all of the locations is approximately 144 rounds. This could include both inert and HE rounds. The typical firing at ETAC will likely consist of two events per year, or a total of 48 rounds. If possible, a survey crew consisting of YPG test personnel will access the target subsequent to the conclusion of each firing. The survey crew will access targets approximately six times per year. The duration of the testing is indefinite.

Table 1. Existing 2017 ERCA components compared to proposed additions (YPG 2019).

Project Component	2017 ERCA	Proposed additions
Temporary Gun Positions	Site 71, Site 76	Site 50, 58, 59, 60, Aux2, and Tracker
Targets (Inert)	NTAC 106, 111; STAC 208, 211, 215	ETAC 302, 305, 306
Targets (HE)	None	NTAC/STAC HE Hill 110 and 207; ETAC HE Hill 320
Frequency	NTAC/STAC 3 test events per year with 2 days firing, 12 rounds per day (72 rounds total per year)	NTAC/STAC 6 test events per year with 2 days firing, 12 rounds per day (144 rounds total per year). ETAC 4 test events per year (48 total rounds per year)
Duration	Indefinite	Indefinite

Table 2. Summary of proposed test frequency and details for NTAC, STAC, and ETAC, BMGR East (YPG 2019).

Range	Proposed			Identified in 2017 Biological Opinion	
	Events/Year	Days/Year	Rounds/Year	Events/Year	Total Rounds
NTAC/STAC	6	12	144	3	72

ETAC	Proposed			Identified in 2017 Biological Opinion	
	2-4	8	48	None	None
Total	NTE 6	NTE 12	NTE 144	3	72

Standard Testing Procedures

Impacts to sensitive biological resources such as the Sonoran pronghorn will be avoided or minimized through implementation of LAFB's Operation Instruction 13-01. This Operating Instruction (**OI**) establishes standardized scheduling, monitoring, and reporting procedures for Sonoran pronghorn on NTAC and STAC and Manned Ranges 1, 2, and 4 of the BMGR, and it establishes precautionary procedures for ground operations.

A survey party will travel to the target array to assess accuracy/precision of fire and to perform projectile recovery operations as needed. These activities will be performed in close coordination with BMGR East range management personnel, including explosive ordnance disposal personnel (**EOD**) and cultural resources staff as appropriate. Projectile recovery will occur on an as needed basis and YPG will follow range procedures identified by BMGR East or West on a case by case basis. Mobile data collection equipment such as radars and telemetry units will be stationed on existing roads.

In the event that munitions veer off course during flight or land short of the intended target, recovery operations may be undertaken based on terrain, physical accessibility, technical requirement for failure analysis, and compliance with range procedures for BMGR West or East. Recovery efforts will make use of existing roads to the extent practicable. If the impact site is inaccessible or munition recovery is impractical, a survey team would use helicopters to locate the munition and record the impact location. If a round lands within the CPNWR, then YPG will immediately contact the refuge manager and coordinate an appropriate response. Special care will be taken to remain on existing roads, and if off road travel or entry to wilderness are necessary, then YPG would follow procedures identified by refuge personnel to conduct investigation and removal.

Conservation Measures

The proposed ERCA project will implement all applicable conservation measures identified in the biological opinions for 1) Ongoing Activities at the BMGR by the MCASY (22410-1995-F-0114-R007, issued on November 3, 2015), 2) Military Training on the BMGR East (22410-1996-F-0094-R003, issued on May 4, 2010), and 3) YPGs Extended Range Cannon Artillery Test Program (02EAAZ00-2017-F-0039, issued on May 3, 2017). Implementation of these measures includes:

1. All ground personnel will be briefed on the Sonoran pronghorn. The briefings cover the status of the species, the importance in reducing impacts to the species, and any mitigation measures the users must comply with while on the range, specifically OI 13-01.
2. YPG will follow OI 13-01 for monitoring Sonoran pronghorn near targets. If, during a pronghorn monitoring session at NTAC or STAC, any pronghorn are observed within 1.0

km (0.62 mile) of a target, that target will be closed for the day and a different target will be selected.

