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2-21-93-F-389

SUMMARY
BIOLOGICAL OPINION FOR
WESTERN ARMY NATIONAL GUARD AVIATION TRAINING SITE EXPANSION
PROJECT

Date of opinion: September 19, 1997

Action agency: U. S. Army Corps of Engineers, Los Angeles, California

Project: Western Army National Guard Aviation Training Site Expansion Project

Location: Maricopa, Pima, and Pinal counties, Arizona

Listed species affected: Endangered lesser long-nosed bat (Leptonycteris curasoae yerbabuenae), American peregrine falcon (Falco peregrinus anatum), and cactus ferruginous pygmy-owl (Glaucidium brasilianum cactorum).

Biological opinion: The proposed project is not likely to jeopardize the continued existence of the lesser long-nosed bat, the American peregrine falcon, or the cactus ferruginous pygmy-owl.

Incidental take statement:

Anticipated take: *Exceeding this level may require reinitiation of formal consultation.* Anticipated take of lesser long-nosed bats is based on the amount of foraging habitat expected to be affected by this project. Anticipated take of American peregrine falcons is based on possible collisions of individuals with aircraft. Anticipated take of cactus ferruginous pygmy-owl is expected in the form of harassment of one bird.

Reasonable and prudent measures: *Implementation of these measures through the terms and conditions is mandatory.* Two reasonable and prudent measures are given for the lesser long-nosed bat. No reasonable and prudent measures are provided for the American peregrine falcon. Two reasonable and prudent measures are given for the cactus ferruginous pygmy-owl.

Terms and conditions: *Terms and conditions implement reasonable and prudent measures and are mandatory requirements.* Three terms and conditions implement the reasonable and prudent measures for the lesser long-nosed bat. Six terms and conditions implement the reasonable and prudent measures for the cactus ferruginous pygmy-owl.

Conservation recommendations: *Implementation of conservation recommendations is discretionary.* One conservation recommendation to support and conduct additional surveys to detect and evaluate potential lesser long-nosed bat roosts. One conservation recommendation is listed for the cactus ferruginous pygmy-owl. In conjunction with the Service, create a management plan for the pygmy-owl in the project area.



United States Department of the Interior

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In Reply Refer To:

AESO/SE
2-21-92-F-227
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September 19, 1997

Mr. Robert S. Joe
Chief, Planning Division
Department of the Army
Corps of Engineers
P.O. Box 532711
Los Angeles, California 90053-2325

Dear Mr. Joe:

The U.S. Fish and Wildlife Service has reviewed the biological assessment and related documentation for the Western Army National Guard Aviation Training Site Expansion Project located in Maricopa, Pima, and Pinal counties, Arizona. Your March 7, 1996, request for formal consultation was received on March 14, 1996. This document represents the Service's biological opinion on the effects of that action on the endangered lesser long-nosed bat (Leptonycteris curasoae verbabuenae), American peregrine falcon (Falco peregrinus anatum), and cactus ferruginous pygmy-owl (Glaucidium brasilianum cactorum) in accordance with section 7 of the Endangered Species Act of 1973 (Act), as amended, (16 U.S.C. 1531 et seq.).

This biological opinion is based on information provided in the February 1996 biological assessment included as Appendix E-5 of the 1996 draft Environmental Impact Statement (DEIS), the DEIS itself, 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 training and facilities and their effects, or on other subjects considered in this opinion. A complete administrative record of this consultation is on file in this office.

In this biological opinion, the Service finds that the effects of the proposed project are not likely to jeopardize the continued existence of the lesser long-nosed bat, the peregrine falcon, nor the cactus ferruginous pygmy-owl.

CONSULTATION HISTORY

Informal consultation was initiated on this project in 1992. Several informal meetings regarding the project were conducted over recent years. On March 7, 1996, the U.S. Army Corps of Engineers submitted a biological assessment and requested initiation of formal consultation on the proposed project. The Service responded to that request with a letter dated May 24, 1996,

project. The Service responded to that request with a letter dated May 24, 1996, acknowledging the request for consultation and requesting clarification regarding the American peregrine falcon. A June 19, 1996, letter from the Corps provided clarification regarding the peregrine falcon. A draft biological opinion was issued to the Corps on May 5, 1997. Comments were received from the Corps and the Arizona National Guard on August 1, 1997. Editorial and other minor changes were incorporated into the final biological opinion. The final EIS was issued between the time the draft biological opinion was under review by the Corps and the finalization of this document. Information from the Corps states that the two documents are substantially similar.

BIOLOGICAL OPINION

DESCRIPTION OF PROPOSED ACTION

The purpose of the Western Army National Guard Aviation Training Site (WAATS) is to provide a highly specialized environment to train Army National Guard personnel in directed individual aviator qualification training in the attack helicopter. WAATS is located at the Silver Bell Army Heliport adjacent to the north end of the Pinal County Air Park near Marana, Arizona. The proposed project, described in detail in the DEIS (see Section 4.5 of the DEIS), is to meet the current and future training and facility requirements. The final EIS was completed in June and is essentially the same as the DEIS. Briefly, the proposed project is to expand the existing Tactical Flight Training Areas (TFTA) (which includes the establishment of 4 Level III touchdown sites to be described later), to expand the existing WAATS training facility identified in a Master Construction Plan (MCP), and to establish a helicopter aerial gunnery range for use by the Arizona Army National Guard. The TFTA extends into Pinal and Pima counties.

The DEIS and FEIS identify two alternative sites for the proposed helicopter aerial gunnery range on the Barry M. Goldwater Range Complex (BMGRC). One alternative would involve construction of a new helicopter gunnery range on the Barry M. Goldwater Range Complex in the vicinity of the Sand Tank Mountains (Alternative A). The other alternative involves the joint use of the existing East Tactical (East TAC) Range (Alternative B - the proposed action).

The proposed action, as identified in the DEIS, is to use the existing East TAC Range on the BMGRC for helicopter gunnery. Therefore, the proposed action that is analyzed in this biological opinion consists of the following components: the expanded TFTA, the MCP, and the use of the existing East TAC area as a helicopter gunnery range.

Description of the Proposed Project Components

Tactical flight Training Areas (TFTA) (including the Level III sites)

Tactical Flight Training Areas (TFTA) The TFTA covers an area of approximately 2.5 million acres in southern Arizona. The TFTA is needed for use in training individual aircraft crews and unit sustainment operations. Training includes techniques for takeoff and landings in unimproved areas, terrain flight navigation, and flight techniques (modes of flight). Within the

TFTA, three modes of flight are typically used during training: low-level, contour, and nap-of-the-earth (NOE). These flight modes are used to mask (hide) the helicopters from detection by an opposing force.

Within the TFTA, the intensity of use will increase from 12,500 to 20,000 sorties per year. According to the project proponent, this level of operations is 15 percent higher than the level of activity currently conducted in the TFTA. Although the distribution of flight operations within the TFTA cannot be determined at the current time, it is likely that the distribution will follow the general distribution shown on Figure 3.5-2 of the DEIS.

