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AESO/SE
02EAAZ00-2016-F-0011

September 6, 2017

Memorandum

To: Phoenix District Manager, Bureau of Land Management, Phoenix, Arizona

From: Field Supervisor

Subject: Biological and Conference Opinion on APS/SRP vegetation treatment/maintenance within authorized power line rights-of-way (ROW) on BLM lands in Arizona

Thank you for your request for formal consultation/conference with the U.S. Fish and Wildlife Service (USFWS) pursuant to section 7 of the Endangered Species Act of 1973 (16 U.S.C. § 1531-1544), as amended (Act). Your request was dated February 28, 2017, and received by us on the same day. At issue are impacts that may result from the proposed APS/SRP treatment/maintenance of vegetation within authorized power line ROWs located within the Bureau of Land Management's (BLM) Hassayampa, Kingman, Lake Havasu, Lower Sonoran, Tucson, Safford, and Yuma Field Offices in Arizona (AZ).

The proposed action may affect the southwestern willow flycatcher (*Empidonax traillii extimus*) and the acuña cactus (*Echinomastus erectocentrus* var. *acunensis*) and their designated critical habitats, and the yellow-billed cuckoo (Coccyzus americanus) and its proposed critical habitat.

In your memorandum, you requested our concurrence that the proposed action is not likely to adversely affect the desert pupfish (*Cyprinodon macularius*), Gila topminnow (*Poeciliopsis occidentalis occidentalis*), lesser long-nosed bat (*Leptonycteris curasoae yerbabuenae*), Yuma Ridgway's rail (clapper rail) (*Rallus obsoletus yumanensis*), ocelot (*Leopardus pardalis*), Sonoran pronghorn (*Anti/ocapra americana sonoriensis*), Arizona hedgehog cactus (*Echinocereus triglochidiatus* var. *arizonicus*), Huachuca water-umbel (*Lilaeopsis schaffneriana ssp. recurva*) and its critical habitat, Peebles Navajo cactus (*Pediocactus peeblesianus* var. *peeblesianus*); and the threatened Chiricahua leopard frog (*Lithobates chiricahuensis*) and northern Mexican gartersnake (*Thamnophis eques megalops*) and its proposed critical habitat. We concur with your determination. The basis for our concurrence, including species-specific conservation measures identified in the proposed action, is found in Appendix A.

You also requested our concurrence that the proposed action is not likely to adversely affect the endangered Gila chub (*Gila intermedia*) and its critical habitat. Gila chub was formerly considered a separate taxonomic entity, but is now recognized, along with headwater chub and roundtail chub, as a single taxonomic species – the roundtail chub (*Gila robusta*) (82 FR 16981). We intend to reevaluate the status of the Gila chub, which is currently listed as endangered with critical habitat (67 FR 51948). However, until that evaluation is completed and proposed and final rules to delist the Gila chub are published, its legal status remains as an endangered species with designated critical habitat, so our concurrence (Appendix A) reflects this current status.

Additionally, you asked us to concur with your determination that the proposed action is not likely to jeopardize the experimental non-essential populations of Sonoran pronghorn (*Antilocapra americana sonoriensis*) and California condor (*Gymnogyps californianus*). We have provided a conference report in Appendix B.

You also determined that the action would have "no effect" on 53 listed and or proposed species and critical habitat (which can be found listed in your biological assessment). "No effect" determinations do not require our review and are not addressed further.

This biological opinion (and conference opinion for yellow-billed cuckoo proposed critical habitat) is based on information provided in the biological assessment (June 13, 2017 version) (BA), telephone conversations, and other sources of information. Literature cited in this biological (and conference) opinion is not a complete bibliography of all literature available on the species of concern, and its effects, or on other subjects considered in this opinion. A complete record of this consultation is on file at this office.

Consultation History

- February 2014: USFWS, BLM, and Utilities meet to discuss preparation of BA.
- October 6, 2015: USFWS, BLM, and Utilities meet again to discuss preparation of BA.
- December 20, 2016: BA titled "Biological Assessment for Herbicide Use within Authorized Power Line Rights-of-Way on Bureau of Land Management Lands in Arizona," dated December 13, 2016 was received by USFWS.
- February 1, 2017: Meeting between USFWS, BLM, and Utilities to discuss interrelated and interdependent actions associated with herbicide applications, and effects analysis and determinations for critical habitat for some species. It was determined that the BA dated December 20, 2016 would be updated to included manual and mechanical treatment of vegetation.
- February 28, 2017: A revised BA titled "Biological Assessment for Integrated Vegetation Management within Authorized Power Line Rights-of-Way on Bureau

of Land Management Lands in Arizona," dated February 28, 2017 was transmitted to USFWS to begin formal consultation.

- June 13, 2017: BLM provided a revised BA to the USFWS.
- July 27, 2017: BLM granted an extension to provide a draft biological opinion the week of August 7, 2017.
- July 29, 2017: USFWS and BLM agreed to change the effects determination for the northern Mexican gartersnake and its proposed critical habitat to, "may affect, not likely to adversely affect."
- August 8, 2017: We provided a draft BO to BLM.

DESCRIPTION OF THE PROPOSED ACTION

The proposed action is BLM authorization for the Arizona Public Service (APS) and Salt River Project (SRP) to use herbicides in addition to currently authorized manual and mechanical treatment of vegetation within their respective authorized rights-of-way (ROWs) on BLM-administered lands in AZ. Currently, APS and SRP (Utilities) manage vegetation within and adjacent to ROWs using only manual and mechanical methods. For a complete description of the proposed action refer to the June 13, 2017, BA.

Background

APS and SRP have numerous transmission and distribution lines that cross BLM-administered lands in AZ. These utility lines lie within authorized ROW corridors that are managed by the Utilities in accordance with electrical system standards and regulations. The Utilities are authorized to work within and outside (for hazard tree removal) the established ROWs to maintain their structures and manage vegetation. Failure to address vegetation clearance and fuels hazards (i.e., vegetation coming into contact with power lines) could result in wildfires, major power outages, and injury to life or property. Additionally, Federal regulations and utility standards require ROW maintenance by the Utilities, including vegetation inspections and treatment to maintain lines in safe and reliable operating conditions (NERC Reliability Standard FAC-003-1).

The Utilities currently manage incompatible vegetation within their authorized ROWs on BLM lands in AZ using a combination of mechanical and manual methods. Manual and mechanical vegetation maintenance of ROWs consists of 1) hazard vegetation treatments to eliminate immediate or short-term threats to utility lines within or outside ROWs, and 2) routine vegetation maintenance. The Utilities conduct regularly scheduled inspections of the electrical distribution and transmission system to monitor any ROW encroachments from incompatible vegetation. Depending on vegetation growth rates, each ROW is mechanically or manually treated in intervals of one to five years.

Historically, the Utilities have not used herbicides for vegetation management within their ROWs on BLM lands in AZ. The BLM uses herbicides on a project-by-project basis to treat noxious weeds and native vegetation within all AZ Field Offices and allows herbicide use within Arizona Department of Transportation/Federal Highway Administration highway ROWs crossing BLM-administered lands. In addition, the Utilities have been using herbicides as part of their vegetation management programs within ROWs on non-federal lands since the mid-1990s.

The Utilities are proposing to use selected, registered, and BLM-approved herbicides in addition to their currently authorized manual and mechanical treatment methods as part of an Integrated Vegetation Management Program for their ROWs. The proposed action would allow the Utilities to apply herbicides in targeted locations to specific and individual plants (spot treatments) using handheld sprayers within their authorized ROWs. The purpose of this consultation is the implementation of the Utilities' Integrated Vegetation Management Program, which covers the manual and mechanical treatment of vegetation, herbicide application methods and activities, and patrols and inspections performed in support of manual, mechanical, and herbicide treatments within the Utilities' authorized ROWs on BLM lands in AZ.

Project Area

The project area for the proposed actions includes those areas where the BLM may authorize APS and SRP to conduct integrated vegetation management within the Utilities' power line ROWs on BLM-administered lands in AZ (Figure 1). A total of 1,029 miles of distribution and transmission power lines and 13,373 acres of the Utilities' authorized ROW are within the project area. APS operates and maintains 881 miles of power line and approximately 10,781 acres of ROW on BLM lands in AZ, whereas SRP operates and maintains 149 miles of power line and approximately 2,592 acres of ROW on BLM lands in AZ. Acreages were calculated using the widest possible ROW width that would be treated under the proposed action for vegetation management. This width was calculated by compiling existing permitted ROW widths for each line voltage and using the maximum width for that voltage in the calculations (Table 1).

Calculations for authorized ROW and power line miles on BLM-administered lands in AZ include areas that are jointly managed by the BLM and Bureau of Reclamation (BOR) or the BLM and USFWS. These areas have been removed from the project area and analysis in the BA but not from the mile and acre calculations. The BOR areas contain 500 kV power line ROWs maintained by APS. The jointly managed land includes 7.9 miles and 212.5 acres of power line ROW in Yuma Field Office, and 1.9 miles and 52.8 acres of power line ROW in Tucson Field Office. The USFWS area is located in the Bill Williams National Wildlife Refuge and contains 1.8 miles and 4.4 acres of distribution power line ROW and 0.01 miles and 0.1 acres of transmission power line ROW maintained by APS.

Project activities included in the BLM authorizations may occur outside of the maximum ROW width (e.g., hazard vegetation removal, vehicle travel on access roads, air travel over BLM lands). These activities are not included in the acreage calculations. Please refer to

the BA for comprehensive data on power line miles and ROW acres within the project area by utility, voltage, BLM district, and BLM field office.

Table 1. Range of Permitted Rights-of-Way (ROW) by Line Voltage.

Line Voltage	Possible ROWs (feet)
Distribution (7.5 to 33kV)	10 to 20
69 kV	15 to 80
115 kV	100 to 130
230 kV	100 to 200
345 kV	150 to 200
500 kV	175 to 230

Proposed Action

The proposed action of this consultation is BLM authorization for the Utilities to implement Integrated Vegetation Management, which combines herbicide treatments with manual and mechanical methods, to manage vegetation within the Utilities' ROWs on BLM-administered lands. The Utilities have incorporated into the proposed actions standard operating procedures (SOPs) and conservation measures to avoid or minimize effects to covered species (see Conservation Measures section below). The Utilities have organized the proposed actions into the following general categories: 1) aerial and ground inspections, 2) manual and mechanical vegetation maintenance, 3) herbicide applications, 4) defensible space around poles treatments, and 5) adaptive management. The duration of this project under consultation is for 20 years. The following is a general description of the proposed actions implemented by the Utilities.

Aerial and Ground Inspections

Aerial inspections to identify potential hazard vegetation are conducted annually and may occur at any time of year. Aerial inspections are primarily used for transmission ROWs and conducted using a helicopter. Most distribution lines are not inspected by air, except for lines with known problem areas, lines that are remote and difficult to access, or because the line is adjacent to a transmission line. To approach the ROW, the helicopter cruises about 2,000-3,000 feet above the ground at about 115-160 miles per hour (mph). Once the power line is reached, the helicopter flies about 50-300 feet above ground at 50-95 mph above or adjacent to the power line. During aerial inspections, the inspector looks for potential problem areas including hazards and assesses the efficacy and quality of previous vegetation management projects. The helicopter may hover or circle over areas to get a closer look at the vegetation, and rarely may land to ground inspect a specific location.

Most ground inspections of transmission and distribution power lines are conducted on a cyclical basis. The Utilities schedule routine vegetation maintenance on a schedule that varies from 1-5 years. When a power line comes up in the schedule, the ROW is inspected on the ground to identify areas where work is needed. If it is determined that no maintenance is needed, only the inspection is conducted. Generally, inspections involve visiting the entire power line. During ground inspections, 1-3 inspectors access the area

driving a pickup truck, all-terrain vehicle (ATV; quad or 6-wheeler), or by walking. The power line ROW is accessed by vehicle using existing roads and trails. Many of the ROWs have existing roads and trails that weave in and out of the ROW. These roads and trails are often used to inspect the power line. Vehicles may also travel off-road within, but not outside of, the ROW corridor during ground inspections where terrain allows and no road is present. Ground inspections also may occur as needed to assess problem areas or other concerns.

Manual and Mechanical Vegetation Maintenance

Manual and mechanical vegetation treatments selectively remove or prune incompatible vegetation under and around utility lines while retaining desirable vegetation. Manual and mechanical vegetation maintenance of ROWs consists of 1) hazard vegetation maintenance, and 2) routine vegetation maintenance. Hazard vegetation is defined as a plant or portion thereof (e.g., limb) that could come into close proximity or contact with electrical lines, structures, or equipment and cause an electrical fault. Vegetation can be considered hazardous if it exhibits a structural defect (defined in Appendix B of the BA) that increases the chances of it failing and contacting utility infrastructure. Healthy vegetation also may be considered a hazard if it has encroached close enough to an electric utility line that it could result in an electrical fault. Hazard vegetation can occur within or outside of an ROW. Hazard vegetation may need to be removed immediately (i.e., "Imminent Hazard") or prior to regularly scheduled maintenance (i.e., "Off-Cycle Hazard"). As a result, hazard vegetation can potentially be removed or pruned at any time of year.

Most vegetation management within ROWs on BLM-administered lands falls within the routine maintenance category. Routine vegetation maintenance is the process of identifying and removing or pruning vegetation within a ROW using manual and mechanical methods within a predetermined maintenance schedule. The schedule depends on the maintenance needs for each individual power line, determined by inspections, with the maintenance schedule ranging from 1-5 years. Data from inspections are provided to BLM for review through a collaborative process. The goal of routine vegetation maintenance is to control vegetation that is incompatible with the utility infrastructure while maintaining compatible, desirable vegetation. Routine vegetation maintenance generally only involves maintaining regrowth of vegetation since the last cycle of work, although some mature vegetation may be treated towards the edge of ROWs. Vegetation maintenance is conducted in accordance with all SOPs and conservation measures listed in Appendices C and D of the BA.

Manual treatment is the most common method of vegetation management used by the Utilities on BLM lands in AZ. Trees and brush are removed or pruned using chainsaws and hand tools (e.g., hand or pole saws). Vegetation is typically cut or felled from the ground, although trees may be climbed using standard safety equipment and pruned or removed by dropping in pieces. Bucket trucks also may be used to access the upper portions of trees where access allows. Work crews consist of 2-5 individuals and are trained in utility line clearance tree work and safety procedures for working near energized

power lines. Except for emergency situations or species timing restrictions, crews operate during daylight hours at any time of year during favorable weather conditions.

Mechanical treatment of vegetation within ROWs involves the use of a cutting device mounted on a vehicle with rubber tires or tracks that cuts and masticates vegetation. The mechanical equipment generally operates at sound levels of 90 to 100 decibels (dBA). Mechanical treatments may occur at any time of year except during species timing restrictions or other limiting circumstances (e.g., weather). Other factors that influence the use of mechanical vegetation treatments include archaeological sites, sensitive plant and wildlife species, public use areas, target vegetation species and density, terrain, and access. Equipment is typically operated by one driver and one grounds person. The grounds person directs the mower and may operate a chainsaw to cut trees that the mower is unable to access. A manual crew may also precede or follow the mechanical equipment to clean up, scatter debris, and prune or remove trees that the mechanical equipment could not access. All vegetation masticated by the mower is left in the ROW and piled no higher than four inches.

Once vegetation is cut during hazard or routine maintenance, several disposal methods are used to disperse the wood and debris in a way that minimizes impacts to plant and animal species while mitigating fire risk. The method of disposal for a particular power line or project is determined through coordination between BLM and the utility prior to vegetation maintenance work. During manual vegetation treatments, limbs and logs <9" in diameter may be lopped and scattered or chipped. Logs >9" diameter remain where felled and cut in sections to lay flush with the ground. During mechanical treatments, the cutting implement masticates the vegetation into small chips, which are broadcast across the ROW. Stumps from tree removal are cut within 6 inches of the ground or if possible cut flush with the ground. All areas with the potential for flowing water (e.g., culverts, ditches, washes) are kept free of slash, logs, and other debris from vegetation removal operations.

Herbicides

Historically, the Utilities have not used herbicides on BLM-administered lands. The Proposed Action includes authorization for the Utilities to use registered, BLM-approved herbicides within ROWs on BLM lands in AZ. Herbicide treatments would be used subsequent to the currently authorized manual and mechanical treatments (described above) to manage the regrowth of incompatible vegetation within ROWs and allow compatible early-successional plant communities to develop in their place. The Utilities would continue to use non-herbicide treatment methods (i.e., manual and mechanical methods) in combination with herbicide treatments. However, these activities should eventually result in decreased frequency and intensity of manual, mechanical, and herbicide treatments over time.

The proposed action would allow the Utilities to apply herbicides in targeted locations to specific and individual plants (spot treatment) using handheld sprayers from tanks in backpacks and mounted on all-terrain vehicles (ATVs). Standard operating procedures designed to ensure human and environmental safety, as well as efficient and effective herbicide treatments associated with the Proposed Action are provided in Appendix C of

the BA. The Utilities would access all ROWs using existing roads and routes. In addition, there would be no net increase in the number of truck or ATV trips currently used for existing vegetation management and routine inspections. No aerial or broadcast application of herbicides would occur under the proposed action.

The BLM-approved herbicide active ingredients that would be used by the Utilities within authorized ROWs, including treatment techniques proposed for each herbicide are provided in Table 2. Other active herbicide ingredients may be used in the future, but only after they are evaluated and approved by BLM. Herbicides would be applied according to all BLM procedures and EPA-approved product label directions.

The Utilities would comply with changes in label directions that may occur in the future, as well as with federal and state registration requirements. Herbicides approved by BLM in the future can be proposed for use within utility ROWs on BLM-managed lands after appropriate analysis and approval, including additional consultation with the USFWS for treatments that may affect threatened or endangered species.

Herbicides would be applied using Thinvert, a paraffinic (waxy) oil that is approved by BLM and included on BLMs List of Approved Herbicide Formulations and Adjuvants (see Appendices G and H of the BA for Thinvert labels and safety data sheets). Applications using Thinvert replace water as the carrier for the herbicide and are considered ultra-low-volume applications. The herbicide formulation would vary, as determined by licensed applicators and by the species of vegetation to be controlled, but would follow label requirements. Depending on the herbicides included in the custom blend, the ratio of carrier to herbicide would be 90-94% carrier to 6-10% herbicide. A rate of 3-5 gallons of total mix per acre would result in approximately 24-44 ounces of active ingredient being applied to one acre of vegetation. An acre of actual treatment could span several miles of an authorized ROW, depending on ROW width and vegetation density. Application rates would vary depending on the size of the treatment areas, but would not exceed those stated on manufacturers' labels.

The Utilities would employ a closed chain-of-custody method for herbicide storage and mixing. All mixing would occur at an off-site blending facility and would use returnable or reusable product-dedicated storage containers. The herbicide mix would consist of a premixed "ready to use" formulation stored in a sealed container. No on-site mixing of herbicides would occur. Support vehicles would be available at intervals along the authorized ROW to transfer the herbicide mix from storage containers to application containers. A closed leak-proof connection or valve would be used to transfer the mix from the storage container to the application container. In situations where a "closed connection" is not available and the applicator must fill a container (typically a backpack) at the job site, the applicator will comply with the operational and spill contingency plan prepared during the pesticide use proposal (PUP) process. This would only occur in rare circumstances, as containers are typically filled prior to leaving for the site. A licensed applicator would supervise the application process, and monitoring would be conducted to ensure that proper application techniques, cleanup, personal protective equipment, and safety procedures are followed. The herbicide-mix storage containers would be removed

Table 2. Herbicides Approved for Use on BLM-Administered Lands with Treatment Techniques and Use Descriptions.