3. 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. Vehicles will stay within pre-existing EOD clearance areas.
4. Every effort will be made to minimize surface disturbance and to restore the area to the previous condition when restoration is practicable.
5. YPG 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 biological opinion 22410-1995-F-0114-R007 and biological opinion 22410-1996-F-0094-R003.
6. All YPG personnel will obey speed limits on roadways to minimize the probability of a vehicle-pronghorn collision. The 56th RMO OI 13-01 specifies that vehicle speed limits for all ground personnel will be reduced when approaching known Sonoran pronghorn locations. OI 13-01 speed limits on BMGR-East within Sonoran pronghorn habitat are 45 mph on paved roads, 35 mph on major graded roads, and 25 mph on all other roads. If a vehicle is 1-2 km from a Sonoran pronghorn, the speed limit is 15 mph; if a vehicle is less than 1 km from a Sonoran pronghorn, every effort is made to use an alternate route; if none are available and movement is essential, then the speed limit is 15 mph; and if Sonoran pronghorn are observed running due to ground disturbance, vehicles near Sonoran pronghorn will stop until the animals have stopped running. The designated speed limit on all roads on the BMGR West is 25 mph.
7. All discarded matter (including, but not limited to, human waste, trash, garbage, and chemicals) that is generated by test personnel would be disposed of and removed in a manner consistent with federal and State of Arizona regulations. All work sites will be maintained in a sanitary condition.
8. Vehicles or stationary equipment from which hazardous materials may be spilled or leaked that are parked for longer than 2 days would be placed over temporary containment as appropriate. Hazardous or toxic materials that are generated will be disposed of in a manner consistent with federal and State of Arizona guidelines.
9. YPG forward observers will watch for smoke or signs of wildland fire near the targets and report to Range Control (Snakeye) immediately upon observing fire to facilitate rapid response from the Fire Department.
10. YPG will take fire weather into account when planning test events. Gun crews, forward observers, or other personnel downrange will apply appropriate measures to reduce fire risk (i.e., avoid parking vehicles over dry vegetation, exercise additional caution if work may generate sparks).

Reporting

YPG will continue to submit a report to the FWS-Arizona Ecological Services Office (AESO) annually; this report will, at a minimum, include: 1) the number of testing iterations on BMGR and the duration, number of shots, and dates and times (am or pm) of each test; 2) a description of interactions with or observations of Sonoran pronghorn; and 3) a summary of conservation measures implemented.

STATUS OF THE SPECIES - SONORAN PRONGHORN

Note: As mentioned in the introduction of this biological opinion, below we only update specific sections of the 2017 biological opinion relating to the status of the Sonoran pronghorn; sections not addressed or revised remain as presented in the 2017 biological opinion.

A. Description, Legal Status, and Recovery Planning

No changes.

B. Life History and Habitat

No changes.

C. Distribution and Abundance

United States

Endangered Wild Population (Cabeza Prieta Management Unit)

The December 2018 aerial surveys resulted in an estimated 215 individuals (160 pronghorn observed). Both the observed and estimated numbers were slightly lower than the last survey in 2016, when 216 were observed and the estimate was 228 (Arizona Game and Fish Department [AGFD] 2018). Following survey protocol, the 2018 estimate did not include 17 pronghorn that moved between survey blocks. Had this group not moved between blocks and been counted, the 2019 estimate would have been 232 animals, indicating very little change in population size since the 2016 survey (AGFD 2018). Poor recruitment in 2018 was likely offset by a decent fawn crop in 2017 (AGFD 2018).

10(j) Wild Population (Arizona Reintroduction Management Unit)

Kofa Subunit

During a telemetry flight in fall 2018, 71 pronghorn were observed and the estimated population of the free ranging pronghorn in the Kofa Subunit is approximately 80.

Sauceda Subunit

During a telemetry flight in fall 2018, 46 total pronghorn were observed and the estimated population within the Sauceda Subunit is approximately 50.

Semi-captive Breeding Facilities

Cabeza Prieta National Wildlife Refuge

The breeding program has been very successful and as of April 2019, there were 105 pronghorn in the enclosure at CPNWR (note this number changes frequently with births and releases).

Kofa National Wildlife Refuge

As with the CPNWR pen, the Kofa breeding program has been successful and produced pronghorn for release into the wild. As of April 2019, the Kofa pen contains 43 pronghorn (note this number changes frequently with births and releases).

Mexico

The December 2017 aerial surveys resulted in an estimated 755 (611 observed) individuals combined for both populations (including 683 pronghorn [559 observed] in the area southeast of Mexico Highway 8 known as the Quitovac population and 72 [52 observed] to the west of the highway or the Pinacate population). The number of pronghorn observed and estimated declined in comparison to results from the 2015 surveys.

D. Threats

Barriers that Limit Distribution and Movement

No changes.

Vehicular Collision with Sonoran Pronghorn

Since reported in the 2016 Recovery Plan and 2017 biological opinion, approximately 7 more Sonoran pronghorn deaths due to vehicle collisions have been documented, 6 of which occurred on Highway 95 and 1 occurred on State Route 238.

Human-caused Disturbance

No changes.

Habitat Disturbance

No changes.

Fire

No changes.

Drought and Climate Change

No changes.

Disease

No changes.

E. Recovery Actions

No changes.