Within the TFTA, some current training flights include landing the aircraft in the field. The types of landing sites are divided into three categories (Levels I, II, and III), depending on the type of ground and aircraft activity conducted. At the current time, only Level I and II activities are performed by aviators training at the WAATS. Level III training is now proposed for use with the TFTA at four sites. No clearing or improvements are made at Level I sites. In addition, no vehicles or ground personnel operations occur with the exception of aircraft crew members' seat changes. Level II sites may require limited vegetation clearing to provide sufficient clearance for safe aircraft operations. Limited ground operations would occur. Access would be by aircraft only; no ground vehicle use is authorized.

Level III Sites. The Level III sites involve extensive use by aircraft and ground personnel. These areas may require some vegetation clearing to provide sufficient clearance for safe aircraft operations. Ground use operations will involve activities such as overnight bivouacs, refuel operations, tactical command post, tactical airfield lighting, insertion and extraction of small security teams, and ground vehicles along existing roads or previously used vehicle areas. At the Level III sites, no permanent structures or facilities will be constructed. Each site will be graded to establish reusable areas for helicopter/vehicle parking and placement of facilities to support the field operations (camping areas, headquarters, and so forth). The Level III Sites are Picacho Peak Annex, Samaniego Hills, Silver Bell Annex, and Mercer Ranch, and are mapped on Figure 4.5-1 of the DEIS.

Master Construction Plan

The Master Construction Plan component of the Proposed Action will involve the existing Silver Bell Army Heliport (SBAH) property. The property controlled by the SBAH is located at the north end of the Pinal County Air Park on a 162-acre tract of land. This site is approximately 29 miles northwest of Tucson and 79 miles southeast of Phoenix.

Substantial growth is planned for the SBAH. This growth relates to the increased training demands for both current and future missions at the WAATS. The primary goals for future construction are the modernization of equipment for the 1st Battalion, 285th Aviation (1-285th) division to handle the deployment of the Apache helicopter; the increased demand for training at the WAATS, including the addition of unit sustainment training and Apache training; and the training requirements needed for modernization of aviation units nationwide. The availability

of realistic, useable training areas and an excellent climate for year-round aviation training make the SBAH an ideal choice for expansion of existing facilities to train National Guard Bureau aviation units. The proposed growth involves approximately 36 acres on the SBAH.

Helicopter Gunnery Site on East TAC Range

The DEIS analyzed two alternative helicopter aerial gunnery sites. The proposed action, however, is the joint use of the existing East TAC Range for helicopter gunnery (Alternative B in the DEIS) instead of a new helicopter gunnery range.

Location. Under the proposed action, the WAATS would conduct all of their future helicopter gunnery practice at the existing East TAC range.

Operations.

- ▣ Helicopters used in gunnery practice will be shuttled to the Gila Bend Air Force Auxiliary Field for refueling and the loading of weapons/munitions. Students will take turns flying from Gila Bend Air Force Auxiliary Field to East TAC for gunnery practice.
- ▣ The weapons storage area at Gila Bend Air Force Auxiliary Field will need to be expanded by about 2,000 square feet.
- ▣ Under the full training mission expansion concept (maximum use for both individual pilot and unit sustainment training), two groups of helicopters may be active on the range from 4 to 8 hours a day with training expected to occur for about 300 days of the year. Of the total range training time planned, approximately 20 percent of the training will occur at night.
- ▣ The bivouac site to be used for unit sustainment training will be developed at the Gila Bend Air Force Auxiliary Field. The layout will be the same as for Alternative A in the DEIS.
- ▣ All weapon types shown on Figure 3.4-2 of the DEIS can be used on the East TAG range.

Weapons/Munitions to be Used in Training

The East TAC range is within an existing restricted airspace (Restricted Airspace R-2304) that has sufficient vertical height to allow the firing of all of the weapon types illustrated on Figure 3.4-2 of the DEIS (bullets, rockets, and missiles). Nonexplosive ammunition of any weapon type can be used on any of the target areas shown on Figure 4.5-12, 4.5-13, and 5.7-12 of the DEIS. Missiles carrying high explosives will only be fired at the target designated as “HE Hill” on Figure 4.5-11 of the DEIS. HE Hill has been used historically by the USAF and the WAATS as a target for weapons carrying high explosives.

Target and Scoring Systems. The East TAC range proposed for use has a series of existing Target Effect Areas (TEAs) that will be used by the WAATS for gunnery practice. No new TEAs will be developed on the East TAC range under this alternative. At each target area, existing targets may be supplemented with non-moving hard targets, such as old armored vehicle chassis.

The WAATS proposes to construct a new scoring system using remotely operated cameras mounted on towers. Based on the terrain at the East TAC range, four towers with a height of 12 to 30 feet will be erected. The proposed scoring system will operate off of solar energy and will transmit scoring data back to a remote site, such as the WAATS. Therefore, no new utilities will be needed on the range.

STATUS OF THE SPECIES

Lesser Long-nosed bat

The lesser long-nosed bat was listed (originally, as Sanborn's long-nosed bat) as endangered on September 30, 1988 (53 FR 38456). No critical habitat has been designated for this species. The lesser long-nosed bat is a small, leaf-nosed bat. It has a long muzzle and a long tongue. These features are adaptations to collect nectar from the flowers of columnar cactus, such as the saguaro and organ pipe, and from paniculate agaves (Hoffmeister 1986). This migratory species is found throughout its historic range from southern Arizona, through western Mexico, and south to El Salvador. It occurs in southern Arizona from the Picacho Mountains southwest to the Agua Dulce Mountains and southeast to the Chiricahua Mountains and south to Mexico. Arizona roosts are occupied from late April to September (Cockrum and Petryszyn 1991). Adult females, most of which are pregnant, and their recent young are the first to arrive, and they form maternity colonies at lower elevations near concentrations of flowering columnar cacti. After the young are weaned, these colonies disband in July and August; some females and young move to higher elevations, primarily in the southeastern parts of Arizona near concentrations of blooming paniculate agaves. Adult males are known mostly from the Chiricahua Mountains but also occur with adult females and young of the year at maternity sites (Fleming 1994).

Loss of roost and foraging habitat, as well as direct taking of individual bats during animal control programs, particularly in Mexico, have contributed to the current status of the species. Suitable day roosts and suitable concentrations of food plants are the two resources that are critical for the lesser long-nosed bat (Fleming 1994). As indicated above, the lesser long-nosed bat consumes nectar and pollen of paniculate Agave flowers and the nectar, pollen, and fruit produced by a variety of columnar cacti. Caves and mines are used as day roosts. The factors that make roost sites useable have not yet been identified. Whatever the factors are that determine selection of roost locations, the species appears to be sensitive to human disturbance. Instances are known where a single brief visit is sufficient to cause a high proportion of lesser long-nosed bats to temporarily abandon their day roost and move to another. Perhaps most disturbed bats return to their preferred roost in a few days. However, the sensitivity suggests that the presence of alternate roost sites may be critical when human disturbance occurs.

