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In Reply Refer to: Jun 27, 2008
AESO/SE
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Memorandum

To: Superintendent, Coronado National Memorial, Hereford, Arizona

From: Field Supervisor

Subject: Final Biological Opinion on State of Texas Bat Gate Installation

Thank you for your request for formal consultation with the U.S. Fish and Wildlife Service (FWS) pursuant to section 7 of the Endangered Species Act of 1973 (16 U.S.C. 1531-1544), as amended (Act). Your request was dated March 11, 2008, and received by us on March 17, 2008. At issue are impacts that may result from the proposed State of Texas (SOT) mine bat gate installation located in Cochise County, Arizona. The proposed action will adversely affect the lesser long-nosed bat (*Leptonycteris curasoae yerbabuena*; LLNB).

This biological opinion is based on information provided in your March 11, 2008, biological assessment, 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, bat gates and their effects, or on other subjects considered in this final biological opinion. It is understood that the transmittal of a draft biological opinion in advance of this document was not feasible given the schedule requirements of your proposed action. A complete administrative record of this consultation is on file at this office.

Consultation History

September 2007: The National Park Service (NPS) initiated discussions with experts from around southern Arizona to discuss options for the project, as well as concerns and issue related to the project.

February 4, 2008: Conference call with NPS and other agency and organization bat biologists to discuss options for protection of the SOT mine.

March 17, 2008: Received request for formal consultation on bat gate at SOT mine; formal consultation initiated.

March 24, 2008: Met on-site with NPS and other agency and organization bat biologists to discuss specific bat gate design issues and confirm conservation measures for the project.

June 23, 2008: Met with NPS biologists to confirm gate design and installation and monitoring processes. The timeline for the proposed action necessitated the transmittal of a final biological opinion without prior transmittal of a draft biological opinion.

BIOLOGICAL OPINION

DESCRIPTION OF THE PROPOSED ACTION

Coronado National Memorial (CORO) lies in southeastern Arizona. It is located along the international border with Mexico, in Cochise County, south of Sierra Vista and west of Bisbee. CORO is comprised of approximately 4,750 acres (1,900 hectares) in Montezuma Canyon at the southern end of the Huachuca Mountain range. Steep, wooded terrain predominates in the western portion of the park, while the eastern portion is a broad, open plain dissected by numerous drainages that flow into the nearby San Pedro River. The City of Cananea, Sonora, Mexico, lies approximately 20 miles (32 kilometers) south of CORO.

The SOT mine is an abandoned mine within CORO at an elevation of approximately 5,800 feet (1,810 meters). Slopes in the area of the SOT mine range from 10 to 40 percent. The site is accessible by a trail, approximately 0.5 miles (0.8 kilometers) from the main road. The SOT mine has three separate openings. The western opening has been gated with a cupola-style gate that resulted from an earlier research project (Consultation 2-21-96-F-346, February 24, 1997). The middle and eastern openings are the locations for the current SOT mine bat gate project. Currently, the openings are protected by cable netting with approximately 6 inch by 6 inch square openings. While LLNBs currently exit through this netting, monitoring indicates that it impedes the exit and has caused some mortality. This project will replace the cable netting with a more bat-friendly gate.

Temporary bat gates made of PVC pipes will be constructed at two adjacent openings at the SOT mine. These temporary gates will test designs to facilitate the exit of the LLNBs from the SOT mine, while providing protection from intruders. The temporary gates will be constructed so that different designs can be tested. Temporary gates will be constructed from 2-inch PVC pipes and fittings. The gates will be able to be easily removed should the bats respond negatively to a particular gate configuration. The gate designs will be derived from consultation with bat biologists and experienced bat gate builders, and will be based on the best current knowledge regarding configurations that would be acceptable for use by LLNBs. Bat gate design will consider the experimental work already conducted at the western opening of the SOT mine (Bucci *et al.* 2004) and the issues evaluated in section 7 consultation under the Act conducted for that project (Consultation 2-21-96-F-346, February 24, 1997).