ENVIRONMENTAL BASELINE – SONORAN PRONGHORN

Note: As mentioned in the introduction of this biological opinion, below we only update specific sections of the 2017 biological opinion relating to the baseline of the Sonoran pronghorn; sections not addressed or revised remain as presented in the 2017 biological opinion.

Description of the Action Area

No changes.

A. Status of Sonoran pronghorn within the action area

Distribution, Abundance, and Life History

No changes.

Climate Change and Drought

Drought was the factor causing the extreme mortality event of Sonoran pronghorn in 2002, and drought is the most important predictor of survivorship and recruitment (FWS 2016). From 2003 to 2019, rainfall and Sonoran pronghorn range conditions have varied, but have improved overall when compared to 2002. The June 2019 short-term drought status map indicates that southwestern Arizona is not experiencing drought; however, the June 2019 long-term drought status map indicates that southwestern Arizona is experiencing conditions of moderate drought to severe drought (<http://www.azwater.gov/azdwr/StatewidePlanning/drought/DroughtStatus2.htm>).

Recovery Actions

In addition to the recovery actions discussed in the 2017 biological opinion, YPG supports Sonoran pronghorn recovery efforts under section 7(a)(1) of the ESA and as directed by Army Regulation 200-1, through implementation of an Integrated Natural Resource Management Plan. As such, YPG contributes funding, labor, and range support for recovery and management of pronghorn on YPG lands, BMGR, and rangewide. YPG also contributes additional funding toward recovery efforts in proportion to the Army's use of targets and GSAs on BMGR. ERCA testing represents about 1% of the total munitions delivery on NTAC, STAC and ETAC (on BMGR East). YPGs use of GSAs (on BMGR West) contribute about 1% as well. Therefore, YPG annually contributes 1% (about \$3,000) of the funding that the Air Force and MCASY provides annually (about \$300,000) for Sonoran pronghorn recovery.

B. Factors affecting species environment and critical habitat within the action area

Past and Ongoing Non-Federal Actions in the Action Area

No changes.

Federal Actions For Which Consultation Has Not Been Completed

No changes.

Federal Actions Addressed in Section 7 Consultations

As part of our discussion of all past and present actions affecting pronghorn within the action area, we list below biological opinions (finalized since the issuance of the 2017 ERCA biological opinion) on actions that may affect Sonoran pronghorn; we also explain any incidental take associated with the opinions. These formal consultations can be viewed on our website at [Arizona Ecological Services Office biological opinions](#).

1. BMGR Integrated Natural Resources Management Plan, consultation number 22410-2005-F-0492, issued on August 26, 2005, with reinitiations issued on January 7, 2013, March 14, 2014, and May 2, 2018. No incidental take was anticipated.
2. U.S. Customs and Border Protection, Block 1 Replacement Project, Ajo Station (AJO-1), Arizona, consultation number 02EAAZ00-2018-F-0354, issued on February 15, 2018. We anticipated incidental take of one Sonoran pronghorn (over the indefinite length of the action) in the form of direct mortality of injury from strikes with vehicle or in the form of harassment from project activities that may disturb Sonoran pronghorn.

C. Summary of Activities Affecting Sonoran Pronghorn in the Action Area

No changes.

EFFECTS OF THE PROPOSED ACTION

Effects of the action refer to the direct and indirect effects of an action on the species or critical habitat, together with the effects of other activities that are interrelated and interdependent with that action that will be added to the environmental baseline. Interrelated actions are those that are part of a larger action and depend on the larger action for their justification. Interdependent actions are those that have no independent utility apart from the action under consideration. Indirect effects are those that are caused by the proposed action and are later in time, but are still reasonably certain to occur.

The proposed revised ERCA project on BMGR may result in intermittent disturbance to Sonoran pronghorn and their habitat for the duration of the proposed project (the duration of the test is indefinite). For example, ground support activities and artillery fire may result in visual and/or auditory disturbance of Sonoran pronghorn and projectiles or vehicles associated with the project could strike and injure or kill pronghorn. Conservation measures included in the proposed action, however, will help avoid and minimize potential impacts to Sonoran pronghorn.

Summary of Effects of Human Activities on Sonoran Pronghorn

No changes.

Effects to Sonoran Pronghorn from ERCA on BMGR West

On BMGR West, the action is being modified to add additional gun positions and increase testing to a maximum of 6 times per year (from 3). We do not anticipate that the addition of new gun positions (Site 50, 58, 59, 60, Tracker, or Aux 2) will result in impacts to Sonoran pronghorn because they are all located farther west and therefore farther from current Sonoran pronghorn range than the current gun positions (Site 71 and 76). The dimensions, setup, and duration of use of the gun positions will remain the same as analyzed in the 2017 biological opinion. The only anticipated change in the effects compared to those analyzed in 2017 are associated with increased test iterations (from 3 times per year to a maximum of 6 times per year); these potential effects are discussed below.

