



United States Department of the Interior



Fish and Wildlife Service
Arizona Ecological Services Office
2321 West Royal Palm Road, Suite 103
Phoenix, Arizona 85021-4951
Telephone: (602) 242-0210 Fax: (602) 242-2513

In Reply Refer to:
AESO/SE
22410-2011-F-0343

September 6, 2011

Ms. Karla Petty
Division Administrator
U.S. Department of Transportation
Federal Highway Administration
4000 North Central Avenue, Suite 1500
Phoenix, Arizona 85012-3500

RE: HOP-AZ, STP-019-A (AUP), 019 PM 047H 7222 01 C, SR 86; Sahuarita I-19 Traffic Interchange

Dear Ms. Petty:

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 dated May 3, 2011 was received by us on May 16, 2011. In the same letter, you designated the Arizona Department of Transportation (ADOT) as your non-Federal representative for this consultation. Please note that 50 CFR 402.08 authorizes Federal agencies to designate a non-Federal representative in informal consultation; however, the regulations do not provide this opportunity for formal consultation. As a result, we are addressing this biological opinion (BO) to you, rather than to ADOT. At issue are impacts that may result from the proposed reconfiguring of the existing traffic interchange (TI) ramp connections between Interstate-19 (I-19) and Sahuarita Road located within the Town of Sahuarita (Town), Pima County, Arizona. The proposed action may affect the endangered Pima pineapple cactus (*Coryphantha scheeri robustispina*, also known as *C. robustispina robustispina*) (PPC). You also requested our concurrence that the proposed action may affect, but is not likely to adversely affect, the lesser long-nosed bat (*Leptonycteris curasoae yerbabuena*) (LLNB). We concur with your determination for the bat and our rationale is provided in Appendix A.

This BO is based on information provided in the March 2011 (Arizona Department of Transportation 2011) biological evaluation (BE), information you have provided us through correspondence and phone calls, as well as on published and non-published literature available on the species of concern and related impacts. Literature cited in this BO is not a complete bibliography of all literature available on the species of concern, the effects from road improvement projects, the project area, or other subjects considered in this opinion. A complete administrative record of this consultation is on file at the Arizona Ecological Services Office.

Consultation History

The following summarizes the consultation history for this opinion.

- May 16, 2011: We received your request for consultation and accompanying BE.
- August 8, 2011: We provided a draft biological opinion to the Federal Highway Administration.
- September 1, 2011: We received your comments on the draft biological opinion.

BIOLOGICAL OPINION

DESCRIPTION OF THE PROPOSED ACTION

The applicant (ADOT) proposes to reconstruct the existing TI at I-19 and Sahuarita Road in the Town of Sahuarita, Pima County, Arizona. The TI was built in the late 1960s as a rural, spread-diamond interchange, but because Town is a rapidly growing community, existing and projected urbanization requires improvements to address both traffic operation and safety needs. The new project components include:

- Geotechnical investigations to continue the design phase of the project, including 21 boreholes drilled to depths ranging from 5 to 150 feet using a truck-mounted drill rig and hollow stem auger methods, 13 shallow boreholes drilled using a hand auger, 16 test pit locations excavated 10 to 15 feet in depth using a backhoe equipped with a 16-inch bucket;
- Removal of the existing 2-lane pavement on Sahuarita Road from La Canada Drive on the west to Rancho Sahuarita Boulevard on the east, a distance of approximately 4,700 linear feet;
- Removal of the existing 3-lane, 4-span concrete bridge over I-19;
- Removal of all four existing freeway ramps to and from I-19;
- Construction of a new 6-lane urban arterial roadway with raised median, landscaping, storm drain, curbs, and sidewalks on Sahuarita Road;
- Construction of a new 10-lane concrete bridge on Sahuarita Road over I-19, with a total of six through lanes and dual left turn lanes eastbound and west bound;
- Construction of four new ramps to and from I-19 at Sahuarita Road;

- Construction of new traffic signals at the new freeway ramp intersections with Sahuarita Road; and
- Construction of ten new concrete box culverts extensions, eight pipe culvert extensions, one new concrete box culvert, and one new pipe culvert.

