United States Department of the Interior
Fish and Wildlife Service
Arizona Ecological Services Office
9828 North 31st Avenue, Suite C3
Phoenix, Arizona 85051
Telephone: (602) 242-0210 Fax: (602) 242-2513

In reply refer to:
AESO/SE
02EAAZ00-2016-F-0740
02EAAZ00-2016-TA-0406

May 11, 2018

Sallie Diebolt, Chief, Arizona Branch
Department of the Army
Los Angeles District, Corps of Engineers
Arizona-Nevada Area Office
3636 North Central Avenue, Suite 900
Phoenix, Arizona 85012-1939

RE: Request for Formal Endangered Species Act Consultation on the Proposed Ripsey Wash Tailings Storage Facility, Pinal County, Arizona (File Number SPL-2011-1005-MWL)

Dear Ms. Diebolt:

Thank you for your correspondence of June 27, 2016, requesting formal consultation pursuant to section 7 of the Endangered Species Act (16 U.S.C. 1531 *et seq*.) (Act) on the proposed U.S. Army Corps of Engineers' (Corps) Department of the Army authorization to construct a tailings storage facility for the Asarco Ray Mine on a site south of the Gila River, including ancillary facilities (proposed action). We received your June 27, 2016, request on July 6, 2016.

Your June 27, 2016, consultation request, and the attached December 2, 2015, *Ripsey Wash Tailings Storage Facility Biological Assessment* (BA) include determinations that the proposed action may affect, and is likely to adversely affect, the endangered southwestern willow flycatcher (*Empidonax traillii extimus*) (flycatcher) and its critical habitat; the threatened yellow-billed cuckoo (*Coccyzus americanus*) (cuckoo) and its proposed critical habitat (in conference, per the Act's implementing regulations at 50 CFR §402.10). Your correspondence and BA include the determination that the proposed action may affect, but is not likely to adversely affect the threatened northern Mexican gartersnake (*Thamnophis eques megalops*) (gartersnake) and its proposed critical habitat (in conference).

Below, we provide our biological opinion (BO) for the flycatcher, cuckoo, and flycatcher designated critical habitat. We also provide our conference opinion (CO) on proposed critical habitat for the cuckoo, which can be converted to a BO if proposed critical habitat for the cuckoo is designated in the future. We concur with your determination that the proposed action may affect, but is not likely to adversely affect the gartersnake and, in conference, the species' proposed critical habitat (see Appendix A).

This final biological and conference opinion (BO and CO) is based on information provided in: (1) the December 2, 2015, BA for the proposed action, prepared by WestLand Resources, Inc. (WestLand); (2) our January 5, 2017, letter of concurrence on the continued implementation of mitigation at the PZ Ranch restoration site (U.S. Fish and Wildlife Service (FWS) File Number 22410-2009-I-0335R1, Corps File Numbers SPL-1990-4008400-RJD and SPL-1990-40084-MB) and its supporting documentation; (3) the May 1, 2017, comment letter from WestLand submitted on behalf of Asarco (WestLand 2017); (4) the January 2016 *Conceptual Plan, In-Lieu Fee Restoration Project Site Wetland Restoration and Monitoring at the Lower San Pedro River Wildlife Area, Pinal County* (ILF Conceptual Plan; Lowery et al. 2016); (5) the undated draft *In-lieu Fee Enabling Instrument, Arizona Game and Fish Department In-lieu Fee Program* (Draft ILF Enabling Instrument; Corps 2018); and (6) other published and unpublished sources of information. Literature cited in this biological opinion is not a complete bibliography of all literature available on the threatened and endangered species at issue, the effects of the action on those species and their critical habitats, or on other subjects considered in this opinion. A complete administrative record of this consultation is on file at this office.

The FWS and the National Marine Fisheries Service (NMFS) published a Final Rule on February 11, 2016 (81 FR 7214), revising the definition for destruction or adverse modification of critical habitat in the Act's implementing regulations at 50 CFR 402.02. Specifically, we finalized the following regulatory definition: "Destruction or adverse modification means a direct or indirect alteration that appreciably diminishes the value of critical habitat for the conservation of a listed species. Such alterations may include, but are not limited to, those that alter the physical or biological features essential to the conservation of a species or that preclude or significantly delay development of such features." This revised definition will be applied to the applicable critical habitat analyses in this consultation.

Furthermore, FWS and NMFS published a Final Rule on May 11, 2015 (80 FR 26832- 26845), amending the incidental take statement provisions of the implementing regulations for section 7 of the Act (50 CFR 402.02 and 402.14) to: (1) refine the basis for development of incidental take statements for programmatic actions; and (2) address the use of surrogates to express the amount or extent of anticipated incidental take. The subject action is site-specific, not programmatic; therefore, the former amendment is not applicable. The latter amendment, however, is directly relevant to this consultation.

Lastly, in reaching our findings that there is a reasonable certainty that southwestern willow flycatcher and western yellow-billed cuckoo, will be incidentally taken, we considered the following:

- Section 9 of the Act and our implementing regulations in the Code of Federal Regulations (CFR) at 50 CFR part 17 prohibit the ``take" of fish or wildlife species listed as endangered or threatened.
- Take of listed fish or wildlife is defined under the Act as ``to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct".
- The term ``harass" is defined in the regulations as ``an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering" (50 CFR 17.3).

- The term ``harm" is defined in the regulations as ``an act which actually kills or injures wildlife. Such act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, and sheltering" (50 CFR 17.3).
- "Incidental take" refers to takings that result from, but are not the purpose of, carrying out an otherwise lawful activity conducted by the Federal agency or applicant" (50 CFR 402.02).