Disturbance – Noise and Visual

There are few changes to this section of the 2017 biological opinion except that YPG plans to increase testing to a maximum of 6 times (from 3) per year. As a result, potential disturbance to Sonoran pronghorn using BMGR West could occur more frequently as a result of artillery testing. That said, most activities on BMGR West associated with the proposed action will occur outside of (to the west of) the Sonoran pronghorn range and will therefore have little potential effect on pronghorn.

The impulse (firing) noise from firing the cannon at 1 mile (1.6 km) is similar to that of thunder, but of shorter duration, and may be perceptible to Sonoran pronghorn occurring further to the east of the gun positions. However, this noise reduces over distance and at distances around 3 miles the sound is barely audible. Additionally, noise as the projectile flies over the Sonoran pronghorn range may also be perceptible to pronghorn, but the noise is not likely to elicit a startle response in pronghorn as the noise produced is like a “whoosh” and is not as loud and shorter in duration than aircraft that regularly use the area.

Access to the gun positions will be primarily outside of the Sonoran pronghorn range, but some vehicular activity associated with the revised project will occur in the pronghorn range. For example, barricades will be set up to prevent the public from accessing test zones. However, these vehicles will use existing roads that already receive regular use and therefore should not result in a significant increase in the amounts of noise and visual disturbance above existing conditions.

Habitat disturbance

No changes.

Collision with vehicles

There are few changes to this section of the 2017 biological opinion except that YPG plans to increase testing to a maximum of 6 times (from 3) per year. As a result, the likelihood of a pronghorn being struck by a vehicle will slightly increase but is still low because vehicles will primarily use roads outside of the Sonoran pronghorn range, use authorized roads, and follow speed limits.

Effects to Sonoran Pronghorn from ERCA on BMGR East

The potential effects of revised ERCA activities on BMGR East are the same as previously analyzed in 2017, which include intermittent disturbance to Sonoran pronghorn for the indefinite duration of the project from the sound of the artillery in the air and hitting the target and from the mobile tracking van and vehicles accessing the targets and deploying barricades. Additionally, there is a small likelihood that the artillery or vehicles associated with the project may strike a pronghorn. With the addition of HE ordnance use, which will result in explosive impacts on HE targets, auditory disturbance of Sonoran pronghorn and the risk of ordnance striking a pronghorn may increase. Further disturbance to pronghorn and their habitat could also occur in the rare event that HE rounds veer off course. In addition, increased test frequency (from 3 to up to 6 times per year) may result in slightly more frequent impacts to Sonoran pronghorn.

The targets on ETAC (Inert: 302, 305, 306: Explosive: HE Hill 320) are within the non-essential experimental population for Sonoran pronghorn and therefore the potential effects to Sonoran pronghorn on ETAC are not analyzed here.

Disturbance – Noise and Visual

Potential noise and visual impacts to Sonoran pronghorn remain the same as previously analyzed in 2017 with the exception of the additional use of HE rounds and increased test frequency. The use of HE rounds may result in increased auditory disturbance to Sonoran pronghorn because the sound of HE rounds hitting targets is louder than that of inert ordnance. Detonation of the HE rounds on targets will be similar, however, to the loud impulse explosive noise of ordnance currently delivered by Air Force missions to these targets on a daily basis. YPG's use of explosive ordnance represents about 1-2 percent of the total use on BMGR East.

In the event that an HE round veers off-course, vehicular or helicopter retrieval activities could disturb Sonoran pronghorn. Based on YPG expertise, rounds should very rarely veer off-course and therefore associated potential disturbance should also be very rare.

The increase in test frequency may result in more frequent auditory and visual disturbance to pronghorn (from ordnance delivery and vehicle and personnel access to set up barricades and to targets). While testing will increase to a maximum of 6 times per year (from 3), some of these tests (a maximum of 4 times per year, but most likely 1-2 times per year) will occur on ETAC where Sonoran pronghorn are part of the nonessential experimental population. Therefore, potential disturbance to the endangered population of Sonoran pronghorn on BMGR East will only be slightly higher than previously analyzed and does not represent a large increase in activities compared to those that already occur at BMGR East. Implementation of conservation measures, particularly conservation measure #2, which requires that targets will not be used if pronghorn are observed within 1 km, will reduce potential noise impacts to Sonoran pronghorn.