The temporary bat gates will consist of a base and supports attached to the mine entrance. These will be installed prior to the return of the LLNBs. The support system will allow for a gate configuration that can quickly be attached or removed based on the circumstances observed during monitoring. The temporary gate configurations will not be installed until after the LLNBs

have occupied the SOT mine, typically mid-July. All gate panels and supports will be constructed, prior to arrival of the LLNBs in order to reduce effects to the bats from construction noise and disturbance.

The most acceptable gate configuration will be determined by monitoring the bat response to the temporary gate designs. Exit counts will be conducted live and with the use of infrared video equipment. Placement of the video cameras will facilitate the evaluation of LLNB behavior at the temporary gates. Exit numbers and exit flight patterns and behavior will be documented.

The SOT mine will be monitored nightly for the first seven nights (and potentially longer if bats are slow in arriving) after LLNBs arrive at the roost to obtain baseline data on colony size for 2008. Following the collection of adequate baseline data, the temporary gate panels will be installed. Following installation of the gates, exit observations will be made at the site for five consecutive nights. Temporary gate configuration may be changed on a weekly basis, depending on the behavior of the exiting LLNBs. Any change in configuration will be followed by five consecutive nights of monitoring to ensure that no negative effects to LLNBs result. Following the five consecutive nights of monitoring, monitoring will continue two times weekly for the remainder of the season. Any observed negative effects to LLNB exit patterns and behaviors will result in that configuration being immediately removed. The gate panel will be replaced with a panel that was previously accepted by the LLNBs or that section of the gate would be left open so that the nightly exit would not be precluded.

Substantial deviations from typical LLNB exit behavior as observed during previous years' monitoring will be carefully noted and described. Primarily, observers will be watching and listening for evidence that the emerging bats are not passing freely through the gates. Such evidence could include excessive swirling, bat congestions behind the gates, erratic flight patterns or behavior, few bats exiting, or numerous bat-to-bat or bat-to-gate collisions. Monitoring will occur during the season that the SOT mine is occupied by LLNBs in 2008 and 2009. During the second season of monitoring, the preferred gate configuration (if determined) will be in place when the bats arrive.

Once an appropriate gate configuration is determined, construction of a permanent steel gate would occur in the fall of 2009 under a timeframe that would allow the permanent gate to "cure" before the LLNBs return in the summer of 2010. Timing the construction for the fall/winter will avoid disturbance of LLNBs as the bats will have migrated south for the winter. Additional monitoring will occur following the installation of the permanent gate to document long-term LLNB use at the SOT mine and issues related to ongoing protection and maintenance of the mine and bat gates. A monitoring frequency of at least once per week during its occupancy by LLNBs will be conducted for two years following installation of the permanent gate.

Conservation Measures

The following is a summary of conservation measures that will be implemented by CORO as part of this project:

- The temporary gates will not be installed or tested until the LLNBs have occupied the SOT mine in order to reduce the likelihood that the bats would avoid this roost due to the

gate configuration.

- Temporary gate configurations will be monitored for five consecutive nights following installation. Any negative response to the gates by the LLNBs will result in the gate panels being removed so that the nightly exit may occur unimpeded.
- Monitoring will specifically target LLNB exit behavior and patterns so that any negative response will be detected.
- Gate configurations and designs have been developed with consideration of previous research at this and other sites so that negative impacts will be reduced. Additionally, bat biologists and bat gate experts have been consulted during the development of the gate designs and configurations.
- Measures to ensure the security of the SOT mine roost will be implemented by CORO so that the roost will be protected from intruders (park visitors, cross-border immigration, and smugglers) while the cable nets are down and the temporary gates are in place. These measures include sensors in the ground, patrols by staff and law enforcement personnel, site monitoring, and signage to deter use of the site.