Interspecific interactions with other bat species may also influence lesser long-nosed bat roost requirements.

Known major roost sites include 16 large roosts in Arizona and Mexico (Fleming 1994). According to surveys conducted in 1992 and 1993, the number of bats estimated to occupy these sites was greater than 200,000. Twelve major maternity roost sites are known for Arizona and Mexico. According to the same surveys, the maternity roosts are occupied by over 150,000 lesser long-nosed bats. The numbers above indicate that although there may be relatively large numbers of these bats known to exist, the relative number of known large roosts is small. Disturbance of these roosts and the food plants associated with them could lead to the loss of the roosts. The limited numbers of maternity roosts may be the critical factor in the survival of this species.

American peregrine falcon

The American peregrine falcon was listed as an endangered species on October 13, 1970 (35 FR 16047). No critical habitat has been designated for this species. The peregrine falcon is a medium-sized raptor with various subspecies distributed worldwide. The American peregrine falcon occurs across much of North America. It nests on cliffs near sources of avian prey. The peregrine falcon has traditionally been strongly associated with cliffs near large bodies of water such as seacoasts, lakes, and large rivers (Ratcliffe 1980). However, the arid American Southwest has recently been demonstrated to support the largest concentration of peregrines known in North America, excluding Alaska. Studies have documented high densities of breeding pairs in the Southwest, particularly the Colorado Plateau Province (Burnham and Enderson 1987, Hays and Tibbitts 1989, Brown 1991). Local concentrations of nesting pairs have also been documented in the mountains of southeastern Arizona (Tibbitts and Ward 1990a and 1990b, Berner and Mannan 1992, Ward 1993).

In the Southwest, breeding peregrines are currently found almost anywhere large [approximately 328 feet or ≥ 100 meters (m)] cliffs are available, with the exception of the hottest and driest desert regions (Tibbitts and Ward 1990a, Ward 1993, USD1 unpubl. data). Large cliffs overlooking chaparral, pinyon-juniper woodland, conifer forest, and riparian habitats apparently provide high-quality habitat. These cliffs are currently occupied by breeding pairs almost wherever they occur in Arizona and southern Utah, even where surface water may be many miles distant. Even in the Sonoran desert, peregrine falcons may be found breeding where perennial surface water and associated riparian prey populations are available.

The American peregrine falcon appears to be making considerable progress toward recovery throughout much of its range. On June 30, 1995, the Service published an advance notice of a proposal to remove the American peregrine falcon from the list of endangered and threatened wildlife, stating that data currently on file with the Service indicate that this subspecies has recovered following restrictions on the use of organochlorine pesticides in the United States and Canada and because of management activities including the reintroduction of captive-bred peregrine falcons (60 FR 34406).

Peregrines feed almost exclusively upon other birds, such as shorebirds, pigeons, doves, robins, flickers, jays, swifts, swallows, and other passerines that opportunity presents (Craig 1986). Although some individuals may become adept hunters, it is estimated that peregrine succeed in making kills only 10 to 40 percent of the time (Roalkvem 1985, Cade 1982). The falcons compensate for this inefficiency by traveling extensively when hunting. During the breeding season, a hunting range of 10 miles may be considered typical (Craig 1986). Proximity of a cliff to surface water may affect occupancy. In Arizona, nearly all nest sites which are great distances from extensive permanent water have nearby permanent water sources; rivers lakes and streams are the most important sources (Ellis 1982). The presence of rivers, riparian habitat, or other surface water in peregrine nesting habitat may be a feature in determining the presence of an adequate food supply.

Cactus ferruginous pygmy-owl

The Service included the cactus ferruginous pygmy-owl on its Animal Notice of Review as a category 2 candidate species throughout its range on January 6, 1989 (54 FR 554). After soliciting and reviewing additional information, the Service elevated G. b. cactorum to category 1 status throughout its range on November 21, 1991 (56 FR 58804). A category 1 species was, at that time, defined as a species for which the Service has on file substantial information to support listing, but for which a proposal to list has not been issued as it is precluded at present by other listing activities. The Service no longer maintains category 1 and category 2 candidate species lists.

On May 26, 1992, a coalition of conservation organizations (Galvin et al. 1992) petitioned the Service, requesting listing of the pygmy-owl as an endangered subspecies under the Act. The petitioners also requested designation of critical habitat. In accordance with Section 4(b)(3)(A) of the Act, on March 9, 1993, the Service published a finding that the petition presented substantial scientific or commercial information indicating that listing may be warranted, and initiated a status review on the pygmy-owl (58 FR 13045). In conducting its status review, the Service solicited additional comments and biological data on the status of the cactus ferruginous pygmy-owl, through mailings, a notice in the Federal Register (58 FR 13045), and other means.

On December 12, 1994, the Service published a 12-month finding on the petitioned action (59 FR 63975). This finding indicated that listing of the cactus ferruginous pygmy-owl was warranted and a proposed rule was published on the same date to list the pygmy-owl as endangered in Arizona with critical habitat and as threatened in Texas without critical habitat. New information was received during comment periods indicating that population levels are higher in Arizona and Texas than was known at the time of the proposed rule. The Service determined that the Arizona population still warranted endangered status. Conversely, the new information indicated that listing the species as threatened in Texas was not warranted. Listing was finalized on March 10, 1997 and was effective on April 9, 1997. Critical habitat, including 290 river miles in Arizona, was included in the draft rule, but designation was determined to be not prudent in the final rule.

Description and Range

The cactus ferruginous pygmy-owl (Order Strigiformes--Family Strigidae) is a small bird, approximately 17 centimeters (cm) (6 3/4 inches (in) long). Males average 62 grams (2.2 ounces), and females average 75 grams (2.6 ounces). The cactus ferruginous pygmy-owl is reddish-brown overall, with a cream-colored belly streaked with reddish-brown. Some individuals are grayish, rather than reddish-brown. The crown is lightly streaked, and paired black-and-white spots on the nape suggest eyes. There are no ear tufts, and the eyes are yellow. The tail is relatively long for an owl and is colored reddish-brown with darker brown bars. The call of this diurnal owl, heard primarily near dawn and dusk, is a monotonous series of short notes.

The cactus ferruginous pygmy-owl is one of four subspecies of the ferruginous pygmy-owl. It occurs from lowland central Arizona south through western Mexico, to the States of Colima and Michoacan, and from southern Texas south through the Mexican States of Tamaulipas and Nuevo Leon. The northernmost record for the pygmy-owl is from New River, Arizona, approximately 55 km (35 mi) north of Phoenix. South of these regions and through Central America G. b. ridgwayi replaces G. b. cactorum. Throughout South America G. b. brasilianum is the resident subspecies (Fisher 1893, van Rossem 1937, Friedmann et al. 1950, Schaldach 1963, Phillips et al. 1964, de Schauensee 1966, Karalus and Eckert 1974, Oberholser 1974, Johnsgard 1988). Additionally, Konig and Wink (1995) have identified a fourth subspecies of pygmy-owl from central Argentina. This new subspecies is G. b. stranecki.