Consultation History

October 28, 2013: We became aware of the National Environmental Policy Act (NEPA) planning and preparation of a Draft Environmental Impact Statement (DEIS) for a potential a new tailings storage facility via the receipt of an Arizona Game and Fish Department (AGFD) scoping comment letter.

May 13, 2014: We received a copy of the proposed action's Public Notice and a proposed southwestern willow flycatcher survey plan from WestLand.

January 29, 2016: The DEIS was published and opened for public comments.

February 9, 2016: FWS staff participated in a site visit with ASARCO, Westland, AGFD, and Environmental Protection Agency (EPA) staff. The purpose of the site visit was to visit the sites being considered for the tailings storage facility.

March 10, 2016: We received a copy of the August 8, 2008, *June 3-4, 2008 Middle Gila River Fisheries Survey* report from AGFD.

May 5, 2016: We participated in an early consultation meeting with ASARCO to discuss the proposed action's effects to threatened and endangered species, and we received copies of the EPA's comments on the DEIS.

May 6, 2016: We transmitted to you a letter stating our concerns that the DEIS had not evaluated the Least Environmentally Damaging Practicable Alternative (LEDPA) pursuant to 40 CFR 230.10(a)

May 9, 2016: We received AGFD's comments on the DEIS.

June 28, 2016: We transmitted the final biological opinion on the Kelvin Bridge Replacement Project to the Bureau of Land Management (BLM) (File number 02EAAZ00-2016-F-0222). The project began during 2017.

December 21, 2016: We published our final Mitigation Policy (81 FR 83440-83492).

January 5, 2017: We concluded informal consultation on the continued implementation of mitigation activities at the PZ Ranch Restoration Site (FWS File Number 22410-2009-I-0335R1, Corps File Numbers SPL-1990-4008400-RJD and SPL-1990-40084-MB). Portions of PZ Ranch represent mitigation sites A, B, and C.

April 17, 2017: We transmitted a Draft BO to you for review.

April 28, 2017: We participated in a telephone conversation with representatives of WestLand to discuss Asarco's initial comments and clarifications on the April 17, 2017, Draft BO and CO.

May 2, 2017: We received your electronic mail response stating you had no specific comments with respect to the April 17, 2017, Draft BO and CO. Your May 2, 2017, electronic mail also transmitted general comments and clarifications by WestLand on behalf of Asarco and dated May 1, 2017.

May 17, 2017: We received the Arizona Game and Fish Department's (AGFD) comments on the April 17, 2017, Draft BO via electronic mail. Of particular concern were AGFD's comments regarding the use of Asarco's groundwater wells near the Gila and/or San Pedro rivers as the source of fresh water required to operate the Ray Mine Tailings Storage Facility.

August 16, 2017: We received WestLand's 2017 southwestern willow flycatcher survey results for the Gila and San Pedro rivers.

October 24, 2017: We received WestLand's 2017 yellow-billed survey results for the Gila River.

January 12, 2018: We spoke with WestLand staff via electronic mail regarding an updated pipeline alignment that would change the acreage of affected habitat.

February 1, 2018: We provided an interim draft of the final BO for the subject action to both the Corps and WestLand to allow incorporation of the February 2, 2018, project updates and associated affected acreages.

February 2, 2018: We received your letter providing updated information with respect to Asarco's proposed project changes.

April 3, 2018: We provided WestLand with a copy of AGFD's May 17, 2017, comments on our April 17, 2017, Draft BO via electronic mail.

April 18, 2018: We received an edited version of our February 1, 2018, interim draft BO from Westland.

April 20, 2018: Your staff provided, via email, the ILF Conceptual Plan (Lowery *et al.* 2016) and the undated Draft ILF Enabling Instrument (Corps 2018).

May 11, 2018: Your staff confirmed, via email, that the additional, in-lieu fee-related narrative we provided to you (also via email) on May 10, 2018, was acceptable.

BIOLOGICAL OPINION

Description of the Proposed Action

The proposed action involves numerous engineering and conservation elements with detailed descriptions. The project description from the BA has thus been incorporated nearly verbatim into this document to ensure it has been accurately described.

Tailings Storage Facility

The proposed tailings storage facility will require the initial construction of tailings starter dams in Ripsey Wash and within an unnamed wash east of Ripsey Wash. Rock material to construct the starter dams will come from locations upgradient from the dams within the ultimate footprint of the tailings storage facility.

The first and largest of the starter dams would be approximately 150 feet high and located in Ripsey Wash near where the Florence-Kelvin highway currently crosses the wash. The second starter dam would be approximately 80 feet high and located in an unnamed drainage on the eastern side of the proposed tailings storage facility.

The centerline embankment would be underlain by a lined drain system that would allow drainage of water through cycloned sand or the coarse material portion of the tailings, which would allow the maintenance of a low phreatic surface in the embankment section. Seepage from the tailings embankment would be collected by a series of finger and blanket drains within the footprint of the embankment and would be conveyed through a lined containment ditch into two lined reclaim ponds located down-drainage of the ultimate embankment footprint.

The centerline tailings embankment would be raised in lifts of cycloned tailings concurrent with the actual filling of the tailings impoundment. As each embankment is raised in height, the footprint of the embankment would be expanded down-drainage. Accordingly, the down-gradient embankment underdrain system would also be expanded.

When the centerline construction reaches an elevation of approximately 2,200 feet (above mean sea level [amsl]), Asarco would switch to an upstream method of tailings storage. Upstream construction techniques would be initiated when the tailings impoundment is large enough so that the coarse sand fraction of the tailings has sufficient time to dry, thus allowing the upstream construction technique to commence. Once centerline construction is completed, Asarco would cover the down-gradient embankment with rock as part of concurrent reclamation activities.