Habitat disturbance

There are few changes to this section of the 2017 biological opinion except that the risk of wildfire is slightly increased due to the proposed use of explosive ordnance. The risk of fire ignition and wildland fire, however, is still quite low because the HE hill targets are already heavily disturbed with little vegetation (i.e., reduced fuel for fire ignition) and implementation of Conservation Measures 9 and 10 will reduce the risk of wildland fire by improving communication and emergency response.

In the rare case that an HE round veers off course and explodes in a non-target area, the risk of wildfire igniting would be higher than rounds exploding on targets (due to higher vegetation density in non-target areas). Depending on the severity, size, location, and timing, wildfire can have detrimental impacts on Sonoran pronghorn habitat. Based on YPG expertise, explosive rounds should very rarely veer off-course; therefore, we consider the risk of wildfire from off-course rounds and potential resultant impacts to Sonoran pronghorn habitat to be very low.

Off-road retrieval of rounds that have landed off-course could also result in habitat disturbance. As explained above, however, rounds should very rarely veer off-course and therefore associated potential habitat disturbance should also be very rare. Additionally, impacts from retrieving off-course round will be minimized through YPG's adherence to protocols and coordination with land managers.

Collision with vehicles

There are few changes to this section of the 2017 biological opinion, except the risk of vehicle collisions with Sonoran pronghorn is slightly increased. This is because there may be additional on-the-ground work (e.g., setting up road barricades, temporary radar sites) associated with increased test iterations. As analyzed in 2017, the risk of collisions will be reduced by the implementation of conservation measures, such as following speed limits. That said, the duration of the proposed project is indefinite and we anticipate the Cabeza pronghorn population will grow beyond the current estimated size. Therefore, the likelihood of a pronghorn being struck by a vehicle could increase over time as the population increases.

Strikes with artillery

Our 2017 analysis of testing inert projectiles remains the same with the exception of increased test frequency. Increased test frequency of inert rounds on NTAC and STAC slightly increases the risk of striking and injuring or killing Sonoran pronghorn compared to that previously analyzed. We anticipate, however, the likelihood of this occurring remains low because 1) the munitions are inert (i.e., ordnance or pieces thereof would have to fall on or otherwise strike an animal to kill or injure it), and 2) OI 13-01 specific to target closures will be followed. No known incidents of pronghorn being struck by inert artillery on BMGR East have occurred. That said, the duration of the proposed project is indefinite and we anticipate the Cabeza pronghorn population will grow beyond the current estimated size. Therefore, the likelihood of a pronghorn being struck by a projectile could increase over time as the population increases.

The addition of the use of HE rounds increases the risk of injury or mortality to Sonoran pronghorn from projectile explosions or shrapnel striking pronghorn near the point of detonation. Whereas inert rounds would have to strike a pronghorn to kill it, an HE round has a larger blast radius (as described in the proposed action, the CEP maximum envelope for the target site will be approximately 300 meters), or area within which a pronghorn could be injured or killed by the explosion. The risk of HE rounds killing or injuring a Sonoran pronghorn will be significantly decreased by the implementation of conservation measures, which include routine monitoring of pronghorn and specific target closures (i.e., adhering to OI 13-01).

Under the revised action, the overall number of artillery projectiles fired per year will increase from about 72 to 144 rounds per year. While this represents a two-fold increase from that analyzed in 2017, the total number of rounds continues to represent a small portion (1-2%) of total munitions deliveries to NTAC and STAC.

Effects to Sonoran Pronghorn Recovery with the Project

No changes.

Summary

In summary, the proposed action is anticipated to have some adverse effects on Sonoran pronghorn, but not a great amount above those previously analyzed in 2017. As the Sonoran pronghorn population continues to grow, the likelihood of encounters between pronghorn and YPG activities (which will occur for an indefinite amount of time) will increase, as well as the possibility that incidental take will result from these activities. The most significant potential adverse effects to the endangered U.S. population from YPG activities continue to include fleeing, increased stress, and exclusion from habitat due to project activities, and the possible injury or death from munitions delivery and vehicle strikes. A number of conservation measures reduce the potential for adverse effects from these activities.

CUMULATIVE EFFECTS - SONORAN PRONGHORN

No changes.

CONCLUSIONS - SONORAN PRONGHORN

No changes.

The conclusions of this biological opinion are based on full implementation of the project as described in the Description of the Proposed Action section of this document, including any Conservation Measures that were incorporated into the project design.

INCIDENTAL TAKE STATEMENT – SONORAN PRONGHORN

No changes.

AMOUNT OR EXTENT OF TAKE

No changes. The FWS continues to anticipate the take of one Sonoran pronghorn on BMGR as a result of the proposed action (see the [2017 biological opinion](#) for a full description of anticipated incidental take).

EFFECT OF THE TAKE

No changes.