Proposed Conservation Measures

The Federal Highway Administration (FHWA) and ADOT propose the following conservation measures to minimize the effects to PPC, LLNB, and their habitats:

- ADOT will purchase 33.5-acre credits in a Service-approved conservation bank for PPC, corresponding to the area of disturbance to PPC habitat.
- In compliance with Executive Order 13112 regarding invasive species, all disturbed soils that will not be landscaped or otherwise permanently stabilized by construction shall be seeded using species native to the project vicinity.
- Also in compliance with Executive Order 13112 regarding invasive species, all earth-moving and hauling equipment shall be washed at the contractor's storage facility prior to arriving on site to prevent the introduction of invasive species.
- To prevent invasive species seeds from leaving the site, the contractor shall inspect all construction equipment and remove all attached plant/vegetation and soil/mud debris prior to leaving the construction site in accordance with Arizona Native Plant Law.
- Because protected native plants within the construction limits will be impacted by the project, the ADOT Roadside Development Section will determine if Arizona Department of Agriculture notification is needed. If notification is needed, the Arizona Department of Transportation Roadside Development Section will send the notification at least 60 calendar days prior to the start of construction to afford commercial salvagers the opportunity to remove and salvage those plants that are not detailed within the vegetation salvage plans for this project.
- A landscape plan will be developed (in conjunction with other mitigation strategies) that identifies native vegetation to be transplanted on-site. Approximately 90 (of 130) saguaro cacti, whose flowers and fruits are foraged by LLNB, will be disturbed and transplanted on-site to further preserve LLNB habitat and native vegetation. Saguaros that will be disturbed but cannot be transplanted will be replaced 1:1 with nursery-grown individuals. The proposed landscape design will include the existing saguaro cacti, and will focus on the use of native and drought tolerant plant species including saguaro cacti, mesquite trees, Santa Rita prickly pear and barrel cacti. Existing mesquite trees, Santa Rita prickly pear cacti and fish hook barrel cacti may also be salvaged and reused in the landscape design in medians, back of sidewalks, along the I-19 mainline and in adjacent property landscapes impacted by construction.

- Native plant species will be preserved within the areas between the existing ramps and the new ramps at each quadrant of the TI. These areas have been identified to remain undisturbed.

STATUS OF THE SPECIES – PPC

Our November 2, 2010, BO for the New Tucson Substation (22410-2010-F-0458) included a detailed Status of the Species for the PPC. This BO is available on our website at <http://www.fws.gov/southwest/es/arizona/>, under Document Library; Section 7 Biological Opinions. Herein we incorporate that status discussion by reference, with the following summary and updates:

The PPC was listed as an endangered species without critical habitat on September 23, 1993 (58 FR 49875). Factors that contributed to the listing include habitat loss and degradation, habitat modification and fragmentation, limited geographical distribution and species rareness, illegal collection, and difficulties in protecting areas large enough to maintain functioning populations. In 2005, a 5-year review was initiated for PPC (70 FR 5460). This review was completed in 2007 and recommended no change to the cactus's classification as an endangered species (U.S. Fish and Wildlife Service 2007).

We do know the number and fate of PPC that have been detected during surveys for projects that have undergone section 7 consultation. Through section 7 consultation on development projects (e.g., residential and commercial development, mining, infrastructure improvement), we are aware of 2,705 plants found on approximately 15,217 acres within the range of the PPC. Of the total number of plants, 1,992 PPC (74 percent) were destroyed, removed, or transplanted as a result of development, mining, and infrastructure projects. In terms of PPC habitat, some of the 15,217 acres likely did not provide PPC habitat, but that amount is difficult to quantify because PPC habitat was not consistently delineated in every consultation. Of the 15,217 acres, however, we are aware that 14,552 acres (96 percent) have been either permanently or temporarily impacted. Some of these acres may still provide natural open space, but we have not been informed of any measures (e.g., conservation easements) that have been completed to ensure these areas will remain open. Through section 7 consultation on non-development-related projects (e.g., fire management plans, grazing, buffelgrass control), we are aware of an additional 781 plants within an unknown number of acres; we do not know the number of acres because these types of projects are often surveyed for PPC inconsistently, if at all. Across the entire PPC range, it is difficult to quantify the total number of PPC lost and the rate and amount of habitat loss for three reasons: 1) we review only a small portion of projects within the range of PPC (only those that have Federal involvement and are subject to section 7 consultation), 2) development that takes place without any jurisdictional oversight is not tracked within Pima and Santa Cruz counties, and 3) many areas within the range of the PPC have not been surveyed; therefore, we do not know how many plants exist nor how much habitat is presently available.