STATUS OF THE SPECIES

A. Species Description

The lesser long-nosed bat is a medium-sized, leaf-nosed bat. It has a long muzzle and a long tongue, and is capable of hover flight. These features are adaptations for feeding on nectar from the flowers of columnar cacti [e.g., saguaro (*Carnegiea gigantea*); cardon, *Pachycereus pringlei*; and organ pipe cactus, *Stenocereus thurberi*] and from paniculate agaves (e.g., Palmer's agave, *Agave palmeri*) (Hoffmeister 1986). The lesser long-nosed bat was listed (originally, as *Leptonycteris sanborni*; Sanborn's long-nosed bat) as endangered in 1988 (FWS 1988). No critical habitat has been designated for this species. A recovery plan was completed in 1994 (FWS 1997). 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 endangered status of the species. Recovery actions include roost monitoring, protection of roosts and foraging resources, and reducing existing and new threats.

B. Distribution and Life History

The lesser long-nosed bat is migratory and found throughout its historical range, from southern Arizona and extreme southwestern New Mexico, through western Mexico, and south to El Salvador. It has been recorded in southern Arizona from the Picacho Mountains (Pinal County) southwest to the Agua Dulce Mountains (Pima County) and Copper Mountains (Yuma County), southeast to the Peloncillo Mountains (Cochise County), and south to the international boundary. Roosts in Arizona are occupied from late April to September (Cockrum and Petryszyn 1991) and on occasion, as late as November (Sidner 2000); the lesser long-nosed bat has only rarely been recorded outside of this time period in Arizona (FWS 1997, Hoffmeister 1986, Sidner and Houser 1990). In spring, adult females, most of which are pregnant, arrive in Arizona gathering

into maternity colonies. These roosts are typically at low elevations near concentrations of flowering columnar cacti. After the young are weaned these colonies mostly 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 typically occupy separate roosts forming bachelor colonies. Males are known mostly from the Chiricahua Mountains and recently the Galiuro Mountains (personal communication with Tim Snow, Arizona Game and Fish Department, 1999) but also occur with adult females and young of the year at maternity sites (U. S. Fish and Wildlife Service 1997). Throughout the night between foraging bouts, both sexes will rest in temporary night roosts (Hoffmeister 1986).

Lesser long-nosed bats appear to be opportunistic foragers and extremely efficient fliers. They are known to fly long distances from roost sites to foraging sites. Night flights from maternity colonies to flowering columnar cacti have been documented in Arizona at 15 miles, and in Mexico at 25 miles and 36 miles (one way) (Dalton *et al.* 1994; personal communication with V. Dalton, 1997; personal communication with Yar Petryszyn, University of Arizona, 1997). Steidl (personal communication, 2001) found that typical one-way foraging distance for bats in southeastern Arizona is roughly 12.5 miles. A substantial portion of the lesser long-nosed bats at the Pinacate Cave in northwestern Sonora (a maternity colony) fly 25-31 miles each night to foraging areas in Organ Pipe Cactus National Monument (FWS 1997). Horner *et al.* (1990) found that lesser long-nosed bats commuted 30-36 miles round trip between an island maternity roost and the mainland in Sonora; the authors suggested these bats regularly flew at least 47 miles each night. Lesser long-nosed bats have been observed feeding at hummingbird feeders many miles from the closest known potential roost site (personal communication with Yar Petryszyn, University of Arizona, 1997).

Lesser long-nosed bats, which will forage in flocks, consume nectar and pollen of paniculate agave flowers and the nectar, pollen, and fruit produced by a variety of columnar cacti. Nectar of these cacti and agaves is high energy food. Concentrations of some food resources appear to be patchily distributed on the landscape, and the nectar of each plant species used is only seasonally available. Cacti flowers and fruit are available during the spring and early summer; blooming agaves are available primarily from July through October. In Arizona, columnar cacti occur in lower elevational areas of the Sonoran Desert region, and paniculate agaves are found primarily in higher elevation desert scrub areas, semi-desert grasslands and shrublands, and into the oak woodland (Gentry 1982). Lesser long-nosed bats are important pollinators for agave and cacti, and are important seed dispersers for some cacti.