REASONABLE AND PRUDENT MEASURES and TERMS AND CONDITIONS

No changes.

Review requirement: If, during the course of the action, the level of incidental take is exceeded, such incidental take would represent new information requiring review of the reasonable and prudent measures. YPG must immediately provide an explanation of the causes of the taking and review with the FWS-AESO the need for possible addition of reasonable and prudent measures.

Disposition of Dead or Injured Listed Species

No changes, but to reiterate, upon locating a dead, injured, or sick listed species initial notification must be made to the FWS's Law Enforcement Office, 4901 Paseo del Norte NE, Suite D, Albuquerque, NM 87113; 505-248-7889) within three working days of its finding. Written notification must be made within five calendar days and include the date, time, and location of the animal, a photograph if possible, and any other pertinent information. The notification shall be sent to the Law Enforcement Office with a copy to this office. Care must be taken in handling sick or injured animals to ensure effective treatment and care, and in handling dead specimens to preserve the biological material in the best possible state.

In addition to the above, the 2015 Final Incident Response Protocol for Sonoran pronghorn will be followed.

CONSERVATION RECOMMENDATIONS – SONORAN PRONGHORN

No changes.

REINITIATION NOTICE

This concludes formal consultation on the action outlined in the request. 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.

Certain project activities may also affect species protected under the Migratory Bird Treaty Act (MBTA) of 1918, as amended (16 U.S.C. sec. 703-712) and/or bald and golden eagles protected under the Bald and Golden Eagle Protection Act (Eagle Act). The MBTA prohibits the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, except when authorized by the FWS. The Eagle Act prohibits anyone, without a FWS permit, from taking (including disturbing) eagles, and including their parts, nests, or eggs. If you think migratory birds and/or eagles will be affected by this project, we recommend seeking our Technical Assistance to identify available conservation measures that you may be able to incorporate into your project.

For more information regarding the MBTA and Eagle Act, please visit the following websites. More information on the MBTA and available permits can be retrieved from <http://www.fws.gov/migratorybirds> and <http://www.fws.gov/migratorybirds/mbpermits.html>. For information on protections for bald eagles, please refer to the FWS's National Bald Eagle Management Guidelines (72 FR 31156) and regulatory definition of the term "disturb" (72 FR 31132) published in the Federal Register on June 5, 2007 (<http://www.fws.gov/southwest/es/arizona/BaldEagle.htm>), as well at the Conservation Assessment and Strategy for the Bald Eagle in Arizona (SWBEMC.org).

In keeping with our trust responsibilities to American Indian Tribes, we encourage you to continue to coordinate with the Bureau of Indian Affairs in the implementation of this consultation and, by copy of this biological opinion, are notifying the Tohono O'odham Nation of its completion. We also encourage you to coordinate the review of this project with the Arizona Game and Fish Department.

We appreciate the YPG's efforts to identify and minimize effects to listed species from this project. Please refer to the consultation number, 02EAAZ00-2017-F-0039-R001, in future correspondence concerning this project. Should you require further assistance or if you have any questions, please contact Erin Fernandez (520) 670-6150 (x238) or Julie McIntyre (x223).

Sincerely,

Jeffrey A. Humphrey
Field Supervisor

cc (electronic copy):

Jeff Humphrey, Field Supervisor, Fish and Wildlife Service, Tucson, AZ
Julie McIntyre, Assistant Field Supervisor, Fish and Wildlife Service, Tucson, AZ
Erin Fernandez, Fish and Wildlife Service, Tucson, AZ
Christa Weise, Refuge Manager, Kofa National Wildlife Refuge, Yuma, AZ
Sid Slone, Refuge Manager, Cabeza Prieta National Wildlife Refuge, Ajo, AZ
Stephanie Doerries, Sonoran Pronghorn Recovery Coordinator, Cabeza Prieta National
Wildlife Refuge, Ajo, AZ
Daniel Steward, Wildlife Biologist, U.S. Army Garrison Yuma Proving Ground, Yuma, AZ
Charles Buchanan, Director, 56th Fighter Wing Range Management Office, Luke Air Force
Base, AZ
Aaron Alvidrez, Wildlife Biologist, Luke Air Force Base, AZ
Randy English, Conservation Manager, Marine Corps Air Station Yuma, Yuma, AZ
Jeremy Pennell, Natural Resource Specialist, Marine Corps Air Station Yuma, Yuma, AZ

Director, Department of Natural Resources, Tohono O'odham Nation, Sells, AZ

Chief, Habitat Branch, Arizona Game and Fish Department, Phoenix, AZ, pep@azgfd.gov
Regional Supervisor, Arizona Game and Fish Department, Yuma, AZ (Attn: John Hervert)
Raul Vega, Regional Supervisor, Arizona Game and Fish Department, Tucson, AZ

LITERATURE CITED

Arizona Game and Fish Department (AGFD). 2018.