There have been some notable conservation developments for this species. There are two conservation banks for PPC, one on a private ranch in the Altar Valley (Palo Alto Ranch Conservation Bank) and another owned by Pima County that includes areas in both the Altar Valley and south of Green Valley. In the Palo Alto Ranch Conservation Bank, 131.6 acres have

been conserved to date. In Pima County's Bank, a total of 530 acres are under a conservation easement at this time (the County offsets its own projects within this bank). Additionally, three large blocks of land totaling another 1,078 acres have been set aside or are under conservation easements through previous section 7 consultations (see consultations 02-21-99-F-273, 02-21-01-F-101, and 02-21-03-F-0406). These areas, currently totaling 1,739.6 acres, are set aside and managed specifically for PPC as large blocks of land, and likely contribute to recovery of the taxon for this reason; therefore, we consider these acres conserved. Another 665 acres of land have been set aside as natural open space within the developments reviewed through section 7 consultation between 1995 and 2010. However, these are often small areas within residential backyards (not in a common area) that are difficult to manage and usually isolated within the larger development, and often include areas that do not provide PPC habitat (e.g., washes). Some conservation may occur onsite because of these open space designations, but long-term data on conservation within developed areas are lacking; the value of these areas to PPC recovery over the long-term is likely not great.

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" means all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action. Indirect effects are those that are caused by the proposed action and are later in time, but are still reasonably certain to occur (50 CFR 402.02).

For this project, we define the action area as the area within the existing traffic interchange at Interstate 19 (I-19) and Sahuarita Road within the Town of Sahuarita in Pima County at Milepost 46.8, as well as an additional 0.25 mile surrounding this area. The 0.25-mile distance includes the area that might be indirectly affected by the proposed action (e.g. the area that may be affected by the spread of invasive plants or changes in drainage patterns). The amount of PPC habitat within this buffer is unknown.

The project vicinity is northwest of the Santa Rita Mountains in the Town of Sahuarita. Topography consists of sloping terrain bisected by washes, with an estimated elevation range from 2,820 to 2,900 feet. There is an existing interstate highway and traffic interchange at the project site. The biotic communities present are the Arizona Upland Subdivision of the Sonoran Desert and Semi-desert Grassland (Brown 1994). Typical vegetation within the project area includes creosote bush (*Larrea tridentata*), velvet mesquite (*Prosopis velutina*), catclaw acacia (*Acacia greggii*), barrel cactus (*Ferocactus wislizenii*), and saguaro (*Carnegiea gigantea*).

Land uses within the action area include residential areas, a mine, and a high school. The intersection of Sahuarita Road and Rancho Sahuarita Boulevard is largely developed with a shopping plaza on the northwest corner, and a gas station on the southeast corner. The southwest corner appears to have been recently bladed during installation of new utility boxes. The Sahuarita Road right-of-way west of the TI appears to have been recently improved and landscaped between the TI and a channelized wash west of Rancho Resort Boulevard.

Status of the species within the Action Area

Protocol surveys were performed by EEC biologists between February 8, 2007 and April 25, 2007. Transects were run in two directions perpendicular to each other, and an intensive search was performed in an area 538.2 square ft (50 square meters) around each individual found. A total of 22 PPC were located during the 2007 surveys.

Additional 3-tier surveys for PPC were conducted by Archaeological Consulting Services, Ltd. (ACS) on June 10 and 11, 2010. ACS surveyed a 400-ft by 200-ft area around the intersection of Sahuarita Road and Rancho Sahuarita Boulevard. ACS also surveyed a 400-ft-wide area from the area previously surveyed by EEC and extending approximately 2,000 ft west along Sahuarita Road. A total of three live and one dead PPC were located during surveys. In addition, ACS was unable to confirm two PPC from the 2007 surveys, which noted two cacti that occurred near the boundary of the two survey areas. The 2007 and 2010 surveys resulted in finding a total of 25 PPC.

A total of approximately 33.5 acres of PPC habitat within the action area will be directly disturbed by project construction activities. Twelve of the 25 PPC will be within the project cut-and-fill areas, and therefore will be directly impacted by the proposed project.

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 or 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.

The proposed action will result in the direct loss of 12 PPC and approximately 33.5 acres of PPC habitat within the construction footprint. Within the context of mapped PPC individuals and the surveyed area we have reviewed through previous section 7 consultations on development projects, this project adds 25 individuals and 33.5 acres to the known baselines. This brings the respective baselines up to 2,730 PPC individuals, of which 2,003 (73 percent) will have been destroyed, removed, or transplanted, and 15,250 acres surveyed, of which 14,585 (96 percent) will have been permanently or temporarily impacted by development projects.