The cactus ferruginous pygmy-owl (hereafter "pygmy-owl" unless otherwise noted) was described by van Rossem (1937) (originally spelled pigmy owl), based on specimens from Arizona and Sonora. It is distinguished from G. b. ridgwayi and G. b. brasilianum by its shorter wings and longer tail, and by generally lighter coloration (van Rossem 1937, Phillips et al. 1964). G. b. cactorum occurs in several color phases, with distinct differences between regional populations (Sprunt 1955, Burton 1973, Tyler and Phillips 1978, Hilty and Brown 1986, Johnsgard 1988). Some investigators (e.g., van Rossem 1937, Tewes 1993) have suggested that further taxonomic investigation is needed, primarily to determine whether the current (G. b. cactorum) comprises more than one subspecies. G. b. cactorum is widely recognized as a valid subspecies (e.g., Friedmann et al. 1950, Blake 1953, Sprunt 1955, Phillips et al. 1964, Monson and Phillips 1981, Millsap and Johnson 1988, Binford 1989). The American Ornithologists' Union (AOU) recognized G. b. cactorum in its 1957 Checklist of North American Birds (AOU 1957), but subsequent lists did not include subspecies (AOU 1983).

The pygmy-owl nests in a cavity in a tree or large columnar cactus. Cavities may be naturally formed (e.g., knotholes) or excavated by woodpeckers. No nest lining material is used. The pygmy-owl has also nested in fabricated nest boxes (Proudfoot et al. 1994, Proudfoot 1996). Three, four, five, and occasionally six eggs are laid (Bent 1938, Heintzelman 1979, Glenn Proudfoot, Texas A&M University at Caesar Kleberg Wildlife Research Institute, unpubl. data 1996) and are incubated for approximately 28 days. The young fledge about 28 days after hatching. The pygmy-owl begins nesting activities in late winter to early spring. It is nonmigratory throughout its range (Bendire 1888, Griscom and Crosby 1926, Oberholser 1974,

Johnson *et al.* 1979).

The pygmy-owl occurs in a variety of subtropical, scrub, and woodland communities, including river bottom woodlands, woody thickets (“bosques”), coastal plain oak associations, thornscrub, and desertscrub. Unifying habitat characteristics among these communities are fairly dense woody thickets or woodlands, with trees and/or cacti large enough to provide nesting cavities. Throughout its range, the pygmy-owl occurs at low elevations, generally below 1,200 m [4,000 feet (ft)] (Swarth 1914, Karalus and Eckert 1974, Monson and Phillips 1981, Johnsgard 1988, Enriquez-Rocha *et al.* 1993)].

In the western portion of its range, the pygmy-owl appears to use riparian woodlands and bosques dominated by mesquite and cottonwood, Sonoran Desertscrub (usually with relatively dense saguaro cactus forests), and Sinaloan Deciduous Forest (van Rossem 1945, Phillips *et al.* 1964, Karalus and Eckert 1974, Millsap and Johnson 1988). Fisher (1893) found the pygmy-owl to be “quite common” in thickets of intermixed mesquite and saguaro cactus near the New River, Arizona. Prior to the mid—1900s, the pygmy-owl was also described as “not uncommon”, “of common occurrence,” and “fairly numerous” resident of lowland central and southern Arizona in cottonwood forests, mesquite-cottonwood woodlands, and mesquite bosques along the Gila, Salt, Verde, San Pedro, and Santa Cruz rivers, and various tributaries (Breninger 1898 in Bent 1938, Gilman 1909, Swarth 1914). Bendire (1888) noted that he had taken “several” along Rillito Creek near Fort Lowell, in the vicinity of Tucson, Arizona. The pygmy-owl also occurs in Sonoran Desertscrub associations in southern and southwestern Arizona, comprised of palo verde, ironwood, mesquite, acacia, bursage, and columnar cacti (Phillips *et al.* 1964, Davis and Russell 1984 and 1990, Monson and Phillips 1981, Johnson and Haight 1985a, Johnsgard 1988).

In the past, the pygmy-owl’s occurrence in Sonoran Desertscrub was apparently less common and predictable. It was more predictably found in xeroriparian habitats (very dense desertscrub thickets bordering dry desert washes) than more open, desert uplands (Monson and Phillips 1981, Johnson and Haight 1985a, Johnson-Duncan *et al.* 1988, Millsap and Johnson 1988, Davis and Russell 1990). The pygmy-owl was also noted to occur at isolated desert oases supporting small pockets of riparian and xeroriparian vegetation (Howell 1916, Phillips *et al.* 1964).

Both riparian and desertscrub habitats are likely to provide several requirements of the pygmy-owl ecology. Trees and large cacti provide cavities for nesting and roosting. Also, these habitats along watercourses are known for their high density and diversity of animal species that constitute the pygmy-owl’s prey base (Carothers 1977, Johnson *et al.* 1977, Johnson and Haight 1985b, Stromberg 1993). In addition, the dense vegetation along these washes provides protective cover from aerial predators.

Riverbottom forests and bosques, which supported the greatest abundance of pygmy-owls, have been extensively modified and destroyed by clearing, urbanization, water management, and hydrological changes (Willard 1912, Brown *et al.* 1977, Rea 1983, Szaro 1989, Bahre 1991, Stromberg *et al.* 1992, Stromberg 1993). Cutting for domestic and industrial fuelwood was so extensive throughout southern Arizona that, by the late 19th century, riparian forests within tens of miles of towns and mines had been decimated (Bahre 1991). Mesquite was a favored species, because of its excellent fuel qualities. The vast forests of large mesquites along the Santa Cruz

River in the Tucson area described by Swarth (1905) and Willard (1912) were lost to this threat, as did the heavy mesquite thickets where Bendire (1888) collected pygmy-owl specimens along Rillito Creek, a Santa Cruz River tributary, also in what is now Tucson. Only remnant fragments of these bosques remain. Cottonwoods were also felled for fuelwood, fenceposts, and for the bark, which was used as cattle feed (Bahre 1991). In recent decades, the pygmy-owl's riparian habitat has continued to be modified and destroyed by agricultural development, woodcutting, urban expansion, and general watershed degradation (Phillips et al. 1964, Brown et al. 1977, State of Arizona 1990, Bahre 1991, Stromberg et al. 1992, Stromberg 1993). Sonoran Desertscrub has been affected to varying degrees by urban and agricultural development, woodcutting, and livestock grazing (Bahre 1991).

In addition to clearing woodlands, pumping of groundwater and the diversion and channelization of natural watercourses are also likely to have reduced pygmy-owl habitat. Diversion and pumping result in diminished surface flows, and consequent reductions in riparian vegetation are likely (Brown et al. 1977, Stromberg et al. 1992, Stromberg 1993). Channelization often alters stream banks and fluvial dynamics necessary to maintain native riparian vegetation. The series of dams along most major southwestern rivers (e.g., the Colorado, Gila, Salt, and Verde) have altered riparian habitat downstream of dams through hydrological and vegetational changes, and have inundated habitat upstream.

