2-21-96-F-094

SUMMARY
BIOLOGICAL OPINION FOR
"USE OF GROUND-SURFACE AND AIRSPACE FOR MILITARY TRAINING ON THE BARRY M. GOLDWATER RANGE WHICH MAY AFFECT THE ENDANGERED SONORAN PRONGHORN"

Date of opinion: August 27, 1997

Action agency: Department of the Air Force

Project: "Use of ground-surface and airspace for military training on the Barry M. Goldwater Range which may affect the endangered Sonoran pronghorn"

Location: Maricopa, Pima, and Yuma counties

Listed species affected: Endangered Sonoran pronghorn (Antilocapra americana sonoriensis)

Biological opinion: The proposed action is not likely to jeopardize the continued existence of the Sonoran pronghorn.

Incidental take statement:

Anticipated take: *Exceeding this level may require reinitiation of formal consultation*. The following take is expected to occur due to military activities for every ten years of project implementation: 1) Take in the form of harassment that is likely to injure (harm) up to two Sonoran pronghorn, and 2) Take in the form of the death of at least one Sonoran pronghorn.

Reasonable and prudent measures: *Implementation of these measures through the terms and conditions is mandatory.*

1) Measures shall be implemented to minimize impacts of USAF activities on Sonoran pronghorn.

2) Measures shall be implemented to minimize habitat loss, degradation, and fragmentation of Sonoran pronghorn habitat.

3) Measures shall be taken to monitor and study reactions of Sonoran pronghorn on BMGR to military activities.

4) The USAF, as part of their action, will provide a means to determine the level of incidental take that actually results from the project.

Terms and conditions: *Terms and conditions implement reasonable and prudent measures and are mandatory requirements.* To implement Reasonable and Prudent Measure number 1:

1) a. Within one year of the date of the opinion, the USAF will install the following EOD clean up schedule: December 1-February 28, North TAC EOD clean up. March 1-April 15, for South TAC, no full scale live or inert ordnance deliveries from March 1-April 15 (BDU-33s and TP strafe are authorized). All flights will be at or above 500 AGL. April 15-June 15, South TAC EOD clean up. Normal USAF operations will resume upon completion of EOD clean up but not prior to June 1. September 1-November 30, East TAC EOD clean up.

   b. Alternatively, within one year of the date of the opinion, the USAF will install the following schedule on South TAC: No full scale live or inert ordnance deliveries from March 1-April 15 (BDU-33s and TP strafe are authorized). All flights will be at or above 500 AGL. April 15-June 15 will be used for EOD clean up. Normal USAF operations will resume upon completion of EOD clean up but not prior to June 1.

2) All users of the BMGR will be briefed on Sonoran pronghorn, the status of the species, the importance of reducing all impacts to the species, and any terms and conditions that apply.

To implement Reasonable and Prudent measure number 2:

1) All vehicles will be restricted to existing designated roads with the exception of EOD, Maintenance, or Environmental/Archaeological personnel conducting necessary operations which require them to leave designated roads.

2) Actions requiring new surface disturbance will be limited in extent as much as possible and will be confined to existing roadways when feasible.

3) All construction work will be conducted in a manner that will minimize erosion.

4) Pollution of soils and drainages will be prevented by the most appropriate means.

5) Low speed limits on roadways will be implemented as appropriate to ensure that no Sonoran pronghorn are injured due to vehicles.

6) Within six months of the date of the opinion, the USAF will begin a contaminants study to determine aluminum levels to which Sonoran pronghorn are subjected to in water and in forage plants.

To implement Reasonable and Prudent measure number 3:

1) The USAF will lead a cooperative trial effort to collar up to three Sonoran pronghorn using a bait and drop net technique. Telemetry data will be collected on the pronghorn and used to aid in monitoring the effects of the military's activities on the BMGR.

2) The USAF will begin a study to determine: a) what attracts Sonoran pronghorn to target areas throughout North and South TAC, and b) the reactions of Sonoran pronghorn when missions occur. Depending on the information gathered, the USAF may be required to either relocate, remove, or modify certain targets.

3) Within six months of the date of the opinion, the USAF will begin a study to determine the effects of noise and visual impacts from overflight missions on Sonoran pronghorn.
4) Within one year of the date of the opinion, the USAF will begin a pilot study to determine if supplemental watering of test plots will increase the amount and length of time forbs are present and if Sonoran pronghorn will be attracted to and use these areas.

5) Upon completion of the study on chaff, currently being conducted by HQ Air Combat Command, the USAF will supply a copy of the study to the Service.

6) Within one year of the date of the opinion, the USAF will begin a study to determine the effects military activities conducted at night have on Sonoran pronghorn.

7) By March 1999, the USAF will begin a study to determine the effects of military activities on pronghorn during fawning season (biologists must be in the field March-May 1999).

8) All above studies and monitoring efforts will be coordinated with the Service.

To implement Reasonable and Prudent measure number 4:

1) A report of the results of all monitoring and study efforts, including complete and accurate records of all incidental take that occurred during the course of the actions described herein, will be submitted to the Service on a yearly basis unless where otherwise directed. This report will also describe how the terms and conditions of all Reasonable and Prudent measures in this incidental take statement were implemented.

Conservation recommendations: *Implementation of conservation recommendations is discretionary.*

1) The Service recommends that the USAF pursue funding all research needs that are identified for implementation by the Department of Defense in the final revision of the Sonoran

pronghorn recovery plan, as well as all research needs that are concurrently or subsequently identified by the Sonoran pronghorn Core Working Group.

2) The Service recommends that the USAF conduct and/or fund research to determine the effects of low level flights on free-ranging pronghorn and use the information to evaluate flight ceilings and flight corridors (i.e., Military Training Routes) over Cabeza Prieta. The USAF would then provide the Service with the results of any research in a timely manner.

3) The Service recommends the USAF fund and implement an ecosystem partnership for managing the Sonoran Desert to determine other conservation needs in this area.

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AESO/SE
2-21-96-F-094 August 27, 1997

Colonel David L. White
Department of the Air Force
56 RMO/CC
6605 N. 140th Dr.
Luke Air Force Base, Arizona 85309-1934

Dear Colonel White:

The U.S. Fish and Wildlife Service (Service) has reviewed the revised biological assessment and other supporting documents on military training administered by the U.S. Air Force (USAF) on the Barry M. Goldwater Range (BMGR) located in Maricopa, Pima, and Yuma Counties, Arizona. Your September 3, 1996, request for formal consultation was received on September 3, 1996. This document represents the Service's biological opinion on the effects of that action on Sonoran pronghorn (Antilocapra americana sonoriensis) in accordance with section 7 of the Endangered Species Act of 1973, as amended, (16 U.S.C. 1531 et seq.).

This biological opinion is based on information provided in the August 1996 biological assessment (BA), the February 1997(a) addendum to the BA, the June 12, 1997(b) revised BA, conference calls, telephone conversations, field investigations, meetings, correspondence, 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 training activities and their effects, or on other subjects considered in this opinion. A complete administrative record of this consultation is on file in this office.

It is the Service's opinion that the proposed military training administered by the USAF is not likely to jeopardize the continued existence of Sonoran pronghorn.

CONSULTATION HISTORY

On November 9, 1995, the Service was contacted by Luke Air Force Base (LAFB) concerning a situation where Sonoran pronghorn were observed in a live-fire area on the BMGR. The Service recommended that the situation be consulted on and that the USAF should evaluate all activities that were impacting Sonoran pronghorn, and that the situation called for some immediate action on the part of the USAF to prevent any take of Sonoran pronghorn.