In the upstream method (which is currently being used at the Elder Gulch tailings storage facility), tailings would be discharged from spigots around the crest of the tailings embankment. The deposition of tailings would develop a wide tailings beach area composed of coarse tailings material. This beach would become the foundation for the next lift. The coarse fraction of the tailings would settle closest to the spigots, while the fine tailings material would migrate with water toward the decant pond at the back of the tailings impoundment. It is the coarse fraction that would be used to construct the next lift.

To initiate the next lift, a tracked excavator would be used on the wide tailings beach area (approximately 40 feet from the outside toe of the next lift to be constructed) to begin to dig and place excavated tailings in a long windrowed stockpile that would parallel the crest of the existing dam perimeter.

A bulldozer would be used to flatten the stockpile of coarse tailings to achieve the 10-foot height required for the next lift in the tailings embankment. The bulldozer would shape the outer (down-drainage) side of the tailings to form a 2H:1V slope. Piping would then be added to extend the tailings outfall spigots to the top of the new lift so that tailings storage could continue

behind the newly constructed lift.

After three 10-foot lifts, a 60-foot-wide bench would be placed before beginning the next 10-foot lift. This 60-foot-wide bench would provide a working platform for the tailings delivery pipeline, which would be moved from the previous 60-foot-wide bench. The 60-foot-wide bench area would also serve as an access road for personnel and equipment. In addition, this setback would lessen the overall slope of the tailings embankment to 3H:1V.

To reduce the potential for windblown dust, Asarco would spray binding agent or tackifier on the down-gradient slope of the tailings embankment. After every third lift (with the completion of the 60-foot-wide setback), Asarco would cover the lower outside embankment slope with rock material. This rock material would be removed from a borrow source within the footprint of the tailings storage facility and hauled to the crest of the completed slope. A bulldozer would be used to push the material down slope to cover the tailings embankment. This activity would be part of the concurrent reclamation practices.

Additional support facilities for the tailings storage facility may include an office, workers' change facility, and maintenance shop/warehouse, along with employee and equipment parking areas, a water tank and distribution system for dust control, potable use, and fire protection, a sanitary waste system, and electric distribution switchgear.

Internal Containment Dam and Seepage Collection

The western side of the proposed Ripsey Wash tailings storage facility is underlain by the Hackberry fault, which is expressed as a zone of fractures and breccia that has a higher permeability than the surrounding bedrock. Prior to the construction of the starter dam in the area of the Hackberry fault zone, Asarco would remove vegetation material for the length of the fault zone, both beneath the starter dam and immediately up-drainage of the starter dam along the contour location or trace of the fault zone (where the fault line intersects the surface). Asarco would also remove much of the alluvial material above the trace of the fault zone beneath the starter dam and would use his alluvial material for construction of the starter dam. The surface of the fault zone trace would then be compacted using a vibratory compactor or similar machine. Immediately down-gradient of the fault zone, a containment dam oriented approximately perpendicular to the starter dam would be constructed. The up-gradient slope of the containment dam would be lined with an 80-mil high-density polyethylene (HDPE) (or equivalent) liner. Up-gradient of the internal containment dam, and immediately up-gradient of the trace of the fault zone, Asarco would begin the placement of tailings material such that the tailings fines would seal the fault zone and prevent seepage under the starter dam at the site where it intersects the Hackberry fault. Asarco would install a monitoring well down-gradient of the tailings embankment within the Hackberry fault zone to serve as a point of compliance with the Project's Arizona Department of Environmental Quality (ADEQ) Aquifer Protection Permit (APP). The purpose of this down-gradient well would be to characterize groundwater quality prior to operations and then to monitor groundwater conditions within the fault zone during operations and as part of post-closure activities.

Down-gradient of the starter dams, Asarco plans to install seepage trenches to intercept any water seepage that might migrate under the tailings facility through the alluvium material located

above the bedrock. The trenches would be excavated into bedrock. The lower portion of the seepage trench would be lined with an 80-mil HDPE, or equivalent, geomembrane liner and filled with granular drain material (i.e., gravel or coarse sand). Pumps and piping would be installed in the seepage trenches to route any collected water to two lined reclaim ponds.

Down-gradient of the seepage trenches, Asarco plans to install two reclaim ponds. These reclaim ponds would be constructed with an engineered double-liner system using synthetic liner material (80-mil HDPE or equivalent) and have leak-detection systems incorporated into their design and operation. Asarco would be able to pump any water from these reclaim ponds either back to the Ray Concentrator (for reuse) or to the tailings impoundment.

Asarco would also maintain or install monitoring wells down-gradient of the tailings embankment to serve as points of compliance with the ADEQ APP. The purpose of these down-gradient wells would be to characterize groundwater quality prior to operations and then to monitor groundwater conditions during operations and as part of post-closure activities.

Stormwater Detention Dams and Diversion Structures

Stormwater from undisturbed watershed areas upstream from the tailings storage facility would be diverted around the tailings storage facility and allowed to ultimately flow to the Gila River. A large detention dam (designed to handle flows from a 500-year, 24-hour storm event) would be constructed in the upper part of Ripsey Wash just upstream from the proposed tailings storage facility footprint. In the highly unlikely event of a greater storm event, this detention dam structure would be installed with an emergency spillway that would allow flow in excess of the design storm event to discharge into the tailings impoundment. Upon closure of the tailings storage facility, the detention dam would be raised about 10 feet to detain the stormwater volume from the probable maximum precipitation event and would remain a permanent feature. Water that is intercepted by this detention dam would be routed around the Ripsey Wash tailings storage facility by pumping through a piping system for discharge into Zelleweger Wash, drainage located west of Ripsey Wash. In addition, a series of smaller interceptor detention dams and diversion channels on the western side of the Ripsey Wash tailings storage facility would serve to intercept upstream stormwater flow. When stormwater collects behind these detention dams, pumping and pipeline infrastructure would be used to control the water release volume to prevent erosion in Zelleweger Wash.