C. Status and Threats

Recent information indicates that lesser long-nosed bat populations appear to be increasing or stable at most Arizona roost sites identified in the recovery plan (AGFD 2005, Tibbitts 2005, Wolf and Dalton 2005). Lesser long-nosed bat populations additionally appear to be increasing or stable at other roost sites in Arizona and Mexico not included for monitoring in the recovery plan (Sidner 2005). Less is known about lesser long-nosed bat numbers and roosts in New Mexico. Though lesser long-nosed bat populations appear to be doing well, many threats to their stability and recovery still exist, including excess harvesting of agaves in Mexico; collection and destruction of cacti in the U.S.; conversion of habitat for agricultural and livestock uses, including the introduction of bufflegrass, a non-native, invasive grass species; wood-cutting;

drought; fires; human disturbance at roost sites; and urban development.

Approximately 20-25 large LLNB roost sites, including maternity and late-summer roosts, have been documented in Arizona (personal communication with Scott Richardson, FWS, 2006). Of these, 10-20 are monitored on an annual basis depending on available resources. Monitoring in Arizona in 2004 documented approximately 78,600 LLNBs in late-summer roosts and approximately 34,600 in maternity roosts. Ten to 20 lesser LLNB roost sites in Mexico are also monitored annually. Over 100,000 LLNBs are found at just one natural cave at the Pinacate Biosphere Reserve, Sonora, Mexico (Cockrum and Petryszyn 1991). The numbers above indicate that although a relatively large number of LLNBs exist, the relative number of known large roosts is quite small.

Maternity roosts, suitable day roosts, and concentrations of food plants are all critical resources for the lesser long-nosed bat. All of the factors that make roost sites useable have not yet been identified, but maternity roosts tend to be very warm and poorly ventilated (FWS 1997). Human presence/disturbance at roosts is clearly an important factor as bats appear to be particularly sensitive to human disturbance at roost sites. For example, the illegal activity, presumably by immigrants or smugglers, at the Bluebird maternity roost site, caused bats to abandon the site in 2002, 2003, and 2005. The presence of alternate roost sites may be critical when this type of disturbance occurs.

The lesser long-nosed bat recovery plan (FWS 1997) identifies the need to protect foraging areas and food plants such as columnar cacti and agaves. More information regarding the average size of foraging areas around roosts would be helpful to identify the minimum area around roosts that should be protected to maintain adequate forage resources.

A number of large fires within the range of the lesser long-nosed bat have affected foraging habitat, though the long-term extent is unknown. Fires affect the availability of lesser long-nosed bat forage through impacts to saguaros and agaves. The immediate effects and longer term impacts of the fires on saguaros and agaves are not completely understood. Fire suppression activities associated can also affect foraging habitat. For example, slurry drops can leave residue on saguaro and agave flowers, which could have impacted lesser long-nosed bat feeding efficiency or resulted in minor contamination.

Drought may affect lesser long-nosed bat foraging habitat, though the effects of drought on bats are not well understood. The drought in 2004 resulted in near complete flower failure in saguaros throughout the range of lesser long-nosed bats. During that time however, in lieu of saguaro flowers, lesser long-nosed bats foraged heavily on desert agave (*Agave deserti*) flowers, a plant not typically used by lesser long-nosed bats (personal communication with Scott Richardson, FWS, March 20, 2006). Similarly, there was a failure of the agave bloom in southeastern Arizona in 2006, probably related to the ongoing drought. As a result, lesser long-nosed bats left some roosts earlier than normal, and increased use of hummingbird feeders by lesser long-nosed bats was observed in the Tucson area (personal communication with Scott Richardson, FWS, January 11, 2008). Monitoring bats and their forage during drought years is needed to better understand the effects of drought on this species.

We have produced numerous biological opinions on the lesser long-nosed bat since it was listed as endangered in 1988, some of which anticipated incidental take. Incidental take has been in the form of direct mortality and injury, harm, and harass and has typically been only for a small number of individuals. Because incidental take of individual bats is difficult to detect, incidental take has often been quantified in terms of loss of forage resources, decreases in numbers of bats at roost sites, or increases in proposed action activities.