On November 28, 1995, the Arizona Ecological Services Office was contacted by Cabeza Prieta National Wildlife Refuge (CPNWR) and advised about a telephone conversation with LAFB the previous day, and the apparent need for a meeting regarding the situation. On December 4, 1995, a meeting was held at LAFB regarding the situation. Some basic facts about the situation were discussed as well as possible actions that could be implemented. The Service received a December 6, 1995, letter from LAFB stating that the USAF would monitor the situation and gather data, pursue sampling the quality of water used by pronghorn, and that they wanted to continue informal consultation. The Service responded with a December 8, 1995, letter reiterating the previous recommendations and stating that the information suggested that formal consultation may be required.

In a March 12, 1996, letter to the USAF the Service reiterated its previous recommendations. The USAF responded with a March 14, 1996, letter stating that there was no data indicating pronghorn were being adversely affected by military training and that immediately upon completion of a biological assessment, the USAF would enter into formal section 7 consultation. A similar April 9, 1996, letter was sent to the Regional Director.

A July 31, 1996, letter from the USAF included a notice of intent from Defenders of Wildlife and a statement that they wanted to keep the lines of communication open and continue informal consultation during development of the biological assessment.

During a September 3, 1996, meeting, a request for formal consultation and a biological assessment of that date was presented to the Service. In a letter dated December 18, 1996, the Service acknowledged receipt of the request for formal consultation. In that letter the Service also recommended that the USAF evaluate the effects of the proposed action on the endangered lesser long-nosed bat (Leptonycteris curasoae yerbabuenae) and the proposed endangered cactus ferruginous pygmy-owl (Glaucidium brasilianum cactorum). On March 10, 1997, the cactus ferruginous pygmy-owl was listed by the Service as endangered. On March 12, 1997, the Service received an addendum to the original BA.
On March 24, 1997, the Service submitted a letter to the USAF requesting an extension until August 15, 1997 for preparation of the biological opinion. On March 26, 1997, the USAF approved the Service's request and asked for an interim biological opinion to include monitoring of Sonoran pronghorn and military activities in the vicinity of high explosive hills on North and South Tactical Ranges until September 1, 1997. The USAF asked the Service to use the existing BA and addendum as well as additional information provided at a March 26, 1997, meeting.

On March 28, 1997, the Service issued an interim biological opinion to the USAF, which expires on September 1, 1997. Formal consultation has continued, and the USAF is currently determining if any of their actions may affect either the lesser long-nosed bat or cactus ferruginous pygmy-owl. The USAF has requested that the present opinion only address the Sonoran pronghorn at this time.

BIOLOGICAL OPINION

DESCRIPTION OF PROPOSED ACTION

The BMGR is the nation's second largest aerial gunnery training range and has been used for developing and maintaining the combat readiness of the tactical air forces of the USAF, Marine Corps, Navy, and Army. About two-thirds of the BMGR is located on lands managed primarily by the Bureau of Land Management and about one-third is within the CPNWR.

According to the USAF, about 140,163 acres, which is approximately 5.1% of the entire range and 7.6% of the area not including CPNWR, have been impacted by military activity. Military activities in the approximately 822,000 acre area of overlap with CPNWR are limited to use of airspace and operation of four Air Combat Maneuvering Instrumentation sites. Air-to-ground training operations occur only outside of CPNWR. The USAF, U.S. Army National Guard's Western Army Aviation Training Site (WAATS), and Navy/Marine Corps are the three principal agencies that use the BMGR for combat aircrew training. However, other entities also use the BMGR. The eastern part of the BMGR is known as the Gila Bend segment. It contains approximately 1,650,000 acres and the airspace and lands are under the jurisdiction of the USAF.

Military activities occurring within the Gila Bend segment include: airspace use, four manned air-to-ground ranges, three tactical air-to-ground target areas (East TAC, North TAC, and South TAC), four auxiliary airfields (AUX-6, AUX-8, AUX-10, and AUX-11), Stoval Airfield, and explosive ordnance disposal/burn areas.

Regular users of the Gila Bend segment include the USAF's 56th Fighter Wing, LAFB, Arizona; the 335th Fighter Wing, Davis Monthan Air Force Base, Arizona; the 162nd Fighter Wing (Air National Guard), Tucson International Airport, Arizona; and the U.S. Army's Western Army National Guard Aviation Site and 1/285th Attack Helicopter Battalion, Silver Bell Heliport, Marana, Arizona. These units account for approximately 90% of the total use of the Gila Bend segment of the BMGR. The remaining use of the Gila Bend segment of the BMGR is accounted for by Air National Guard and Air Force Reserve units from other states; by Marine Corps and Navy units throughout the continental United States, Hawaii, and the Atlantic and Pacific fleets; by numerous transient military units from northern locations during winter months when their operations are hindered by weather; by aircrews of allied nations which the U.S. government has agreed to provide fighter pilot training and large multiple unit exercise or special operations. Ranges on the Gila Bend segment of the BMGR are typically available from 0700-2300 hours, Monday through Friday, and 0800-1700 hours on two weekends per month, except on Federal holidays.

Three blocks of FAA-designated restricted airspace, R-2301E, R-2304, and R-2305, overlie the majority of the Gila Bend segment. USAF range and target installations within these blocks include: the Air-to-Air Range, used for air combat and gunnery training; Manned Range Targets 1-4, used to train pilots in precision air-to-ground delivery of practice, conventional ordnance,

and special weapons; and the North, South, and East Tactical Ranges, designed to simulate targets of opportunity for air-to-ground firing.

In fiscal year 1995, 50,074 sorties (1 sortie = a take-off and a landing by one aircraft) were flown within R-2301E, R-2304, and R-2305. The vast majority of these, 42,277 sorties, were flown in R-2301E. Of all airspace use on the Gila Bend segment of the Range in fiscal year 1995, F-16s accounted for approximately 68% of the sorties. A-10s were the second most frequent users and accounted for approximately 23% of the sorties. Helicopters of all types accounted for approximately 1% of the sorties. Most helicopter flights (55% of sorties) occurred over R-2304 and R-2305. Small fixed-winged aircraft accounted for less than 0.4% of the sorties. No major seasonal patterns of range use occur. However, each tactical range is normally closed to live-fire activity for about 3 months for maintenance and explosive ordnance clearance and disposal. Increased use by transient units during winter months more or less compensates for days lost to maintenance and holidays. Thus, a slightly greater amount of daily activity occurs in winter but on a smaller percentage of days.

Two USAF Military Training Routes, VR244 and VR260, cross CPNWR. VR244 is 18 miles long and 4 miles wide. VR260 is 16 miles long and 4 miles wide. Authorized altitudes within these routes are 500 to 3000 feet above ground level. In fiscal year 1995, a total of 376 sorties were made in VR244. All flights were low-level navigation or LANTIRN (Low Altitude Navigation and Targeting InfraRed for Night) missions flown by USAF, Navy, or Marine fighter or attack aircraft except for two sorties for low altitude navigation by C-130s and two sorties by Cessnas for route reconnaissance. At an average speed of 420 knots, a flight of aircraft covers the 18 miles of VR244 over CPNWR in about 2.2 minutes. At this speed, the 122 flights spent a combined total of approximately 4.5 hours (268 minutes) at low altitude over CPNWR in all of fiscal year 1995. In fiscal year 1995, a total of approximately 609 sorties were made in VR260. Approximately 85% of the sorties made through VR260 were by F-16s and other high performance attack aircraft and approximately 15% were by A-10s. At an average speed of 480 knots, a flight of high performance attack aircraft covers the 16 miles of VR260 over CPNWR in about 2.0 minutes. At an average speed of 340 knots, a flight of A-10s covers the 16 miles of VR260 over CPNWR in about 2.8 minutes. Thus, the total amount of time spent over CPNWR in VR260 in all of fiscal year 1995 was approximately 16.5 hours (992 minutes).