To intercept stormwater flow on the eastern side of the proposed Ripsey Wash tailings storage facility, an approximately 16,000-foot-long (about 3 miles) diversion channel would be constructed to handle flow from a 100-year, 24-hour storm event. Flow intercepted by this diversion channel would be routed to an unnamed wash to the east of the facility.

Energy dissipaters at the outfall locations within Zelleweger Wash and the unnamed drainage east of Ripsey Wash would be constructed to further control discharge velocity, thus reducing the potential for down-drainage erosion.

Tailings Delivery and Reclaim Water Pipelines, Bridge, and Pump Station

Pipelines will be required to deliver tailings slurry from the existing thickener at the concentrator at the Ray Mine, to return reclaimed water from the tailings storage facility back to the

concentrator for re-use, and to provide fresh water to the tailings storage facility site. The tailings delivery and reclaim water pipelines will follow an existing road adjacent to Mineral Creek from the thickeners, cross under State Route 177, and then follow a gravity alignment north of the Gila River and the existing Florence-Kelvin Highway south of the Gila River to the tailings storage facility. The tailings slurry and reclaim water pipelines would be HDPE and/or high-strength steel with welded joints to ensure long-term operational integrity and would be buried in a trench parallel to or under the Florence-Kelvin Highway. The fresh water pipeline would connect Asarco's existing water pipeline south of State Route 177 and east of the Florence-Kelvin Highway to a pipeline that would run adjacent to the tailings delivery and reclaim water lines. A new bridge would be required at the Gila River to support the pipelines at the crossing. This bridge would be located upstream from the existing Florence-Kelvin Highway Bridge, immediately adjacent to the new Florence-Kelvin Highway Bridge.

These pipelines would be elevated on the bridge above the Gila River and the Copper Basin Railroad tracks on the northern side of the river. Where they cross the Gila River, the pipelines would be sleeved within a larger-diameter second pipe designed to contain any leaks or spills. The bridge would be slightly sloped so that any spillage or leakage would be directed toward the drain-down pond on the northern side of the Gila River and the bridge. The gradient (or slope) of the pipelines across the bridge would be such that low points are avoided and positive drainage is maintained back to the drain-down pond in the event of any spill or leak. Pipeline pressures and flow rates would be continuously monitored to detect any pressure drops, at which time the pipelines could be shut down and drained for maintenance.

Bridge construction would require disturbance to approximately 1.0 acre within the Gila River riparian vegetation corridor. Access to the approximately 110-foot-wide construction corridor would be gained from both the northern and southern sides of the river and would allow heavy equipment access for vegetation clearing and bridge support construction. The Clean Water Act Section 404 jurisdictional areas within the river channel that include the ordinary high water channel and wetlands along the southern side the channel would be avoided. The current proposed pipeline bridge design would line up with the planned new highway bridge and include seven support columns or piers, six of which would be constructed within riparian areas and one which would be placed outside the riparian vegetation on the northern side of the river north of the Copper Basin Railway. The pipeline bridge piers would be supported by 10-foot-diameter cast-in-place concrete drilled shafts or caissons that would be constructed using an auger.

A booster pump station, electrical switchgear, and tailings drain-down pond would be constructed east of the Project pipelines north of the proposed bridge (Corps letter dated February 2, 2018, Figure 1). The tailings drain-down pond at this site would be lined (80-mil HDPE or equivalent) to contain tailings or reclaim water from the pipelines for maintenance or in case of emergency. This pond would be designed and constructed to hold the total volume of tailings potentially contained in the tailings pipeline from the Ray Concentrator to the Ripsey Wash tailings storage facility. The electrical switchgear facility would provide the energy to operate the tailings pumping booster station as well as the various other pumps to be used at the Ripsey Wash tailings storage facility (e.g., seepage trench pumps, reclaim pond pumps, decant water pumps at the rear of the tailings impoundment). During construction, this site would also serve as a parking area for construction workers and equipment as well as a storage area for construction-related materials and supplies such as pipeline segments, culverts, liner material,

and pumps.

Relocation of the Florence-Kelvin Highway, San Carlos Irrigation Project Power Line, and Arizona Trail

The Project will require the relocation of existing infrastructure, including portions of the Florence-Kelvin Highway, a San Carlos Irrigation Project (SCIP) 69-kilovolt (kV) power line, and the Arizona Trail. The Florence-Kelvin Highway will be rerouted to pass around the northern end of the tailings storage facility, between the tailings storage facility and the Gila River (Corps letter dated February 2, 2018, Figure 1). The relocated SCIP 69-kV electric transmission line will follow a similar route around the northern side of the tailings storage facility (Corps letter dated February 2, 2018, Figure 1). The proposed new route of the Arizona Trail would depart from the existing trail about 1 mile southeast of the proposed tailings storage facility and follow ridges and valleys east of the tailings storage facility to rejoin the existing trail at the southern end of the Kelvin Bridge (Corps letter dated February 2, 2018, Figure 1).

Closure and Reclamation

Asarco's closure and reclamation plan for the tailings storage facility would include permanent decommissioning and closure, removing support facilities and infrastructure (such as pumps and piping), re-contouring the tailings storage facility to establish drainage off the site, and placing rock material over the surface of the tailings storage facility to reduce the potential for wind and water erosion. In Arizona, under the jurisdiction of the Arizona State Mine Inspector, site reclamation must consider public safety, erosion control and seismic stability, which would include stable landforms. APP closure requirements would also apply. These focus on reducing the potential for future discharges to groundwater.