A few examples of more recent biological opinions that anticipated incidental take for lesser long-nosed bats are summarized below. The 2007 biological opinion for the installation of one 600 kilowatt wind turbine and one 50KW mass megawatts wind machine on Fort Huachuca included incidental take in the form of 10 bats caused by blade-strikes for the life (presumed indefinite) of the proposed action. The 2005 biological opinion for implementation of the Coronado National Forest Land and Resource Management Plan (U.S. Forest Service) included incidental take in the form of harm or harassment. The amount of take for individual bats was not quantified; instead take was to be considered exceeded if simultaneous August counts (at transitory roosts in Arizona, New Mexico, and Sonora) drop below 66,923 lesser long-nosed bats (the lowest number from 2001 – 2004 counts) for a period of two consecutive years as a result of the action. The 2004 biological opinion for the Bureau of Land Management Arizona Statewide Land Use Plan Amendment for Fire, Fuels, and Air Quality Management included incidental take in the form of harassment. The amount of incidental take was quantified in terms of loss of foraging resources, rather than loss of individual bats. The 2003 biological opinion for Marine Corps Air Station (MCAS) – Yuma Activities on the Barry M. Goldwater Range included incidental take in the form of direct mortality or injury (five bats every 10 years). Because take could not be monitored directly, it was to be considered exceeded if nocturnal low-level helicopter flights in certain areas on the BMGR increased significantly or if the numbers of bats in the Agua Dulce or Bluebird Mine roosts decreased significantly and MCAS-Yuma activities were an important cause of the decline. The 2002 biological opinion for Department of the Army Activities at and near Fort Huachuca (Fort), Arizona anticipated incidental take in the form of direct mortality or injury (six bats over the life of the project), harassment (20 bats per year), and harm (10 bats over the life of the project).

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.

Description of the Action Area

The action area is defined as all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action (50 CFR §402.02). We have determined that the action area for the lesser long-nosed bat includes the areas directly impacted by the installation of the bat gate (SOT mine) and an area around the project defined by a circle with a radius of 40 miles (the maximum documented one-way foraging distance of the lesser

long-nosed bat). The action area represents only a small portion of the lesser long-nosed bat's range.

Management of the action area is largely by Federal agencies (Forest Service, Park Service, Bureau of Land Management, Fort Huachuca), but there are also significant areas of private land. The action area for the lesser long-nosed bat also includes lands near the border in Sonora, Mexico.

A. Status of the species within the action area

The SOT mine within CORO supports one of the largest post-maternity roosts for LLNB in the United States. This roost typically supports between 10,000 and 30,000 LLNBs that arrive in July and are present into early October each year. This roost has been known since 1993. Current protection for the roost consists of a cupola-style gate on the western opening, and cable netting at the other two openings. At least three other LLNB roosts are found within the action area in the Huachuca Mountains on the Coronado National Forest and the Fort Huachuca Military Installation. These roosts represent approximately 16% of the known LLNB roosts in Arizona. These roosts are monitored on an annual basis by the associated land management agencies. Occupancy trends for all of these roosts show stable to increasing numbers of LLNBs.

CORO supports important late-summer forage resources for the LLNB in the form of agaves. Agaves are found throughout the action area. As mentioned earlier, the action area represents only a small portion of the foraging habitat for LLNBs throughout its range. All Federal land management agencies within the action area have agave monitoring programs in place. Agave population trends in the action area appear to be stable.

B. Factors affecting species environment within the action area

A number of activities regularly occur within the action area that affect LLNBs. These include recreation, fire, urban development, military activities, grazing, and border activities (illegal immigration and smuggling, border enforcement and facilities, etc.). Recreationists have access to all Federal lands within the action area. Activities such as birding, hiking, and hunting are popular in many of the locations within the action area. These types of actions can affect LLNBs if roosts are disturbed during recreational activities. LLNBs are particularly sensitive to roost disturbance and may abandon a roost if it is disturbed. Recreational use may create illegal trails or paths that improve access to LLNB roosts, increasing the likelihood of disturbance.