The loss or modification of PPC and its habitat can impact the taxon both directly and indirectly. Areas of permanent disturbance will remove portions of the seed bank and occupied habitat, and temporary disturbance can also alter the seed bank. Disturbance of soils will change water

infiltration, compact soil, and change local site conditions. Additionally, recently disturbed areas have an increased potential to be invaded by noxious weeds (e.g., Lehmann lovegrass), which can negatively affect PPC. Although some areas of temporary disturbance may recover, it may take many years before full recovery is achieved. Vasek *et al.* (1975) found that desert vegetation is fragile and easily destroyed, but does have a long-term potential (probably measured in centuries) to recover from drastic disturbance such as a pipeline project. PPC can be found in areas of recent disturbance, as competition with other plants for nutrients and light are reduced.

To offset the indirect effects to PPC and its habitat, ADOT will comply with Executive Order 13112 regarding invasive species as outlined in the Conservation Measures above. All disturbed soils that will not be landscaped or otherwise permanently stabilized by construction will be seeded using species native to the project vicinity; all earth-moving and hauling equipment will be washed at the contractor's storage facility prior to arriving on site to prevent the introduction of invasive species; and the contractor will inspect all construction equipment and remove all attached plant/vegetation and soil/mud debris prior to leaving the construction site. Additionally, a landscape plan will be developed (in conjunction with other mitigation strategies) that identifies native vegetation to be transplanted on-site. The proposed landscape design will include the existing saguaro cacti, and will focus on the use of native and drought tolerant plant species including saguaro cacti, mesquite trees, Santa Rita prickly pear and barrel cacti. Existing mesquite trees, Santa Rita prickly pear cacti and fish hook barrel cacti may be salvaged and reused in the landscape design in medians, back of sidewalks, along the I-19 mainline and in adjacent property landscapes impacted by construction. "Do-Not-Disturb" areas between the existing ramps and the new ramps have also been identified, preserving native vegetation within the project area. These conservation measures should help to offset this project's indirect effects to PPC and its habitat by minimizing the spread of noxious weeds during construction activities and encouraging native plants to reoccupy temporarily disturbed areas.

To offset the direct impacts to PPC and its habitat, ADOT proposes to purchase 33.5-acre credits in a Service-approved conservation bank for PPC. This corresponds to the area of disturbance to PPC habitat and contributes to the survival and recovery of the species by protecting these acres in perpetuity.

In summary, the proposed project will result in the direct loss of 12 PPC and 33.5 acres of PPC habitat. This represents a loss of less than one percent of the known individuals and surveyed area we have reviewed through section 7 consultations; however, most of the individuals (73 percent) and surveyed area (96 percent) have been impacted by development projects. We recognize that within the context of the PPC population across its entire range, we do not know what percentage of remaining individuals and acres of habitat these direct losses represent.

The applicant proposes to offset the loss of individuals and habitat from the proposed action by implementing rehabilitation techniques on-site, as well as purchasing 33.5 acre-credits from an approved PPC conservation bank. The project, while contributing to further fragmentation of PPC habitat, also contributes to the survival and recovery of PPC because it will provide for conservation of PPC individuals and habitat in an approved PPC conservation bank, which will be protected in perpetuity.

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.

The amount of development within the action area (in the 0.25-mile area surrounding the project footprint) that may occur in the future is unknown, but the surrounding area is rapidly developing. The Town of Sahuarita has grown over 30 percent each year since 2003 (see <http://www.pagnet.org/RegionalData/Population/PopulationGrowthbyDecade/tabid/123/Default.aspx>). Areas within the action area and immediately adjacent to it, where habitat for PPC is located, are mostly private lands. Private lands could become available for development in the future, with cumulative effects to PPC and continued loss and further fragmentation of PPC habitat.

CONCLUSION

After reviewing the current status of PPC, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is our biological opinion that the proposed action is not likely to jeopardize the continued existence of PPC, nor reduce appreciably the likelihood of both the survival and recovery of PPC. No critical habitat has been designated; therefore, none will be affected. Our rationale for this conclusion is as follows:

- The loss of 12 PPC and 33.5 acres of PPC habitat represents less than one percent of the PPC individuals and area surveyed for which we have conducted section 7 consultation. Additional PPC and habitat occur throughout the range of the taxon.
- The applicant will purchase 33.5 acre-credits in a Service-approved conservation bank to offset the effects to PPC and its habitat, permanently protecting 33.5 acres of PPC habitat within the conservation bank. This contributes to the survival and recovery of the subspecies.
- The applicant will wash all earth-moving and hauling equipment prior to arriving on site, inspect all construction equipment and remove all attached plant/vegetation and soil/mud debris prior to leaving the site, and seed disturbed areas not permanently stabilized by construction using species native to the project vicinity. These efforts will maximize opportunities for growth of native vegetation within the action area.
- Native plant species will be preserved within the areas between the existing ramps and the new ramps at each quadrant of the TI, and a landscape plan will be developed that will focus on the use of native and drought tolerant plant species, including saguaro cacti, mesquite trees, Santa Rita prickly pear and barrel cacti. This will contribute to the growth of native vegetation within the action area.