Air-to-Air Range. The Air-to-Air Range lies entirely within R-2301E and consists of two flight training ranges, Air-to-Air High and Air-to-Air Low, each with assigned vertical and lateral airspace and surface boundaries. Air-to-Air High Range has a designated floor altitude of 12,000 feet mean sea level and a ceiling altitude of 80,000 feet mean sea level (Flight Level 800). Air-to-Air Low Range has an assigned altitude of surface to 10,000 feet mean sea level, except for portions overlying CPNWR, where minimum altitude is 1,500 feet above ground level. A variety of altitude blocks occur during Air Combat Maneuvering Instrumentation training depending on the nature of the activity and standard Air-to-Air High and Air-to-Air Low altitude restrictions.

A progression of non-firing training missions occurs on all Air-to-Air Ranges. Each level of training contains a series of air combat maneuvers that sequentially increase in degree of difficulty and required skill level of pilots. These programs, listed in order of most fundamental to the most complex include: intercepts, where two aircraft on a common flight vector maneuver for identification of friendly/enemy aircraft; basic flight maneuvers include turning, climbing, and descending; air combat maneuvers; air combat tactics which combines air combat maneuvers with simulated combat; and dissimilar types of aircraft in simulated combat. Live aerial gunnery is permitted only within a designated area along the western end of R-2301E. At the present time, only the 162nd Fighter Wing, Tucson Air National Guard practices live air-to-air gunnery on the Gila Bend segment of the Range using the Agates target system. A total of 329 aerial gunnery sorties were flown in 1995. An alternate live aerial gunnery range is located south of the primary range over the CPNWR but can be scheduled for use only under special operational considerations. The alternate live aerial gunnery range has not been used for three years.

The Air Combat Maneuvering and Instrumentation (ACMI) is used for simulated air-to-air combat training between friendly and simulated enemy fighter aircraft to improve aircrew combat maneuvering, tactics, and techniques. ACMI is a computerized telemetry/instrumentation system that monitors the relative positions and flight data of all aircraft engaged in a training mission. ACMI tracking sites, which are located on selected mountains around the range, follow aircraft in simulated combat and transmit flight data to the ACMI range master tracking instrumentation substation located on Childs Mountain north of Ajo. Combat activity is displayed via video simulation for inflight advisory comment and recorded for post-mission performance evaluation.

Manned Ranges 1-4. Range Targets 1, 2, 3, and 4 are manned air-to-ground ranges and simulate conventional and special weapons delivery targets. Targets 1, 2, and 4 lie within Range R-2301E; Target 3 lies within R-2305. Manned ranges are under direct operational control of a range control officer. Personnel are stationed in observation towers near the target for the purpose of scoring the accuracy of a weapons delivery using inert practice weapons. Some are scored on a hit or miss basis; others are scored electronically showing degrees of accuracy. A combination of five target types, tactical strafe, strafe, bomb/rocket circle, special weapons delivery, and applied tactics orientation, comprise the manned target complex. Each target is approached at different airspeeds, angles, and altitudes by the attack aircraft.

All manned ranges have night operations capability for conventional ground attack maneuvers. The use of airborne flares, smudge pots, and lighted run-in lines facilitate night operations. Target hits are scored either by triangular reference to the flash emanating from the ignition of practice ordnance on contact or by the Acoustiscore System (noise-activated system for scoring ordnance delivery).

Manned ranges are closed for maintenance activities and decontamination activities by Explosive Ordnance Disposal (EOD) personnel. These ranges are normally scheduled for a two-day clearance (a Thursday and Friday) every other month or every 50 use-days. Areas covered during these clearances include a 500-foot radius around each conventional target area. Additionally, a

strip 50 feet wide along each side of the graded lead-in and lead-out to conventional targets, a 500-foot radius around the special weapons circle, and a strip 50 feet wide along each side of the lead-in to the special weapons circle out to one mile may also be cleared. Clearance involves removal of practice bomb, rocket, and flare fragments. Each manned range is also closed for approximately three weeks annually for more extensive decontamination procedures. During annual maintenance, areas cleared extend to a 2000-foot radius around each conventional and applied tactics target, and a 4000-foot radius around each special weapons target. Clearance also includes 100 feet on each side of special weapons target lead-ins and accessways. Every five years, decontamination extends to one nautical mile from the outer edge of each target or until fewer than 5 complete ordnance items per acre are found, whichever is greater. Five-year clearance of manned ranges requires up to two months, during which the range is closed.

Tactical Ranges. Three tactical ranges, North, South, and East TAC are present on the Gila Bend segment of the BMGR. These ranges are unmanned, diverse target complexes for air-to-ground firing that simulate combat staging areas. North and South TAC lie under the Air-to-Air High Range and are close to Manned Ranges 1, 2, and 4; South TAC abuts the ground boundary of the Air-to-Air Low Range. Training missions on adjacent ranges and targets require flights within North and South TAC to be confined to specific airspace (surface to 10,000 feet MSL) and to be responsive to other range training schedules. East TAC is located in the northeastern corner of the Gila Bend segment and underlies R-2304 airspace with range air space extending from the surface to 18,000 MSL.

North and South TAC present a composite of simulated combat targets that include: airfields with aircraft in revetments, on taxiways and runways, as well as control towers, hangars, and administrative buildings; field artillery batteries and missile launchers; truck convoys; railroad yards with trains; friendly/enemy tank groups and regiments; Maverick missile training targets (plywood and real tanks); high explosive hills (targets for live high explosive bombs and rockets); and surface-to-air (SAM) missile sites with reveted missiles and associated radar equipment. Many targets are constructed of plywood and other common construction materials. Exceptions are simulated trains, convoys, and combat vehicles, that are made up of salvaged tanks, trucks, buses, jeeps, and combat vehicles. The configuration and type of targets used can change when new combat scenarios require different target configurations. New targets are also continually added to replace old ones. Salvaged vehicles positioned on the tactical ranges are conditioned by removal of all lubricants and coolants before being set up as targets.

Combat and target features located on East TAC include: an airfield complex with runway, hangars, revetments, and storage buildings; SAM missile sites with reveted missiles and associated radar equipment; an ICBM site consisting of a covered silo and associated buildings; a railroad yard with warehouse and simulated train; a single span bridge crossing a dry wash; enemy radar sites with reveted missiles; tanks and trucks randomly spaced along dirt roads; randomly spaced artillery pieces serving as heavy artillery for a forward battle staging area; forward battle area with friendly and enemy tanks deployed, mobile SAM units artillery, and ZSU 23/4 unit troops; Maverick missile training targets; high explosive ordnance targets; and an

enemy command center containing antenna and automatic weapons. Other non-target, support combat features on East TAC include: NATO Hill, an observation hill with helicopter landing pad; and water wells.

Authorized ordnance for delivery at selected North, South, and East TAC targets include gun/cannon ammunitions, white phosphorus spotting rockets, inert heavyweight bombs and shapes, high explosive bombs and rockets, and live Maverick missiles. Some targets have scoring capability via a Television Ordnance Scoring System (TOSS). Pilots can receive direct in-flight information from the scorer and a hard copy printout for post-flight assessment. At least two sites for Ground Forward Air Controllers is located on all ranges and is used in controlling aircraft for missions such as Close Air Support (CAS). The ranges are also used with Electronic Warfare equipment to simulate enemy air defense for conducting training. A variety of anti-aircraft armament (AAA), SAM, and missile jamming systems can be deployed for units to employ electronic countermeasures (ECM), chaff, and radar warning receiver (RWR) equipment tactics.