Concurrent reclamation would be employed to provide the permanent low-maintenance achievement of reclamation goals. Asarco plans to place rock material on the down-drainage slope of the tailings embankment after the centerline construction work is finished and once Asarco transitions to upstream tailings embankment construction. At this point, the face of the centerline tailings embankment would be ready for rock placement work as the embankment slope would remain a permanent feature.

Asarco also plans to conduct concurrent reclamation on the slopes of the upstream tailings embankment. Rock material excavated from the onsite quarries or borrow sites would be placed on the final slope created after three individual lifts are made and the setback is completed on the third lift.

At the permanent cessation of milling operations, Asarco would dewater, close, and reclaim the tailings storage facility. As permanent closure approaches, Asarco would minimize the amount of excess water within the tailings storage facility decant pond. Upon closure, Asarco would allow the remaining water in the tailings storage facility to evaporate. This would cause the surficial layers of the tailings to dry and gain strength, which in turn would allow equipment to operate on the tailings surface for rock material placement. Spray evaporators could be used to enhance evaporation of the existing decant pond(s). It is estimated that 7 to 10 years may be required to achieve final drying and settlement of the tailings material and placement of rock

material on top of the tailings.

A permanent diversion channel would remain on the eastern side of the facility. In addition, Asarco would continue to maintain and operate the detention dams and stormwater pumping and piping system designed to route upgradient stormwater in Ripsey Wash around the western side of the Ripsey Wash tailings storage facility.

The final surface of the dried tailings impoundment may require some shaping to eliminate the potential for ponding and to provide positive stormwater drainage off the impoundment and into the permanent diversion channel. Construction equipment such as scrapers and bulldozers would be used to reshape the tailings. The tailings surface would be graded to achieve drainage to the east to the permanent diversion channel that would connect to the unnamed wash on the eastern side of the facility.

Rock material would be placed over the tailings storage facility once final grading is completed. This rock material would minimize wind and/or water erosion of the tailings material. The final cover rock material would be granitic conglomerate excavated from the borrow area within the tailings impoundment footprint.

Prior to facility closure, Asarco would excavate and stockpile this rock material along the perimeter and within the footprint of the tailings storage facility. This rock material would then be available for final cover material.

Conventional construction equipment would be used for closure and reclamation activities. Front-end loaders would excavate and load off-highway trucks that would transport and deposit the rock material on the graded tailings surface. Bulldozers would be used to spread the rock material to the desired final thickness. The rock-covered tailings area would be left to naturally re-vegetate over time.

Proposed Conservation Measures

This section appears largely as written in the BA, but that document's conclusions regarding the efficacy of the proposed Conservation Measures in avoiding and/or minimizing threatened and endangered species and critical habitats have been rephrased to reflect intended outcomes. The Effects of the Proposed Action section, below, represents the definitive analysis.

<u>Clean Water Act Section 404 Mitigation</u>

Asarco has identified four mitigation sites located along the San Pedro River (Sites A through D) that are approximately 29 river miles upstream from the Project and the Lower San Pedro River Wildlife Area In-Lieu Fee Project (LSPRWA ILF) as compensatory mitigation for project impacts of Waters of the U.S. (Table 1, below). Proposed mitigation activities at these sites are intended to compensate for unavoidable Project impacts to waters of the U.S. and also to enhance habitat for southwestern willow flycatcher and yellow-billed cuckoo. All of these sites are associated with perennial or intermittent aquatic resources, support or have the potential to support high-value mesoriparian and hydroriparian habitats, and provide regional conservation benefit. The San Pedro River mitigation sites are adjacent to existing Corps-approved mitigation projects that have been developed in support of previous Corps permitting efforts at the Ray

Mine and are contiguous with or near other conservation properties that have been established by the Bureau of Reclamation, the Salt River Project, and the Arizona Game and Fish Department (AGFD) (BA Figure 4).

The riparian and aquatic habitats within the mitigation sites (A through D) will be preserved, enhanced, and/or restored to benefit wildlife, including southwestern willow flycatcher, yellow-billed cuckoo, and potentially northern Mexican gartersnake. Figure 1 in the BA (reproduced as Table 1, below) provides a brief description of the proposed offsite mitigation activities. The parcels' specific management actions identified in the BA (and further refined in WestLand 2017 and Corps 2018) are incorporated herein via reference, but will be discussed within the scope of the respective effects of the proposed action section, below.

The LSPRWA ILF project is a single contiguous site and has been categorized as Resource Category 1 for Wildlife and Wildlife Habitat Compensation by AGFD, which means it is believed to provide habitat with the highest value to Arizona wildlife. Conversations with your staff indicate that AGFD has submitted the ILF Conceptual Plan (Lowery *et al.* 2016) to the Corps. The ILF Conceptual Plan states that the LSPRWA ILF site contains approximately 1,100 acres of riparian corridor dominated by Fremont cottonwood (*Populus fremontii*) and Gooding's willow (*Salix goodingii*), as well as large monoculture stands of invasive tamarisk (saltcedar*; Tamarix* sp.). This riparian corridor includes areas of both perennial and intermittent surface water. Approximately 600 acres of the LSPRWA include other habitats dominated by mesquite (*Prosopis* sp.), catclaw acacia (*Acacia greggii*), and palo verde (*Parkinsonia* sp.).