The pygmy-owl is highly sought by bird watchers, who concentrate at several of the remaining known locations of pygmy-owls in the United States. Limited, careful bird watching is probably not harmful; however, excessive attention by bird watchers may at times constitute harassment and affect the occurrence and behavior of the pygmy-owl (Oberholser 1974, Tewes 1993). For example, in early 1993, one of the few areas in Texas known to support the pygmy-owl continued to be widely publicized (American Birding Association 1993). The resident pygmy-owls were found at this highly-visited area only early in the breeding season; later in the season they could not be detected. O'Neil (1990) also indicated that five birds initially detected in southern Texas failed to respond after repeated visits by birding tours. Oberholser (1974) and Hunter (1988) additionally indicated that, in southern Texas, recreational birdwatching may disturb owls at highly visited areas.

One disease potentially affecting the pygmy-owl, as identified by the Arizona Game and Fish Department (D. Shroufe, in litt. 1996), is trichomoniasis. Because owls prey on finches, sparrows, and other seed-eating birds known to carry trichomoniasis, they have a higher risk of contracting the disease. According to Boal and Mannan (1996), raptors in urban areas experience a higher exposure rate to trichomoniasis, and the result is high mortality of raptor nestlings. No studies have been completed to date on the pygmy-owl in urban or other areas to determine if, in fact, pygmy-owls have been affected by this disease.

Recent work by Proudfoot (1996) indicates that snake predation may be an additional factor adversely affecting the pygmy-owl population on the Norias Division of the King Ranch. Proudfoot noted that nest boxes previously containing eggs would later be discovered empty, without sufficient time having elapsed to allow for fledging to occur. A lack of egg shell remains in nest boxes may indicate that snakes have predated nests containing pygmy-owl eggs. Although

long-tailed weasels, *Mustelafrenara*, also occur in this study area, the lack of egg shell remains and the nest box configuration indicate that weasels are not likely to have eaten the eggs. Nest boxes are typically 5.5 x 5.5 x 18 in with a 2.0 in entrance hole placed 12 in above the box bottom.

Proudfoot (1996) has observed the indigo snake, *Drymarchon corais*, climbing trees on the King Ranch and notes that the indigo snake is known to prey on cavity nesting green-cheeked Amazon parrots, *Amazona viridigenalis*. Proudfoot notes that, from 1993 to 1996, eight out of 112 available nest boxes (or 232 nest box opportunities) were used. Where flashing was placed around trees to prevent the possibility of predation by snakes, eggs were not disturbed. For the four nest boxes left unprotected, three were predated before the eggs hatched, and the fourth was predated following hatching. Proudfoot further noted that fecundity (the number of young successfully raised per year), for natural cavities was approximately one-third that of fecundity for nest boxes, and speculates that eggs and birds in natural cavities were likely to have been predated by both snakes and long-tailed weasels, resulting in a lower fecundity rate (G. Proudfoot, pers. comm. 1996).

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.

Lesser long-nosed bat

Much of the project area is within the known range of the lesser long-nosed bat. Because the overlap of the project area and the known range is so extensive, it is difficult to determine all the ways that the species has been impacted. However, at least two major impacts can be considered. Foraging habitat at the proposed target site has been impacted and lost for some time. The first time those impacts were considered by the action agency was in a recent consultation. The second major impact involves the closest known large maternity roost to the proposed target area. Recently, a formal consultation was conducted regarding the impacts of copper surface mining in the vicinity of that known roost. The impacts associated with that project also included loss of habitat.

American peregrine falcon

Recovery of the peregrine falcon in the Rocky Mountain/Southwest region appears to be greatest in the Colorado Plateau of southern Utah, southwest Colorado, and northern Arizona, and in adjacent habitats in Arizona, Utah and Colorado. This region has experienced high total numbers of breeding pairs, high rates of site occupancy and high reproductive success (Burnham and Enderson 1987, Enderson et al. 1991, Tibbitts and Bibles 1990, Tibbitts and Ward 1990a and

1990b, Ward 1993). Based on 1994 surveys, the current Rocky Mountain/Southwest population consists of 559 breeding pairs, surpassing the recovery objective by 376 pairs (FR 60:34406-34409).

Cactus ferruginous pygmy-owl

Since the pygmy-owl was recently listed, only a few consultations have been completed or are underway for this species. Loss and modification of nesting habitat is one of the primary threats to this species, especially on private land. The extent of this loss may be reflected in the extremely low population size of this bird in Arizona. It is estimated that between 85 to 90 percent of low-elevation riparian habitats in the southwestern U.S. have been modified or lost. These alterations and losses are attributed to urban and agricultural encroachment, woodcutting, water diversion and impoundment, channelization, livestock overgrazing, groundwater pumping, and hydrologic changes resulting from various land-use practices (e.g., Phillips *et al.* 1964, Carothers 1977, Kusler 1985, AGFD 1988, DOI 1988, General Accounting Office 1988, Jahrsdoerfer and Leslie 1988, Szaro 1989, Dahl 1990, State of Arizona 1990, Bahre 1991).

Hunter (1988) found fewer than 20 verified records of pygmy-owls in Arizona for the period of 1971 to 1988. In 1992, surveys located three single pygmy-owls in Arizona (Fish and Wildlife Service and National Park Service, unpubl. data 1992). In 1993, more extensive surveys again located three single pygmy-owls in Arizona (AGED unpubl. data 1993, Felley and Corman 1993). During 1993---1994 surveys, one pair of owls was detected in north Tucson, near the sightings of 1992 and 1993 (Collins and Corman 1995). Two individual owls were found in northwest Tucson during 1995 surveys, and an additional owl was detected at Organ Pipe Cactus National Monument (Lesh and Corman 1995). In 1996, the AGED focused survey efforts in northwest Tucson and Marana, and detected a total of 17 birds. Total individuals in Arizona are still extremely low at 19 (Abbate 1996), with most of the birds occurring on private land.

The East TAC Range, dominated by Sonoran Desert scrub and desert wash communities, included several small drainages are well vegetated and could be used by pygmy-owls. Saguaros are infrequent and intermittent along plains and wash habitats, with saguaro densities increasing with increasing elevation. Between July 1994 and April 1995, numerous surveys were conducted on the eastern portion of the Barry M. Goldwater Range. Although no formal surveys were conducted for the cactus ferruginous pygmy-owl, attempts to call other species of owls, as well as pygmy-owls, were made. However, no pygmy-owls were seen or responded to imitated calls (Dames & Moore 1996). Although no confirmed records for the pygmy-owl occur on the East TAC Range, an unconfirmed identification was made of the pygmy-owl in a wash in the southeastern portion of the range in 1995 (Morrison and Hardy 1996). The SBAH facility, dominated by creosote bush, velvet mesquite and desert broom, is not expected to provide habitat for the pygmy-owl. The TFTA provides varying suitability for pygmy-owl with Level III Site B, Samenigo, providing the best potential. The only other possible detection of pygmy-owls was reported from the Johnson Well area of the Sand Tank Mountains (north of the East TAC Range) in 1992 and 1994 (U.S. Army Corps of Engineers 1995; Tim Tibbitts, Organ Pipe Cactus National Monument, pers. comm. 1994). Impacts to the Johnson Well area were included in one of the dismissed alternatives of the DEIS.