Herbicide Active Ingredient	Application Techniques				Anticipated Use Frequency*	Herbicide Use Description**
	Foliar	Cut Stump	Basal	Defensible Space around Poles		
Aminopyralid	x	x	x	x	frequent	A selective herbicide used for control of broadleaf weeds, especially thistles and clovers.
Bromacil				x	rare	Recommended for the control of undesirable woody plants. Uptake is through the roots and requires rainfall to be incorporated into the soil.
Chlorsulfuron	x			x	rare	Controls select broadleaf weeds and undesirable grasses; pre- and post-emergent noxious and nuisance weed control.
Clopyralid	x	x	x		rare	A selective herbicide used for control of broadleaf weeds, thistles and clovers.
2,4-D	x	x	x	x	rare	Controls woody brush and broadleaf weeds. Good in combination with triclopyr and dicamba. Has an aquatic label formulation
Dicamba	x	x	x	x	rare	Controls select broadleaf weeds and is good in a mix with 2,4-D & triclopyr.
Diuron				x	rare	Broad-spectrum pre-emergent herbicide used for weed, grass, and brush control.
Fluroxypyr	x			x	rare	Controls broadleaf weeds and woody brush.
Glyphosate	x	x	x	x	frequent	Broad spectrum, almost non-selective herbicide. There are very few plants it does not control.
Hexazinone			x	x	rare	Used to control grasses and broadleaf and woody plants through root and foliar uptake. Requires rain for incorporation into the soil for root uptake.
Imazapic	x			x	rare	Selective herbicide for both the pre and post-emergent control of some annual and perennial grasses and some broadleaf weeds useful for weed control in natural areas, particularly in conjunction with the establishment of native warm-season prairie grasses and certain legumes good for use on specific species, not a broad spectrum herbicide.

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Herbicide Active Ingredient	Application Techniques				Anticipated Use Frequency*	Herbicide Use Description**
	Foliar	Cut Stump	Basal	Defensible Space around Poles		
Imazapyr	x	x	x	x	moderate	Non-selective herbicide used for the control of a broad range of weeds including terrestrial annual and perennial grasses and broadleaved herbs, woody species, and riparian and emergent aquatic species.
Metsulfuron methyl	x			x	frequent	A selective herbicide used to control noxious weeds, brush and problem broadleaves with excellent grass tolerance.
Picloram	x	x			rare	Restricted Use Pesticide Used for general woody plant control. It also controls a wide range of broad-leaved weeds, but most grasses are resistant.
Sulfometuron methyl	x			x	rare	Used to control a wide range of annual and perennial grasses as well as broad-leafed weeds.
Tebuthiuron				x	rare	Used for control of broadleaf and woody weeds, grasses and brush. Non selective. Pellets & Dry Flowable formulation. Some soil movement. Requires rainfall for incorporation into the soil for root uptake.
Triclopyr	x	x	x	x	frequent	Used to control broadleaf weeds and woody species as foliar, basal and cut stump.

from the authorized ROW daily following the application process, and storage containers would be returned to the supplier when empty.

The closed containers are product-dedicated and can be refilled only with the same custom-blended herbicide formulations that they originally contained. Each sealed container is labeled with an EPA product registration number and the concentration of ingredients, including active ingredients, diluting agents, and adjuvants. The movement of the herbicides and containers through the chain of custody would be tracked by its unique identification number in the container's bar code. Where appropriate, posting of treated areas would be conducted in accordance with BLM requirements and as listed on the herbicide product label. Any posting of treated areas would include a notice that the area is in the process of being treated within the authorized ROW in accordance with manufacturers' guidelines, and resources for additional information.

After completion of manual and mechanical vegetation removal, the Utilities would employ one of three different herbicide application techniques: foliar, cut stump, or basal application treatments. Images of each technique and associated equipment can be found in the BA. All three techniques are spot treatments that target specific vegetation, rather than broadcast treatments applied throughout the entire authorized ROW. These techniques use backpack sprayers for areas only accessible by walking and tank sprayers mounted on ATVs for areas accessible by off-road motorized vehicles. Both the backpacks and the tank mounted ATVs would have handheld sprayers for accurate spot treatment. No broadcast or aerial spraying is proposed.

The foliar application technique applies herbicide to the leaves of target vegetation and is most effective on smaller vegetation (e.g., 1-5 feet tall) but can be used on vegetation up to 10 feet tall. Foliar applications are selective to the incompatible vegetation and would not be applied to an entire ROW unless incompatible vegetation is very dense across the entire ROW. Foliar herbicide applications are typically applied over the course of two years. The first application would occur one to two years after manual or mechanical treatment, depending on the regrowth of incompatible vegetation. The second treatment would occur one to two years after the initial application. The frequency of herbicide treatments thereafter depends on the amount of incompatible vegetation regrowth. Routine herbicide treatments would occur cyclically every 5-8 years based on incompatible vegetation growth. Foliar application is the preferred technique when treating most ROW vegetation and is anticipated to constitute 75-80% of all herbicide treatments.

The cut-stump application technique is used on woody species that normally re-sprout after cutting. Herbicides would be applied on the exposed cambium (living inner bark) of the stump and on exposed roots. Herbicides are most successful when applied immediately after the trunk is cut (typically within 15 minutes). Outer bark and heartwood are not treated because these tissues are not alive. The cut-stump technique is used for small-scale localized treatment of small groups of trees. The cut-stump application is conducted in conjunction with manual vegetation removal, and the stump is treated within minutes of the plant removal. This technique is anticipated to constitute 15-20% herbicide applications.

Basal application treatments combine an herbicide with penetrant oil, and the mixture is applied directly to the bark of a standing tree, encircling stems and root collars. The herbicide is most effective on trees with smooth bark, when the lower 12-18 inches of the trunk is treated. The oil penetrates the bark, carrying the herbicide into the plant. Basal applications can be made at any time of the year, but are most effective during the growing season. This technique can be highly effective on trees that are less than six inches in diameter. Basal applications are rarely used and anticipated to constitute less than five percent of all herbicide treatments.

If BLM approves the Proposed Action, the Utilities would coordinate with the BLM Invasive and Noxious Weeds Program Lead to evaluate the procedure for developing, reviewing, and submitting pesticide-use proposals (PUPs) for herbicide use within the authorized ROWs. The PUPs would detail the herbicides proposed for use in the annual treatment plans, maintenance projects, and construction projects submitted to the BLM by the Utilities. Each PUP would include the following: information on project specifications, herbicides proposed for use and the rate of application, surfactants used, dates of application and incompatible species, key personnel responsibilities, and procedures for communication, safety, spill response, and emergencies. For application of herbicides not approved for aquatic use, each PUP would specify minimum buffer widths between treatment areas and waterbodies following BLM recommendations.

Defensible Space Treatment Around Poles

As part of its vegetation management program, APS has initiated a statewide utility pole clearing program referred to as "Defensible Space around Poles." The objective of this program is to remove contiguous fuels (grass to shrub, shrub to tree) and ladder fuels from around the poles to reduce the risk of fire ignition from spark emitting electrical equipment, and to protect wooden utility poles during a fire. The treatment creates a "cylinder" of combustible-free space measuring 20 feet in diameter around the base of each pole that has spark emitting electrical equipment (e.g., transformers, capacitor banks, switches). Vegetation is removed manually around the pole and up to a distance of 10 feet as authorized under the Utilities' existing vegetation maintenance programs. All combustible debris is then moved outside the 20-foot diameter area using leaf rakes. Pre-inspections of poles are conducted using trucks or ATVs and sites selected for treatment are submitted to BLM for approval. Poles are currently scheduled to be treated every three years.

Under the proposed action, manual clearing would be followed as needed by cut-stump herbicide treatments. About 10% of applications may also include a soil or pre-emergent herbicide application to keep vegetation from growing inside the combustible-free space cylinder. In this instance, herbicide would be applied directly to the soil using a hand-held sprayer within the 20-foot diameter area. Herbicides used would be specifically labeled for soil applications, including pre-emergent herbicides. Pre-emergent herbicides prevent the germination of seeds, extending control of vegetation for a longer period of time. All treatments would remain within existing ROWs.

The poles of interest are generally located in the wildland-urban interface near residential areas, and only about 8% of the poles on the Utilities' distribution line systems have

equipment where this type of treatment is required. Defensible Space around Poles treatments do not apply to transmission lines, except where distribution lines and transmission lines occur on the same pole. APS has an estimated total of 6,194 poles on BLM lands, of which approximately 420 poles include electrical equipment that could spark. The total treatment area within this program would be approximately 3.03 acres, equivalent to 0.03% of the Utilities' ROW on BLM lands in AZ.

Adaptive Management
New or improved herbicide products may become available during implementation of this proposal. If new or improved products are made available, the new herbicide product could be considered for use without further NEPA and ESA analysis. This would be the case only if the new or improved product fits within the same effects-analysis disclosure as herbicides proposed in the BA. An analysis would be done to determine the similarities of effects and whether the decision would be adapted to include that herbicide product.

Conservation Measures
The implementation of specific conservation measures provided below varies among components of the proposed action (e.g., hazard treatments, routine maintenance, inspections), species, and the Utilities. Conservation measures for additional species are included in Appendices A and B of this document. Additional details of the conservation measures are provided in the Appendix D of the BA.

General Riparian Area Conservation Measures

1. Do not operate a mechanical mower within riparian vegetation. Riparian vegetation shall be removed or pruned using manual methods.

2. Within riparian areas, wetlands, and aquatic habitats, conduct herbicide treatments only with herbicides that are approved for use in those areas.

3. Within or near riparian areas, avoid using glyphosate formulations that include R-11, and either avoid using any formulations with POEA, or seek to use the formulation with the lowest amount of POEA available.

4. Within or near riparian areas, special care should be followed when transporting and applying 2,4-D, bromacil, clopyralid, diuron, glyphosate, hexazinone, imazapyr, metsulfuron methyl, picloram, tebuthiuron, and triclopyr.

5. When working in riparian areas, wetlands, and near other aquatic habitats, access work site only on existing roads, and restrict all travel on roads when damage to the road surface would result or is occurring.

6. Outside of riparian areas, driving off established roads is allowed only on slopes $\leq$ 20%.

Southwestern Willow Flycatcher

1. Implement Riparian Area Conservation Measures found in **Error! Reference source not found.** Appendix D within occupied and suitable southwestern willow flycatcher habitat.

2. Do not conduct manual vegetation maintenance activities within suitable habitat for southwestern willow flycatchers during the breeding season from May 1 to August 31.

3. Within southwestern willow flycatcher suitable, occupied or suitable habitat, apply glyphosate, hexazinone, and triclopyr at the typical rather than the maximum application rate.

4. Do not apply 2,4-D within southwestern willow flycatcher habitats.

5. The following buffers shall be implemented for occupied or suitable habitat:
   a. Herbicide of 0 and 1 toxicity in the small avian toxicity group may be applied with no buffer (includes all proposed herbicides except dicamba).
   b. Do not apply herbicides of Class 2 in the small avian toxicity group within 10 feet of the edge of the species' habitat (includes dicamba).
   c. Do not apply herbicides of Class 3 in the small avian toxicity group within 20 feet of the edge of the species' habitat (no class 3 toxicity herbicides in the small avian toxicity group are proposed at this time).

6. For APS lines, do not drive ATVs within 50 m of southwestern willow flycatcher habitat (riparian vegetation) during the nesting season (May 1 to August 31) except on existing roads that are open to the public.

7. For APS lines, avoid herbicide application during the nesting season from May 1 to August 31 whenever possible. If herbicide application is necessary during the nesting season, ensure work is conducted with the least number of trips in and out and workers walk only in the ROW and open areas and not in dense thickets of vegetation.

Yellow-billed Cuckoo

1. Implement Riparian Area Conservation Measures found in **Error! Reference source not found.** within occupied and suitable western yellow-billed cuckoo habitat.

2. Do not conduct manual vegetation maintenance activities within suitable habitat for yellow-billed cuckoo during the breeding season from May 15 to September 30.

3. Within western yellow-billed cuckoo suitable, occupied or suitable habitat, apply glyphosate, hexazinone, and triclopyr at the typical rather than the maximum application rate.

4. Do not apply 2,4-D within western yellow-billed cuckoo habitats.

5. The following buffers shall be implemented for occupied and/or suitable habitat:
    a. Herbicide of 0 and 1 toxicity in the small avian toxicity group may be applied with no buffer (includes all proposed herbicides except dicamba).
    b. Do not apply herbicides of Class 2 in the small avian toxicity group within 10 feet of the edge of the species habitat (includes dicamba).
    c. Do not apply herbicides of Class 3 in the small avian toxicity group within 20 feet of the edge of the species habitat (no class 3 toxicity herbicides in the small avian toxicity group are proposed at this time).

6. For APS lines, do not drive ATVs within 50 m of western yellow-billed cuckoo habitat (riparian vegetation) during the nesting season (May 15 to September 30) except on existing roads that are open to the public.

7. For APS lines, avoid herbicide application during critical times of the nesting season from June 1 to September 30 whenever possible. If herbicide application is necessary during the nesting season, ensure work is conducted with the least number of trips in and out and workers walk only in the ROW and open areas and not in dense thickets of vegetation.

<u>Acuña Cactus</u>

1. Do not use a mechanical mower for routine vegetation maintenance within acuña cactus critical and suitable habitat.

2. Prior to manual cutting of vegetation and herbicide application in acuña cactus critical and suitable habitats, conduct pre-treatment surveys for acuña cactus. Biologists or other professionals experienced in the identification this species will survey the ROW area to be treated and locate and flag all acuña cacti within or immediately adjacent to the area. In an effort to be conservative, all other similar looking cacti will be flagged and avoided.

3. Work crews will be educated on the avoidance of acuña cactus prior to scheduled work in critical and suitable habitats. The training of applicators should involve one or more applicators, crew foreman, or utility employee overseeing work and include: education on appearance of acuña cactus, reference materials to assist in avoidance in the field, field visit, if needed, for refinement of search image, and procedures on avoiding cacti not found during survey.

4. During manual cutting of vegetation and herbicide application, check under plants to be treated for acuña cactus prior to cutting or applying herbicide to identify cacti that

may have been missed during survey. If a cactus is found, implement appropriate conservation measures to avoid the cactus.

5. During manual vegetation maintenance work, if an acuña cactus occurs underneath and is shaded by the plant to be cut, either leave the target plant or selectively trim the plant to provide protection for the acuña cactus.

6. Drive work vehicles and ATVs only on existing roads to access the ROW and do not drive ATV off-road within the ROW in suitable and critical habitat for acuña cactus.

7. Establish a 20-foot buffer around each flagged acuña cactus or clump of cacti. No herbicide treatments shall occur within the 20 foot buffer.

8. Do not use tebuthiuron and picloram in acuña cactus occupied habitat. Both herbicides have prolonged soil residual activity (from Crosswhite et. al. 1995).

9. Do not use these herbicides which require uptake by plant roots in acuña cactus occupied habitat: bromacil, hexazinone, and tebuthiuron.

10. Do not use the pre-emergent herbicides diuron and pendimethalin in occupied acuña cactus habitat.

11. Do not use herbicides for defensible space around poles treatment if acuña cactus survey results indicate presence of a cactus or cacti in the 10 foot radius treatment area.

12. Do not use 2,4-D and diuron within 300 feet of occupied acuña cactus habitat to minimize effects to pollinators. This herbicide is rated as Class 2 or Class 3 in the pollinating toxicity group (bee or Terrestrial Arthropod).

ANALYTICAL FRAMEWORK FOR THE JEOPARDY AND ADVERSE MODIFICATION DETERMINATIONS

Jeopardy Determination

In accordance with policy and regulation, the jeopardy analysis in this Biological Opinion relies on four components: (1) the *Status of the Species*, which evaluates the southwestern willow flycatcher, yellow-billed cuckoo, and acuña cactus range-wide condition, the factors responsible for that condition, and its survival and recovery needs; (2) the *Environmental Baseline*, which evaluates the condition of the southwestern willow flycatcher, yellow-billed cuckoo, and acuña cactus in the action area, the factors responsible for that condition, and the relationship of the action area to the survival and recovery of the flycatcher, cuckoo, and acuña cactus; (3) the *Effects of the Action*, which determines the direct and indirect impacts of the proposed Federal action and the effects of any interrelated or interdependent activities on the species; and (4) *Cumulative Effects*, which evaluates the effects of future, non-Federal activities in the action area on the species.

In accordance with policy and regulation, the jeopardy determination is made by evaluating the effects of the proposed Federal action in the context of the species' current status, taking into account any cumulative effects, to determine if implementation of the proposed action is likely to cause an appreciable reduction in the likelihood of both the survival and recovery of the species in the wild. The jeopardy analysis in this Biological Opinion considers the range-wide survival and recovery needs of the species and the role of the action area in its survival and recovery as the context for evaluating the significance of the effects of the proposed Federal action, taken together with cumulative effects, for purposes of making the jeopardy determination.

Adverse Modification Determination

This Biological Opinion relies on the regulatory definition of "destruction or adverse modification" of critical habitat at 50 CFR 402.02[1]. In accordance with policy and regulation, the adverse modification analysis in this Biological Opinion relies on four components: 1) the *Status of Critical Habitat*, which evaluates the range-wide condition of designated critical habitat for the southwestern willow flycatcher, yellow-billed cuckoo, and acuña cactus in terms of physical and biological features[2], the factors responsible for that condition, and the intended value of the critical habitat for survival and recovery of the species; 2) the *Environmental Baseline*, which evaluates the condition of the critical habitat in the action area, the factors responsible for that condition, and the value of the critical habitat for survival and recovery of the species in the action area; 3) the *Effects of the Action*, which determines the direct and indirect impacts of the proposed Federal action and the effects of any interrelated or interdependent activities on the physical and biological features and how that will influence the value of affected critical habitat units for survival and recovery of the species; and 4) the *Cumulative Effects*, which evaluates the effects of future, non-Federal activities in the action area on the physical and biological features and how that will influence the value of affected critical habitat units for survival and recovery of the species.

For purposes of the adverse modification determination, the effects of the proposed Federal action on the species' critical habitat are evaluated in the context of the range-wide condition of the critical habitat, taking into account any cumulative effects, to determine if the critical habitat range-wide would remain functional (or would not preclude or significantly delay the current ability for the physical and biological features to be functionally established in areas of currently unsuitable but capable habitat) such that the value of critical habitat for the conservation of the species is not appreciably diminished.

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[1] See 81 FR 7214.

[2] The term "primary constituent elements" was introduced in critical habitat designation regulations (50 CFR 424.12) to describe aspects of "physical or biological features," which are referenced in the statutory definition of critical habitat. The Services have removed the term "primary constituent elements" and returned to using the statutory term "physical or biological features" (81 FR 7414). Existing critical habitat designations will not be republished to reflect this change; however, in future rules we will discontinue using the term "primary constituent elements" and instead will use "physical and biological features".

STATUS OF THE SPECIES AND CRITICAL HABITAT

The information in this section summarizes the rangewide status of each species that is considered in this BO. Further information on the status of these species can be found in the administrative record for this project, documents on our web page (https://www.fws.gov/southwest/es/arizona/) under *Document Library, Documents by Species*, and in other references cited in each summary below.

Southwestern willow flycatcher

Description

The southwestern willow flycatcher is a small grayish-green passerine bird (Family Tyrannidae) measuring approximately 5.75 inches. The song is a sneezy "fitz-bew" or a "fit-a-bew", the call is a repeated "whit." It is one of four currently recognized willow flycatcher subspecies (Phillips 1948, Unitt 1987, Browning 1993). It is a neotropical migrant that breeds in the southwestern U.S. and migrates to Mexico, Central America, and possibly northern South America during the non-breeding season (Phillips 1948, Stiles and Skutch 1989, Peterson 1990, Ridgely and Tudor 1994, Howell and Webb 1995). The historical breeding range of the southwestern willow flycatcher included southern California (CA), AZ, New Mexico (NM), western Texas (TX), southwestern Colorado (CO), southern Utah (UT), extreme southern Nevada (NV), and extreme northwestern Mexico (Sonora and Baja) (Unitt 1987).

Listing and critical habitat

The southwestern willow flycatcher was listed as endangered, without critical habitat on February 27, 1995 (USFWS 1995). Critical habitat was later designated on July 22, 1997 (USFWS 1997a). A correction notice was published in the Federal Register on August 20, 1997 to clarify the lateral extent of the designation (USFWS 1997b).

On May 11, 2001, the 10th circuit court of appeals set aside designated critical habitat in those states under the 10th circuit's jurisdiction (New Mexico). The USFWS decided to set aside critical habitat designated for the southwestern willow flycatcher in all other states (CA and AZ) until it could re-assess the economic analysis.

On October 19, 2005, the USFWS re-designated critical habitat for the southwestern willow flycatcher (USFWS 2005). A total of 737 river miles across southern CA, AZ, NM, southern NV, and southern UT were included in the final designation. The lateral extent of critical habitat includes areas within the 100-year floodplain.

On August 15, 2011, the USFWS proposed a revision to the critical habitat designation, identifying stream segments in each of the 29 Management Units where there are recovery goals (USFWS 2011). These segments totaled 2,090 stream miles. Similar to the 2005 rule, the lateral extent of critical habitat includes only the riparian areas within the 100-year floodplain. About 790 stream miles were identified as areas we will consider for exclusion from the final designation under section 4(b)(2) of the Act.