U.S. Fish and Wildlife Service (FWS). 2016. Recovery Plan for the Sonoran pronghorn Recovery Plan, Second Revision. U.S. Fish and Wildlife Service, Albuquerque, NM.

FIGURES

Figure 1a. Map of the proposed ERCA project on BMGR, Arizona, with the associated safety buffer zone for guided munitions (from YPG 2019).

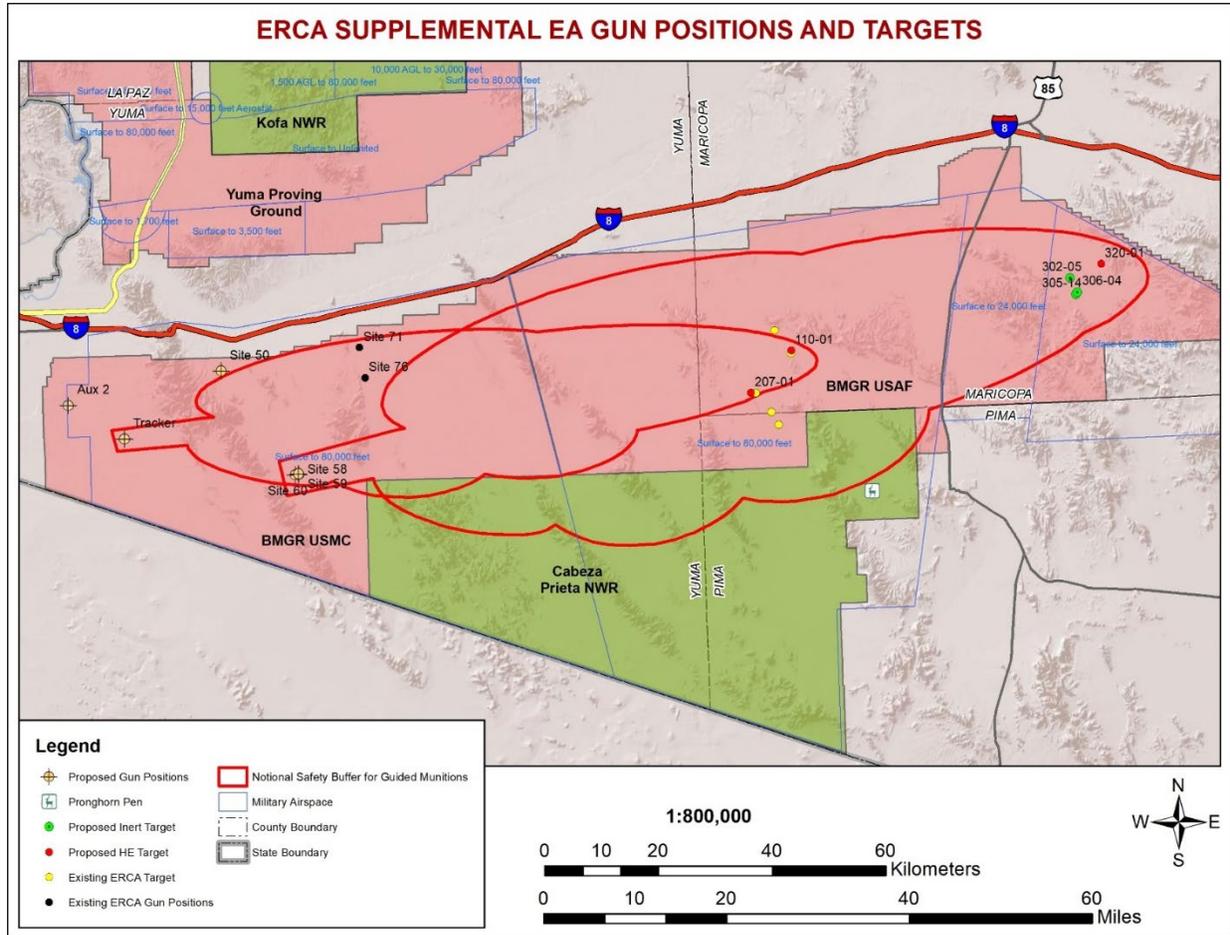
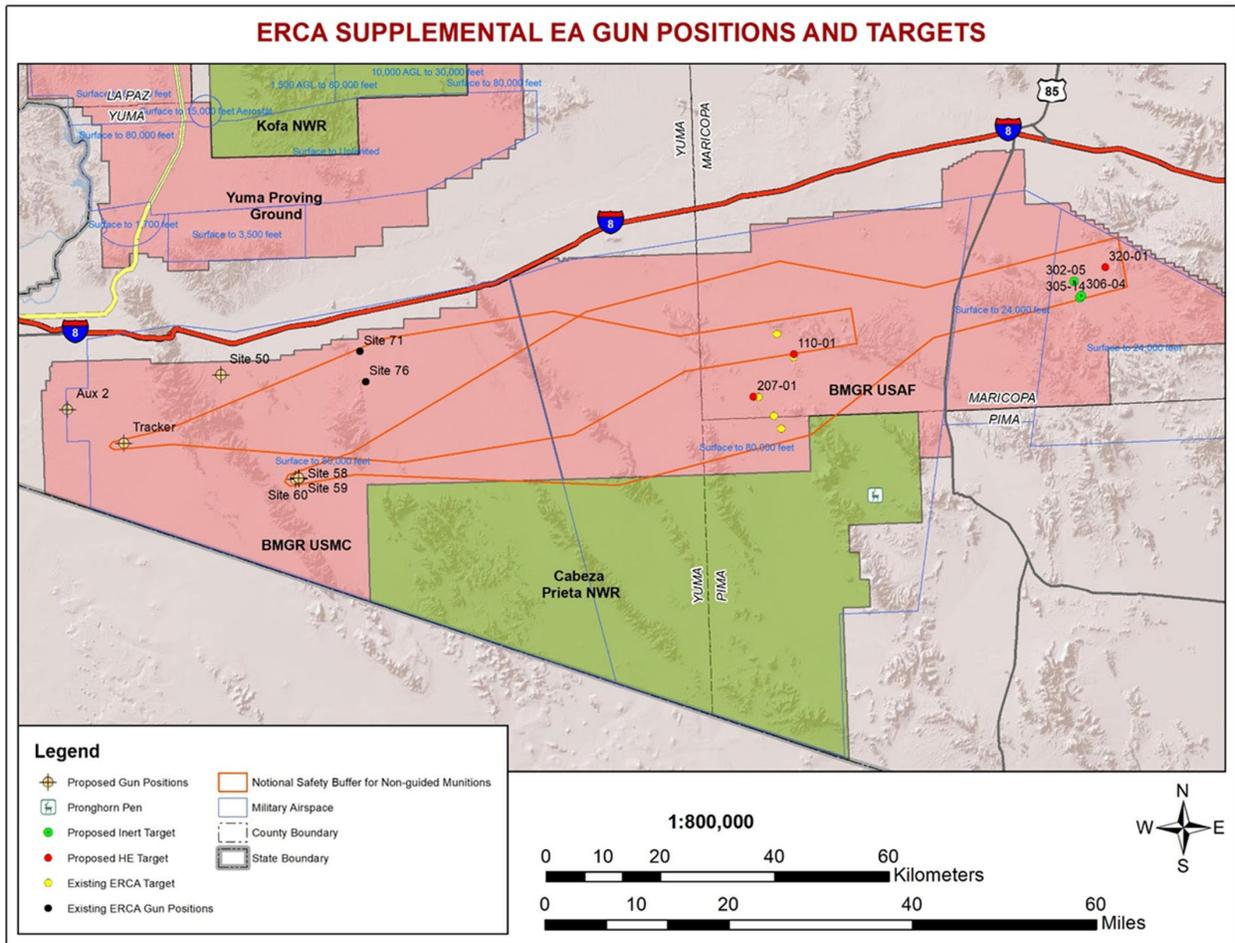


Figure 1b. Map of the proposed ERCA project on BMGR, Arizona, with the associated safety buffer zone for unguided munitions (from YPG 2019).



Appendix A. Concurrences

Acuña cactus (*Echinomastus erectocentrus* var. *acunensis*)

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:

- Because all proposed activities will occur within the footprint of existing targets and roads and because the nearest known acuña cactus are about 9 miles from projectile impact sites, potential direct effects to acuña cactus from being struck by artillery projectiles or by being crushed by vehicles or pedestrians associated with the proposed project are discountable.
- Although dust can impact acuña cactus (e.g., negatively affect plant photosynthesis, respiration, transpiration, water use efficiency, leaf conductance, growth rate, vigor, and gas exchange), acuña cactus are not known to occur near roads and targets that will be used as part of the proposed action. Therefore, potential effects to acuña cactus from dust are discountable.
- The proposed action will not appreciably increase the risk of wildland fire in areas that support acuña cactus due to low fuel density around the targets and because YPG's ERCA testing represents a very small fraction (about 1%) of the total existing munitions delivery at BMGR East. Therefore, potential effects to acuña cactus from wildland fire are discountable.