EFFECTS OF THE ACTION

Lesser long-nosed bat

Unknowns concerning the biology, and especially the foraging ecology, of this species remain. Consequently, evaluating the full effects of the action is difficult. The lesser long-nosed bat forages on the nectar and pollen of the columnar cacti that occur on and adjacent to the project area. It may also forage in the habitat contained within the project area. The effects of the action on the bat are the expected loss of food plants due to the construction and operation of the proposed project and noise and vibration due to military training operations.

Tactical Area Flight Training Area

The impacts from low level flight are not expected to be significantly different from impacts currently experienced by wildlife from helicopter flights. Lesser long-nosed bats could conceivably encounter aircraft as pilots train during low level flight; however, no incidence of bird (or apparently, bat) strikes have been reported from ongoing flight operations and none are expected. At one point in the BA, it was stated that no habitat of listed threatened or endangered species occurs at the Level III sites, therefore no impacts to listed species is expected from ground based activities at these sites. However, the DEIS describes the Samaniego Hills Level III site as being undisturbed with saguaros present. Thus, loss of those food plants may impact the lesser long-nosed bat.

Master Construction Plan

According to the project proponent, no lesser long-nosed bat habitat occurs at the Silver Bell Army Heliport where the Master Construction Plan activities will occur, therefore no impacts to this species are expected.

East TAC Helicopter Gunnery Range Effects

The East TAC Range is currently active, with numerous ongoing training missions for both helicopters and fixed wing aircraft. Current disturbance, within East TAC, ranges from minimal vegetation disturbance in those areas without target sites to complete loss of vegetation at airfield target sites and HE Hill. The project proponent believes that no new impacts are expected from the implementation of the proposed action; all existing targets and established access roads would be used. However, the rate of cumulative disturbance and deterioration of localized areas around existing target areas would increase as the number of helicopter training missions are increased on the range. Impacts due to ordnance hitting vegetation which is currently undisturbed at existing target sites would most likely result in a decrease of natural vegetation, density, cover, and structural diversity. Impacts due to ordnance hitting individual plants, especially saguaro and other cacti, would also occur. This loss of vegetation cover could potentially result in locally significant impacts, where species diversity is reduced due to frequent disturbance by ordnance, target placement, and associated ground-level activities.

Surveys for the lesser long-nosed bat have been conducted in the Sand Tank Mountains by biologists from the Range Management Office at Luke Air Force Base (AFB). Although the

presence of the bat has not been confirmed, it is reasonable to assume that these bats may occasionally forage on the flowers and fruit of saguaros in the area during the appropriate season. Lesser long-nosed bat and saguaro surveys were performed at the Alternative A helicopter gunnery site, as that area supports dense saguaro stands. No such saguaro densities occur on East TAC. Since it will be assumed that the lesser long-nosed bat might occasionally forage on saguaros in the project area, since the proposed action will involve limited vegetation disturbance at the existing target sites, and since saguaros are found only at a few targets located at the base of the surrounding hills in East TAC, the project proponent determined that there was no need to determine saguaro densities to assess potential impacts to this species.

On the existing East TAC range, the endangered lesser long-nosed bat has a moderate potential to occur within the proposed helicopter gunnery range. There is a moderate abundance of scattered populations of saguaro cactus in the surrounding hills in the East TAC area and only a few of the existing targets occur in these hills (e.g., North Convoy, Maverick TGN TG1, East Convoy, TGT 331A, and TGT 331B). The majority of the existing targets on East TAC are on the valley floor which is vegetated by creosote-bursage. None of the saguaro densities observed on the Alternative A site were observed on proposed project area at the existing East TAC range. There are also a few rock crevices onsite that may serve as roost sites, although this has not been documented.

Since saguaros are not expected to be disturbed by clean-up operations, ordnance removal, or road maintenance, it is expected that those few saguaros near targets might be damaged by increased firing at the gunnery range over time. The National Guard Bureau and the Arizona National Guard consider the impact on foraging lesser long-nosed bats from the possible loss of a few saguaros over the life of the project to be minimal.

Noise impacts are considered in the context that East TAC is currently used as a target range by U.S Air Force jets (F-iS's and F-16's) and Army National Guard helicopters and, when firing occurs on the range, substantial noise levels already exist in the project area. It is expected that the type and intensity of noise cause by the proposed action will be essentially the same as the type and intensity that already exist. However, the proposed action involves increasing the number of helicopter sorties from 271 per year to 1320 per year for a total of 6961 fixed wing and helicopter sorties on East TAC. This increase in helicopter sorties translates into essentially the same number of helicopters/sortie but with more sorties per year. Therefore, the same type and intensity of existing noise is expected to occur but involving more days. The incremental increase associated with noise impacts from the proposed action are considered impacts of increased noise exposure and not increased noise type or intensity. Since nighttime operations are part of the proposed action, night feeding bats, if actually present in the project area, are expected to be experience the same type and intensity of noise but with increased exposure to this noise.

The use of laser light during training may be an adverse effect. This effect may be minimized due to the limited application of laser light in the proposed training scenario. Lasers would only be used as sighting devices during the last moments of the vehicle approach to selected targets.

American peregrine falcon

Given that peregrine falcons are known to nest and forage adjacent to the project area, and given the large area affected by the proposed project, it is likely that peregrine falcons use the project area for foraging and movement. In addition, due to the large size of the area effected by the project, unsurveyed suitable nesting habitat may be present. Studies that have investigated the effects of low-level aircraft overflights on birds have determined that such flights disturb raptors (Manci *et al.* 1987). Disturbance includes interrupting nesting activities by flushing birds from nests and roosts, displacing birds returning to nests, flushing or displacing birds from foraging areas, provoking interactions with sympatric raptors, and exposing eggs and nestlings to predator and extreme heat. Studies have also suggested that human activities within breeding and nesting territories may affect raptors by changing home range movements (Anderson *et al.* 1990) and causing nest abandonment (Postovit and Postovit 1987 Porter *et al.* 1973). While these studies have not demonstrated a causal link between low-level overflights and reproductive success, they do document a level of disturbance that clearly is equivalent to harassment. Under section 9(a)(1)(B) of the Act, harassment is a form of take.