On January 3, 2013, the USFWS completed its flycatcher critical habitat revision by designating approximately 1,227 stream miles as critical habitat. These areas are designated as stream segments, with the lateral extent including the riparian areas and streams that occur within the 100-year floodplain or flood-prone areas encompassing a total area of approximately 208,973 acres. About 948 stream miles of proposed critical habitat were excluded from the final revised designation.

A final recovery plan for the southwestern willow flycatcher was signed by the USFWS Region 2 Director and released to the public in March, 2003 (USFWS 2002). The Plan describes the reasons for endangerment, current status of the flycatcher, addresses important recovery actions, includes detailed issue papers on management issues, and provides recovery goals. Recovery is based on reaching numerical and habitat related goals for each specific Management Unit established throughout the subspecies range and establishing long-term conservation plans (USFWS 2002).

The five-year review for the flycatcher was completed in August 2014 by the Arizona Ecological Services Field Office and is posted on the Field Office's web site (http://www.fws.gov/southwest/es/arizona/Southwes.htm).

Reasons for endangerment

Reasons for decline have been attributed to primarily loss, modification, and fragmentation of riparian breeding habitat, along with a host of other factors including loss of wintering habitat and brood parasitism by the brown-headed cowbird (Sogge *et al.* 1997, McCarthey *et al.* 1998). Habitat loss and degradation are caused by a variety of factors, including urban, recreational, and agricultural development, water diversion and groundwater pumping, channelization, dams, and excessive livestock grazing. Fire is an increasing threat to willow flycatcher habitat (Paxton *et al.* 1996), especially in monotypic saltcedar vegetation (DeLoach 1991) and where water diversions and/or groundwater pumping desiccates riparian vegetation (Sogge *et al.* 1997). Willow flycatcher nests can be parasitized by brown-headed cowbirds (*Molothrus ater*), which lay their eggs in the host's nest. Feeding sites for cowbirds are enhanced by the presence of livestock and range improvements such as waters and corrals; agriculture; urban areas; golf courses; bird feeders; and trash areas. When these feeding areas are in close proximity to flycatcher breeding habitat, especially coupled with habitat fragmentation, cowbird parasitism of flycatcher nests may increase (, Tibbitts *et al.* 1994).

Habitat

The southwestern willow flycatcher breeds in dense riparian habitats from sea level in California to approximately 8,500 feet in AZ and southwestern CO. Historical egg/nest collections and species' descriptions throughout its range describe the southwestern willow flycatcher's widespread use of willow (*Salix* spp.) for nesting (Phillips 1948, Phillips *et al.* 1964, Hubbard 1987, Unitt 1987). Currently, southwestern willow flycatchers primarily use Geyer willow (*Salix geyeriana*), coyote willow (*Salix exigua*), Goodding's willow (*Salix gooddingii*), boxelder (*Acer negundo*), saltcedar (*Tamarix* sp.), Russian olive (*Elaeagnus angustifolio*), and live oak (*Quercus agrifolia*) for nesting. Other plant species less commonly used for nesting include: buttonbush (*Cephalanthus* sp.), black twinberry

(*Lonicera involucrata*), cottonwood (*Populus* spp.), white alder (*Alnus rhombifolia*), blackberry (*Rubus ursinus*), and stinging nettle (*Urtica* spp.). Based on the diversity of plant species composition and complexity of habitat structure, four basic habitat types can be described for the southwestern willow flycatcher: monotypic willow, monotypic exotic, native broadleaf dominated, and mixed native/exotic (Sogge *et al.* 1997).

The flycatcher's habitat is dynamic and can change rapidly: nesting habitat can grow out of suitability; saltcedar habitat can develop from seeds to suitability in about four to five years; heavy runoff can remove/reduce habitat suitability in a day; or river channels, floodplain width, location, and vegetation density may change over time. The flycatcher's use of habitat in different successional stages may also be dynamic. For example, over-mature or young habitat not suitable for nest placement can be occupied and used for foraging and shelter by migrating, breeding, dispersing, or non-territorial southwestern willow flycatchers (McLeod *et al.* 2005, Cardinal and Paxton 2005). Flycatcher habitat can quickly change and vary in suitability, location, use, and occupancy over time (Finch and Stoleson 2000).

Tamarisk is an important component of the flycatcher's nesting and foraging habitat in the central part of the flycatcher's breeding range in AZ, southern NV and UT, and western NM. In 2001 in AZ, 323 of the 404 (80 percent) known flycatcher nests (in 346 territories) were built in a tamarisk tree (Smith *et al.* 2002). Tamarisk had been believed by some to be a habitat type of lesser quality for the southwestern willow flycatcher, however comparisons of reproductive performance (USFWS 2002), prey populations (Durst 2004) and physiological conditions (Owen and Sogge 2002) of flycatchers breeding in native and exotic vegetation has revealed no difference (Sogge *et al.* 2005).

The introduced tamarisk leaf beetle was first detected defoliating tamarisk within the range of the southwestern willow flycatcher in 2008 along the Virgin River in St. George, Utah. Initially, this insect was not believed to be able to move into or survive within the southwestern United States in the breeding range of the flycatcher. Along this Virgin River site in 2009, 13 of 15 flycatcher nests failed following vegetation defoliation (Paxton *et al.* 2010). As of 2012, the beetle has been found in southern NV/UT and northern AZ/NM within the flycatcher's breeding range. It was detected along the Colorado River below Hoover Dam in 2012. In 2017, the beetle was found farther into central AZ, with detections in western AZ along the the Bill Williams, Santa Maria, and Big Sandy River, and in Maricopa County along the Hassayampa River. In NM, the beetle has traveled south along the Rio Grande from Colorado and north from releases in TX. By 2016, the beetle had been found throughout the length of the Rio Grande in NM, in particular at the densest population of breeding flycatchers at Elephant Butte Reservoir. Because tamarisk is a component of about 50 percent of all known flycatcher territories (Durst *et al.* 2008), continued spread of the beetle has the potential to significantly alter the distribution, abundance, and quality of flycatcher nesting habitat and impact breeding attempts.

Rangewide distribution and abundance

Based on the latest population estimates available, there are 288 known southwestern willow flycatcher breeding sites in CA, NV, AZ, UT, NM, and CO (all sites from 1993 to 2007 where a territorial flycatcher has been detected) holding an estimated 1,299 territories (Durst

et al. 2008). It is difficult to arrive at a grand total of flycatcher territories since not all sites are surveyed annually. Numbers have increased since the bird was listed and some habitat remains unsurveyed; however, after nearly a decade of intense surveys, the existing numbers are just past the upper end of Unitt's (1987) estimate of 20 years ago (500-1000 pairs). About 50 percent of the 1,299 estimated territories throughout the subspecies range are located at four general locations (Cliff/Gila Valley – NM, Roosevelt Lake - AZ, San Pedro River/Gila River confluence – AZ, Middle Rio Grande, NM).

Arizona distribution and abundance

While numbers have significantly increased in AZ (145 to 459 territories from 1996 to 2007) (English *et al.* 2006, Durst *et al.* 2008), overall distribution of flycatchers throughout the state has not changed much. Currently, population stability in AZ is believed to be largely dependent on the presence of three population centers (Roosevelt Lake, San Pedro/Gila River confluence, upper Gila River). Therefore, the result of catastrophic events or losses of significant populations either in size or location could greatly change the status and survival of the bird. Conversely, expansion into new habitats or discovery of other populations would improve the known stability and status of the flycatcher.

Critical habitat

The primary constituent elements of designated critical habitat are based on riparian plant species, structure and quality of habitat and insects for prey.

1. Primary Constituent Element 1— *Riparian vegetation.* Riparian habitat along a dynamic river or lakeside, in a natural or manmade successional environment (for nesting, foraging, migration, dispersal, and shelter) that is comprised of trees and shrubs (that can include Gooddings willow, coyote willow, Geyer's willow, arroyo willow, red willow, yewleaf willow, pacific willow, boxelder, tamarisk, Russian olive, buttonbush, cottonwood, stinging nettle, alder, velvet ash, poison hemlock, blackberry, seep willow, oak, rose, sycamore, false indigo, Pacific poison ivy, grape, Virginia creeper, Siberian elm, and walnut) and some combination of:
    (a) Dense riparian vegetation with thickets of trees and shrubs that can range in height from about 2 to 30 m (about 6 to 98 ft). Lower-stature thickets (2 to 4 m or 6 to 13 ft tall) are found at higher elevation riparian forests and tall-stature thickets are found at middle and lower-elevation riparian forests;
    (b) Areas of dense riparian foliage at least from the ground level up to approximately 4 m (13 ft) above ground or dense foliage only at the shrub or tree level as a low, dense canopy;
    (c) Sites for nesting that contain a dense (about 50 percent to 100 percent) tree or shrub (or both) canopy (the amount of cover provided by tree and shrub branches measured from the ground);
    (d) Dense patches of riparian forests that are interspersed with small openings of open water or marsh or areas with shorter and sparser vegetation that creates a variety of habitat that is not uniformly dense. Patch size may be as small as 0.1 ha (0.25 ac) or as large as 70 ha (175 ac).
2. Primary Constituent Element 2—*Insect prey populations.* A variety of insect prey populations found within or adjacent to riparian floodplains or moist environments,

which can include: flying ants, wasps, and bees (*Hymenoptera*); dragonflies (*Odonata*); flies (*Diptera*); true bugs (*Hemiptera*); beetles (*Coleoptera*); butterflies, moths, and caterpillars (*Lepidoptera*); and spittlebugs (*Homoptera*).

The physical and biological features of flycatcher critical habitat are the principal biological or physical elements essential to flycatcher conservation that may require special management considerations or protection (USFWS 2013). We primarily identified the features and functions of rivers that generate flycatcher habitat and its food such as low gradient/broad floodplains, water, saturated soil, hydrologic regimes, elevated groundwater, and fine sediments, etc. (USFWS 2013).

Past Consultations

Since listing in 1995, at least 240 Federal agency actions have undergone (or are currently under) formal section 7 consultation throughout the flycatcher's range. This list of consultations can be found in the administrative record for this consultation. Since flycatcher critical habitat was finalized in 2005, at least 33 formal opinions have been completed in AZ (within and outside designated critical habitat). While many opinions were issued for the previous critical habitat designation, the stream reaches and constituent elements have changed.

Activities continue to adversely affect the distribution and extent of all stages of flycatcher habitat throughout its range (development, urbanization, grazing, recreation, native and non-native habitat removal, dam operations, river crossings, ground and surface water extraction, etc.). Introduced tamarisk-eating leaf beetles were not anticipated to persist within the range of the southwestern willow flycatcher. However, they were detected within the breeding habitat (and designated critical habitat) of the flycatcher in 2008 along the Virgin River near the Town of St. George, UT. In 2009, beetles were also known to have been detected defoliating habitat within the range of flycatcher habitat in southern Nevada, and along the Colorado River in the Grand Canyon and near Shiprock in AZ. As of 2017, leaf beetles had spread to the only known breeding sites along the lower Colorado River in AZ, along the Hassayampa River in Maricopa County, and at the largest flycatcher breeding population rangewide along the Middle Rio Grande at Elephant Butte, NM. Stochastic events also continue to change the distribution, quality, and extent of flycatcher habitat.

Conservation measures associated with some consultations and Habitat Conservation Plans have helped to acquire lands specifically for flycatchers on the San Pedro, Verde, and Gila rivers in AZ and the Kern River in CA. Additionally, along the lower Colorado River, the U.S. Bureau of Reclamation is currently attempting to establish riparian vegetation to expand and improve the distribution and abundance of nesting flycatchers. A variety of Tribal Management Plans in CA, AZ, and NM have been established to guide conservation of the flycatchers. Additionally, during the development of the critical habitat rule, management plans were developed for some private lands along the Owens River in CA and Gila River in NM. These conservation actions are just a portion of those that have been established across the subspecies' range.

Western yellow-billed cuckoo

Description
Adult yellow-billed cuckoos have moderate to heavy bills, somewhat elongated bodies and a narrow yellow ring of colored bare skin around the eye. The plumage is grayish-brown above and white below, with reddish primary flight feathers. The tail feathers are boldly patterned with black and white below. They are medium-sized birds about 12 inches in length, and about 2 ounces in weight. Males and females differ slightly; the males have a slightly smaller body size, smaller bill, and the white portions of the tail tend to form distinct oval spots. In females the white spots are less distinct and tend to be connected (Hughes 1999).

Morphologically, the yellow-billed cuckoos throughout the western continental United States and Mexico are generally larger, with significantly longer wings, longer tails, and longer and deeper bills (Franzreb and Laymon 1993). Birds with these characteristics occupy the Western Distinct Population Segment (DPS) and we refer to them as the "western yellow-billed cuckoo." Only the Western DPS was listed as a threatened species (USFWS 2014b). Yellow-billed cuckoos in the west arrive on the breeding grounds 4 to 8 weeks later than eastern yellow-billed cuckoos at similar latitude (Franzreb and Laymon 1993, Hughes 1999).

Listing and Proposed Critical Habitat
The yellow-billed cuckoo was listed as a threatened species under the ESA on October 3, 2014 (79 FR 59992). Critical habitat for the yellow-billed cuckoo was proposed on August 15, 2014 (79 FR 48548). Proposed critical habitat encompasses 546,335 acres across the western United States.

Additional details on the status of this species and proposed critical habitat are found in our final rule to list the species as threatened (79 FR 59992) and our proposed rule to designate critical habitat (79 FR 48548). The discussions of the status of this species in these documents are incorporated herein by reference.

The proposed PCEs of yellow-billed cuckoo critical habitat are focused on the bird's essential riparian plant species, food, and river functions.

1. Riparian woodlands. Riparian woodlands with mixed willow-cottonwood vegetation, mesquite-thorn-forest vegetation, or a combination of these that contain habitat for nesting and foraging in contiguous or nearly contiguous patches.
2. Adequate prey base. Presence of prey base consisting of large insect fauna and frogs for adults and young in breeding areas during the nesting season and in post-breeding dispersal areas.
3. Dynamic riverine processes, hydrologically altered systems that provide suitable habitat, or Madrean evergreen woodland in southeastern AZ. River systems that are dynamic and provide hydrologic processes that encourage sediment movement and deposits that allow seedling germination and promote plant growth, maintenance, health and vigor.

Distribution
The yellow-billed cuckoo is a member of the avian family Cuculidae and is a Neotropical migrant bird that winters in South America and breeds in North America. The breeding range of the entire species formerly included most of North America from southeastern and western Canada (southern Ontario and Quebec and southwestern British Colombia) to the Greater Antilles and northern Mexico [American Ornithologists Union (AOU) 1957, 1983, 1998].

Based on historical accounts, the western yellow-billed cuckoo was formerly widespread and locally common in CA and AZ, more narrowly distributed but locally common in New Mexico, Oregon, and Washington and uncommon along the western front of the Rocky Mountains north to British Columbia (AOU 1998, Hughes 1999). The species may be extirpated from British Colombia, Washington, and Oregon (Hughes 1999). The western yellow-billed cuckoo is now very rare in scattered drainages in western CO, Idaho, NV, and UT, with single, nonbreeding birds most likely to occur (USFWS 2014a, 2014b). The largest remaining breeding areas are in southern and central CA, AZ, along the Rio Grande in NM, and in northwestern Mexico (USFWS 2014b).

In Arizona, the species was a common resident in the (chiefly lower) Sonoran zones of southern, central, and western AZ (Phillips *et al.* 1964). The yellow-billed cuckoo now nests primarily in the central and southern parts of the state.

Habitat
Western populations of yellow-billed cuckoos are most commonly found in dense riparian woodlands, consisting primarily of cottonwood (*Populus fremontii*), willow (*Salix* spp.), and mesquite (*Prosopis* spp.), along riparian corridors in otherwise arid areas (Laymon and Halterman 1989, Hughes 1999). Occupied riparian habitat in AZ may also contain box elder (*Acer negundo*), Arizona alder (*Alnus oblongifolia*), Arizona walnut (*Juglans major*), Arizona sycamore (*Platanus wrightii*), oak (*Quercus* spp.), netleaf hackberry (*Celtis reticulata*), velvet ash (*Fraxinus velutina*), Mexican elderberry (*Sambuccus mexicanus*), tamarisk (*Tamarix* spp.; also called salt cedar), acacia (*Acacia* spp.), and seepwillow (*Baccharis glutinosa*)(Corman and Magill 2000, Corman and Wise-Gervais 2005). Tamarisk may be a component of breeding habitat, but there is usually a native riparian tree component within the occupied habitat (Gaines and Laymon 1984, Johnson *et al.* 2008a, McNeil *et al.* 2013, Carstensen *et al.* 2015). Although cuckoos are most commonly found in gallery riparian forest, in AZ, they may also use narrow bands of riparian woodland (AGFD 2015, Cornell Lab of Ornithology 2015). Adjacent habitat on terraces or in the upland (such as mesquite) can enhance the value of these narrow bands of riparian woodland.

In most of its range, western yellow-billed cuckoos primarily breed in riparian habitat along low-gradient (surface slope less than 3%) rivers and streams, and in open riverine valleys that provide wide floodplain conditions (greater than 325 feet). However, in the Southwest, cuckoos can also breed in higher gradient drainages, and narrower and drier reaches of riparian habitat. Western yellow-billed cuckoos in AZ will also use areas of mesquite and oak woodlands some distance from riparian gallery forests, including in the mountains of southeastern AZ. Recent surveys found yellow-billed cuckoos with some regularity in these non-traditional habitats (Corman and Magill 2000;WestLand Resources, Inc. 2013a, 2013b,

2015a, 2015b, 2015c; MacFarland and Horst 2015, 2017; Tucson Audubon 2015). Throughout the western yellow-billed cuckoo range, a large majority of nests are placed in willow trees, but cottonwood, mesquite, walnut, box elder, sycamore, hackberry, oak, alder, soapberry (*Sapindus saponaria*), acacia, and tamarisk are also used (Laymon 1980, Hughes 1999, Corman and Magill 2000, Corman and Wise-Gervais 2005, Holmes *et al.* 2008, Tucson Audubon 2015).

Habitat for the western yellow-billed cuckoo in much of its range is largely associated with perennial rivers and streams that support the expanse of vegetation characteristics needed by breeding western yellow-billed cuckoos. The range and variation of stream flow frequency, magnitude, duration, and timing that will establish and maintain riparian habitat can occur in different types of regulated and unregulated flows depending on the interaction of the water and the physical characteristics of the landscape (Poff *et al.* 1997; USFWS 2002). Hydrologic conditions at western yellow-billed cuckoo breeding sites can vary widely between years and during low rainfall years, water or saturated soil may not be present. Cuckoos may move from one area to another within and between years in response to hydrological conditions. They may also nest at more than one location in a year. Some individuals also roam widely (several hundred miles), apparently assessing food resources before selecting a nest site (Sechrist *et al.* 2012).

At the landscape level, the available information suggests the western yellow-billed cuckoo requires large tracts of willow-cottonwood or mesquite forest or Madrean evergreen woodland for their nesting season habitat. Habitat can be relatively dense, contiguous stands, irregularly shaped mosaics of dense vegetation with open areas, or narrow and linear. Individual home ranges during the breeding season average over 40 hectares, and home ranges up to 202 hectares have been recorded (Laymon and Halterman 1987, Halterman 2009, Sechrist *et al.* 2009, McNeil *et al.* 2011, McNeil *et al.* 2012). In addition to the dense nesting grove, western yellow-billed cuckoos need adequate foraging areas near the nest. Foraging areas can be less dense or patchy with lower levels of canopy cover and may be a mix of shrubs, ground cover, and scattered trees (Carstensen *et al.* 2015, Sechrist *et al.* 2009). In AZ, adjacent habitat is usually more arid than occupied nesting habitat. This adjacent habitat can be used for foraging where large insects are produced. Habitat types include Sonoran desertscrub, Mojave desertscrub, Chihuahuan desertscrub, chaparral, semidesert grassland, plains grassland, and Great Basin grasslands (Brown 1994, Brown *et al.* 2007, Brown and Lowe 1982).

Large expanses of gallery riparian woodland (hydroriparian) habitat supports greater densities of cuckoos than less dense reaches of scattered riparian trees (cottonwood, willow, walnut, ash, mesquite) or xeroriparian woodlands of mesquite, oak, acacia, hackberry, desert willow, and juniper. However, these less dense reaches of scattered riparian trees and xeroriparian woodlands are also important to yellow-billed cuckoos as nesting substrate, foraging habitat, and as a buffer between more hydric sites and the adjacent, xeric uplands, which decreases the edge/interior ratio of a given hydroriparian patch.