The ILF Conceptual Plan includes also comprehensive efforts to restore approximately 677 acres of wetlands forest gallery and two acres of emergent wetlands along the Lower San Pedro River. These actions are intended to create additional habitat for the southwestern willow flycatcher and its critical habitat, and for the yellow-billed cuckoo. The AGFD can sell 50 advance credits until a final development plan is approved and the Draft ILF Enabling Instrument (Corps 2018) is finalized and executed. We note that the eventual approval of the LSPRWA ILF will be subject to interagency consultation pursuant to the Act if the Corps makes a determination that management of the ILF may affect threatened or endangered species or their critical habitats. We also note that, for the proposed action, the use of ILF mitigation consists solely of the collection of funds by AGFD for future use; no physical work will occur in the LSP ILF as part of the 404 permit action under evaluation in this consultation.

<u>Vegetation Clearance of the Pipeline Bridge Construction Area outside of the Breeding Season</u>

Project construction, including construction of the pipeline bridge and associated infrastructure, relocation of the Florence-Kelvin Highway and SCIP powerline, and construction of the seepage collection system in Ripsey Wash, is likely to be determined in large part by the time at which the necessary permits are obtained and the timing of related Project construction activities. If the pipeline bridge construction is required during the breeding season of southwestern willow flycatcher and/or yellow-billed cuckoo, vegetation removal along the Gila River would occur outside the breeding season(s) (April 15 to September 15 for the southwestern willow flycatcher and May 15 to September 30 for the yellow-billed cuckoo). Early clearance of vegetation is intended to preclude southwestern willow flycatcher and/or yellow-billed cuckoo from establishing territories and nest sites in the pipeline bridge construction corridor. Upon the

clearance of vegetation within the bridge construction area along the Gila River, the BA anticipates that birds would be expected to move on to other unoccupied sites on the Gila River and that there would be no (direct) mortality of individual southwestern willow flycatchers or yellow-billed cuckoos resulting from the Project.

Table 1: Summary of mitigation site conservation measures (adapted from Table 1 on page 10 in the BA)

Mitigation Site	Acreage	Description
Site A – PZ Ranch Northeastern Mesquite Bosqué (Preservation)	29.8	Adjacent to an existing Corps mitigation site and is included within the fenced boundary of that mitigation site. Active management of this site through proposed preservation efforts will exclude cattle from the site, restrict fuel-wood- and other wood harvesting, and restrict off-road vehicle access to the site to enhance its riparian habitat values. The existing bosqué habitat is second growth and was likely part of an earlier agricultural operation or the mesquite had been harvested for fuel wood or some other purpose. The preservation and active management of this site will facilitate the development and maintenance of this habitat.
Site B – PZ Ranch Southern Mesquite Field (Restoration)	28.2	Former agricultural field on the eastern bank of the San Pedro River. This field is within an existing Corps mitigation site. In 1993, the field was planted with containerized mesquite. The portion of this field included here represents excess mitigation area not needed for the original project. The functional values of this site have increased as indicated by a measurable increase in vegetative cover. The restoration area is part of the San Pedro River riparian corridor and is contiguous with other Corps mitigation sites and conservation areas managed by the Bureau of Reclamation.
Site C – PZ Ranch Northwestern Mesquite Field (Restoration)	25.8	Adjacent to an existing Corps mitigation site on the western bank of the San Pedro River and included within the fenced boundary of that mitigation site. Active management of this site will exclude cattle from the site, restrict fuel-wood- and other wood harvesting, and restrict off-road vehicle access to enhance its riparian habitat values. The site is vegetated by patches of native mesquite and an understory of native forbs and shrubs mixed with weedy forbs. Portions of the site are associated with prior agricultural practices, and it appears that fuel-wood-harvesting occurred at some point in the past. Proposed restoration activities will include the control of weedy non-native plant species (principally tamarisk [*Tamarix* spp.]), planting native mesquite trees, and seeding with native plant species.

Table 1: Summary of mitigation site conservation measures (adapted from Table 1 on page 10 in the BA)		
		These activities will restore the functional values of the site as a riparian buffer for the San Pedro River.
Site D – San Pedro River Active Floodplain (Preservation)	14.1	Area within the active floodplain of the San Pedro River adjacent to an existing Corps mitigation site on the western bank of the San Pedro River. The dominant vegetation is tamarisk, although cottonwoods are also present. The site will be actively managed to exclude livestock and off-road vehicle traffic to enhance its riparian value.
LSPRWA In Lieu Fee Project	77.06	The proposed mitigation actions at the LSPRWA ILF Project will help maintain or restore natural functions along this last remaining undammed river and its associated riparian buffers, which together form an important riparian corridor, including designated and proposed critical habitats, respectively, for southwestern willow flycatcher and yellow-billed cuckoo.

Status of the Species and Critical Habitats

Southwestern Willow Flycatcher

The flycatcher was listed as endangered without critical habitat on February 27, 1995 (60 FR 10694). Critical habitat was designated on July 22, 1995 (62 CFR 39129) and revised on January 2, 2013 (78 CFR 344). The original critical habitat designation included 1,556 stream mi in the desert Southwest. The revised rule reduced designated critical habitat to approximately 1,227 stream miles. A recovery plan for the species was completed in 2002 (U.S. Fish and Wildlife Service [FWS] 2002), and a 5-year review was done in 2014 (FWS 2014 c). The 5-year review determined that no change was needed to the species' classification as endangered.

The flycatcher is one of four currently recognized subspecies of the willow flycatcher, a neotropical migrant and spring/summer resident of North America (Unitt 1987, Browning 1993). This subspecies breeds in the southwestern U.S. and winters in Mexico, Central America, and possibly northern South America (Phillips 1948, Stiles and Skutch 1989, Peterson 1990, Ridgely and Tudor 1994, Howell and Webb 1995). In Arizona, the subspecies increased from 145 to 459 breeding territories from 1996 to 2007 (English *et al.* 2006, Durst *et al.* 2008). Currently, population stability of the subspecies in Arizona depends on two large populations at Roosevelt Lake and the confluence of the San Pedro and Gila Rivers. However, catastrophic events and losses of birds within these populations could alter the status of the subspecies quickly and significantly. Conversely, expansion into new habitats or discovery of other populations would improve the bird's known status.