All tactical ranges are available for night and day use, though night use accounts for less than 15% of flights and sorties. Night use of live ordnance is limited to transient military units flying out of Davis Monthan Air Force Base (DMAFB) in Tucson, Arizona. Fewer than 5% of missions involve night use of live ordnance and approximately 90 % of night missions are flown into East TAC because it is closest to DMAFB. When East TAC is unavailable, North TAC is the preferred range over South TAC.

Tactical ranges are used year round except for scheduled range maintenance periods. Each tactical range is closed for a period of approximately three months each year for range maintenance and EOD clearance. Currently scheduled maintenance periods are October to December for East TAC, January to March for North TAC, and April to June for South TAC. During annual maintenance, an area 1000 feet in radius from the edge of each target and 100 feet on each side of access ways is decontaminated. Every five years decontamination extends to one nautical mile from the outer edge of each target or until fewer than five complete ordnance items per acre are found, whichever is greater.

Each tactical range contains one high explosive hill (H.E. Hill) target, where live general purpose bombs and rockets are used. North TAC and East TAC also each have one live Maverick missile target. In 1996 an average of 131 live bombs per month were dropped on the three tactical ranges combined. All ordnance expenditures were made on high explosive hills between 0700 and 2200 h. Approximately 25 Maverick missiles per month were fire on North and East TAC combined.

Both the Air-to-Air and Air-to-Ground ranges allow the use of chaff and flares, expended in accordance with USAF regulations. Typically, Air-to-Air missions utilize more chaff and flares than Air-to-Ground missions with an average of 15 chaff and 10 flares deployed per aircraft per sortie. Night-time illumination flares are also used during night Air-to-Ground operations on all

the tactical ranges and occasionally on the manned ranges. 3-8 illumination flares are normally deployed per mission. Missions utilizing illumination flares account for about 20-30% of all night missions and are generally used by A-10 aircraft, though other aircraft use them.

Airborne and ground based target identification lasers are used occasionally on the tactical ranges and manned ranges. Controlled use consists of aiming a laser light at a target and either providing the aircrew with the location of the target or providing a laser guiding bomb to find the target.

Auxiliary Airfields. Four abandoned auxiliary airfields, AUX-6, AUX-8, AUX-lO, and AUX-11 are present on the Gila Bend segment of BMGR. Each of these airfields consists of a triangular configuration of runways on a 500 to 700-acre tract. AUX-8, AUX-lO, and AUX-11 are no longer used for any military activities. AUX-6 is used as a refueling and staging area for rotary-winged aircraft by WATTS and the 1/285th Attack Helicopter Battalion.

Stoval Airfield. Stoval Airfield is an abandoned auxiliary airfield located in the extreme northwest corner of the Gila Bend segment of the BMGR. This airfield is not currently used by the USAF but is used by Marines Corps for helicopter landings.

EOD. EOD personnel destroy dangerous unexploded ordnance on the ranges being cleared. The remaining scrap metal, along with recyclable scrap metal from target vehicles, is taken to one of four consolidation points where it is processed for recycling. These are 3-5 acre cleared sites surrounded by a ten foot high chain link fence. One site serves Manned Range 1 and North and South TAC. Another located on AUX 9 serves Manned Range 2. A third, located on AUX 11, serves Manned Range 4. A fourth serves Manned Range 3 and East TAC. LAFB EOD controls all access into these areas. Some explosive demolition work is occasionally performed at these sites.

Military ground use in the Gila Bend segment outside of the above facilities is limited to roads and emergency situations. Sites utilized by the Ground Forward Air Controllers are accessible by roads/hiking. Use of the sites and use of Ground Forward Air Controllers is limited in scope and accounts for less than 1% of all missions on the BMGR.

Currently, the USAF has towers set up around the H.E. Hills in South and North TAC for monitoring purposes. Biologists survey the H.E. Hills from the towers before deliverance of live ordnance to determine if pronghorn are in the area. If pronghorn are detected, the mission is called off. The maximum time allowed between missions is two hours. If subsequent missions occur after a two hour time period, another survey and clearance is required. For a more detailed description refer to Appendix 1 of the revised BA.

Marine and Navy use of MTRs over CPNWR have been covered in a previous Section 7 consultation. The only MTRs not covered in that consultation are VR244 and VR260, which cross 18 and 16 miles of CPNWR, respectively. Aircraft use of VR244 is quite low, with a total

of 122 flights and 376 sorties made in FY 1995. At an average speed of 420 knots, a flight of aircraft covers the 18 miles over CPNWR in about 2.2 minutes. At this speed, the 122 flights in VR244 spent a combined total of approximately 4.5 hours (268 minutes) at low altitude (greater than 500 feet) over CPNWR in all of FY 1995. A total of approximately 468 flights and 609 sorties were made in VR260 in FY 1995. The total amount of time spent over CPNWR in VR260 in all of FY 1995 was approximately 16.5 hours (992 minutes). No helicopters used VR244 or VR260 in FY 1995.

Future use on the BMGR

The only expected significant change in use patterns on the Gila Bend segment is an approximately 10% increase in night operations. These night operations will occur between official sunset and 2300 h on Monday through Friday. Projected use may increase the range utilization rate from 85% to approximately 90%. No changes in the area of land impacted by military activities are expected.

STATUS OF THE SPECIES

The Service considers Sonoran pronghorn as a distinct subspecies of American pronghorn (Antilocapra americana). It is distinguished from other subspecies by its small size, pale coloration, and distinctive cranial features (Goldman 1945). The Sonoran pronghorn was listed as an endangered species on March 11, 1967. In Arizona, the Sonoran pronghorn occurs on the CPNWR, BMGR, and Organ Pipe Cactus National Monument, from Highway 85 west to the Cabeza Prieta Mountains and from approximately the Wellton-Mohawk Canal south to the Mexican border (Snow 1994, Service 1982). Recent unconfirmed sightings suggest some animals may occur on the Tohono O'odham Reservation and in the Lechuguilla Desert, west of the Cabeza Prieta Mountains, as well (Service 1994). In Sonora, Mexico, the Sonoran pronghorn is known from near Sonoyta south to the Puerto Penasco area, east to the sandy plains around Bahia de San Jorge, and west into flats surrounding the Sierra de Pinacate (Service 1994). The current range of the Sonoran pronghorn is estimated at more than 4.9 million acres (Service 1994). Historically, the range of the Sonoran pronghorn may have been much larger, extending further west, possibly into the Yuma Desert, Imperial Valley of California, and northeastern Baja California; to north of the Gila River; east to the Baboquivari Mountains; and south to Bahia Kino or Guaymas (Service 1994, Hall and Kelson 1959, Hoffmeister 1986). However, precise determination of the historic range is precluded by a lack of specimens and the largely anecdotal nature of historic records.

Based on survey data collected from 1992 to 1994, an estimated 125 to 256 Sonoran pronghorn occur in Arizona and 179 to 313 occur in Sonora (Snow 1994, Service 1994). Data are insufficient to determine trends in population size (Service 1994). Current estimates for the population range from 130 to 160 animals in Arizona (J.Hervert, AGFD, pers. comm. 1997). Pronghorn are typically found in broad, alluvial valleys. They inhabit creosote (Larrea tridentata) and bursage (Ambrosia deltoidea and A. dumosa) vegetation communities year round and more

diverse vegetation associations from late winter to early fall (Service 1994). Hughes and Smith (1990) found Sonoran pronghorn in areas of approximately 11 percent perennial cover.