Fire, both wildfire and prescribed fires, can affect LLNB forage availability through destruction of forage plants, primarily agaves. Wildfires started by recreationists, illegal border activities, or lightning all affect agaves within the action area. Federal management agencies use prescribed fire as a tool to manage habitat and vegetation on the lands within their jurisdiction. We have consulted or are in consultation with a number of agencies and groups within the action area with regard to fire management.

Sierra Vista is a fast growing urban center within the action area. Existing development has already resulted in roads, utilities, residential and commercial construction within important LLNB habitat. Planned developments within the action area will continue to impact LLNB habitat. These impacts are serious and long-term due to the removal of key habitat and the indirect

effects to adjacent habitat.

Military activities on Fort Huachuca can affect LLNB roosts and foraging habitat. Military exercises and construction and use of facilities (buildings, roads, power generators, outposts, etc.) can affect both roosts (disturbance) and habitat (destruction, alteration, removal) for the LLNB. We have consulted with Fort Huachuca regarding their ongoing activities and specific projects.

Livestock grazing occurs on the Coronado National Forest and on private lands within the action area. While proper grazing does not appear to have significant impacts to LLNB roosts or forage availability, overgrazing can affect the occurrence and reproduction of key forage species like the agave. We consult on grazing permits issued with the Coronado National Forest.

Border issues are potentially a significant impact to LLNB roosts and habitat. Illegal border crossers and smugglers often use caves and mines as hiding areas and stopovers. Human activity, including fires and discharge of firearms, within LLNB roost can cause abandonment. In addition, border law enforcement creates additional disturbance factors (patrols on foot, in vehicles, and in aircraft) and habitat impacts (removal, destruction, alteration). Of particular note is the construction of fencing along the border to control vehicles and pedestrians which may force illegal activity into new area or near roost sites. We are consulting or have consulted with the Department of Homeland Security and Border Patrol regarding some of these actions.

All of the above threats or impacts also occur in the large tracts of private land within the action area. We have the opportunity to consult with Federal agencies regarding the effects of their actions on LLNBs in the action area, but we do not always have the opportunity to provide input or guidance on actions that occur on private property. Of particular concern is the increased urban development occurring in Sierra Vista. Direct effects are long-term and indirect effects such as increased levels of fire, recreation, introduction of exotics, and domestic animal predation are all serious threats within the action area.

EFFECTS OF THE ACTION

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

Installation of the proposed bat gate at the SOT mine could affect the suitability of this roost for LLNBs. Direct effects could range from abandonment or avoidance of the roost altogether, to changes in the efficiency of how the roost site is accessed and used by LLNBs. Some direct mortality may occur due to collisions with the gate structures. Given that known LLNB roosts are relatively few in number within the action area, loss of a single roost, particularly a large roost such as the SOT mine, could be a significant adverse effect. Depending on the gate design, an indirect effect could potentially be an increase in predation at the roost. In addition,

abandonment of the mine may result in increased numbers of LLNBs at adjacent alternative roosts, resulting in indirect effects to LLNBs at these adjacent mines if they do not have the capacity to support the increase. There will be no adverse effects to foraging habitat.

There will be increased monitoring of this roost site as a result of this bat gate project. The increased activity associated with monitoring may result in impacts to LLNB exit behavior. This increased monitoring is an interrelated action, and the effects associated with it would not occur but for implementation of the proposed action. We do not anticipate any effects from interdependent actions.

Currently, the SOT mine roost is only partially protected. One entrance is gated, but only a small percentage of the LLNBs in the roost have used that entrance historically. The other two openings are protected by cable netting, but it can be and has been breached on a number of occasions. In addition, some bat mortality has been observed on the loose ends of the cable netting. Installation of an appropriate bat gate at this roost would have a beneficial effect on LLNBs in the action area. The beneficial effects of this project include: (1) protection the SOT mine as a long-term LLNB post-maternity roost; (2) development of a gate design and configuration that will be useful for other LLNB roosts; and (3) acquisition of additional data on LLNB exit numbers and documentation of species behavior to add to the existing long-term data set from SOT mine.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, 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.