INCIDENTAL TAKE STATEMENT

Sections 7(b)(4) and 7(o)(2) of the Act generally do not apply to listed plant species. However, limited protection of listed plants from take is provided to the extent that the Act prohibits the removal and reduction to possession of Federally listed endangered plants from areas under Federal jurisdiction, or for any act that would remove, cut, dig up, or damage or destroy any such species on any other area in knowing violation of any regulation of any State or in the course of any violation of a State criminal trespass law.

CONSERVATION RECOMMENDATIONS

Sections 2(c) and 7(a)(1) of the Act direct Federal agencies to use their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of listed species. Conservation recommendations are discretionary agency activities to minimize or avoid effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

1. We recommend that FHWA participate in efforts to identify and conserve PPC throughout its range, including participation in forums that address the control of invasive, exotic plants (e.g. buffelgrass and Lehmann lovegrass).
2. We recommend that FHWA consider coordinating salvage of PPC with the Arizona-Sonora Desert Museum, and that the survival and vigor of salvaged cacti be monitored and reported to us.
3. We recommend that the PPC conservation bank credits be secured through a Notarized Credit Agreement before construction begins.

In order that we are kept informed of actions minimizing or avoiding adverse effects or benefitting listed species or their habitats, we request notification of the implementation of any conservation recommendations.

REINITIATION NOTICE

This concludes formal consultation on the proposed reconfiguring of the existing TI ramp connections between I-19 and Sahuarita Road, Pima County, Arizona. 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 (not applicable to this consultation); (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.

We appreciate your efforts to identify and minimize effects from this project. Please contact Ms. Marit Alanen at (520) 670-6150 (x234) or Mr. Scott Richardson at (520) 670-6150 (x242) if you have further questions. Please refer to consultation number 22410-2011-F-0343 in future correspondence regarding this project.

Sincerely,


for Steven L. Spangle
Field Supervisor

cc (hard copy):

Field Supervisor, Fish and Wildlife Service, Phoenix, AZ (2)
Assistant Field Supervisor, Fish and Wildlife Service, Tucson, AZ

cc (electronic copy):

Federal Highway Administration, Phoenix, AZ (Attn: Ken Davis)
Arizona Department of Transportation, Biologist, Flagstaff, AZ (Attn: William Knight)

LITERATURE CITED

Arizona Department of Transportation. 2011. March 2011, Submittal Number (4), Biological Evaluation for Interstate 19 and Sahuarita Road Traffic Interchange Realignment and Road Widening. Project No. STP-019-A (AUP), ADOT TRACS # 019 PM 047H 7222 01 C. Phoenix, Arizona.

Brown, D.E. (Editor). 1994. Biotic Communities: southwestern United States and northwestern Mexico. University of Utah Press. Salt Lake City, UT.

Vasek, F.C., H.B. Johnson, and D.H. Eslinger. 1975. Effects of pipeline construction on creosote bush scrub vegetation of the Mojave Desert. *Madroño* 23: 1-13.

APPENDIX – CONCURRENCE

The appendix contains our concurrence with your determination that the proposed action may affect, but is not likely to adversely affect, the lesser long-nosed bat (*Leptonycteris curasoae yerbabuena*) (LLNB). This concurrence is based on the full implementation of the proposed action as described in the Description of the Proposed Action section of the Biological Opinion, including the conservation measures proposed by the applicant.

Lesser long-nosed bat

CONSERVATION MEASURES

- Approximately 90 of 130 saguaros will be transplanted on-site, and a mitigation plan will be developed for other protected native plants removed in accordance with the Arizona State Native Plant Law (Arizona Revised Statutes Chapter 7; 1997). Saguaros that cannot be transplanted will be replaced 1:1 with nursery-grown individuals.

CONCURRENCE

We concur with your determination that this project may affect, but is not likely to adversely affect, LLNB for the following reasons:

- All saguaros will be transplanted or replaced at a 1:1 ratio, resulting in no net loss of forage resources for LLNB. Therefore, indirect effects related to removal of forage resources are insignificant and discountable, as these resources will essentially remain the same.

No critical habitat has been designated for the lesser long-nosed bat; thus, none will be affected.