The diet of Sonoran pronghorn consists of a variety of plant materials, particularly cacti, such as fruits of jumping cholla (Opuntia fulgida), herbaceous species such as plantain (Plantago insularis), and filaree (Erodium texanum), a variety of shrubs, trees, and grasses (Hughes and Smith 1990, Monson 1968, Carr 1970). The importance of the availability of water sources to Sonoran pronghorn is unknown. Hughes and Smith (1990) found no significant difference in distance of pronghorn localities to water between the wet and dry seasons, implying that they do not congregate near water. Monson (1968) found no evidence that pronghorn drink water, even when it is available. Wright and deVos (1986) have documented Sonoran pronghorn at water sources on numerous occasions. AGFD have also documented numerous instances of Sonoran pronghorn drinking water. Sonoran pronghorn have also been documented by AGFD interacting with coyotes at the HE hill bomb crater on South TAC. Encounters observed include passive reactions of both species and dominance on the part of Sonoran pronghorn and retreat on the part of the coyote.

Pronghorn become sexually mature at 12 to 16 months. Parturition occurs from February through May and animals rut from July to September (Kitchen and O'Gara 1982, Service 1994). Mean home range size is 56.1 square kilometers for males and 45.2 square kilometers for females (deVos 1990). At the onset of the hot, dry period in late spring, individual animals move distances of up to 50 km from lower, sparsely vegetated valleys to areas of more complex vegetation. With the onset of the summer rains, animals move back to areas with low vegetation diversity (deVos 1990).

Review of the literature suggests that historic population declines and extirpation from portions of its historic range include unregulated hunting in historic times, current illegal hunting in Sonora (Service 1994), degradation of habitat by livestock grazing, disturbance of habitat resulting from ground-based activities, disturbance of animals caused by overflights, loss of riparian habitat on the Gila River and the Rio Sonoyta that may have been important as foraging or watering areas, and conversion of habitat to agriculture, particularly in the Gila River Valley and Imperial Valley, California (deVos 1990, Service 1994, 1982). This subspecies lives in an extremely harsh desert environment that is subject to extended drought. As a result, the viability of the species is sensitive to environmental and demographic stochastic events.

A population viability analysis conducted with the program VORTEX suggested that three factors are especially important in determining population persistence. The variability in population size increased, and in some cases, populations went extinct if any of the following three variables were included in a simulation: five catastrophic events, such as drought, occurring in 100 years; annual mortality of females in excess of 60 percent; or female fawn mortality in excess of 60 percent (deVos 1995).

The Service finalized a recovery plan for the Sonoran pronghorn in 1982. The recovery objective was defined as "maintain existing population numbers and distribution of Sonoran pronghorn while developing techniques which will result in a U.S. population of 300 animals (average for a five-year period) or numbers determined feasible for the habitat." However, the recovery plan is currently being revised and this target number may change. The draft plan calls for downlisting the Sonoran pronghorn to threatened when the U.S. population reaches at least 500 animals (average for a five-year period), numbers are determined feasible for the habitat, or numbers are determined adequate to sustain the population through time (Service 1994).

Additional information on the taxonomy, range, distribution, biology, and threats to the Sonoran pronghorn can be found in Service (1982, 1994), Wright and deVos (1986), Hoffmeister (1986), Mearns (1907), Hughes (1991), Edwards and Ohmart (1981), deVos (1990), and Cockrum (1981).

ENVIRONMENTAL BASELINE

The environmental baseline includes past and present impacts of all Federal, State, or private actions in the action area, the anticipated impacts of all proposed Federal actions in the action area that have undergone formal or early section 7 consultation, and the impact of State and private actions which are contemporaneous with the consultation process. The environmental baseline defines the current status of the species and its habitat in the action area to provide a platform to assess the effects of the action now under consultation.

As late as 1994, the estimated population of Sonoran pronghorn using distance sampling methods was more than 200 individuals. The results of an aerial survey, conducted in December 1996, suggest that the most reliable estimate (based on capture-recapture estimates using collared individuals) of the current population is 130-160 individuals (J. Hervert, pers. comm. 1997). The decrease in the population may be attributable to periods of drought in 1994 (November), 1995 (summer), and 1996 (winter). Available food was not as abundant, such low food forces pronghorn to use habitat where they appear to be vulnerable to predation, and lack of water may also be a factor.

Recent drought conditions have had severe impacts on the Sonoran pronghorn population in the United States (Hervert 1996). In 1995, there was abundant rainfall in the Spring. Productivity of Sonoran pronghorn was between 1 and 1.4 fawns per doe. In July, the ratio of fawns to does was as high as 50/100. However, as drought conditions set in from July to December most fawns died. Recruitment was 12 fawns per 100 does.

Drought conditions continued in 1996. Productivity was only 0.33 fawns per doe. The fawns that were produced died very quickly. The AGFD could not detect a single fawn surviving in the population in the United States in 1996; recruitment was zero. At a recent population viability analysis workshop conducted for the Sonoran pronghorn, recruitment at a level of 35 fawns per 100 does was deemed to be necessary for the subspecies to persist (Hervert 1996).

Adult mortality has been very high in the winter drought periods. Overall, of the 22 Sonoran pronghorn that were collared in the last few years, predation may account for 10 and possibly more of the known mortalities and insufficient evidence resulted in the rest being labeled as "cause unknown." No collared pronghorn mortalities were documented during the height of the drought season. Capture myopathy may have played a role in up to four of the mortalities (J.Hervert, in litt. 1997). Where possible (the majority of documented mortalities) bone marrow condition was assessed. Only one specimen was determined to be in poor to fair condition while all others were determined to be in good condition. No evidence of predation of pronghorn has been documented near water sources (J. Hervert, AGFD, pers.comm. 1997).

In 1995, the AGFD discovered, during regular telemetry flights, a bomb crater in the vicinity of H.E. Hill on South TAC that contained an ephemeral supply of water (Hervert et al. 1995; Hervert 1996). This open water source was monitored by the AGFD and they found that Sonoran pronghorn were using it each day that observations were made. Two collared pronghorn were documented drinking from the water source, primarily during crepuscular hours. The AGFD also observed Sonoran pronghorn foraging in the vicinity of H.E. Hill. Through monitoring performed during the continuing telemetry flights, it was discovered that a group of pronghorn remained in the area of this H.E. Hill while others had moved to southern portions of the Range. It appeared that the group that remained was not wandering randomly. From the time of detection to when the group left was a period of four weeks. The crater dried up on July 15, 1995. The crater was monitored for two weeks after it had dried. Within one week of the crater drying, the two collared pronghorn were using bajada and hillside plant associations 8-16 kilometers away from the crater, rather than the creosote/bursage community they had previously occupied. Beginning in August of 1996, the crater held water until at least November 1996.

In March 1996, a group of 6 pronghorn (including one collared individual) were detected bedded in a creosote flat 50 meters northwest of H.E. Hill on South TAC (Hervert 1996). The same collared individual was detected in South TAC throughout that month. That time of year is when pronghorn would be expected to occur in the area.