The degree of disturbance that peregrine falcons can tolerate is generally believed to be a function of the magnitude of the disturbance, the distance from the breeding site, and the falcon's habituation to human activities. Raptors in frequent contact with human activities tend to be less sensitive to additional disturbances than raptors nesting in remote areas. However, exposure to direct human harassment may make raptors more sensitive to disturbances (Newton 1979). Where prey is abundant, raptors may even occupy areas of high human activity, such as cities and airports (Newton 1979, Ratcliffe 1980, White *et al.* 1988). Luke AFB's ongoing biological surveys of the range document nesting red-tailed hawks within conventional target areas and within 1/2 mile of HE (high explosive) Hill on East TAC (Robert Barry, Luke AFB, pers. comm. to Rey Farve, Corps). The timing, frequency, and predictability of the disturbance may also be factors. Raptors become less sensitive to human disturbance as their nesting cycle progresses (Newton 1979). Generally, peregrine falcons are least tolerant of disturbance during the prelaying through incubation periods. After young are hatched, peregrines exhibit considerably higher levels of tolerance and are unlikely to abandon the nesting attempt (Cade 1960, Cade and White 1976, Fyfe and Olendorff 1976, Eberhardt and Skaggs 1977, Olsen and Olsen 1978, Monk 1980, Roseneau *et al.* 1981).

Exposure to direct human harassment may make raptors more sensitive to disturbances (Newton 1979). Construction activities, operation of heavy machinery, and aircraft activity, all with the notable absence of direct human harassment, were generally tolerated by nesting peregrine falcons and gyrfalcons (Plan 1977, Ellis 1981, Haugh 1982, White and Thurow 1985, Ritchie 1987 White *et al.* 1988). Peregrines have nested in situations where there is a high level of disturbance, such as on buildings in urban settings (Cade and Bird 1990). They have also nested near potential disturbance from low level military jets and sonic booms (Ellis 1981). Peregrine falcons and golden eagles have been known to nest successfully within a few hundred meters of areas such as airports and blasting (Pruett-Jones *et al.* 1980, Haugh 1982, White and Thurow 1985 White *et al.* 1988). Cade and Bird (1990) discussed the possible effects on peregrines of high levels of human activity, including noise and machinery such as compressors, blowing fans, and bright night lighting. They concluded that the effects were unknown. Apparently, responses vary considerably within and among species. The Service believes that the peregrine may be

disturbed from overflight activities during the breeding season if peregrine falcons occupy the project area. In addition, the Service believes that there is a small chance that peregrine falcons and aircraft may collide.

Cactus ferruginous pygmy-owl

Evaluating the full effects of the action is difficult. Unknowns continue concerning the biology of this species. The extremely low number of individuals reduces the chances of detecting impacts to a pygmy-owl. Suitable habitat for this species exists in the project area. The effects of the action are the expected loss of habitat from the proposed project due to military training operations. It is not known how random variation in habitat quality parameters such as climate, nutrients, water, cover, pollutants, and relationships with other species such as prey, predators, competitors, or pathogens, will merge with project habitat variations. These and other factors are much more likely to cause extinction when a species' numbers are already extremely low. The small, fragmented population of pygmy-owls in Arizona may not have the ability to resist change or dramatic fluctuations over time.

Tactical Area Flight Training Area

The same type and intensity of existing noise is expected to occur but involving more days. It is not known if the increase in number of low level flights may result in different overall effects than those currently experienced by any pygmy-owl in the area from existing helicopter flights. The DEIS states that the WAATS "...would map and avoid flying near sensitive receptors..." and "... would also limit flying in certain areas during herd movements, hunting season periods, and other sensitive time periods (as it does with current operations)" (see DEIS page 4-26). The Arizona National Guard can identify time-specific "no fly" buffers around individual pygmy-owl nests, if they are discovered near target sites.

The four Level III Sites (Picacho Peak Annex, Samaniego Hills, Silver Bell Annex, and Mercer Ranch) will be used extensively by aircraft and ground personnel, and may require some vegetation clearing to provide sufficient clearance for safe aircraft operations. The Picacho Peak, Silver Bell Annex, and Mercer Ranch sites are to be developed away from onsite washes. Construction sites should also minimize adverse effects to saguaros by placing refueling stations away from saguaros. Of the four sites, the Samaniego Hills Site provides the highest vegetation densities, least disturbance, and greatest potential for the cactus ferruginous pygmy-owls or its habitat to be affected. The disturbed portion of this site is to be placed along the existing Sasco Road.

Master Construction Plan

The SBAH facility does not contain the habitat elements essential for pygmy-owl survival, and the pygmy-owl is not expected to occur here.

East TAC Helicopter Gunnery Range Effects

All future helicopter gunnery practice will occur in this area. Only the number of helicopter training missions will change; existing roads and existing targets will be used. Bullets, rockets, and missiles can be used in this area. The frequency of disturbance and deterioration of localized areas around existing target areas would increase as the number of helicopter training missions are increased on the range. Nonexplosive ammunition can be used on the target areas but not missiles carrying high explosives. Five helicopter types with various weapon types will be used in this area. High explosives are used for missile training in the East TAC area known as HE Hill. The Apache helicopters which use lasers to designate targets and aim weapons, have the potential to cause eye injuries if shined directly in an observer's eye within 16 miles of the helicopter. It is not known whether these lasers might affect the pygmy-owl.

Impacts due to ordnance hitting vegetation which is currently undisturbed at existing target sites would most likely result in a decrease of natural vegetation which may adversely affect the pygmy-owl habitat suitability. Impacts due to ordnance hitting individual plants, especially saguaro and other cacti, could also occur. This loss of vegetation cover could potentially result in locally significant impacts, where species diversity is reduced due to frequent disturbance by ordnance, target placement, and associated ground-level activities. Confirmation of the pygmy-owl in the Sand Tank Mountains region is needed to specify effects to this species. Adverse effects to the species should be avoided by surveying the targets and access roads before use of the facility, and avoiding any pygmy-owl localities.

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 the Act. Due to the extent of the lands in southwestern Arizona administered by the Bureau of Land Management, Organ Pipe Cactus National Monument, and other Federal agencies, many of the actions that are reasonably expected to occur within the vicinity of the project area would be subject to section 7 consultation. Private land supporting the pygmy-owl occur in the vicinity of the project area. Continued development of non-Federal lands for residential or commercial purposes is expected to continue. Cumulative impacts of private properties will be addressed through the section 10(a)(1)(B) permit process.

CONCLUSION

After reviewing the current status of the species, the environmental baseline for the action area, the effects of the proposed WAATS project 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 lesser long-nosed bat, the peregrine falcon, or the cactus ferruginous pygmy-owl. No critical habitat has been designated for these species, therefore, none will be affected.

INCIDENTAL TAKE STATEMENT

Sections 4(d) and 9 of Act, 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 Arizona National Guard in conjunction with Corps of Engineers has a continuing duty to regulate the activity covered by this incidental take statement. If the Corps of Engineers (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

AMOUNT OR EXTENT OF TAKE

Lesser long-nosed bat

The Service anticipates incidental take of lesser long-nosed bats will be difficult to detect for the following reasons: the species is wide-ranging and may utilize roosts or foraging areas based on unknown factors, it has small body size, finding a dead or impaired specimen is unlikely, losses may be masked by seasonal fluctuations in numbers, and the species occurs in habitat that makes detection difficult. However, the following level of take of this species can be anticipated. Up to 5477 acres of habitat containing saguaros suitable for bat foraging are expected to be diminished in forage value due to the proposed action (Rey Farve, pers. comm.). If the acreage of habitat disturbed exceeds this amount, then reinitiation of consultation is required.