Migration habitat needs are not well known, although they appear to include a relatively wide variety of conditions. Migrating yellow-billed cuckoos have been found in coastal scrub,

second-growth forests and woodlands, hedgerows, forest edges, and in smaller riparian patches than those used for breeding.

Presence in Arizona
In a survey in 1999 that covered 265 mi (426 km) of river and creek bottoms (a subset of statewide cuckoo habitat), 172 yellow-billed cuckoo pairs and 81 single birds were located in AZ (Corman and Magill 2000). Drainages with greater than 10 yellow-billed cuckoo detections are found at 12 locations in AZ: Bill Williams River, Colorado River, Gila River, Upper Cienega Creek, Hassayampa River, San Pedro River, Santa Maria River, Verde River, Sonoita Creek, Santa Cruz River, Altar Valley, and Agua Fria River. Sites with smaller populations are found at the Roosevelt Lake complex, Upper Tonto Creek, Pinto Creek, Sycamore Creek in Pajarito Mountains, Oak Creek, Lower Cienega Creek, Babocomari River, Pinal Creek, Bonita Creek, San Bernardino National Wildlife Refuge, Hooker Hot Springs, Big Sandy River, and many smaller drainages. Cuckoos have also been found during the breeding season in several drainages in the Catalina Mountains, Rincon Mountains, Santa Rita Mountains, Patagonia Mountains, Canelo Hills, Huachuca Mountains, and Pajarito/Atascosa Mountains (Cornell Lab of Ornithology 2015, MacFarland and Horst 2015, 2017). Many drainages throughout AZ have not been thoroughly surveyed and it is likely that additional yellow-billed cuckoo locations will be discovered. In addition to gallery riparian forest and mesquite woodlands, yellow-billed cuckoos are also using more xeroriparian drainages in the foothills and mountains of southeastern AZ. This kind of habitat is more typical of habitat where cuckoos are found in Sonora, Mexico.

Threats
The primary threat to the western yellow-billed cuckoo is loss or fragmentation of high-quality riparian habitat suitable for nesting (Corman and Wise-Gervais 2005, USFWS 2014a, 2014b). Habitat loss and degradation results from several interrelated factors, including alteration of flows in rivers and streams, mining, encroachment into suitable habitat from agricultural and other development activities on breeding and wintering grounds, stream channelization and stabilization, diversion of surface and ground water for agricultural and municipal purposes, livestock grazing, wildfire, establishment of nonnative vegetation, drought, and prey scarcity due to pesticides (Ehrlich *et al.* 1992, USFWS 2014b). Pesticide use is widespread in agricultural areas in the western yellow-billed cuckoo breeding range in the United States and northern Mexico. Yellow-billed cuckoos have also been exposed to the effects of pesticides on their wintering grounds, as evidenced by DDT found in their eggs and eggshell thinning in the United States (Grocki and Johnston 1974, Laymon and Halterman 1987, Hughes 1999, Cantu-Soto *et al.* 2011). Because much of the species' habitat is in proximity to agriculture, the potential exists for direct and indirect effects to a large portion of the species in these areas through altered physiological functioning, prey availability, and, therefore, reproductive success, which ultimately results in lower population abundance and curtailment of the occupied range (Laymon 1980, Laymon 1998, Hughes 1999, Colyer 2001, Mineau and Whiteside 2013, Hopwood *et al.* 2013, Mineau and Palmer 2013, USFWS 2014b).

The ongoing threats, including small isolated populations, cause the remaining populations to be increasingly susceptible to further declines and local extirpations through increased

predation rates, barriers to dispersal by juvenile and adult yellow-billed cuckoos, chance weather events, fluctuating availability of prey populations, collisions with tall vertical structures during migration, defoliation of tamarisk by the introduced tamarisk leaf beetle (*Diorhabda* spp.), increased fire risk, and climate change events (Thompson 1961, McGill 1975, Wilcove *et al.* 1986). The warmer temperatures already occurring in the southwestern United States may alter the plant species composition of riparian forests over time. An altered climate may also disrupt and change food availability for the western yellow-billed cuckoo if the timing of peak insect emergence changes in relation to when the cuckoos arrive on their breeding grounds to feed on this critical food source.

Habitat for the western yellow-billed cuckoo has been modified and curtailed, resulting in only remnants of formerly large tracts of native riparian forests, many of which are no longer occupied by western yellow-billed cuckoos. Despite recent efforts to protect existing, and restore additional, riparian habitat in the Sacramento, Kern, and Colorado Rivers, and other rivers in the range of the western yellow-billed cuckoo, these efforts offset only a small fraction of historical habitat that has been lost. Therefore, we expect the threats resulting from the combined effects associated with small and widely separated habitat patches to continue to affect a large portion of the range of the western yellow-billed cuckoo.

Acuña cactus

Listing History and Critical Habitat
On October 1, 2013, we listed the acuña cactus as an endangered species (78 FR 60808). Neither a Five-Year Review nor a Recovery Plan has been written for this species.

Acuña cactus critical habitat was finalized on August 18, 2016 (81 FR 55266) (along with Fickeisen plains cactus) and included areas within Maricopa, Pima, and Pinal counties, AZ. In total, approximately 18,535 ac were designated as critical habitat and were organized into six units. The six units are titled after geographic locations: (1) Organ Pipe Cactus National Monument, (2) Ajo, (3) Sauceda Mountains, (4) Sand Tank Mountains, (5) Mineral Mountain, and (6) Box O Wash.

The PCEs of acuña cactus critical habitat focus on native plant assemblages, cactus protection, pollinator habitat, seed dispersal, and soils.

Acuña Cactus Critical Habitat PCEs:

1. Native vegetation within the Palo Verde-Cacti-Mixed Scrub Series of the AZ Upland Subdivision of the Sonoran Desert-scrub at elevations between 1,198 - 3,773 feet. This vegetation must contain predominantly native plant species that:
    a. Provide protection to the acuña cactus. Examples of such plants are creosote bush, ironwood, and palo verde;
    b. Provide for pollinator habitat with a radius of 2,953 feet around each individual, reproducing acuña cactus;
    c. Allow for seed dispersal through the presence of bare soils immediately adjacent to and within 32.8 feet of individual, reproducing acuña cactus.

2. Soils overlying rhyolite, andesite, tuff, granite, granodiorite, diorite, or Cornelia quartz monzonite bedrock that are in valley bottoms, on small knolls, or on ridgetops, and are generally on slopes of less than 30 percent.

Biology

The acuña cactus is a small, spherical member of the cactus family with a lifespan exceeding 35 years. Rose, pink, or lavender flowers are produced in March (Arizona Rare Plant Guide Committee 2001, unpaginated; Zimmerman and Parfitt 2003). The fruits, which are held in place by a tight mesh of spines, are pale green and contain small, nearly black seeds (Felger 2000). The fruits ripen in April (Arizona Rare Plant Guide Committee 2001) and as they dry, they split longitudinally, exposing the seeds (Morawe 2012, pers. comm.).

Ecology

The acuña cactus relies solely on the production of seeds for reproduction, with pollination highly linked to the acuña cactus' survival. Acuña cacti are pollinated by a suite of bees from the Andrenidae, Anthophoridae, Anthophorinae, Halictidae, and Megachilidae families. The most abundant, robust, and consistent visitors in a 2-year study of acuña cactus pollination at Organ Pipe Cactus National Monument were the cactus bee (*Diadasia rinconis*) and the leafcutter bee (*Megachile palmensis*) (Johnson 1992, p. 406). No studies of pollinator dispersal distance have been conducted for the acuña cactus; however, in a study of the rare Pima pineapple cactus (*Coryphantha scheeri* var. *robustispina*), McDonald (2005) determined that the cactus bee most commonly transported pollen less than 900 m (2,953 ft). The maximum distance travelled by the leafcutter bee is not known, though it is thought to be less than this (Buchmann 2012, pers. comm).

Resource limitation may affect the acuña cactus seed set through ovule abortion (Johnson 1989, p. 11). Because flowering commences in early March and fruiting commences in late April (Johnson 1989), it is likely also that winter precipitation is correlated with fruit set. Although viability of seed in the seed bank is unknown, germination trials in the greenhouse suggest the seeds are short-lived (Rutman 2007). Johnson (1989) determined that acuña cactus seedling survival was dependent on summer precipitation and that soil moisture availability limits the distribution of the species. Rice (2001, pers. comm.) noted that in greenhouse trials of the acuña cactus, seedlings and new recruits were primarily lost due to desiccation.

In general, cacti are susceptible to attacks from numerous types of insects, and the acuña cactus is no exception. The interior flesh of cacti provides both a nesting area and food source for beetles, weevils, and other insects. Once an infestation has occurred, cacti can die from the eating and tunneling activities or from the introduction of fungus or disease. No diseases have been documented in the acuña cactus, though plants are exceptionally susceptible to bacterial rot after minor stem damage (Rutman 2007). There have been reports of loss of the acuña cactus due to small mammal depredation evidenced by scattered spines and rooted bases at Organ Pipe Cactus National Monument (Buskirk 1981; Heil and Melton 1994; Holm 2006).

Habitat

The acuña cactus occurs in valleys and on small knolls and gravel ridges of up to 30 percent slope in the Palo-Verde-Saguaro Association of the Arizona Upland subdivision of the Sonoran Desert scrub at 365 to 1,150 m (1,198 to 3,773 ft) in elevation (Phillips et al. 1982 ; Arizona Rare Plant Guide Committee 2001; AGFD 2011). This taxon grows on soil overlying various bedrock types including extrusive felsic volcanic rocks of rhyolite, andesite, and tuff, and intrusive igneous rocks composed of granite, granodiorite, diorite, and Cornelia quartz monzonite (Rutman 2007).

Associated plant species include creosote bush (*Larrea tridentata* var. *tridentata*), ironwood (*Olneya tesota*), palo verde (*Cercidium microphyllum*), triangle-leaf bursage (*Ambrosia deltoidea*), and catclaw (*Acacia greggii*). The acuña cactus is often noted growing under the protective canopy of these or other associated species (Phillips et al. 1982; Butterwick 1982-1992; Felger 2000; Service 2011a; Service 2011b), which may act as nurse plants, thereby sheltering seedlings from extreme temperatures and providing some protection from mechanical disturbance (Nobel 1984; Suzán et al. 1996).

Foraging plants, habitat, and corridors for bees must be preserved to protect the acuña cactus (Buchmann 2012, pers. comm.). Introduced grasses such as buffelgrass form continuous mats and remove open bare ground for nesting bees such as *Diadasia* spp. (Buchmann 2007). These bees move nesting sites yearly to shed parasites, therefore requiring the continued availability of sandy, well-drained, bare ground available to create nests.

Distribution/Abundance

The acuña cactus populations are known from Maricopa, Pima, and Pinal Counties in AZ and from Sonora, Mexico (AGFD 2004). In western Pima County, plants are known from the Puerto Blanco Mountains and adjacent Aguajita Wash on National Park Service lands within Organ Pipe Cactus National Monument; from the Sauceda Mountains on Bureau of Land Management and Tohono O'odham Nation lands; from Department of Defense military lands on the Barry M. Goldwater Gunnery Range; and from private lands near Ajo. In Maricopa County, the acuña cactus is known from the Sand Tank Mountains on Bureau of Land Management lands within the Sonoran Desert National Monument. In Pinal County, plants are known from Mineral Mountain on Bureau of Land Management, State, and private lands. In Sonora, Mexico, the acuña cactus occurs on Reserva de la Biosfera El Pinacate y Gran Desierto de Altar (Pinacate Biosphere Reserve), communal ejido lands, and private ranches. Available information indicates that the current range of this species does not differ from the historical range, with the exception that the current Ajo populations likely had been part of a larger population that occurred before mining activity began there (Rutman 1996, pers. comm.; Rutman 2007). However, there are no survey records for this species in the area prior to mining activity.

Threats

Identified threats include the effects of drought and climate change in combination with predation by native insect and small mammal predators. Threats also result from US-Mexico border-related activities and nonnative, invasive plants.

More than 84 percent of the known living acuña cactus individuals occur within 16.5 km (10.25 mi) of the border in either Organ Pipe Cactus National Monument or Sonora, Mexico. Cross-border violators, Customs and Border Protection, and National Park Service law enforcement activity in this area may degrade acuña cactus habitat by creating new roads and trails, disturbing vegetation and soils, and moving exotic plant seeds or plant parts, leading to their spread into unoccupied areas (Duncan *et al.* 2010). Nonnative grasses compete with native plants for water and nutrients, reduce community composition and structure, and alter fire frequency and intensity. Known populations of the acuña cactus are well distributed across southern AZ and northern Sonora and occur in areas subject to effects from nonnative, invasive plant species. Although no populations of the acuña cactus currently show evidence of effects from nonnative, invasive species, reports indicate that buffelgrass (*Pennisetum ciliare*) is currently in close proximity and could expand into acuña populations within the near future. Fires occurring on lands with buffelgrass by are more severe and frequent than fires in surrounding ecosystems, even in communities with comparable fuels (McDonald and McPherson 2011). Increases in nonnative grass cover in deserts can also increase habitat for rodents, which may in turn consume cacti for water, especially in times of drought. In addition, nonnative grasses in deserts may be detrimental to the survival of ground nesting native bee species that require sparsely vegetated habitat (Lindsay *et al.* 2011).

Since the late 1990s, the southwestern United States has been experiencing drought conditions and increasing high temperatures. Climatic predictions suggest continued less frequent, but perhaps more intense, summer precipitation, reduced winter precipitation; and increasing temperatures in this region (Seager *et al.* 2007; Archer and Predick 2008; Karl *et al.* 2009). Data from the acuña cactus monitoring plots at Organ Pipe Cactus National Monument and at Coffeepot Mountain, along with occasional surveys of these and most other populations, indicate major population declines have occurred across the acuña cactus range over the past 30 years. It appears that a combination of drought stress, warmer winters, and insect attack have reduced adult plant numbers, while heat stress, lack of precipitation, and seed predation have combined to reduce or halt reproduction. Because the current drought is occurring on a regional scale, and because climatic models predict future regional droughts, it is likely that all populations of the acuña cactus will continue to decline due to drought and the effects of climate change. In addition, it appears that drought and climate change in combination with insect damage and predation, as a combined effect, is the more likely scenario for rangewide level impacts to acuña cacti.

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). In delineating the action area, we evaluated the farthest reaching physical, chemical, and biotic effects of the action on the environment.

The action area is larger than the footprint of the project area and represents all areas to be affected directly or indirectly by the proposed actions. Effects from the proposed actions that extend beyond the project area footprint may also extend to adjacent or nearby non-Federal lands and are included as part of the action area.

The action area includes all the Utilities' overhead transmission and distribution power lines on BLM Hassayampa, Kingman, Lake Havasu, Lower Sonoran, Tucson, Safford, and Yuma Field Offices. It includes the permitted ROW as specified in the BLM authorizations where vegetation management treatments will occur and herbicides may be applied.

The extent of the action area boundary includes all vegetation management and maintenance activities that occur within authorized ROWs, hazard tree removal outside of authorized ROWs, access routes on BLM-administered land, adjacent access routes on non-Federal land that vehicles use to gain access to the utility lines on BLM-administered land solely to conduct the authorized activity, and airspace used to access and assess utility lines throughout the Colorado River, Gila, and Phoenix BLM Districts in AZ (Figure 1).

In order to access ROW corridors to conduct vegetation management on BLM administered land, the Utilities may travel over non-BLM land. Vehicle travel across non-Federal lands that are used solely to access BLM lands where the utility line maintenance activities will occur is considered to be part of the action area because the travel is essential to the BLM-authorized activity and therefore also interrelated.

All vegetation within the 1,029 miles of ROWs included in the proposed action has previously been treated manually or mechanically to protect the various power lines and poles across BLM lands. As a result, the vegetation within these habitats is already in a degraded state in comparison to the surrounding areas. No formal section 7 consultations with the USFWS have previously been completed on vegetation maintenance of these ROWs, and our records show informal consultation completed on the 500-3 and 115-3 in Navajo and Pinal counties for vegetation maintenance. This consultation is the first to address the use of herbicides in helping control vegetation growth.

The proposed action occurs within a broad variety of habitats and elevations, and also crosses or is adjacent to major rivers. The proposed action occurs at elevations from 87 feet in the Yuma Field Office to as high as 7,139 feet within the Tucson Field Office. Major rivers involved in the proposed action include the Agua Fria, Bill Williams, Colorado, Gila, Hassayampa, Salt, and San Pedro rivers. Overall, desert habitat is mostly represented within the action area, with creosote bush, paloverde- cacti, and mixed paloverde-cacti-creosote bush communities representing about 78% of the action area (Table 3).

Table 3. Predominant Vegetation Types within the Project Area

Natural Vegetation Type*	Percent of project area
Creosotebush - Bursage (Lower Colorado River Valley) Communities	42%
Mixed Paloverde - Cacti Communities	25%
Mixed Paloverde - Cacti & Creosotebush - Bursage Communities	11%
Shrub - Grass - Scrub Disclimax Communities	5%
Saltbush Communities	4%
Larrea Divaricata - Franseria Dumosa Associations	2%
Joshuatree Communities	2%
Plains Grassland	1%
Pinyon - Juniper Communities	1%
Desert (Scrub) Grassland	1%
Interior Chapparal	1%
Other Vegetation Types	5%

*The vegetation type list includes the predominant vegetation covering 95% of the project area. The remaining 5% includes 26 difference vegetation types with less than 1% of power line ROW occurring within that vegetation type. *Source*: Brown and Lowe (1979)

Status of the species and critical habitat within the action area

Acuña cactus in the action area

Within the action area, a single distribution line occurs within acuña cactus habitat near the Town of Ajo within the BLM's Lower Sonoran Field Office. Acuña cactus habitat has previously been treated within the ROW. There is a total of 0.46 miles and 1.12 acres of ROW within acuña cactus Ajo Unit 2. In 2011, acuña cactus was recorded within 500 feet of this ROW. Species-specific surveys have not yet occurred for acuña cactus within this ROW, but they are planned as part of the proposed action. Also within this acuña cactus habitat are combinations of foothills palo verde (*Parkinsonia microphylla*), saguaro (*Carnegia gigantea*), various cholla species, creosote bush (*Larrea tridentata*), and organ pipe cactus (*Stenocereus thurberi*).

Status of Acuña cactus critical habitat in the action area

The 1.12 acres of acuña cactus habitat within the ROW is designated as acuña cactus critical habitat. The Ajo critical habitat Unit 2 contains 483 acres on BLM-administered lands and the Townsite Subunit of the Ajo unit contains 220 acres on BLM-administered lands. There is a total of 5,977 acres of acuña cactus critical habitat within the BLM's Lower Sonoran and Tucson Field offices. The 1.12 acres of acuña cactus critical habitat represents 0.23 percent of the Ajo critical habitat unit, 0.51 percent of the Townsite Subunit, and 0.008 percent of all acuña cactus critical habitat on BLM-administered lands.

Yellow-billed cuckoo in the action area

Yellow-billed cuckoo habitat occurs at 11 APS power lines across BLM-administered lands (Hassayampa, Tucson, Yuma, and Lower Sonoran Field Offices) in the action area (Table 4).

Six ROWs occur on the Gila River, two on the San Pedro River, and one each on the Hassayampa, Colorado, and Agua Fria rivers. Overall, the total amount of cuckoo habitat occurring within the action area is calculated to be 24.64 acres within 2.79 miles of ROW along five different rivers.

While yellow-billed cuckoos are known to nest along the five streams where cuckoo habitat is identified, these 11 locations are not known to have nesting cuckoos at the specific locations due to the historical removal of riparian vegetation. Migratory cuckoos are known to occur on all of the identified rivers and would be expected to occur briefly along these ROWs, and possibly cuckoos nesting near these ROWs might use these areas for foraging. All identified cuckoo habitat within the action area is also proposed as critical habitat.

Proposed yellow-billed cuckoo critical habitat in the action area
All 11 power lines fall within proposed yellow-billed cuckoo critical habitat. The proposed action identifies a total of 19.47 acres of yellow-billed cuckoo habitat acreage to be treated, of which 15.15 acres were identified as areas that could develop into cuckoo breeding habitat (Table 4). In other words, not all of the 25.64 acres of proposed critical habitat is targeted for treatment and maintenance. The primary constituent elements identified for proposed yellow-billed cuckoo critical habitat contain riverine processes and functions that help to generate the vegetation and insects that cuckoos rely upon.