Urban development of the adjacent private lands within the towns of Sierra Vista, Hereford, and Palominas are considered reasonably certain to occur. A number of specific plans and subdivision plats are on record in Cochise County indicating that the pattern of increasing urban development being experienced in this area will continue. Roost sites and habitat within the adjacent Federal lands, including CORO, will become increasingly important to the LLNB as habitat is lost to urbanization in the action area. Increased recreational use of the adjacent Federal lands is an indirect effect of urbanization that increases the importance of this bat gate project with respect to protection of key LLNB roosts in the action area.

CONCLUSION

After reviewing the current status of the LLNB, the environmental baseline for the action area, the effects of the proposed SOT mine bat gate project, and the cumulative effects, it is the FWS's biological opinion that the bat gate, as proposed, is not likely to jeopardize the continued existence of the LLNB. No critical habitat has been designated for this species; therefore, none will be affected. We present this conclusion for the following reasons:

- The SOT mine is a post-maternity LLNB roost, therefore, population implications from the effects of this project are reduced when compared to impacts at maternity roosts

because direct effects to productivity are absent.

- Known LLNB roosts are relatively few in number, so effects to a single roost can be significant. However, CORO will implement conservation measures that render roost abandonment or avoidance highly unlikely. These measures include: 1) installation of the gate after the bats have arrived; 2) monitoring for five consecutive nights following installation of the temporary gate to document acceptance of the configuration or any negative impacts to LLNB exit behavior; and 3) gate design will allow for easy and quick removal should any negative interaction be documented. Known alternative roosts are located within the action area should LLNB use of the SOT mine be affected by this project.
- CORO will implement security measure to ensure that the SOT mine roost will remain secure while the cable netting is removed and the temporary gate is in place. These measures include signage, patrols, and additional monitoring.
- The SOT mine bat gate design and configuration will benefit from past research at this site and others; impacts to LLNBs at the SOT mine roost from this project have been considered and recommendations for avoiding or minimizing impacts have been made by bat biologists and bat gate experts.
- Successful implementation of this project will benefit LLNB roosts throughout the range by providing an appropriate design for the protection of roosts through the use of bat gates.
- The proposed action, and the data gathered during implementation, will contribute to the recovery of the species via reduced mortality at an important roost site and the application of successful design criteria to other vulnerable roost sites rangewide.

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

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulations pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. “Take” is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. “Harm” is further defined (50 CFR 17.3) to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. “Harass” is defined (50 CFR 17.3) as intentional or negligent 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. An incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. 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 to be prohibited taking under the Act

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 undertaken by CORO so that they become binding conditions of any grant or permit issued to the (applicant), as appropriate, for the exemption in section 7(o)(2) to apply. CORO has a continuing duty to regulate the activity covered by this incidental take statement. If CORO (1) fails to assume and implement the terms and conditions or (2) fails to require contractors to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, CORO must report the progress of the action and its impact on the species to the FWS as specified in the incidental take statement. [50 CFR §402.14(i)(3)].

AMOUNT OR EXTENT OF TAKE

The FWS anticipates up to ten (10) LLNBs will be taken as a result of this proposed action. The incidental take is expected to be in the form of “kill”, due to potential collisions with the gate panels or support structures. We do not anticipate any take in the form of harm or harassment that we might typically associate with decreased use or abandonment of the mine due to the gate project. Numbers of LLNBs within the SOT mine naturally fluctuate on an almost daily basis due to roost switching and migration. It would be very difficult, if not impossible, to tie a decrease in numbers to the effects of the bat gate, unless it was total abandonment. We do not anticipate abandonment of this roost, or even a significant decrease in numbers, because of the conservation measures that will be implemented by CORO related to timing of implementation and the intense monitoring that will be conducted.

EFFECT OF THE TAKE

In this biological opinion, the FWS determines that this level of anticipated take is not likely to result in jeopardy to the species or destruction or adverse modification of critical habitat for the reasons stated in the Conclusions section.