American peregrine falcon

Due to the wide distribution and abundance of peregrine falcons in Arizona, disturbance cannot be monitored and used as a measure of take. Incidental take is set at one adult or juvenile peregrine falcon mortality that results from a collision with aircraft use of the project area.

Cactus ferruginous pygmy-owl

Given the small population size of the cactus ferruginous pygmy-owl in Arizona, incidental take may be difficult to detect for this species for the proposed project. Because of the small size of

the pygmy-owl population, the incidental take is set at one individual. The Service anticipates that the incidental take will be in the form of harassing one bird.

If, during the course of the project a pygmy-owl is encountered, the Arizona National Guard or the Corps must contact the Service within 72 hours of identification of the pygmy-owl. Detection of pygmy-owls may trigger reinitiation for this project.

If, during the course of the action, the amount or extent of the incidental take anticipated is exceeded, the National Guard Bureau and the Arizona National Guard with the Corps as lead agency 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 lesser long-nosed bat, the American peregrine falcon, or the cactus ferruginous pygmy-owl.

REASONABLE AND PRUDENT MEASURES

The Service believes the following reasonable and prudent measure(s) are necessary and appropriate to minimize take of lesser long-nosed bats:

1. The loss of saguaros resulting from implementation of the proposed action will be minimized to the greatest extent possible.
2. Disturbance of foraging lesser long-nosed bats will be minimized.

The Federal agency (or designated applicant or contractor) as part of their action will provide a means to determine the level of incidental take that actually results from the project.

The Service believes the following reasonable and prudent measure(s) are necessary and appropriate to minimize take of the cactus ferruginous pygmy-owl:

1. Efforts to minimize impacts to individual pygmy-owls must be developed and implemented.
2. Efforts to minimize loss of pygmy-owl habitat must be instituted. Suitable habitat for the cactus ferruginous pygmy-owl must be surveyed annually following the survey protocol established by the Service. Disturbance to these areas should be minimized.

TERMS AND CONDITIONS

In order to be exempt from the prohibitions of section 9 of the Act, the Arizona National Guard

in conjunction with the Corps must comply with the following terms and conditions, which implement the reasonable and prudent measures described above. These terms and conditions are nondiscretionary.

1. The following terms and conditions implement reasonable and prudent measure #1:

- a. No new target sites or access roads will be constructed or designated or used by WAATS in the East TAC Range.
- b. Loss of saguaro cactus at each existing target site in the East TAC Range will be reduced by training strictly in those regions that have been previously disturbed due to ongoing training missions.

2. The following terms and conditions implement reasonable and prudent measure #2:

Training activities at East TAC Range will be curtailed from 2200 hours (10:00 pm) to dawn during those times of the year when the lesser long-nosed bat is present (April-September).

The Service believes the following reasonable and prudent measure(s) are necessary and appropriate to minimize take of the cactus ferruginous pygmy-owl:

1. In conjunction with the Mitigation Measure found on page E5-23 of Appendix E-5 of the DEIS, verify the presence of the pygmy-owl in the Sand Tank Mountains region. Of particular importance will be a survey sweep of the targets and access roads prior to the use of the facility. Survey should focus on the area of the 1995 unconfirmed pygmy-owl sighting (see Appendix E4, p. 19 of the draft and final EIS). Map any suitable habitat identified within the project area. Suitable habitat will be defined based on the Service's most current habitat profile, distribution maps, and will be completed within one year. Habitat may be classified as high, medium, or low potential use.

2. Survey for the presence of owls in the project area within a two year time frame. Prioritization of survey efforts within the action plan will be as follows:

(1) Survey first any habitat subject to disturbing activities (this applies to all suitable habitat, regardless of the quality of the habitat or the status of the mapping effort described in item 3a above);

(2) Survey second those areas in proximity to occupied or recently (within the last 5 years) occupied habitat;

(3) Survey third any historic localities; and

(4) Survey fourth any likely historic habitat, based on historic localities and the habitat profile.

3. Between the time of this opinion and the beginning of the next survey season (January 1-May 31), activities on all suitable habitat for the pygmy-owl should be minimized

until occupancy can be verified during the next survey season, and activities in the area of the 1995 pygmy-owl sighting will be avoided.

4 Devise and conduct, in coordination with the Service, and other appropriate entities, a study plan to determine any ongoing effects of Army National Guard activities on Sonoran Desert scrub habitat. The study should, at a minimum, determine any effects of activities on key components of suitable pygmy-owl habitat, including changes in plant species diversity and density.

5. Develop and implement, using data from the study in item 4 above, recommendations necessary to avoid future adverse effects of Army National Guard activities on suitable pygmy-owl habitat.

6. In conjunction with Mitigation Measure Bio-23 found on page 4-82 of the DEIS, impacts on cactus ferruginous pygmy-owl habitats (Saguaro cactus, riparian thickets) must be avoided to the fullest extent practical.

Reporting Requirements

Upon locating a dead, injured, or sick endangered or threatened species specimen, initial notification must be made to the Service's Law Enforcement Office in Mesa, Arizona (602)379-6443). Care should be taken in handling sick or injured specimens to ensure effective treatment and care and in handling dead specimens to preserve biological material in the best possible state for later analysis of cause of death. In conjunction with the care of sick or injured endangered species or preservation of biological materials from a dead animal, the finder has the responsibility to ensure that evidence intrinsic to the specimen is not unnecessarily disturbed.

To the extent that this statement concludes that take of any threatened or endangered species of migratory bird will result from the agency action for which consultation is being made, the Service will not refer the incidental take of any such migratory bird for prosecution under the MBTA of 1918, as amended (16 U.S.C. §§ 703-712), or the Bald Eagle Protection Act of 1940, as amended (16 U.S.C. §§ 668-668d), if such take is in compliance with the terms and conditions (harassment of one pygmy-owl, loss of one peregrine falcon) specified herein.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act 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.

The Service recommends that the National Guard Bureau and Arizona National Guard financially support appropriate additional efforts to locate and survey potential lesser long-nosed bat roosts within the project area.

In conjunction with the Service, and other appropriate entities, the Arizona National Guard should develop a management plan for the pygmy-owl in the project area and the general Sand Tank Mountain region.

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 action(s) outlined in the proposal for the Western Army National Guard Aviation Training Site expansion project. 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 Debra Bills or Ted Cordery. Please refer to consultation number 2-21-92-F-227 in future correspondence concerning this project.

Sincerely

/s/ Sam Spiller
Field Supervisor

cc: Regional Director, Fish and Wildlife Service, Albuquerque NM (GMA)(ES)
Director, Department of the Air Force, 56th Fighter Wing (ABTC), Luke Air Force Base, AZ
Director, Arizona Game and Fish Department, Phoenix AZ
Captain Skaggs, Arizona Army National Guard, Phoenix, AZ

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