Table 4. Miles and Acres of APS Power Line in Yellow-Billed Cuckoo Proposed Critical Habitat and Suitable Breeding Habitat

Line Name	Utility	Voltage	River	Field Office	CH Unit	Miles in YBCU Proposed CH	Acreage in Proposed YBCU CH	Acres of ROW to be Treated Adjacent to Suitable Breeding Habitat**
500-2*	APS	500	Agua Fria	Hassayampa	Hassayampa River	0.24	6.09	0
WB 14	APS	Dist.	Hassayampa	Hassayampa	Hassayampa River	0.66	1.58	0
230-16 & M-106	APS	230/69	Gila	Lower Sonoran	Gila and Salt Rivers	0.50	12.05	12.05
M-105 & BZ 03	APS	69/ Dist.	Gila	Lower Sonoran	Gila and Salt Rivers	0.24	2.47	2.47
MT 01*	APS	Dist.	Gila	Yuma	Lower Gila River	0.02	0.04	0
PY 05	APS	Dist.	Gila	Lower Sonoran	Gila and Salt Rivers	0.04	0.68	0
XGK01*	APS	Dist.	Colorado	Yuma	Colorado River	0.02	0.04	0
PAL02	APS	Dist.	San Pedro	Tucson	Lower San Pedro and Gila Rivers	0.06	0.15	0.15
SM 29	APS	Dist.	San Pedro	Tucson	Lower San Pedro and Gila Rivers	1.01	2.54	0.48
Total proposed critical habitat						**2.79**	**25.64**	**15.15**
Total of power line where treatment is proposed						**2.51**	**19.47**	

* Manual, mechanical, and herbicide application is not proposed for the 500-2, MT 01, and XGK01 power line in proposed critical habitat.
**The line WB 14 and PY 05 occur in areas where vegetation adjacent to the ROWs is not suitable for nesting. SM 29 acres were calculated by including only power line that occurs adjacent to suitable nesting habitat.

Southwestern willow flycatcher in the action area

Southwestern willow flycatcher habitat occurs at six APS power lines across BLM-administered lands (Tucson and Lower Sonoran Field Offices) in the action area (Table 5). Two power lines occur on the San Pedro River, one near the Town of San Manuel along the lower San Pedro River (in designated critical habitat) and one farther upstream near the Town of Hereford. Four additional lines occur along the lower Gila River near the towns of Arlington and Buckeye. Overall, the total amount of flycatcher habitat occurring within the action area is calculated to be 15.15 acres.

While southwestern willow flycatchers are known to nest along the San Pedro and Gila rivers, these five locations are not known to have nesting birds at the specific locations due to the historical removal of riparian vegetation. Migratory flycatchers are known to occur on both the San Pedro and Gila rivers and would be expected to occur briefly at these ROWs.

Southwestern willow flycatcher critical habitat in the action area
The SM 29 power line ROW along the lower San Pedro River near the Town of San Manuel is the only portion of the action area to fall within southwestern willow flycatcher designated critical habitat. The proposed action identifies a total of 0.48 acres of flycatcher critical habitat that needs to be removed (Table 5).

The physical and biological features of critical habitat are associated with streams, water, and vegetation such as water, river flow, depth to groundwater, soils, and growth of vegetation. The primary constituent elements include riparian vegetation and insects.

Table 5. APS Power Lines in Southwestern Willow Flycatcher Habitat

Power Line Name	BLM Field Office	Miles	Acres	Critical Habitat	Acres of ROW to be Treated Adjacent to Suitable Breeding Habitat*
SM 29	Tucson FO	1.17	2.83	Yes	0.48
230-16/M-106	Lower Sonoran FO	0.50	12.05	No	12.05
M-105/BZ 03	Lower Sonoran FO	0.24	2.47	No	2.47
PAL 02	Tucson FO	0.06	0.15	No	0.15
Total					15.15

* For SM 29, acres were calculated based on only a small portion of this power line totaling 0.2 mile and 0.48 acre occurs within habitat that is suitable for breeding. For power lines 230-16, M-106, M-105, and BZ 03.

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.

Southwestern willow flycatcher

Overview
The proposed action is anticipated to adversely affect a portion of southwestern willow flycatcher designated critical habitat at one power line, and additionally adversely affect the growth and development of potential flycatcher breeding and migration habitat at five other power lines not designated as critical habitat (overall total of 15.15 acres). The proposed action is expected to prevent the growth of essential riparian habitat (PCEs) that flycatchers require for cover, shelter, breeding, migrating, dispersing, and foraging throughout the life of the project. There are no known nesting flycatchers at the six power lines included in the proposed action due to the long-term historical maintenance of minimal riparian vegetation. As a result of implementing conservation measures limiting duration of time conducting work and minimizing effects from herbicide application combined with the lack of vegetation reaching mid-seral or mature status due to proposed action, we do not anticipate any direct or indirect effects will adversely affect individual flycatchers.

Direct effects
We do not anticipate direct effects to adversely affect breeding or migrating flycatchers from herbicide treatment, vegetation treatment/maintenance, and evaluation of ROWs. No flycatchers are known to breed at the ROWs being treated and are not expected throughout the life of the project, because riparian vegetation has previously been removed at these locations and also because the proposed action is expected to prevent riparian vegetation from developing at these locations in the future.

Any manual vegetation treatments at ROWs within flycatcher habitat will occur outside of the flycatcher breeding season (breeding season is May 1-August 31), which also includes much of the migratory breeding season. As a result, it is not likely that disturbance from manual vegetation treatments will occur to breeding or migrating flycatchers. Any potential disruption to migratory flycatcher behavior from manual treatments would be infrequent and of short duration due to the activities avoiding much of the migratory season and the limited amount of acreage requiring treatment, and as a result the effect is expected to be insignificant.

The expected timing of most herbicidal treatment activities will be outside of the breeding season, avoiding potential disruption of flycatcher foraging, dispersing, migratory, or nearby breeding activity. However, APS may need to occasionally conduct herbicide treatments during the breeding season, but will limit the duration and number of visits. The lack of mid-seral or mature flycatcher breeding habitat at these ROWs prevents reliance of these ROWs for breeding and foraging activities by flycatchers, and combined with the limited amount acreage requiring treatment, any disruption of flycatcher breeding season activities due to herbicidal treatment would be expected to be infrequent and short in duration, and as a result, the effects would be insignificant.

Noise and habitat disruption from aerial inspection of transmission/distribution lines conducted annually are not expected to impact nesting or migratory flycatchers to the extent that they would lead to adverse effects. No flycatchers are known to nest nor are expected to nest in the future within ROWs associated with the action area. It is possible that nearby breeding/foraging flycatchers or migratory flycatchers could occur at ROWs when helicopters pass over flycatcher habitat. However due to the short duration of helicopter impacts (noise and wind) and their infrequent occurrence, we expect the effect from disrupting flycatcher behavior would be insignificant.

Herbicide treatments are not expected to occur during the flycatcher breeding season and most of the migratory season, but the proposed action identifies the possibility that ROWs in flycatcher habitat may require herbicide treatment during the breeding and migratory seasons. Because these treatments will occur manually (with drip and drift controls) and at ground level, there is virtually no risk of directly applying herbicides to flycatchers because flycatchers are not expected to occur at these cleared areas, typically perch and forage higher in the canopy of mid-seral and mature riparian trees, and would be expected to avoid areas of human activity. As a result, we do not expect flycatchers to be directly affected by herbicidal application.

Indirect effects

We do not anticipate any indirect effects to breeding or migrating flycatchers will occur from herbicide treatment, in particular the secondary poisoning of flycatcher from consuming poisoned insects. Stipulations for herbicide treatment will prevent using maximum levels of glyphosate, hexazinone, and triclopyr, will not use 2,4-D, and will appropriately limit the class and toxicity of herbicides. Herbicide will be manually applied with spot treatments of specific individual plants. These herbicidal controls and manual application to individual plants will prevent the spraying of insects flycatchers rely upon, and as a result, we anticipate any indirect effects associated with herbicide application will be insignificant.

The proposed action will remove riparian vegetation in areas where flycatchers could potentially nest, forage, rest, and use as cover at six ROWs across BLM administered lands, totaling just over 15 acres. These ROWs occur in both the San Pedro/Gila and Agua Fria/Hassayampa Flycatcher Management Units described in the Recovery Plan, where we have established numerical and habitat-related goals (USFWS 2002). The removal of this habitat is not expected to be temporal, because the goal of the project is to prevent riparian trees from reaching the mid-seral and mature status for the life of the power line systems. The acreage of the overall habitat is relatively minor when compared to the overall abundance and dynamic nature of riparian vegetation in AZ and these management units. However, the amount is measurable and not insignificant due to the long-term nature and goals of the project. As result, we conclude that the removal of flycatcher habitat and long-term maintenance of these ROWs within flycatcher management units where numerical and habitat-related goals exists results in an overall adverse effect to the flycatcher's recovery.

Critical habitat

The goal of the project is to maintain cleared ROWs for power lines through manual and herbicide treatments and maintenance, and as a result, those goals will result in the removal

of riparian species (cottonwood and willow) that flycatchers rely upon and are identified as PCEs of designated critical habitat. The proposed action occurs within about 2.8 acres (1.17 miles) of flycatcher critical habitat within the San Pedro/Gila Management Unit and is expected to result in the continued treatment of about 0.5 acres of riparian habitat. The removal and continued treatment of this vegetation is anticipated to be an adverse effect to riparian plant species and insects identified as the primary constituent elements of designated flycatcher critical habitat.

Herbicidal treatment to riparian trees at ground level could potentially impact insects, but due to the targeted and manual application of herbicides with low toxicity and drip/drift controls, we do not anticipate impacts from herbicide application to noticeably impact insects.

From the Utilities preventing the growth and establishment of riparian plant species within these 2.8 acres of flycatcher critical habitat, we anticipate adverse impacts to the physical and biological features focused on the development of riparian plants. However, due to the relatively small amount of riparian habitat being affected, and the overall dynamic and patchy presence of riparian vegetation, we do not anticipate the removal of approximately 0.5 acres of riparian vegetation within 2.8 acres of designated critical habitat will impact the broader physical or biological features of critical habitat associated with water, soils, groundwater, river flow, etc. and the ability of the San Pedro River to grow and establish riparian habitat elsewhere outside of the ROWs.

Overall, the approximate 2.8 acres of flycatcher critical habitat within the proposed project is a small fraction of the overall amount of vegetation found within the project's action area (7,664 acres). Additionally, the 0.5 acres of riparian vegetation treated within 1.17 miles of flycatcher critical habitat is also a small fraction of the vegetation occurring within the 78.4 miles of designated critical habitat within the Gila/San Pedro Management Unit.

<u>Yellow-billed cuckoo</u>

Overview

The proposed action is anticipated to adversely affect a portion of yellow-billed cuckoo habitat, which is also entirely proposed as critical habitat at 11 power lines (overall total of 19.47 acres of which 15.15 acres is currently within areas of suitable habitat). The proposed action is expected to prevent the growth of essential riparian habitat that cuckoos require for cover, shelter, breeding, migrating, dispersing, and foraging throughout the life of the project. There are no known cuckoos that have placed nests within these 11 power lines included in the proposed action due to the long-term historical maintenance of minimal riparian vegetation. Implementing conservation measures that limit the duration of time to conduct work and minimize drift or contamination effects from herbicide application, combined with the lack of vegetation reaching mid-seral or mature status due to proposed action, should minimize any direct or indirect effects to individual cuckoos.

Direct effects

We do not anticipate direct effects to adversely affect breeding or migrating cuckoos from herbicide treatment, vegetation treatment/maintenance, and evaluation of ROWs. No

cuckoos are known to have nested within the ROWs being treated and are not expected throughout the life of the project, because mature riparian vegetation has previously been removed at these locations and the proposed action is expected to prevent mature riparian vegetation from developing at these locations in the future.

Any manual vegetation treatments at ROWs within areas of suitable cuckoo breeding habitat will occur outside of the cuckoo breeding season (breeding season is May 15-September 30). As a result, it is not likely that disturbance from manual vegetation treatments will occur to nearby breeding cuckoos. Any potential disruption to migratory cuckoo behavior from manual treatments would be infrequent and of short duration due to the limited amount of acreage requiring treatment, and as a result the effect is expected to be insignificant.

The expected timing of most herbicidal treatment activities will be outside of the breeding season, avoiding potential disruption of cuckoo foraging, dispersing, migratory, or nearby breeding activity. However, APS may need to occasionally conduct herbicide treatments during the breeding season, but will limit the duration and number of visits. The lack of developed cuckoo breeding habitat at these ROWs prevents reliance of these ROWs for breeding and foraging activities by cuckoos, and combined with the limited amount acreage requiring treatment, any disruption of cuckoo breeding season activities due to herbicidal treatment would be expected to be infrequent and short in duration, and as a result, the effects would be insignificant.

Noise and habitat disruption from aerial inspection of transmission/distribution lines conducted annually are not expected to impact nesting or migratory cuckoos to the extent that they would lead to adverse effects. No cuckoos are known to have placed nests norare expected to nest in the future within ROWs associated with the action area. It is possible that nearby breeding/foraging cuckoos or migratory cuckoos could occur at ROWs when helicopters pass over cuckoo habitat. However due to the short duration of helicopter impacts (noise and wind) and their infrequent occurrence, we expect the effect from disrupting cuckoo behavior would be insignificant.

Herbicide treatments are not expected to occur during the critical cuckoo breeding season (June 1 – September 30), but the proposed action identifies the possibility that ROWs in cuckoo habitat may require herbicide treatment during that critical period of time. Because these treatments will occur manually (with drip and drift controls) and at ground level, there is virtually no risk of directly applying herbicides to cuckoos because cuckoos are not expected to occur at these cleared areas, typically occur higher in the canopy of mature riparian trees, and would be expected to avoid areas of human activity. As a result, we do not expect cuckoos to be directly affected by herbicidal application.

Indirect effects

We do not anticipate any indirect effects to breeding or migrating cuckoos will occur from herbicide treatment, in particular the secondary poisoning of cuckoos from consuming poisoned insects. Stipulations for herbicide treatment will prevent using maximum levels of glyphosate, hexazinone, and triclopyr, will not use 2,4-D, and will appropriately limit the class and toxicity of herbicides. Herbicide will be manually applied with spot treatments of

specific individual plants. These herbicidal controls and manual application to individual plants will prevent the spraying of insects cuckoos rely upon, as a result, we anticipate any indirect effects associated with herbicide application will be insignificant.

The proposed action will remove riparian vegetation in areas where cuckoos could potentially nest, forage, rest, and use as cover at 11 power lines (totaling 9 ROWs) across BLM administered lands, totaling almost 20 acres. The removal of this habitat is not expected to be temporal, because the goal of the project is to prevent riparian trees from reaching the mid-seral and mature status for the life of the project. The acreage of the overall habitat is relatively minor when compared to the overall abundance and dynamic nature of riparian vegetation in Arizona. However, the amount is measurable and not insignificant due to the long-term nature and goals of the project. As result, we conclude that the removal of cuckoo habitat and long-term maintenance of these ROWs is an overall adverse effect to cuckoo recovery.

Proposed yellow-billed cuckoo critical habitat
The goal of the project is to maintain cleared ROWs for power lines through manual and herbicide treatments and maintenance, and as a result, those goals will result in the removal of riparian species (such as cottonwood and willow) that cuckoos rely upon and are identified as PCEs of designated critical habitat. The proposed action occurs within about 25 acres (2.79 miles) of proposed cuckoo critical habitat and is expected to result in the continued treatment of about 19.47 acres of riparian habitat (15.15 acres that are currently considered as suitable areas for breeding cuckoos). The removal and maintenance of this vegetation is anticipated to result in an adverse effect to riparian plant species and to insects that rely upon vegetation identified as a primary constituent element of proposed yellow-billed cuckoo critical habitat.

Herbicidal treatment to riparian trees at ground level could potentially impact insects, but due to the targeted and manual application of herbicides with low toxicity and drip/drift controls, we do not anticipate impacts from herbicide application to noticeably impact insects.

Due to the relatively small amount of habitat being affected, and the overall dynamic and patchy presence of riparian vegetation, we do not anticipate the removal of approximately 19.47 acres of riparian vegetation will impact the function of the streams and their ability to grow and establish riparian habitat elsewhere outside of the ROWs.

Overall, the approximate 19.47 acres of proposed critical habitat affected by the proposed project is a small fraction of the overall amount of proposed critical habitat found within the project's action area (42,084 acres) and 546, 335 acres for the entire proposed designation across nine states.

<u>Acuña cactus</u>

Overview
We do not expect any individual acuña cactus plants will be adversely affected from the proposed action due to the implementation of conservation measures. While the amount of

acuña cactus habitat within the action area is a relatively small amount (just over an acre), we do expect adverse effects to the cactus' conservation and recovery due to the long-term alteration of designated critical habitat.

Direct effects
We do not anticipate acuña cactus will be adversely affected from the direct effects of vehicles and human access conducting ROW treatment and maintenance. Some of the essential conservation measures implemented to prevent adverse direct affects include pre-treatment surveys for acuña cactus by experienced biologists/botanists; flagged buffer areas for identified plants; training for work crews on acuña cactus identification, avoidance, and conservation measures; and restrictions on vehicle use/location. Due to the implementation of the variety of conservation measures designed to identify, protect, and restrict access around acuña cactus, we anticipate any impacts from vehicles and human access into acuña cactus habitat will be discountable.

Acuña cactus is not a targeted species for herbicide treatment or removal, and a variety of conservation measures will be implemented to prevent herbicides from affecting acuña cactus. For example, pre-treatment surveys will occur to identify and flag acuña cactus buffer areas; drift and drip control manual techniques will be used to limit herbicide application; manual cut stump methods will be implemented to limit exposure; and the use of a variety of herbicide compounds will be restricted. More explicitly, the herbicides diuron, picloram, bromacil, hexazinone, and tebuthiuron will not be used in occupied acuña cactus habitat, and 2,4-D and diuron will be restricted within 300 feet of occupied acuña cactus habitat. Preventing use of these herbicides will prevent prolonged persistence in soils and uptake by plant roots. Implementing cut stump treatments will be a more selective way to treat vegetation, preventing broadcast of herbicides to non-target plants and acuña cacti. Due to the implementation of the variety of conservation measures limiting the application and toxicity of herbicides, we anticipate any direct impacts to acuña cactus from herbicide application will be discountable.

We also do not anticipate that manual removal of vegetation within the ROW will directly impact acuña cactus. Pre-treatment surveys and implementation of flagged buffer areas will identify all existing cacti, and additional examination under targeted vegetation should discover any hidden cacti covered by nurse plants. If any of these nurse trees are detected, they will not be removed, only pruned. Mechanical mowers will not be used to remove vegetation, but instead manual cutting will occur. These selective measures to remove vegetation will prevent cacti from any direct impacts from the removal of vegetation, and as result we anticipate any impact will be discountable.

Indirect effects
Due to a collection of conservation measures and the limited acreage of acuña cactus habitat (1.12 acres) within the action area, the indirect effects to acuña cactus and its habitat from vegetation treatment and maintenance will be minimized, but not eliminated. Five poles within the ROW may require complete vegetation clearing (palo verde, creosote, etc.) to create defensible space within the ROW (as long as acuña cactus are not found within a 10 foot radius of the poles). The potential clearing of these defensible spaces could represent

about 0.04 acres. Within this ROW, the plants targeted for removal and maintenance include palo verde and creosote bush. These plants are an essential part of acuña cactus habitat, and provide protection for developing acuña cactus. Trees supporting any existing acuña cactus that may be detected are expected to persist and will only require pruning and not removal. Buffer areas will also be placed around existing plants. However, elsewhere throughout the ROW, the removal of these trees/plants can be expected to degrade overall acuña cactus habitat quality and limit, to a small, but measurable degree, its recovery. Again, while we emphasize that the overall amount of vegetation being removed is small, the proposed action is not temporal, but rather a long-term removal of vegetation and alteration of habitat acuña cactus rely upon within its limited distribution.