Pronghorn have been observed in various locations on and around H.E. Hill on South TAC (Hervert 1996). The one crater with water that pronghorn have used is 15 meters from the bottom of the Hill. There are many other craters with vegetation as mentioned that occur from the base of the hill to at least 300 meters away. Pronghorn have been observed drinking from the crater, at certain short distances from the crater, standing on the hill, bedded on the hill, and bedded during the day under a tree 200-300 meters East of the hill. Furthermore, pronghorn can probably be either active or resting anytime during the day or night.

Relatively large pieces of shrapnel and some unexploded bombs occur all around the hill (Hervert 1996). Ordnance sometimes misses the hill and shrapnel can fly long distances (up to 1000 meters or more). Trees in the vicinity of the hill show obvious evidence of being constantly hit by shrapnel.

Marked pronghorn have been observed, off and on, in North TAC for up to half a year (Hervert 1996). Pronghorn have been detected in the vicinity of the H.E. Hill on North TAC only once by AGFD and by the USAF on at least five occasions during 1997.

Things that may attract pronghorn to the target areas other than the targets themselves, include food and open habitat. It is believed that disturbance of the ground promotes forb growth which is used as a food source by Sonoran pronghorn (Hervert 1996). It is believed that persistence of preferred vegetation in areas disturbed by military activities may attract pronghorn to those areas. It is also thought that this persistence is dependent on the seasonal timing of rainfall events. When conditions in their habitat are drier, Sonoran pronghorn are expected to be found in the southern part of their current distribution where chain-fruit cholla occurs. When rains come, pronghorn leave those areas that were used during the drier periods. In early and mid-summer of 1995, pronghorn habitat started to become drier. Yet green forbs could still be found in the vicinity of H.E. Hill on South TAC. Pronghorn were still using the area after October, and are in the tactical ranges on a frequent basis, perhaps up to 50% of the time that AGFD conducts surveys.

Groups of pronghorn can be expected to continue use of the tactical ranges in the future (Hervert 1996). Even in periods of drought they may occur there. Sonoran pronghorn are likely to occupy South TAC and to a lesser extent North TAC during the cool seasons (October through May) (J.Hervert, pers. comm. 1997). During the months of June, July, August, and September pronghorn would be expected less frequently on the tactical ranges. This would depend on local conditions (i.e., rainfall) both on and off the tactical ranges. If conditions are good on the tactical ranges and poor elsewhere, pronghorn may be expected to use the ranges even during the hot season. In addition, the cooler seasons of the year are when important portions of pronghorn life history occur. For example, the rut occurs in October (and sooner) and fawning occurs as early as February but primarily in March and April and sometimes as late as May (J. Hervert, pers. comm. 1997).

On April 17, 1996, the Service issued a biological opinion to the Marine Corps for existing and proposed activities by the Marine Corps Air Station (Yuma) in the Arizona portion of the Yuma Training Range Complex. This biological opinion addressed activities in the western portion of the BMGR and west of the Gila Bend segment. The Service found that the activities were not likely to jeopardize the Sonoran pronghorn. However, take of Sonoran pronghorn was anticipated and several reasonable and prudent measures with several implementing terms and conditions were provided for that species and others. In addition, several conservation recommendations were provided.

EFFECTS OF THE ACTION

Currently, no studies have been conducted on the BMGR to determine the effects of any military training on Sonoran pronghorn. There are no documented Sonoran pronghorn mortalities that have been directly linked to military activity, though the cause of several mortalities have been

undeterminable. It is not known what kind of effects military activity has or to what extent their actions have on Sonoran pronghorn. The following is a discussion of the most probable types of effects that Sonoran pronghorn may experience on the BMGR.

Direct death or injury to pronghorns could occur as a result of ordnance deliveries, other objects falling from aircraft, spent shells, live rounds, chaff, flares, aircraft crashes, or collisions with ground vehicles. Potential impacts of normal ordnance deliveries are limited to manned and tactical ranges except for air-to-air live ammunition (ball only). On manned ranges and most areas of tactical ranges, ordnance is limited to cannon fire and practice bombs and rockets. High explosive delivery is limited to high-explosive hills, one of which occurs on each of the tactical ranges. Live Maverick missiles are used on one target near the southern border of North TAC and one target in East TAC. Numerous targets throughout the ranges also receive various degrees of strafing.

East TAC and Manned Ranges 2, 3, and 4 are outside the known current range of Sonoran pronghorn based on telemetry data collected between November 1994 and May 1996. Based on these data, few pronghorn have occurred near Manned Range 1. Therefore, pronghorn appear to be most at risk of death or injury from ordnance from live fire air-to-air training and from air-to-ground training on South TAC, North TAC, Manned Range 1, and the Air-to-Air Live Fire Areas.

The USAF estimated the area within their target ranges that is affected by various impacts and also estimated the area of Sonoran pronghorn range that is overlapped by these areas of impact. Category 1 includes areas regularly impacted by air-to-ground ordnance deliveries within manned and tactical target ranges. A total of 2,917 hectares within South TAC, North TAC, and Manned Range 1 are impacted within this category. Category 2 includes areas subject to yearly range decontamination and pronghorn may be subject to injuries caused by delayed detonation of unexploded ordnance and disturbance from clean-up activity. A total of 3,456 hectares within South TAC, North TAC, and Manned Range 1 are impacted within this category. Category 3 includes areas subject to 5-year range decontamination. A total of 29,987 hectares within South TAC, North TAC and Manned Range 1 are impacted within this category. Category 4 includes all roads in the eastern segment of the BMGR for which data were available. Road widths were liberally assumed to average 10 meters. A rough estimate was made due to the lack of current data. A total of 775 hectares within South TAC, North TAC, and Manned Range 1 are impacted within this category. Category 5 includes areas within ranges which are not subject to any of the ground impacts that are regularly conducted in these areas. These areas are subjected to some indirect impacts of military activities, primarily aircraft overflights. A total of 61,177 hectares within South TAC, North TAC, and Manned Range 1 are impacted within this category. A total of 187,944 acres of the Air-to-Air Live Fire Areas are subject to potential effects from live air-to-air fire, and falling spent shells.

According to the Air Force (U.S. Air Force 1997), the range of the Sonoran pronghorn on the entire BMGR was estimated based on locations of radio telemetry data collected between

November 19, 1983 and May 30, 1995, and on aerial survey sightings made in 1994. A total of 1212 records were available. The boundaries of the pronghorn range were drawn using the greatest convex polygon method modified by considerations of habitat suitability. Total area is approximately 571,963 hectares of which 505,527 (88%) are on the BMGR. Of the 505,527 hectares, approximately 286,136 are on CPNWR, and approximately 219,391 hectares are on the BMGR outside of the CPNWR. Sonoran pronghorn range overlapped with the entire South TAC Range, more than half of the North TAC range, and a small part of Manned Range 1 and the Air-to-Air Live Fire Areas.

Of the 51 records of Sonoran pronghorn from South TAC, 8 (15.6%) occurred in Categories 1 and 2. Twenty-eight (54.9%) occurred in Category 3, and 23 (45.1%) occurred in Category 4 and 5. Of the 40 records of Sonoran pronghorn from North TAC, 2 (5%) occurred in Categories 1 and 2. Eleven (27.5%) occurred in Category 3, and 29 (72.5%) occurred in Category 4 and 5. Only one record of Sonoran pronghorn occurred from Manned Range 1 in Category 4 and 5. To date, no data exists on the effects of activity on Sonoran pronghorn in the Air-to-Air Live Fire Areas.