The flycatcher is a riparian obligate species breeding in mesic areas with standing water or saturated soils. Flycatchers are typically found along rivers, lakesides, and other wetlands with dense riparian habitat consisting of multi-layered tree canopies of varying sizes and age classes. Occupied flycatcher territories are usually located near or over surface water or saturated soils in habitat patches at least 33 feet in diameter. In the Southwest, flycatchers arrive on territories in late April or early May, and nest building begins in mid-May. Flycatchers are insectivores, foraging in dense shrub and tree vegetation along rivers, streams, and other wetlands.

Flycatcher territories occur within two distinct habitat types in Arizona: (1) mixed riparian/tamarisk (*Tamarix* spp.) habitats below 4,000 feet in elevation; and (2) willow (*Salix* spp.) thickets in broad, flat drainages above 7,000 feet. Historical egg/nest collections and species descriptions throughout its range describe the flycatcher's widespread use of willow for nesting (Phillips 1948, Phillips *et al.* 1964, Hubbard 1987, Unitt 1987). The subspecies also nests in boxelder (*Acer negundo*), tamarisk (also called salt cedar), Russian olive (*Elaeagnus angustifolio*), and live oak (*Quercus agrifolia*).

Tamarisk is an important component of this flycatcher's nesting and foraging habitats. In 2001, 323 of the 404 known flycatcher nests in Arizona (80 percent) were in tamarisk (Smith *et al.* 2002). Tamarisk had been thought to represent poorer flycatcher habitat; however, comparison of reproductive performance, prey populations, and physiological condition of flycatchers breeding in native and exotic vegetation showed no differences (Durst 2004, Owen and Sogge 2002, Sogge *et al.* 2005, Sogge *et al.* 2008, FWS 2002).

Flycatcher habitat is dynamic and can change rapidly (Finch and Stoleson 2000). Tamarisk can develop from seed to suitability in 4-5 years. Heavy flooding can eliminate or reduce the quality of habitat in a day. Flycatcher use of habitat in different successional stages may also be dynamic. Over-mature or developing riparian vegetation not suitable for nest placement can be occupied and used for foraging and shelter by migrating, breeding, dispersing, or non-territorial flycatchers (McLeod *et al.* 2005, Cardinal and Paxton 2005).

The flycatcher is endangered primarily because land and water management actions associated with agriculture and urban development have reduced, degraded, and eliminated much of its riparian habitats. Other threats include human recreation along rivers and streams, livestock grazing, predation, brood parasitism by brown-headed cowbirds (*Molothrus ater*), invasion of the tamarisk-eating leaf beetle (*Diorhabda carinulata*), and wildfires that have become more frequent and destructive as a result of the proliferation of exotic vegetation and degraded watersheds. Nestling predation and brood parasitism are the most common forms of direct mortality. All existing threats are compounded by the risk of stochastic events because the subspecies' habitats are fragmented and because populations occur at low numbers.

Because tamarisk is prevalent throughout the flycatcher's range and is used heavily by the subspecies (Durst *et al.* 2008), the introduced tamarisk-eating leaf beetle is a particularly serious threat. In 2009, 13 of 15 flycatcher nests on the Virgin River in Utah failed following defoliation of tamarisk by this beetle (Paxton *et al.* 2010). As of 2012, the insect had been found in southern Nevada and Utah and northern Arizona and New Mexico. Tamarisk often flourishes in areas where native trees are unable to grow due to water diversions, flow regulation, and groundwater pumping. Loss of tamarisk without replacement by native trees will likely impact flycatchers

wherever their range overlaps with the tamarisk leaf-eating beetle.

In pre-settlement times, fire was not a primary disturbance factor in southwestern riparian areas (FWS 2002). Recently, however, fire size and frequency have increased because of an increase in dry, fine fuels in riverbeds and riparian systems. Drying of riverbeds due to human land-use practices, increases in human-caused ignitions, and the presence of tamarisk, a highly flammable plant, are largely responsible for these fuels. In June 1996, a fire destroyed approximately one-half mile of occupied tamarisk flycatcher nesting habitat on the San Pedro River in Pinal County, Arizona resulting in the loss of up to eight nesting pairs (Paxton *et al.* 1996).

Designated Critical Habitat

In 2013, FWS designated 208,973 ac of critical habitat for the southwestern willow flycatcher along 1,227 mi of rivers and streams in 24 management units in California, Arizona, New Mexico, Colorado, Utah, and Nevada (78 CFR 344). FWS proposed the following primary constituent elements (PCEs) for flycatcher critical habitat 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 Goodding's 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 meters (about 6 to 98 feet). Lower-stature thickets (2 to 4 meters or 6 to 13 feet 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 meters (13 feet) 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 hectare (0.25 acre) or as large as 70 hectares (175 acres).

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).

Yellow-billed Cuckoo

The western yellow-billed cuckoo was listed as threatened under the Act on October 3, 2014 (79 FR 59992). Critical habitat for the cuckoo was proposed on August 15, 2014 (79 FR 48548).

The yellow-billed cuckoo is a Neotropical migrant that winters in South America and breeds in North America. Cuckoos throughout the western continental United States and Mexico are generally larger than their eastern counterparts, 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 threatened in 2014. Cuckoos in the west arrive on their breeding grounds 4 to 8 weeks later than eastern yellow-billed cuckoos at similar latitudes (Franzreb and Laymon 1993, Hughes 1999).