Effects to acuña cactus critical habitat
Due to the proposed conservation measures, we anticipate the impacts from vegetation treatment and maintenance at the single ROW within acuña cactus critical habitat will be minimized, but not eliminated. Overall, the proposed action is expected to remove, treat, and maintain degraded conditions within 1.12 acres of acuña cactus designated critical habitat. This acreage is a small proportion of the Ajo critical habitat Unit (0.23 percent) and Townsite Subunit (0.51 percent). The removal of palo-verde and creosote bush and clearing of vegetation surrounding poles to create defensible space will adversely affect PCE number 1, by altering the overall Palo Verde-Cacti-Mixed Scrub habitat that acuña cactus can rely upon for establishment and protection. Because the proposed action is expected to impact PCE number 1 and prevent essential plants from establishing and growing for the foreseeable future within the limited range that these cacti can become established, we conclude that this is a measurable adverse effect to designated acuña cactus critical habitat.

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.

Southwestern willow flycatcher
Non-Federal activities that are reasonably certain to occur, which could impact flycatchers, include: various forms of recreation; agricultural land and water use; water diversions; and wildfire originating on or off public lands. These activities may contribute as cumulative effects to the proposed action and further reduce the quality and quantity of flycatcher habitat, including those physical and biological features and primary constituent elements of critical habitat associated with riparian habitat and its establishment and growth.

Yellow-billed cuckoo
Non-Federal activities that are reasonably certain to occur, which could impact cuckoos, include: various forms of recreation; agricultural land and water use; water diversions; and wildfire originating on or off public lands. These activities may contribute as cumulative effects to the proposed action and further reduce the quality and quantity of cuckoo habitat, including those physical and biological features and primary constituent elements of proposed critical habitat associated with riparian habitat and its establishment and growth.

Acuña cactus
Non-Federal activities that are reasonably certain to occur, which could impact acuña cactus and its designated critical habitat, include: actions that spread noxious and invasive weeds into habitats, and recreation such as off-road vehicle use. These activities may contribute as cumulative effects to the proposed action and further reduce the quality and quantity of acuña cactus habitat, including those physical and biological features and primary constituent elements of critical habitat associated with maintaining native plant assemblages.

CONCLUSION

After reviewing the current status of the southwestern willow flycatcher, yellow-billed cuckoo, and acuña cactus, the environmental baseline for the action area, the effects of the proposed action (vegetation treatment and maintenance of APS/SRP ROWs on BLM lands in AZ) and the cumulative effects, it is our biological opinion that the action, as proposed, is not likely to jeopardize the continued existence of the flycatcher, cuckoo, or acuña cactus, and is not likely to destroy or adversely modify designated critical habitat for the flycatcher and acuña cactus, or proposed yellow-billed cuckoo critical habitat. We base this conclusion on the following:

Southwestern willow flycatcher

- Conservation measures associated with the timing of activities, vegetation treatment, and herbicidal control will limit the effects to targeted plants within the ROW, and prevent disturbance and effects to extend to individual birds and food.
- The approximate 13-14 acres of flycatcher habitat requiring treatment outside of flycatcher critical habitat is a small fraction of vegetation that exists along the length of the lower Gila River from the Agua Fria River confluence down to Painted Rock Reservoir (over 60 miles) within the Hassayampa/Agua Fria Management Unit.
- The 0.5 acres treated within the 1.17 miles and 2.8 acres of flycatcher critical habitat is a small fraction of the vegetation occurring within the 78.4 miles of designated critical habitat within the Gila/San Pedro Management Unit.
- The critical habitat to be treated within the 1.17 miles/2.8 acres of flycatcher critical habitat along the San Pedro River and the 13-14 acres outside of critical habitat along the lower Gila River is anticipated to remain in a degraded state for the length of the proposed action and the foreseeable future for as long as the power lines exist. The overall small area and amount of vegetation is not anticipated to prevent the San Pedro/Gila Management Unit from functioning for the conservation of the flycatcher, nor the Hassayampa/Agua Fria Management Unit from reaching the habitat and numerical goals established in the Recovery Plan.

Yellow-billed cuckoo

- Conservation measures associated with the timing of activities, vegetation treatment, and herbicidal control will limit the effects to targeted plants within the ROW, and prevent disturbance and effects to extend to individual birds and food.
- The approximate 20 acres treated within the 25 acres of proposed cuckoo critical habitat is anticipated to remain in a degraded state for the length of the proposed action and the foreseeable future for as long as the power lines exist. However that

amount is a small fraction of the vegetation occurring within the 42,084 critical habitat acres proposed on AZ BLM lands and the 546,335 proposed acres across its breeding range. Due to the small amount of overall vegetation being removed and because the removal is not expected to alter critical habitat function elsewhere for the cuckoo, and we anticipate that proposed critical habitat will continue to function in its conservation role for the cuckoo.

Acuña cactus

- Conservation measures associated with pre-treatment surveys, flagged buffer areas, examination of nurse plants, vegetation treatment methodology, and herbicidal control will limit the effects to specific targeted plants within the ROW, and prevent effects to extend to individual acuña cactus, roots, and the soil.
- The proposed action is expected to remove, treat, and maintain degraded conditions within 1.12 acres of acuña cactus designated critical habitat for the length of the proposed action and the foreseeable future for as long as the power lines exist. This acreage is a small proportion of the Ajo Unit (0.23 percent) and Townsite Subunit (0.51 percent) and the overall 18,535 ac designated as critical habitat. The removal of palo-verde and creosote bush and clearing of vegetation surrounding poles to create defensible space within this area will not affect the function of critical habitat outside of the ROW, nor the overall ability of critical habitat to function for acuña cactus conservation.

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. "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.

We do not expect incidental take will occur of the southwestern willow flycatcher or the yellow-billed cuckoo.

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.

AMOUNT OR EXTENT OF TAKE

The USFWS does not anticipate the proposed action will incidentally take any southwestern willow flycatchers or yellow-billed cuckoos for the following reasons:

- The lack of habitat within ROWs for the southwestern willow flycatcher and yellow-billed cuckoos due to previous treatment and maintenance of vegetation is the primary reason why no incidental take is anticipated from the proposed action of continuing to remove developing riparian trees.
- Additional conservation measures associated with limiting access and restrictions on timing of treatments and application of herbicides contributes to reducing impacts to these riparian birds and their insect-based diet.

The Fish and Wildlife Service will not refer the incidental take of any migratory bird or bald eagle for prosecution under the Migratory Bird Treaty Act of 1918, as amended (16 U.S.C. § 703-712), or the Bald and Golden Eagle Protection Act of 1940, as amended (16 U.S.C. § 668-668d), if such take is in compliance with the terms and conditions (including amount and/or number) 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.

Yellow-billed cuckoo

1. We recommend that BLM, APS, and SRP continue to monitor changing habitat conditions, rules/regulations, and status of the cuckoo and fund or conduct protocol surveys in appropriate areas within the action area to determine the presence/status of yellow-billed cuckoos.

2. We recommend that BLM, APS, and SRP continue to cooperate with agencies to conduct research to understand vital yellow-billed cuckoo habitat requirements, response to changing habitat conditions, home range, foraging strategies, and other

important life history information that would contribute to the management and recovery of their habitat and analysis of potential effects from proposed projects.

Southwestern willow flycatcher

1. We recommend that BLM, APS, and SRP continue to monitor changing habitat conditions, rules/regulations, and status of the flycatcher and fund or conduct protocol surveys in appropriate areas within the action area to determine the presence/status of flycatchers.

2. We recommend BLM, APS, and SRP implement conservation strategies and recovery actions identified in the Recovery Plan to improve the distribution and abundance of breeding southwestern willow flycatchers.

Acuña cactus

1. We recommend BLM, APS, and SRP continue to monitor any possible change in habitat, range extensions, rules/regulations, and status of acuña cactus to fund or search in appropriate acuña cactus habitat within and surrounding ROWs in order to identify and protect cacti.

2. We recommend that BLM re-evaluate actions or conditions that may affect acuña cacti and their habitat such as off-road vehicle use, non-native plant abundance, to proactively identify and minimize potential threats to the cactus and its habitat.

3. We recommend that the BLM, APS, and SRP provide AGFD's Heritage Data Management System and the USFWS's species lead with any acuña cactus detection and location information.

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

REINITIATION NOTICE

Conferences

This concludes the conference for proposed yellow-billed cuckoo critical habitat from APS and SRP's vegetation treatment and maintenance of ROWs on BLM lands. You may ask us to confirm the conference opinion as a biological opinion issued through formal consultation if the proposed species is listed or critical habitat is designated. The request must be in writing. If we review the proposed action and find there have been no significant changes in the action as planned or in the information used during the conference, we will confirm the conference opinion as the biological opinion for the project and no further section 7 consultation will be necessary.

After designation of critical habitat and any subsequent adoption of this conference opinion, the BLM shall request reinitiation of consultation if: (1) new information reveals effects of the agency action that may affect the critical habitat in a manner or to an extent not considered in the conference opinion; (2) the agency action is subsequently modified in a manner that causes an effect to the critical habitat that was not considered in this opinion; or (3) a new species is listed or critical habitat designated that may be affected by the action.

Formal Consultations

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

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

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

In keeping with our trust responsibilities to American Indian Tribes, we encourage you to continue to coordinate with the Bureau of Indian Affairs in the implementation of this consultation and, by copy of this biological opinion, are notifying the following Tribes of its completion (Ak-Chin Indian Community, Cocopah Indian Tribe, Colorado River Indian Tribes, Fort Mojave Indian Tribe, Havasupai Tribe, Hopi Tribe, Hualapai Tribe, Navajo Nation, Pascua Yaqui Tribe, Quechan Tribe, San Carlos Apache Tribe, Tohono O'odham Nation, White Mountain Apache Tribe, Chemehuevi Tribe, Gila River Indian Community).

We also encourage you to coordinate the review of this project with the Arizona Game and Fish Department.

We appreciate the BLMs efforts to identify and minimize effects to listed species from this project. Please refer to the consultation number, 02EAAZ00-201X-F-0011 in future correspondence concerning this project. Should you require further assistance or if you have any questions, please contact Greg Beatty (602-889-5941) or Brenda Smith (928-556-2157).

Brenda L. Smith

for Steven L. Spangle

cc (electronic):

Codey Carter, Bureau of Land Management, Phoenix, AZ
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Ruth Valencia, Salt River Project, Phoenix, AZ
Lisa Young, Arizona Public Service, Phoenix, AZ
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Robert Valencia, Chairman, Pascua Yaqui Tribe, Tucson, AZ
Michael Jackson, Sr., President, Quechan Tribe, Yuma, AZ
Terry Ramble, Chairman, San Carlos Apache Tribe, San Carlos, AZ
Edward D. Manuel, Chairman, Tohono O'odham Nation, Sells, AZ
Ronnie Lupe, Chairman, White Mountain Apache Tribe, Whiteriver, AZ
Charles F. Wood, Chairman, Chemehuevi Tribe, Havasu Lake, CA
Timothy Williams, Chairperson, Fort Mojave Indian Tribe, Needles, CA

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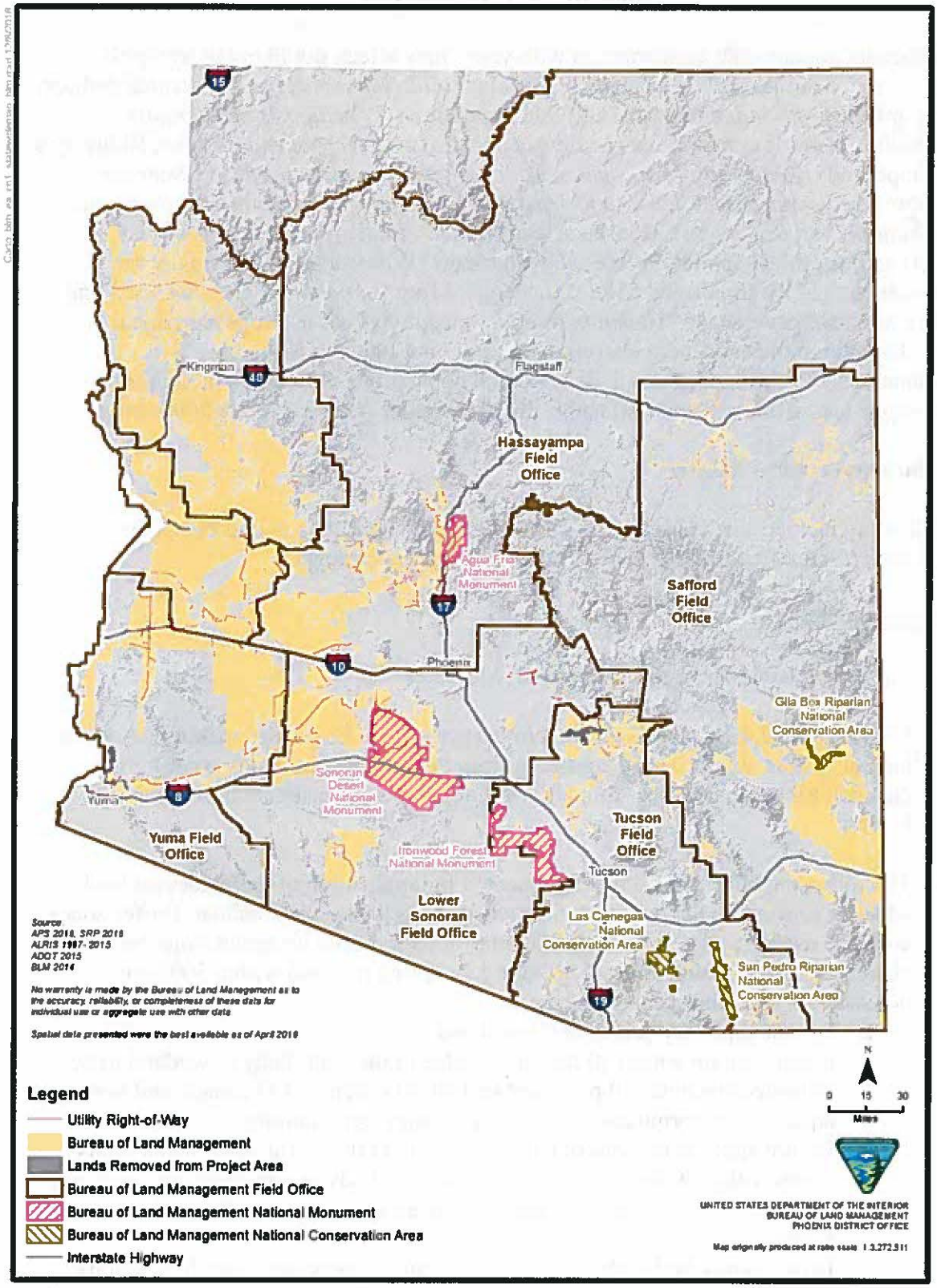

Figure 1. Overview Map of Project Area: Utility Lines and BLM Field Office Boundaries.

Appendix A: Concurrences

This appendix contains our concurrences with your "may affect, not likely to adversely affect" determinations for the endangered Gila chub (*Gila intermedia*) and its critical habitat, desert pupfish (*Cyprinodon macularius*), Gila topminnow (*Poeciliopsis occidentalis occidentalis*), lesser long-nosed bat (*Leptonycteris curasoae yerbabuenae*), Yuma Ridgway's rail (clapper rail) (*Rallus obsoletus yumanensis*), ocelot (*Leopardus pardalis*), Sonoran pronghorn (*Antilocapra americana sonoriensis*), Arizona hedgehog cactus (*Echinocereus triglochidiatus* var. *arizonicus*), Huachuca water-umbel (*Lilaeopsis schaffneriana ssp. recurva*) and its critical habitat, Peebles Navajo cactus (*Pediocactus peeblesianus* var. *peeblesianus*); and the threatened Chiricahua leopard frog (*Lithobates chiricahuensis*) and northern Mexican gartersnake (*Thamnophis eques megalops*) and its proposed critical habitat. In addition, this appendix also contains your "not likely to jeopardize determinations" for the experimental, nonessential populations of Sonoran pronghorn (*Antilocapra americana sonoriensis*) and California condor (*Gymnogyps californianus*).

Gila chub and critical habitat

The following includes the conservation measures for the Gila chub and its designated critical habitat identified in the proposed action and our concurrence.

Conservation measures

1. Implement Riparian Area Conservation Measures.

2. Do not apply 2,4-D, glyphosate, and imazapyr aquatic herbicides within the species habitat; within at least 1 mile upstream from the habitat area in any contributing channel, tributary, or spring run; and within 300 feet downstream of the species habitat.

3. The following buffers shall be implemented for application of herbicides on land adjacent to waterbodies and wetlands that serve as the species' habitat. Buffer zones are to be used for all of the species' habitat, at least 1 mile upstream from the habitat area in any contribution channel, tributary, or spring run, and within 300 feet downstream from the species' habitat.
    a. Do not apply herbicides of Class 0 and 1 toxicity in the warm water fish toxicity group within 10 feet of the edge of the waterbody or wetland to be protected (includes all proposed herbicides except 2,4-D aquatic and non-aquatic ester formulation and triclopyr ester formulation).
    b. Do not apply herbicides of Class 2 toxicity in the warm water fish toxicity group within 50 feet of the edge of the waterbody or wetland to be protected (includes 2,4-D aquatic and non-aquatic ester formulation and triclopyr ester formulation).
    c. Do not apply herbicides of Class 3 toxicity in the warm water fish toxicity group within 100 feet of the edge of the waterbody or wetland to be protected

(no herbicides are proposed currently with Class 3 toxicity in the warm water fish toxicity group).

We concur with your determination that the proposed action may affect, but is not likely to adversely affect, the Gila chub and its critical habitat. We base this concurrence on the following:

- Herbicide impacts to Gila chub aquatic food or habitat are discountable because ROW vegetation management and application of herbicides will be applied with drift and drip controls approximately 0.4 miles away (at its closest) to occupied Lousy Canyon, Silver Creek and Larry Creek and 700 feet away and high above ridges outside of the stream channel.
- We do not anticipate ROW vegetation treatment and maintenance will cause effects to Gila chub stream habitat because there is no vegetation planned for treatment within Larry Creek, Silver Creek or Lousy Canyon.
- We do not anticipate any direct effects from aerial surveys, vehicle access, or vegetation maintenance/treatment along ROWs to Gila chub because the closest ROW to evaluate/treat/maintain is 0.4 miles away from Gila chub habitat, and there is no vegetation treatment planned within Larry Creek, Silver Creek, and Lousy Canyon.
- We do not anticipate adverse effects to Gila chub critical habitat and the primary constituent elements (water flow/abundance/quality/temperature, stream function, exotic species, or food) because conservation measures, such as low toxicity herbicidal use with drift and drip controls will be implemented, and the proposed action (herbicide treatment, vegetation treatment/management) will occur outside of any Gila chub stream channel and greater than 0.9 to 1.7 miles from critical habitat.

Desert pupfish

The following includes the conservation measures for the desert pupfish identified in the proposed action and our concurrence.

<u>Conservation measures</u>

1. Implement Riparian Area Conservation Measures.

2. Do not apply 2,4-D, glyphosate, and imazapyr aquatic herbicides within the species habitat, within at least 1 mile upstream from the habitat area in any contributing channel, tributary, or spring run, and within 300 feet downstream of the species habitat.

3. The following buffers shall be implemented for application of herbicides on land adjacent to waterbodies and wetlands that serve as the species' habitat. Buffer zones

are to be used for all of the species' habitat, at least 1 mile upstream from the habitat area in any contribution channel, tributary, or spring run, and within 300 feet downstream from the species' habitat.

a. Do not apply herbicides of Class 0 and 1 toxicity in the warm water fish toxicity group within 10 feet of the edge of the waterbody or wetland to be protected (includes all proposed herbicides except 2,4-D aquatic and non-aquatic ester formulation and triclopyr ester formulation).
b. Do not apply herbicides of Class 2 toxicity in the warm water fish toxicity group within 50 feet of the edge of the waterbody or wetland to be protected (includes 2,4-D aquatic and non-aquatic ester formulation and triclopyr ester formulation).
c. Do not apply herbicides of Class 3 toxicity in the warm water fish toxicity group within 100 feet of the edge of the waterbody or wetland to be protected (no herbicides are proposed currently with Class 3 toxicity in the warm water fish toxicity group).

We concur with your determination that the proposed action may affect, but is not likely to adversely affect the desert pupfish. We base this concurrence on the following:

- Herbicide impacts to desert pupfish and their aquatic food or habitat are discountable because ROW vegetation management and application of herbicides will be applied with drip and drift controls approximately 0.4 to 0.5 miles away (at its closest) to desert pupfish habitat within Lousy Canyon and Larry Creek, and 700 feet away and high above ridges outside of the stream channel.

- We do not anticipate ROW vegetation treatment and maintenance causing effects to desert pupfish stream habitat, because there is no vegetation planned for treatment within Larry Creek or Lousy Canyon.