A small amount of live ordnance is used at night on BMGR tactical ranges. Night use of live ordnance is limited to transient military units flying out of Davis Monthan Air Force Base in Tucson. Fewer than 5% of missions involve night use of live ordnance and approximately 90% of such night missions are flown into East TAC because it is closest to Davis Monthan. At times when East TAC is not available, North TAC is the preferred range, and South TAC is least preferred.

A total of 604 sorties involving live bombs were flown on North and South TAC in 1995 by Air Force planes. Typically an average of four bombs are dropped by each plane on one pass. A total of 114 sorties involving live Maverick missile firings on the target on North TAC were flown in 1995.

Air-to-air target practice ammunition is used only by F-16s of the Tucson Air National Guard utilizing the Agates target system. A total of 329 live fire air-to-air sorties were flown in 1995, all within the live aerial gunnery range. Except for the Agate target system, no towed darts are currently used on BMGR, though use of towed targets is authorized. Planes involved in air-to-air gunnery typically fire 100 rounds of ammunition. All ammunition is not necessarily expended during each sortie; thus a maximum of 32,900 rounds of ammunition were used in 1995.

Inadvertent or emergency jettisons of any external stores outside of target areas are very rare and crashes of aircraft have averaged less than one per year on the Gila Bend segment of the BMGR.

Potential injury or death to pronghorn from collisions with ground vehicles involved in military activities are unlikely because the majority of roads on the range are unimproved and vehicle speeds are low. The only roads where collisions appear to be even remotely possible are those out to Manned Range 1, which is staffed on weekdays throughout the year except for times when

the range is closed. This range is near the edge of the pronghorn range as indicated by telemetry locations. The posted speed limit on the access road is 45 mph and the openness of the terrain makes a collision highly unlikely.

Sonoran pronghorn may also be affected by noise and visual impacts of aircraft overflights. Pronghorn have been exposed to aircraft overflights on BMGR since 1941. No studies of the effects of aircraft overflights on Sonoran pronghorn have been done, though apparent responses to aircraft overflights by Sonoran pronghorn have been observed (e.g., Hughes and Smith 1990). Various noise impact studies have been conducted on other species. There is disagreement however, as to their applicability to Sonoran pronghorn.

Pronghorn are exposed to military aircraft overflights on most of the eastern segment of BMGR. However, aircraft maintain a minimum altitude of 500 feet, with more than 90% of flights over 800 feet AGL. Less than 12% of all flights over BMGR are supersonic and all supersonic flights occur at altitudes greater than 5000 feet. Over CPNWR, USAF aircraft maintain a minimum altitude of 1500 feet with greater than 90% of flights occurring over 5000 feet, except in Military Training Routes (MTRs), where aircraft may operate down to 500 feet AGL. Most helicopter use of the Gila Bend segment of the BMGR is in R-2304, which is outside the known range of Sonoran pronghorn. Helicopter flights over all of R-2301E, much of which overlies pronghorn range, were limited to 232 sorties in 72 flights in FY 1995.

In addition to noise and visual impacts from aircraft overflights, other military activities on the Gila Bend segment of the BMGR that might affect pronghorn behavior include noise from practice and live ordnance, use of air-dropped flares during night training, and ground-based human activity on manned and tactical ranges. Pronghorn may avoid the areas, which may result in an indirect loss of habitat. Except for commutes into Manned Range 1 towers, human ground activity on the Gila Bend segment of the BMGR is generally limited to vehicle access to ranges for maintenance and EOD activities and occasional use by Army spotters. Ground spotters use existing roads to access areas for ground-based coordination with aircraft for targeting on an occasional basis. No other land-based training occurs on the Gila Bend segment of the BMGR.

Other pronghorn habitat on BMGR is also regularly impacted by military activities. Some areas outside developed target areas are subjected to widely-spaced but regular impacts by EOD activities. As stated earlier, clearances occur yearly on North and South TAC, and every two months on Manned Range 1. During range clearances, large six-wheeled drive trucks are driven across the desert at intervals ranging from 50 feet to 150 yards searching for ordnance items. Some desert vegetation is unavoidably affected by this procedure. It is also likely that parts of these areas may be avoided by pronghorn because of the noise and activity associated with military activity.

Sonoran pronghorn may also be affected by potential contaminant issues on the BMGR. Preliminary information indicate high levels of aluminum may pose a problem to Sonoran pronghorn. It is unknown to what extent this effect may have on Sonoran pronghorn.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, local or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of ESA. The action area is completely contained within land of Federal ownership. Therefore, no future State, local or private land management actions are expected to occur.

The AGFD is anticipated to continue aerial surveys of the Sonoran pronghorn population, telemetry flights to track collared pronghorn, and attempts to radio-collar additional pronghorn. The latter action has had some adverse affect on Sonoran pronghorn. It is difficult to definitely determine the extent to which capture and collaring may have attributed to mortalities of collared animals. Capture myopathy is generally attributable to animals that die within a few days of capture, and not greater than 3 weeks. Four mortalities that occurred in 1994 were due to unknown causes but because the mortalities occurred within 3 weeks of capture, they may have been due at least in part to capture myopathy (J. Hervert, in litt., 1997).

CONCLUSION

After reviewing the current status of Sonoran pronghorn, the environmental baseline for the action area, the effects of the proposed action and the cumulative effects, it is the Service's biological opinion that the action, as proposed, is not likely to jeopardize the continued existence of the Sonoran pronghorn. No critical habitat has been designated for this species, therefore, none will be affected. Our rationale is as follows:

1) Sonoran pronghorn have persisted on the BMGR over a period of 40 years while being subjected to the same types of activities that the USAF is consulting on.

2) Sonoran pronghorn are expected to continue to remain in areas where military activities occur and no additional habitat is expected to be lost to their use or degraded because of activities anticipated in this consultation.

3) There are no documented Sonoran pronghorn mortalities that have been directly linked to military activity and no more than one death is foreseen over each ten year period.

4) Sonoran pronghorn are expected to continue through all known behaviors including reproduction, feeding, resting, and rutting within areas where military activities occur.

INCIDENTAL TAKE STATEMENT

Sections 4(d) and 9 of ESA, as amended, prohibit taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to engage in any such conduct) of listed species of fish or wildlife without a special exemption. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, or sheltering. Harass is defined as actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding or sheltering. Incidental take is any take of listed animal species that results from, but is not the purpose of, carrying out an otherwise lawful activity conducted by the Federal agency or the applicant. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered a prohibited taking provided that such taking is in compliance with the terms and conditions of this incidental take statement.

The measures described below are non-discretionary, and must be implemented by the agency so that they become binding conditions of any grant or permit issued to the applicant, as appropriate, in order for the exemption in section 7(o)(2) to apply. The USAF has a continuing duty to regulate the activity covered by this incidental take statement. If the USAF (1) fails to require the applicant to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, and/or (2) fails to retain oversight to ensure compliance with these terms and conditions, the protective coverage of section 7(o)(2) may lapse.

AMOUNT OR EXTENT OF TAKE

Take can be expected to occur in the form of harassment and death due to military activities. Until more detailed information can be collected on the effects of military activities, the following level of take may be expected to occur due to all military activities on the BMGR for every ten years of project implementation: 1) Take in the form of harassment that is likely to injure (harm) up to two Sonoran pronghorn, and; 2) Take in the form of the death of at least one Sonoran pronghorn.

This biological opinion does not authorize any form of take not incidental to the actions described herein. If the incidental take authorized by this opinion is met, the USAF shall immediately notify the Service in writing. If, during the course of the action, the amount or extent of the incidental take anticipated is exceeded, the USAF must reinitiate consultation with the Service immediately to avoid violation of section 9. Operations must be stopped in the interim period between the initiation and completion of the new consultation if it is determined that the impact of the additional taking will cause an irreversible and adverse impact on the species, as required by 50 CFR 402.14(i). An explanation of the causes of the taking should be provided to the Service.