REASONABLE AND PRUDENT MEASURES

The following reasonable and prudent measure is necessary and appropriate to minimize take of LLNB:

1. CORO shall monitor incidental take resulting from the proposed action and report to the FWS the findings of that monitoring.

TERMS AND CONDITIONS

In order to be exempt from the prohibitions of section 9 of the Act, the Coronado National Memorial must comply with the following terms and conditions, which implement the reasonable and prudent measure described above and outline required reporting/monitoring requirements. These terms and condition are non-discretionary.

The following terms and conditions implement the Reasonable and Prudent Measure for the LLNB:

- 1.1 CORO shall monitor the project area and other areas that could be affected by the proposed action to ascertain take of individuals of the species as a result of the installation of the bat gate at SOT mine. This monitoring will be accomplished using the following protocol:
 - a. Through phone conversation, fax, or email, document the date that LLNB first arrive at the SOT mine for 2008 and 2009. Information can be provided to Scott Richardson – phone: 520-670-6150 x 242; fax: 520-670-6155; e-mail: scott_richardson@fws.gov
 - b. Through phone conversation, fax, or email as described above, document the results of each of the five consecutive days of monitoring (including numbers and brief description of LLNB exit pattern and behavior), after each change in configuration of the temporary gate.
- 1.2 CORO shall submit an annual monitoring report to the Arizona Ecological Services Field Office by January 15 beginning in 2009 for each year the temporary gates are in place (2008, 2009) and for the two years following installation of the permanent gate (2010, 2011). These reports shall briefly document for the previous calendar year the effectiveness of the terms and conditions and locations of listed species observed, and, if any are found dead, suspected cause of mortality. The report shall also summarize tasks accomplished under the proposed minimization measures and terms and conditions. The report shall make recommendations for modifying or refining these terms and conditions to enhance listed species protection or reduce needless hardship on CORO and its permittees.

Disposition of Dead or Injured Listed Species

Upon locating a dead, injured, or sick listed species initial notification must be made to the FWS's Law Enforcement Office, 2450 W. Broadway Rd, Suite 113, Mesa, Arizona, 85202, telephone: 480/967-7900) within three working days of its finding. Written notification must be made within five calendar days and include the date, time, and location of the animal, a photograph if possible, and any other pertinent information. The notification shall be sent to the Law Enforcement Office with a copy to this office. Care must be taken in handling sick or injured animals to ensure effective treatment and care, and in handling dead specimens to preserve the biological material in the best possible state.

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.

1. We recommend that CORO participate in the development of a revised long-term monitoring protocol for the LLNB as outlined in the recently completed 5-year review (FWS 2007).
2. We recommend that CMN participate in the development of a range-wide agave monitoring program with a standardized monitoring protocol.
3. We encourage CORO to initiate or participate in additional LLNB research related to the foraging patterns and behavior of the LLNBs using the SOT mine.
4. We encourage CORO to work with Border Patrol and the Department of Homeland Security to assess and minimize the impacts of border fences and other facilities on the LLNB.

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

REINITIATION NOTICE

This concludes formal consultation on the action(s) outlined in the (request/reinitiation request). As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

The FWS appreciates CORO's efforts to identify and minimize effects to listed species from this project. For further information please contact Scott Richardson at (520) 670-6150, (x242) or Sherry Barrett at (x223). Please refer to the consultation number, 22410-F-2008-0364, in future correspondence concerning this project.

Jason M. Douglas for
Steven L. Spangle

cc: Organ Pipe Cactus National Monument, Ajo, Arizona (Attn: Tim Tibbitts)
Assistant Field Supervisor, U.S. Fish and Wildlife Service, Tucson , AZ

Nongame Branch, Arizona Game and Fish Department, Phoenix, Arizona
(Attn: Angela McIntire)

Chief, Habitat Branch, Arizona Game and Fish Department, Phoenix, AZ
Region V Supervisor, Arizona Game and Fish Department, Tucson, AZ

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