- We do not anticipate any direct effects from aerial surveys, vehicle access, or vegetation maintenance/treatment along ROWs to desert pupfish because the closest transmission line to evaluate/treat/maintain is 0.4 to 0.5 miles away from desert pupfish habitat, and there is no vegetation treatment planned within Larry Creek and Lousy Canyon.

Gila topminnow

The following includes the conservation measures for the Gila topminnow identified in the proposed action and our concurrence.

<u>Conservation measures</u>

1. Implement Riparian Area Conservation Measures.

2. Do not apply 2,4-D, glyphosate, and imazapyr aquatic herbicides within the species habitat; within at least 1 mile upstream from the habitat area in any contributing

channel, tributary, or spring run; and within 300 feet downstream of the species habitat.

3. The following buffers shall be implemented for application of herbicides on land adjacent to waterbodies and wetlands that serve as the species' habitat. Buffer zones are to be used for all of the species' habitat, at least 1 mile upstream from the habitat area in any contribution channel, tributary, or spring run, and within 300 feet downstream from the species' habitat.
    a. Do not apply herbicides of Class 0 and 1 toxicity in the warm water fish toxicity group within 10 feet of the edge of the waterbody or wetland to be protected (includes all proposed herbicides except 2,4-D aquatic and non-aquatic ester formulation and triclopyr ester formulation).
    b. Do not apply herbicides of Class 2 toxicity in the warm water fish toxicity group within 50 feet of the edge of the waterbody or wetland to be protected (includes 2,4-D aquatic and non-aquatic ester formulation and triclopyr ester formulation).
    c. Do not apply herbicides of Class 3 toxicity in the warm water fish toxicity group within 100 feet of the edge of the waterbody or wetland to be protected (no herbicides are proposed currently with Class 3 toxicity in the warm water fish toxicity group).

We concur with your determination that the proposed action may affect, but is not likely to adversely affect the Gila topminnow. We base this concurrence on the following:

- Herbicide impacts to Gila topminnow and their aquatic food or habitat are discountable because ROW vegetation management and application of herbicides will be applied with drip and drift controls approximately 0.4 to 0.5 miles away (at its closest) to Gila topminnow habitat within Lousy Canyon and Larry Creek and 700 feet away and high above ridges outside of the stream channel.

- We do not anticipate ROW vegetation treatment and maintenance causing effects to Gila topminnow stream habitat because there is no vegetation planned for treatment within Larry Creek or Lousy Canyon.

- We do not anticipate any direct effects from aerial surveys, vehicle access, or vegetation maintenance/treatment along ROWs to Gila topminnow because the closest transmission line to evaluate/treat/maintain is 0.4 to 0.5 miles away from Gila topminnow habitat, and there is no vegetation treatment planned within Larry Creek and Lousy Canyon.

Lesser long-nosed bat

The following includes the conservation measures for the lesser long-nosed bat identified in the proposed action and our concurrence.

Conservation measures

1. Instruct all field personnel on the identification of lesser long-nosed bat forage plants, including agave and columnar cacti, and the importance of their protection. In the project area important forage plants for lesser long-nosed bats are: saguaro cactus (*Carnegia gigantea*), organ pipe cactus (*Stenocereus thurberi*), and various species of agave.

2. Avoid driving over lesser long-nosed bat forage plants, including agave and young columnar cacti, during herbicide application.

3. In lesser long-nosed bat habitat, do not apply herbicides when drift onto forage plants is likely.

We concur with your determination that the proposed action may affect, but is not likely to adversely affect the lesser long-nosed bat. We base this concurrence on the following:

- Within the action area, no power lines occur within the immediate vicinity of lesser long-nosed bat roosting or maternity colonies. As a result, we do not expect that lesser long-nosed bat roosts or maternity sites would be harmed or harassed by the proposed action.

- Aerial surveys and maintenance along the power line corridors will occur during daylight hours, preventing disturbance to night-time foraging lesser long-nosed bats.

- Herbicides applied during the daylight hours will not come in contact with individual lesser long-nosed bats, since bats are only active during crepuscular and night-time hours.

- Due to their slow growth and low density, agave and columnar cacti (plants used by foraging bats) are not the primary targets of transmission line and distribution pole vegetation maintenance, and most will persist within ROWs throughout the action. However, select columnar cacti and agave that have grown too tall may be removed or trimmed with manual techniques (not herbicides). As a result of the broad distribution of columnar cacti and agaves, but their low density within ROW maintenance areas, we anticipate the effects to foraging and pollinating lesser long-nosed bats from removing or trimming these select plants will be insignificant.

- Application of herbicides on plants adjacent or near columnar cacti and agaves are not likely to affect lesser long-nosed bats and the plants they rely upon. Columnar cacti and agaves will not be treated with herbicides. Herbicide application will occur on plants closer to the ground and not at elevated portions of the cacti or agaves (where fruit, nectar, and pollen occur). The use of drift control (special nozzles and low volumes) and drip control agents within the herbicide (Thinvert) minimizes drift away from non-target plants and drip into the soil. Due to the use of the above

described methods and conservation measures, the indirect effects of herbicide application to lesser-long nosed bats and its habitat are anticipated to be insignificant.

Yuma Ridgway's rail (clapper rail)

The following includes the conservation measures for the Yuma Ridgway's rail identified in the proposed action and our concurrence.

Conservation measures

1. Implement Riparian Area Conservation Measures found within suitable habitat for Yuma clapper rail.

2. Do not conduct manual vegetation maintenance activities within suitable habitat for Yuma clapper rail during the breeding season from February 1 to July 31.

3. Do not use 2, 4-D, glyphosate or imazapyr inside waterbodies or wetlands serving as Yuma clapper rail habitat, within at least 0.5 miles upstream from the habitat area in any contributing channel, tributary, or spring run, and within 300 feet of the species' habitat.

4. The following buffers shall be implemented for application of herbicides on land adjacent to water bodies and wetlands that serve as Ridgeway rail habitat. Buffer zones are to be used for all the species habitat, at least 0.5 miles upstream from the habitat area in any contribution channel, tributary, or spring run, and within 300 feet downstream from species habitat.
    a. Herbicides rated as Class 0 in the warm water fish toxicity group may be applied at the edge of the waterbody or wetland to be protected (includes aminopyralid, chlorsulfuron, clopyralid, 2,4-D aquatic and nonaquatic amine salt formulations, glyphosate aquatic formulation, hexazinone, imazapic, imazapyr, and triclopyr amine salt formulation).
    b. Do not apply herbicides of Class 1 toxicity in the warm water fish toxicity group within 10 feet of the edge of the waterbody or wetland to be protected (includes bromacil, dicamba, diuron, fluroxypyr, glyphosate non-aquatic formulation, metsulfuron methyl, picloram, sulfometuron methyl, and tebuthiuron).
    c. Do not apply herbicides of Class 2 and 3 toxicity in the warm water fish toxicity group within 20 feet of the edge of the waterbody or wetland to be protected (includes 2,4-D ester formulations and triclopyr ester formulation).

5. For APS lines 230-16 and M-106, do not drive ATVs within 50 m of river channels and open water marsh habitat during the breeding season of February 1 to July 31 except on existing roads that are open to the public.

6. For APS lines 230-16 and M-106, avoid herbicide application during critical times of the nesting season from February 1 to July 31 whenever possible. If herbicide

application is necessary during the nesting season, ensure work is conducted with the least number of trips in and out and workers walk only in the ROW and open area and not in dense thickets of vegetation.

We concur with your determination that the proposed action may affect, but is not likely to adversely affect the Yuma Ridgway's rail. We base this concurrence on the following:

- Direct and indirect herbicide impacts to Yuma Ridgway's rail and their aquatic food or habitat is discountable because ROW vegetation management and application with herbicides will not be treating the rail's preferred cattail marsh habitat, herbicide use adjacent to cattail marshes will be applied with drip and drift controls, and open water will be avoided with buffer areas.

- We anticipate effects from disturbance to Yuma Ridgway's rail from aerial surveys, vehicle use, or vegetation maintenance/treatment along ROWs will be insignificant for the following reasons: cattail marshes will not be treated; suitable cattail nesting habitat is presently absent within ROWs; activities (i.e. aerial surveys, vehicle use, and vegetation evaluation, treatment, and maintenance) adjacent to cattail marshes that might disrupt nesting rails will not occur during the breeding season; and disruption of migratory, dispersing, or foraging rails is expected to be infrequent in occurrence and of short duration.

Ocelot

No species-specific conservation measures are proposed for the ocelot.

We concur with your determination that the proposed action may affect, but is not likely to adversely affect the ocelot. We base this concurrence on the following:

- Herbicide application during the daytime will not come in direct contact with nocturnally active ocelots, and aerial surveys and vegetation maintenance of ROWs activities during daylight hours will not disrupt nocturnal ocelot behavior.

- We do not expect ocelots to use or rely upon ROW corridors for daytime bedding, denning, or rest areas due to the ocelot's limited abundance and distribution within Arizona, and because the sparse, linear, non-contiguous vegetation within power line ROWs is not typical habitat. As a result of the lack of preferred ocelot habitat within ROWs and the low volume manual application of low toxicity herbicides, we anticipate that the effects of direct herbicide application to ocelots, disturbance to daytime bedding/resting/denning ocelots from aerial surveys and power line vegetation maintenance, and impact to ocelot habitat will be insignificant or discountable.

- Because of the ocelot's preference to use dense and contiguous tracts vegetation (not commonly found within ROWs) and their infrequent occurrence and low density in

Arizona, we anticipate any disruption of ocelot behavior from daytime vegetation ROW maintenance and aerial surveys will be insignificant.

- Because of the ocelot's low density and sparse distribution within the action area and also due to the low volume application, low toxicity, and quick drying of herbicides on plants, we do not anticipate that foraging or dispersing ocelots will be affected by rubbing against plants freshly treated with herbicides, and therefore the effect is anticipated will be discountable.

- Because of the ocelot's low density and sparse distribution within Arizona, the low toxicity of herbicides to ocelot prey, and the low likelihood of ocelot prey being sprayed with herbicides, the indirect impacts to ocelots from capturing and eating toxic prey for herbicide application are expected to be insignificant.

Sonoran pronghorn (outside nonessential experimental boundary)

No species-specific conservation measures are proposed for the Sonoran pronghorn.

Outside of the nonessential experimental 10 (j) area, about 20 acres of distribution line ROWs and poles require maintenance within the Cabeza Prieta Sonoran pronghorn population in southwestern Arizona.

We concur with your determination that the proposed action outside the nonessential experimental 10 (j) boundary, will not adversely affect the Sonoran pronghorn. The Sonoran pronghorn outside of the nonessential experimental 10(j) area are fully protected as endangered. We base this concurrence on the following:

- Due to the small amount of Sonoran pronghorn habitat containing ROW acres (approximately 20) occurring outside of the non-essential experimental 10(j) area and limited amount of time spent conducting power line aerial surveys, vegetation treatment, and maintenance, any potential disturbance to Sonoran pronghorn is expected to be of short duration. As a result, we anticipate the effect of disturbance from ROW vegetation survey, treatment, and maintenance activities to Sonoran pronghorns will be insignificant.

- Due to the small amount of ROW acres (approximately 20) occurring outside of the non-essential experimental 10 (j) area, altering these acres through vegetation treatment and maintenance of tall growing trees and shrubs/bushes is not anticipated to affect Sonoran pronghorn survival/reproduction, and therefore is expected to be insignificant.

- Because of the use of Thinvert to reduce the volume of herbicide applied, the limited acreage treated, the spot treatment of plants, limited amount of individual plants treated, and treatment of non-pronghorn forage plants, the likelihood of Sonoran pronghorn consuming and becoming affected by herbicide-treated trees and large shrubs/bushes is expected to be insignificant and discountable.

Arizona hedgehog cactus

The following includes the conservation measures for the Arizona hedgehog cactus identified in the proposed action and our concurrence.

Conservation measures

1. Do not use a mechanical mower for routine vegetation maintenance within Arizona hedgehog cactus potentially suitable habitat.

2. Prior to manual cutting of vegetation and herbicide application in Arizona hedgehog cactus potentially suitable habitat, conduct pre-treatment surveys for Arizona hedgehog cactus. Biologists or other professionals experienced in the identification of this species will survey the ROW area to be treated and locate and flag all Arizona hedgehog cacti within or immediately adjacent to the area. In an effort to be conservative, Arizona hedgehog cacti and all other similar looking cacti will be flagged and avoided.

3. Work crews will be educated on the avoidance of Arizona hedgehog cactus prior to scheduled work in potential habitat. The training of applicators should involve one or more applicators, crew foreman, or utility employee overseeing work and include: education on appearance of Arizona hedgehog cactus; reference materials to assist in avoidance in the field; field visit, if needed, for refinement of search image; and procedures on avoiding cacti not found during survey.

4. During manual cutting of vegetation and herbicide application, check under plants to be treated for Arizona hedgehog cactus prior to cutting vegetation or applying herbicide to identify cacti that may have been missed during survey. If a cactus is found, implement appropriate conservation measures to avoid the cactus.

5. During manual vegetation maintenance work, if an Arizona hedgehog cactus occurs underneath and is shaded by the plant to be cut, either leave the target plant or selectively trim the plant to provide protection for the Arizona hedgehog cactus.

6. Drive work vehicles and ATVs only on existing roads to access the ROW and do not drive ATVs off-road within the ROW in habitat for Arizona hedgehog cactus.

7. Establish a 20-foot buffer around each flagged Arizona hedgehog cactus or clump of cacti. No herbicide treatments shall occur within the 20-foot buffer.

8. Do not use tebuthiuron and picloram in Arizona hedgehog cactus occupied habitat. Both herbicides have prolonged soil residual activity.

9. Do not use these herbicides which require uptake by plant roots in Arizona hedgehog cactus occupied habitat: bromacil, hexazinone, and tebuthiuron.

10. Do not use the pre-emergent herbicides diuron and pendimethalin in occupied Arizona hedgehog cactus habitat.

11. Do not use herbicides for defensible space around poles treatment if Arizona hedgehog cactus survey results indicate presence of a cactus or cacti in the 10 foot radius treatment area.

12. Do not use 2,4-D and diuron within 300 feet of occupied Arizona hedgehog cactus habitat to minimize effects to pollinators. This herbicide is rated as Class 2 or Class 3 in the pollinating toxicity group (bee or Terrestrial Arthropod).

The implementation of 12 Arizona hedgehog cactus conservation measures is essential for our concurrence.

We concur with your determination that the proposed action may affect, but is not likely to adversely affect the Arizona hedgehog cactus. We base this concurrence on the following:

- We do not anticipate Arizona hedgehog cacti will be adversely affected from vehicles, human access, and movement throughout ROWs, because pre-treatment surveys for hedgehog cactus will occur by experienced biologists/botanists; work crews will be trained about hedgehog habitat, identification, and conservation measures; sensitive Arizona hedgehog cacti buffer areas will be flagged; vehicles will stay on existing roads; herbicides will be applied from manual sprayers by trained workers on-foot; and overall hedgehog cactus habitat is limited to about 40 acres within the action area in typically rocky and steep habitat. Due to the implementation of the variety of conservation measures, we anticipate the impacts from vehicles and human access in Arizona hedgehog cactus habitat will be discountable.

- A variety of conservation measures will be implemented to prevent herbicides from affecting Arizona hedgehog cactus. For example, Arizona hedgehog cactus is not a targeted species; pre-treatment hedgehog cactus surveys will occur and buffer areas will be established; drift and drip control manual techniques will be used; mechanical treatments will not be used in potential Arizona hedgehog habitat, and a variety of herbicide compounds will be restricted in hedgehog habitat. More explicitly the herbicides bromacil, hexazinone, and tebuthiuron will not be used in occupied Arizona hedgehog habitat; 2,4-D and diuron will not be used within 300 feet of occupied Arizona hedgehog cactus habitat; and herbicides will not be used for defensible space around poles if Arizona hedgehog cacti are detected with 10 feet of the treatment area. Due to the implementation of the variety of conservation measures, we anticipate the impacts to Arizona hedgehog cactus from herbicide application will be discountable.

- Due to a collection of conservation measures and the rocky environment where Arizona hedgehog cactus persists, we do not anticipate vegetation maintenance of ROWs will adversely affect overall Arizona hedgehog habitat. The 40 acres of Arizona hedgehog habitat within the action area is a small fraction of its limited range

in Arizona. Few large trees and bushes/shrubs will require removal in the relatively steep rocky bedrock habitat where Arizona hedgehog cacti typically grow. Twenty-foot buffers will surround existing Arizona hedgehog cactus. Prior to the manual cutting of vegetation and herbicide application, plants to be treated will be searched under for Arizona hedgehog cactus that may have been missed during surveys. If an Arizona hedgehog cactus occurs underneath and is shaded by the plant to be cut, the target plant will either not be removed or will be selectively trimmed to still provide protection for the Arizona hedgehog cactus. Due to the limited amount of ROWs within Arizona hedgehog habitat, the reduced number of trees requiring removal in their typical rocky/steep locations, and the persistence of nurse trees, we anticipate the impacts of ROW vegetation maintenance to Arizona hedgehog cactus habitat will be insignificant.

Huachuca water-umbel and critical habitat

The following includes the conservation measures for the Huachuca water-umbel and its designated critical habitat identified in the proposed action and our concurrence.

Conservation measures

1. Conduct pre-treatment surveys for Huachuca water-umbel in species' habitat, in accordance with USFWS protocols or do not survey and assume all habitats are occupied. Conservation measures below are to be applied to occupied habitat or assumed occupied habitat where surveys have not been conducted.

2. Drive work vehicles and ATVs only on existing roads to access the ROW and do not drive ATV off-road within the ROW in suitable and critical habitat for Huachuca water-umbel.

3. Do not use 2,4-D, glyphosate, and imazapyr inside species' habitat, within at least 1 mile upstream from the habitat area in any contributing channel, tributary, or spring, and within 300 feet downstream of the species habitat.

4. Implement the following conservation measures to Huachuca water-umbel occupied habitat. If surveys have not been conducted assume occupancy to all portions of suitable habitat:

    a. Do not use foliar application of any herbicides within 50 feet of the edge of the waterbody or wetland containing Huachuca water-umbel, within at least 1 mile upstream from occupied habitat of any contributing channel, tributary, or spring run, and within 300 feet downstream of the Huachuca water-umbel occupied habitat.
    b. Use only cut stump or basal treatment techniques inside Huachuca water-umbel occupied habitat, within 50 feet of the waterbody or wetland containing Huachuca water-umbel, within at least 1 mile upstream from habitat of any

contributing channel, tributary, or spring run, and within 300 feet downstream of Huachuca water-umbel occupied habitat.

c. Supply manual and herbicide work crews with species identification information to minimize stepping on Huachuca water-umbel and ensure special precautions are taken around this plant.

d. Do not use these herbicides that require uptake by plant roots within Huachuca water-umbel occupied habitat: bromacil, hexazinone, and tebuthiuron. Do not use pre-emergent herbicides within Huachuca water-umbel occupied habitat.

5. Do not use pesticides that rate as Class 2 or Class 3 in the pollinating toxicity group (bee and/or Terrestrial Arthropod) within 300 feet of habitat. 2,4-D and Diuron are rated as Class 2 or Class 3 in the pollinating toxicity group.

The implementation of five Huachuca water umbel conservation measures is essential for our concurrence. A single distribution line occurs within Huachuca water umbel habitat (0.6 miles of designated critical habitat), crossing the San Pedro River near the Town of Herford (comprising overall about 0.1 mile of ROW).

We concur with your determination that the proposed action may affect, but is not likely to adversely affect the Huachuca water umbel and it's designated critical habitat. We base this concurrence on the following:

- We do not anticipate Huachuca water-umbel will be adversely affected from vehicles and human access needed to conduct ROW maintenance/treatment. Some of the essential conservation measures implemented to prevent adverse effects include pre-treatment surveys for water-umbel by experienced biologists/botanists (or the area will be designated as occupied); training for work crews on water-umbel identification, avoidance, and conservation; preventing vehicles from riparian areas; and only accessing riparian areas on-foot. Due to the implementation of the variety of conservation measures, we anticipate the impacts from vehicles and human access to Huachuca water-umbel habitat will be discountable.