EFFECT OF THE TAKE

In the accompanying biological opinion, the Service determined that this level of anticipated take is not likely to result in jeopardy to the species. There is no critical habitat designated for this species.

REASONABLE AND PRUDENT MEASURES

The Service believes the following reasonable and prudent measures are necessary and appropriate to minimize take:

1) Measures shall be implemented to minimize impacts of USAF activities on Sonoran pronghorn.

2) Measures shall be implemented to minimize habitat loss, degradation, and fragmentation of Sonoran pronghorn habitat.

3) Measures shall be taken to monitor and study reactions of Sonoran pronghorn on BMGR to military activities.

4) The USAF as part of their action will provide a means to determine the level of incidental take that actually results from the project.

TERMS AND CONDITIONS

In order to be exempt from the prohibitions of section 9 of ESA, the USAF must comply with the following terms and conditions, which implement the reasonable and prudent measures described above. These terms and conditions are nondiscretionary. To implement Reasonable and Prudent Measure number 1:

1) a. Within one year of the date of the opinion, the USAF will install the following EOD clean up schedule: December 1-February 28, North TAC EOD clean up. March 1-April 15, no full scale live or inert ordance deliveries from March 1-April 15 (BDU-33s and TP strafe are authorized). All flights will be at or above 500 AGL. April 15-June 15, South TAC EOD clean up. Normal USAF operations will resume upon completion of EOD clean up but not prior to June 1. September 1-November 30, East TAC EOD clean up.

   b. Alternatively, within one year of the date of the opinion, the USAF will install the following schedule on South TAC: No full scale live or inert ordnance deliveries from March 1-April 15 (BDU-33s and TP strafe are authorized). All flights will be at or above 500 AGL. April 15-June 15 will be used for EOD clean up. Normal USAF operations will resume upon completion of EOD clean up but not prior to June 1.

2) All users of the BMGR will be briefed on Sonoran pronghorn, the status of the species, the importance of reducing all impacts to the species, and any terms and conditions that apply.

To implement Reasonable and Prudent measure number 2:

1) All vehicles will be restricted to existing designated roads with the exception of EOD, Maintenance, or Environmental/Archaeological personnel conducting necessary operations which require them to leave designated roads.

2) Actions requiring new surface disturbance will be limited in extent as much as possible and will be confined to existing roadways when feasible.

3) All construction work will be conducted in a manner that will minimize erosion.

4) Pollution of soils and drainages will be prevented by the most appropriate means.

5) Low speed limits on roadways will be implemented as appropriate to ensure that no Sonoran pronghorn are injured due to vehicles.

6) Within six months of the date of the opinion, the USAF will begin a contaminants study to determine aluminum levels to which Sonoran pronghorn are subjected to in water and in forage plants.

To implement Reasonable and Prudent measure number 3:

1) The USAF will lead a cooperative trial effort to collar up to three Sonoran pronghorn using a bait and drop net technique. Telemetry data will be collected on the pronghorn and used to aid in monitoring the effects of the military's activities on the BMGR.

2) The USAF will begin a study to determine: a) what attracts Sonoran pronghorn to target areas throughout North and South TAC, and b) the reactions of Sonoran pronghorn when missions occur. Depending on the information gathered, the USAF may be required to either relocate, remove, or modify certain targets.

3) Within six months of the date of the opinion, the USAF will begin a study to determine the effects of noise and visual impacts from overflight missions on Sonoran pronghorn.
4) Within one year of the date of the opinion, the USAF will begin a pilot study to determine if supplemental watering of test plots will increase the amount and length of time forbs are present and if Sonoran pronghorn will be attracted to and use these areas.

5) Upon completion of the study on chaff, currently being conducted by HQ Air Combat Command, the USAF will supply a copy of the study to the Service.

6) Within one year of the date of the opinion, the USAF will begin a study to determine the effects military activities conducted at night have on Sonoran pronghorn.

7) By March 1999, the USAF will begin a study to determine the effects of military activities on pronghorn during fawning season (biologists must be in the field March-May 1999).

8) All above studies and monitoring efforts will be coordinated with the Service.

To implement Reasonable and Prudent measure number 4:

1) A report of the results of all monitoring efforts, including complete and accurate records of all incidental take that occurred during the course of the actions described herein, will be submitted to the Service on a yearly basis unless where otherwise directed. This report will also describe how the terms and conditions of all Reasonable and Prudent measures in this incidental take statement were implemented.

The reasonable and prudent measures, with their implementing terms and conditions, are designed to minimize incidental take that might otherwise result from the proposed action. If, during the course of the action, this level of incidental take is exceeded, such incidental take would represent new information requiring review of the reasonable and prudent measures provided. The USAF must immediately provide an explanation of the causes of the taking and review with the Service the need for possible modification of the reasonable and prudent measures.

DISPOSITION OF DEAD, INJURED, OR SICK INDIVIDUALS

If a dead, injured, or sick individual of a listed species is found on the BMGR, initial notification must be made to Service Law Enforcement, Federal Building, Room 105, 26 North McDonald, Mesa, Arizona, 85201 (Telephone:602/835-8289) 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 finding, a photograph of the animal, and any other pertinent information. The notification shall be sent to Law Enforcement with a copy to the Arizona Ecological Services Field Office. Care must be taken in handling sick or injured animals to ensure effective treatment and care, and in handling dead specimens to preserve biological material in the best possible state. If possible, the remains shall be placed with educational or research institutions holding appropriate State and Federal permits. If such institutions are not available, the information noted above shall be obtained and the carcass left in place. Arrangements regarding proper disposition of potential museum specimens shall be made with the institution prior to implementation of the action. Injured animals should be transported to a qualified veterinarian by an authorized biologist. Should any treated animals survive, the Service shall be contacted regarding the final disposition of the animals.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of ESA directs Federal agencies to utilize their authorities to further the purposes of ESA by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

1) The Service recommends that the USAF pursue funding all research needs that are identified for implementation by the Department of Defense in the final revision of the Sonoran pronghorn recovery plan, as well as all research needs that are concurrently or subsequently identified by the Sonoran pronghorn Core Working Group.

2) The Service recommends that the Air Force conduct and/or fund research to determine the effects of low level flights on free-ranging pronghorn and use the information to evaluate flight ceilings and flight corridors (i.e., Military Training Routes) over Cabeza Prieta. The USAF will then provide the Service with the results of any research in a timely manner.

3) The Service recommends the USAF fund and implement an ecosystem partnership for managing the Sonoran Desert to determine other conservation needs in this area.

In order for the Service to be kept informed of actions minimizing or avoiding adverse effects or benefitting listed species or their habitats, the Service requests notification of the implementation of any conservation recommendations.

REINITIATION - CLOSING STATEMENT

This concludes formal consultation on the actions outlined in the project proposal. 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 maintained (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 that was 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.

Thank you for your continuing efforts to conserve listed species. If we can be of further assistance, please contact Lorena Wada or Ted Cordery. Please refer to the consultation number 2-21-96-F-094 in future correspondence concerning this project.

Sincerely,

Sam F. Spiller
Field Supervisor

cc: Regional Director, Fish and Wildlife Service, Albuquerque NM (GMA)(ES)
Refuge Manager, Cabeza Prieta National Wildlife Refuge, Ajo, AZ

(Director, Arizona Game and Fish Department, Phoenix AZ)

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