- A variety of conservation measures will be implemented to prevent herbicides from affecting Huachuca water-umbel. For example, Huachuca water-umbel is not a targeted species; pre-treatment surveys will occur to identify water-umbel locations to avoid; drift and drip control manual techniques will be used; mechanical treatments will not be used in water-umbel habitat, and a variety of herbicide compounds will be restricted. More explicitly the herbicides bromacil, hexazinone, and tebuthiuron will not be used in Huachuca water-umbel habitat and 2,4-D, glyphosate, and imazapyr will be restricted in proximity to water-umbel habitat and water. Due to the implementation of the variety of conservation measures, we anticipate the impacts to Huachuca water-umbel from herbicide application will be discountable.

- Due to a collection of conservation measures, we do not anticipate vegetation maintenance of ROWs will adversely affect overall Huachuca water-umbel habitat

and designated critical habitat. The 0.1 mile length of ROW (and 0.06 acres of designated critical habitat) within water umbel habitat is a small fraction of an existing naturally dynamic and patchy vegetated riparian area. ROWs are perpendicular to riparian, minimizing fragmentation of habitat. Huachuca water-umbels are not the target of ROW vegetation management/maintenance. Treatment of primarily cottonwoods within the 0.1mile long ROW will not noticeably impact the primary constituent elements associated with river flow, substrate, stream channel, flooding, or refugia habitat. The treatment/maintenance of large trees within this narrow section of riparian habitat is not expected to alter the overall riparian plant community or its stability. Because of the targeted minimal amount of treated habitat within a short and narrow amount of the dynamic riparian area, we anticipate the impacts of ROW vegetation maintenance to Huachuca water-umbel habitat and critical habitat will be insignificant.

Peebles Navajo cactus

The following includes the conservation measures for Peebles Navajo cactus identified in the proposed action and our concurrence.

Conservation measures

1. Prior to herbicide application in Tanner Wash ACEC, conduct pretreatment surveys for Peebles Navajo cactus. Biologists or other professional experienced in the identification of *Pediocactus* species will survey the ROW area to be treated and locate and flag all Peebles Navajo cacti within or immediately adjacent to the area. In an effort to be conservative, all other similar looking cacti will be flagged and avoided.

2. Herbicide applicators are to be educated on the avoidance of Peebles Navajo cactus prior to scheduled work in potential habitat. The training of applicators should involve one or more applicators, crew foreman, or utility employee overseeing work and include: education on appearance of Peebles Navajo cactus, reference materials to assist in avoidance in the field and minimization of adverse habitat impacts, field visit if needed for refinement of search image, and procedures to avoid cacti not found during surveys.

3. During herbicide application, check under plants to be treated for Peebles Navajo cactus prior to applying herbicide. If a cactus is found, implement appropriate conservation measures to avoid the cactus.

4. Drive vehicles (including ATVs) only on existing roads to access the ROW and do not drive ATVs off-road within the ROW in Tanner Wash ACEC.

5. Establish a 20-foot buffer around each flagged Peebles Navajo cactus or clump of cacti. No herbicide treatments shall occur within the 20 foot buffer.

6. Do not use tebuthiuron and picloram in Peebles Navajo cactus occupied habitat. Both herbicides have prolonged soil residual activity.

7. Do not use these herbicides that require uptake by plant roots in Peebles Navajo cactus occupied habitat: bromacil, hexazinone, and tebuthiuron.

8. Do not use the pre-emergent herbicides diuron and pendimethalin in occupied Peebles Navajo cactus habitat.

9. Do not use 2,4-D and diuron within 300 feet of occupied Peebles Navajo cactus habitat to minimize effects to pollinators. These herbicides are rated as Class 2 or Class 3 in the pollinating toxicity group (bee or Terrestrial Arthropod).

The implementation of nine Peebles Navajo cactus_conservation measures is essential for our concurrence. Two distribution lines occurs within Peebles Navajo cactus_habitat, where only 4 acres of the total 18.9 acres of ROW require any vegetation maintenance (the remaining 14.9 acres are unvegetated).

We concur with your determination that the proposed action may affect, but is not likely to adversely affect the Peebles Navajo cactus. We base this concurrence on the following:

- We do not anticipate Peebles Navajo cactus will be adversely affected from vehicles and human access needed to conduct ROW maintenance. Some of the essential conservation measures implemented to prevent adverse effects include pre-treatment surveys for Peebles Navajo cactus_by experienced biologists/botanists; flagged buffer areas for identified plants; training for work crews on Peebles Navajo cactus identification, avoidance, and conservation measures; and restrictions on vehicle use. Due to the implementation of the variety of conservation measures, we anticipate the impacts from vehicles and human access into Peebles Navajo cactus habitat will be discountable.

- A variety of conservation measures will be implemented to prevent herbicides from affecting Peebles Navajo cactus. For example, Peebles Navajo cactus is not a targeted species; pre-treatment surveys will occur to identify and flag Peebles Navajo cactus buffer areas; drift and drip control manual techniques will be used; and a variety of herbicide compounds will be restricted. More explicitly the herbicides bromacil, hexazinone, tebuthiuron and picloram will not be used in Peebles Navajo cactus habitat and 2,4-D and diuron will be restricted in proximity to Peebles Navajo cactus habitat. Due to the implementation of the variety of conservation measures, we anticipate the impacts to Peebles Navajo cactus from herbicide application will be discountable.

- Due to a collection of conservation measures and the limited acreage of Peebles Navajo cactus habitat within the action area, we do not anticipate vegetation maintenance of ROWs will adversely affect overall Peebles Navajo cactus habitat. The four acres of Peebles Navajo cactus habitat within the action area is a small

fraction of its limited range in Arizona, and little vegetation requires treatment in this area (no manual or mechanical removal of vegetation will be used in this area). Twenty-foot buffers will surround Peebles Navajo cactus. Prior to the herbicide application of vegetation, plants to be treated will be looked under for Peebles Navajo cactus that may have been missed during surveys. Due to the limited amount of ROW acres within Peebles Navajo cactus habitat, the reduced amount of plants requiring removal, and the persistence of nurse plants, we anticipate the impacts of ROW vegetation maintenance to Peebles Navajo cactus habitat will be insignificant.

Chiricahua leopard frog

The following includes the conservation measures for the Chiricahua leopard frog identified in the proposed action and our concurrence.

Conservation Measures

1. Implement the Riparian Area Conservation Measures within suitable Chiricahua leopard frog habitat.

2. If there is a high probability (80% chance) of local, moderate rain ($\leq$ 0.25 inches within 24 hours), then applications should only occur when it is anticipated that there shall be sufficient time (at least 4 hours) for the application to dry before rainfall occurs.

3. Within upland suitable Chiricahua leopard frog habitat, apply glyphosate, hexazinone, imazapyr, metsulfuron, and triclopyr at the typical (rather than the maximum) application rate.

4. Do not use the following aquatic herbicides inside Chiricahua leopard frog suitable aquatic habitat: 2,4-D, glyphosate, and imazapyr.

5. Within Chiricahua leopard frog suitable habitat, implement the following buffers within the habitat and at least 0.5 mile upstream and 300 feet downstream of the habitat area in any ephemeral to perennial contributing channel, tributary, or spring run:
    a. Herbicides rated as Class 0 in the Aquatic Amphibian, Aquatic Arthropod, and Terrestrial Arthropod toxicity groups require no buffer within Chiricahua leopard frog habitat. (Includes: aminopyralid, chlorsulfuron, clopyralid, imazapic, and triclopyr – amine salt formulation).
    b. Do not use herbicides rated as Class 1 in the Aquatic Amphibian toxicity group and as Class 2 or Class 3 in the Aquatic Arthropod or Terrestrial Arthropod toxicity groups below the high water line of the species habitat and within 30 feet over land of the high water line of species habitat. (Includes: bromacil, 2,4-D – all formulations, dicamba, diuron, fluroxypyr, glyphosate – non-aquatic formulation, hexazinone, metsulfuron methyl, picloram, sulfometuron methyl, and tebuthiuron).

c. Do not use herbicides rated as Class 2 in the Aquatic Amphibian toxicity group below the high water line of species habitat and within 50 feet over land of the high water line of species habitat. (Includes: triclopyr – ester formulation).
d. Do not use herbicides rated as Class 3 in the Aquatic Amphibian toxicity group below the high water line of species habitat and within 100 feet over land of the high water line of species habitat. (The proposed action includes no herbicides rated as Class 3 in the Aquatic Amphibian toxicity group).

We concur with your determination that the proposed action may affect, but is not likely to adversely affect the Chiricahua leopard frog. We base this concurrence on the following:

- We do not anticipate that human foot traffic, helicopter, or vehicle use to evaluate and conduct vegetation treatments/evaluation will directly adversely affect Chiricahua leopard frogs. Only 0.13 miles and 0.31 acres of Chiricahua leopard frog habitat occurs within the action area along the upper San Pedro River, where frogs were last detected from 1986 to 1993. Annual aerial inspections of power lines is of short duration, occur high above the ground, and occur over a small amount of leopard frog habitat. There is no expectation that leopard frogs would be affected by the short duration increase in noise from a passing helicopter. Additionally, vehicles associated with power line evaluation/maintenance will stay on the existing and limited roads in frog habitat. Due to the small amount of ROW within frog habitat, combined with the infrequent use of roads and limited distribution of Chiricahua leopard frogs along the upper San Pedro River, we anticipate it is unlikely that vehicles will contact or disrupt Chiricahua leopard frogs. Similarly, human foot-traffic into leopard frog habitat will occur infrequently and be of short duration. We anticipate that the short duration, infrequent occurrence, and limited amount of helicopter, vehicle, or foot traffic into (and over) Chiricahua leopard frog habitat is not likely to result in direct impacts to leopard frogs, and any short-term behavior alteration is expected to be insignificant.

- We do not expect that herbicide application in Chiricahua leopard frog habitat will directly affect Chiricahua leopard frogs. A small amount of vegetation within Chiricahua leopard frog habitat will require herbicide treatment (about 0.3 acres). Herbicide treatments will be of low-toxicity, manually applied to individual plants (with drip and drift controls), and occur when precipitation is low and with appropriate toxicity buffers. The herbicides 2,4-D, glyphosate, and imazapyr will not be used in suitable Chiricahua leopard frog habitat, and in upland Chiricahua leopard frog habitat glyphosate, hexazinone, imazapyr, metsulfuron, and triclopyr will only be used at the typical rather than the maximum application rate. Due to the limits placed on toxicity and herbicide use and the manual application of individual trees with drip/drift controls and the small acreage requiring treatment, we expect that the impacts to Chiricahua leopard frogs from selective treatment of riparian and upland trees are discountable.

- We do not anticipate the manual removal and maintenance of vegetation within 0.3 acres of Chiricahua leopard frog habitat will cause direct effects to Chiricahua leopard frogs. Chiricahua leopard frog abundance and distribution is anticipated to be limited within the action area. Vegetation maintenance within ROWs has previously occurred, and therefore we do not expect heavy removal of large trees and marked disruption of the ground where Chiricahua leopard frogs might occur. Vegetation removal and maintenance will be conducted manually. We expect that any direct effects to Chiricahua leopard frog behavior from vegetation removal will be insignificant and discountable because of the short duration of time required to conduct work and limited amount of vegetation and ground disturbance.

- We anticipate that any indirect effects to Chiricahua leopard frogs from treatment and maintenance of vegetation will be undetectable. A small amount of vegetation (0.3 acres) in Chiricahua leopard frog habitat will be treated and maintained. Chiricahua leopard frogs are not reliant on contiguous stands of dense mature riparian vegetation and understory, but rather a diversity of aquatic habitat supported by functioning riparian vegetation. As a result of the small amount of vegetation being altered, the proposed action is not expected to detectably alter stream function, sediment load, aquatic habitat, or prey populations. Due to the alteration of a small amount of vegetation in a normally patchy and dynamic habitat, we expect any indirect effects to Chiricahua leopard frogs will be insignificant.

Northern Mexican gartersnake and proposed critical habitat

The following includes the conservation measures for the northern Mexican gartersnake and its proposed critical habitat identified in the proposed action and our concurrence.

<u>Conservation measures</u>

1. Implement Riparian Area Conservation Measures within suitable northern Mexican gartersnake habitat.

2. Do not use mechanical mower within suitable riparian and upland habitat for northern Mexican gartersnake.

3. Crews shall be provided materials to identify northern Mexican gartersnakes prior to manual treatment of vegetation and herbicide application. If a northern Mexican gartersnake (or similar looking snake) is encountered, avoid treating the vegetation until the snake has moved, or, if necessary, the snake will be moved to a safe, sheltered place away from work activities.

4. If there is a high probability (80% chance) of local, moderate rain ($\leq$ 0.25 inches within 24 hours), then herbicide applications should only occur when it is anticipated that there shall be sufficient time (at least 4 hours) for the application to dry before rainfall occurs.

5. Within upland habitats occupied by northern Mexican gartersnakes (or within suitable habitat if occupancy is unknown) apply glyphosate, hexazinone, imazapyr, metsulfuron methyl, and triclopyr at the typical rather than the maximum application rate.

6. Do not use the following aquatic herbicides inside northern Mexican gartersnake occupied or potentially occupied aquatic habitat: 2,4-D, glyphosate, and imazapyr.

7. Within northern Mexican gartersnake habitat, do not drive vehicles off established roads.

8. Within northern Mexican gartersnake occupied habitat or suitable habitat that has not been surveyed, implement the following buffers within the habitat and at least 0.5 miles upstream and 300 feet downstream of the habitat area in any ephemeral to perennial contributing channel, tributary, or spring run (referred to below as "species habitat"):
    a. Herbicides rated as Class 0 in the Aquatic Amphibian, Aquatic Arthropod, and Terrestrial Arthropod toxicity groups require no buffer within northern Mexican gartersnake habitat. (Includes: aminopyralid, chlorsulfuron, clopyralid, imazapic, and triclopyr – amine salt formulation)
    b. Do not use herbicides rated as Class 1 in the Aquatic Amphibian toxicity group and as Class 2 or Class 3 in the Aquatic Arthropod or Terrestrial Arthropod toxicity groups below the high water line of the species habitat and within 30 feet over land of the high water line of species habitat. (Includes: bromacil, 2,4-D – all formulations, dicamba, diuron, fluroxypyr, glyphosate – non-aquatic formulation, hexazinone, metsulfuron methyl, picloram, sulfometuron methyl, and tebuthiuron).
    c. Do not use herbicides rated as Class 2 in the Aquatic Amphibian toxicity group below the high water line of species habitat and within 50 feet over land of the high water line of species habitat. (Includes: triclopyr – ester formulation).

9. Do not use herbicides rated as Class 3 in the Aquatic Amphibian toxicity group below the high water line of species habitat and within 100 feet over land of the high water line of species habitat. (The proposed action includes no herbicides rated as Class 3 in the Aquatic Amphibian toxicity group

We concur with your determination that the proposed action may affect, but is not likely to adversely affect the northern Mexican gartersnake and its proposed critical habitat. We base this concurrence on the following:

- We do not anticipate that human foot traffic, helicopter, or vehicle used to evaluate and conduct vegetation treatments/evaluation will adversely affect northern Mexican gartersnakes. Annual aerial inspections of power lines are of short duration, high above the ground, and occur over a relatively small amount of gartersnake habitat (4 miles – 73 acres). There is no expectation that northern Mexican gartersnakes on the

ground or within a vegetated protected area are affected by the short duration increase in noise from a passing helicopter. Additionally, vehicles associated with power line evaluation/maintenance will stay on existing roads, and due to the limited amount of road within riparian areas, the small amount of ROW within gartersnake habitat, the limited distribution of gartersnakes, and the infrequent need to use roads, we anticipate it is unlikely that vehicles will come in contact with or disrupt gartersnakes. Similarly, human foot-traffic into gartersnake habitat will occur infrequently and in small portions of gartersnake habitat where their distribution is limited. We anticipate that the short duration, infrequent occurrence, and limited amount of helicopters, vehicles, or foot traffic into (and over) gartersnake habitat is not likely to result in direct impacts to gartersnakes, and any short-term behavior alteration is expected to be insignificant.

- We do not expect that herbicide application in gartersnake habitat will directly affect northern Mexican gartersnakes. Overall, a small amount of vegetation within northern Mexican gartersnake habitat will require herbicide treatment (about two of the 73 acre total). Herbicide treatments will be of low-toxicity, manually applied to individual plants (with drip and drift controls), and occur when precipitation is low and with appropriate toxicity buffers. The herbicides 2,4-D, glyphosate, and imazapyr will not be used in occupied gartersnake habitat, and in upland occupied gartersnake habitat glyphosate, hexazinone, imazapyr, metsulfuron methyl, and triclopyr will only be used at the typical rather than the maximum application rate. Due to the limits placed on toxicity and herbicide use and the manual application of individual trees with drip/drift controls and the small acreage requiring treatment, we expect that the impacts to northern Mexican gartersnakes from selective treatment of riparian and upland trees are discountable.

- We do not anticipate the manual removal and maintenance of vegetation within two acres of northern Mexican gartersnake habitat will cause direct effects to northern Mexican gartersnakes. Northern Mexican gartersnake abundance and distribution is anticipated to be limited within the action area. Vegetation maintenance within ROWs has previously occurred, and therefore we do not expect heavy removal of large trees and marked disruption of the ground where northern Mexican gartersnakes could occur. Vegetation removal and maintenance will be conducted manually. We expect that any direct effects to northern Mexican gartersnakes behavior from vegetation removal will be insignificant and discountable because of the short duration of time required to conduct work and limited amount of vegetation and ground disturbance.

- We anticipate that any indirect effects to northern Mexican gartersnakes from treatment and maintenance of vegetation will be undetectable. A small amount of vegetation in gartersnake habitat will be treated and maintained: a single acre each of upland and riparian vegetation. Gartersnakes are not reliant on contiguous stands of dense mature riparian vegetation and understory, but rather complex mosaics of vegetation, including diversity in debris and structures for hunting, hiding, etc. The proposed action is not expected to alter the structural diversity of grasses, boulders,

debris, logs, etc., the function of streams, nor prey populations. Due to the alteration of a small amount of vegetation in a normally patchy and dynamic habitat conditions, we expect any indirect effects to gartersnakes will be insignificant.

- We do not anticipate the effects from vegetation treatment and maintenance will result in adverse effects to proposed northern Mexican gartersnake critical habitat. A total of about two acres of vegetation will be altered within proposed northern Mexican gartersnake critical habitat. Riparian and upland vegetation that can grow to become hazards will be removed and maintained. However, this small amount of vegetation removal is not anticipated to noticeably alter primary constituent elements such as stream function, prey populations, herbaceous vegetation, and shoreline habitat diversity (boulders, rocks, debris, logs, etc.). Overall, the small alteration of two acres is a minute fraction of the 421,423 acres of proposed northern Mexican gartersnake critical habitat. The vegetation removed and maintained within two acres will more closely resemble the normally patchy and dynamic aspects of riparian habitat, while other primary constituent elements will not be affected; as a result we anticipate the impacts to proposed northern Mexican gartersnake critical habitat will be insignificant.

Appendix B: Conference Report for Nonessential Experimental 10 (j) Populations

Sonoran pronghorn (inside nonessential experimental boundary)

Within the experimental non-essential area, varieties of APS and SRP distribution and transmission lines and poles requiring defensible space occur, totaling 7,183 acres of ROW, representing about 0.07 percent of the overall approximate 10,600,000 acre 10(j) area.

You determined that the proposed action, within its non-essential experimental boundary, will not jeopardize the Sonoran pronghorn.

- Because of the Sonoran pronghorn's status as an experimental, nonessential population, these pronghorns are treated as though they are proposed for listing for section 7 consultation purposes. By definition, an experimental nonessential population is not essential to the continued existence of the species. Thus, no proposed action impacting a population so designated could lead to a jeopardy determination for the entire species.

California condor (inside non-essential experimental boundary)

The following includes the conservation measures for the California condor in the proposed action and our concurrence.

Conservation measures

1. Contact USFWS or Arizona Game and Fish Department (AGFD) for information on the California condor before application of pesticide near release sites, nest sites, or known communal roost sites in species habitat of canyon lands and mountain ridges.

2. Do not apply herbicides within 0.25 miles of currently occupied California condor nests, roosts, or release sites.

3. Within suitable or occupied California condor habitat, apply glyphosate, hexazinone, and triclopyr at the typical (rather than the maximum) application rate.

You determined that the proposed action, within its nonessential experimental boundary, will not jeopardize the California condor.

- Because of the condor's status as an experimental, nonessential population, these condors are treated as though they are proposed for listing for section 7 consultation purposes. By definition, an experimental nonessential population is not essential to the continued existence of the species. Thus, no proposed action impacting a population so designated could lead to a jeopardy determination for the entire species.