Cuckoos in the DPS were formerly widespread and locally common in California and Arizona, 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 (American Ornithologists' Union 1998, Hughes 1999). The species may be extirpated from British Colombia, Washington, and Oregon (Hughes 1999). The cuckoo is now very rare in scattered drainages in western Colorado, Idaho, Nevada, and Utah, with single, nonbreeding birds most likely to occur (79 FR 48548, 79 FR 59992). The largest remaining breeding areas are in southern and central California, Arizona, along the Rio Grande in New Mexico, and in northwestern Mexico (79 FR 59992).

In Arizona, the species was a common resident in the (chiefly lower) Sonoran zones of southern, central, and western Arizona; scarce in the north-central part of the state; and very rare in the northeast (Phillips *et al.* 1964). In Arizona, the cuckoo now nests primarily in the central and southern parts of the state.

Western populations of the cuckoo are most commonly found in dense woodlands, consisting primarily of cottonwood (*P. 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 Arizona may also contain box elder (*Acer negundo*), Arizona alder (*Alnus oblongifolia*), Arizona walnut, Arizona sycamore (*Platanus wrightii*), oak (*Quercu*s 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 (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 occupied habitats (Gaines and Laymon 1984, Johnson *et al.* 2008, McNeil *et al.* 2013, Carstensen *et al.* 2015). Although cuckoos are most commonly found in riparian gallery forests in Arizona, they may also use narrow bands of riparian woodland (Arizona Game and Fish Department [AGFD] 2015), Cornell Lab of Ornithology 2015). Adjacent habitat on terraces or in upland areas (such as mesquite) can enhance the value of these narrow bands of riparian woodland.

Throughout the West, the 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 2015a, Tucson Audubon 2015b).

Within the boundaries of the DPS, cuckoos occur from sea level to elevations up to 7,000 feet or more; however, the moist conditions that support riparian plant communities typically occur at lower elevations. In southeastern Arizona, however, cuckoos are also found nesting along more arid ephemeral and intermittent drainages with sycamore, mesquite, walnut, hackberry, alder, or mixed oak assemblages (Corman and Magill 2000, Corman and Wise-Gervais 2005, AGFD 2015, Cornell Lab of Ornithology 2015).

Habitat for the cuckoo in much of its range is associated with perennial rivers and streams that support the expanse of vegetation characteristics needed for breeding. 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, FWS 2002). Hydrologic conditions at western yellow-billed cuckoo breeding sites can vary widely between years, and especially among years of low rainfall. Water or saturated soil may not always be present in occupied cuckoo habitats. 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 roam widely (several hundred miles), apparently assessing food resources before selecting a nest site (Sechrist *et al.* 2012).

Humid conditions created by surface and subsurface moisture and a multi-layered canopy appear to be important habitat parameters for cuckoos. The species appears to be restricted during nesting to drainages where humidity is adequate for successful hatching and rearing of young (Hamilton and Hamilton 1965, Gaines and Laymon 1984).

The association of breeding with large tracts of suitable riparian habitat is likely related to home range size. Individual home ranges during the breeding period average over 40 ha, 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). Within riparian habitat, cuckoos require relatively large patches of multilayered habitat for nesting (>20 hectares), with optimal size generally greater than 80 hectares (Laymon and Halterman 1989).

In addition to dense, multi-layered woodlands, cuckoos need adequate foraging areas near the nest. Foraging areas can be less dense or patchy with lower levels of canopy cover and may include a mix of shrubs, ground cover, and scattered trees (Carstensen *et al.* 2015, Sechrist *et al.* 2009, FWS, unpubl. data). Cuckoos often forage in open areas, woodlands, orchards and adjacent streams (Hughes 1999), which include stands of smaller mesquite trees and even tamarisk. In Arizona, adjacent habitat is usually more arid than occupied nesting habitat. 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).

Habitat needs during migration are not well understood, although they appear to include a

relatively wide variety of conditions. Migrating 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.

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, 79 FR 48548, 79 FR 59992). Factors leading to habitat loss and degradation include alteration of flows in rivers and streams, encroachment into suitable habitats due to agricultural and other developments, 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, 79 FR 59992). Pesticide use is widespread in agricultural areas in the U.S. and northern Mexico.

Ongoing threats to small isolated populations cause remaining populations to be increasingly susceptible to further declines and local extirpations through increased predation rates, barriers to dispersal, 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 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.

In summary, habitat for the western yellow-billed cuckoo has been modified and curtailed, resulting in the availability of 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 habitats, and to restore additional, riparian habitats 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 threat resulting from the combined effects associated with small and widely separated habitat patches to continue to affect a large portion of the cuckoo's range.

Proposed Critical Habitat

In 2014, FWS proposed 546,335 acres of riparian woodlands as critical habitat for the western yellow-billed cuckoo in 80 units in California, Arizona, New Mexico, Colorado, Utah, Idaho, Nevada, Wyoming, and Texas on August 15, 2014 (79 FR 48548). FWS proposed the following primary constituent elements (PCEs) for cuckoo critical habitat:

PCE 1: Riparian woodlands. Riparian woodlands with mixed willow and cottonwood vegetation, mesquite-thorn forest vegetation, or a combination of these that contain habitat for nesting and foraging in contiguous or nearly contiguous patches that are greater than 325 feet (100 meters) in width and 200 ac (81 hectares) or more in extent. These habitat patches contain one or more nesting groves, which are generally willow-dominated, have above average canopy closure (greater than 70 percent), and have a cooler, more humid environment than the surrounding riparian and upland habitats.

PCE 2: Adequate prey base. Presence of a prey base consisting of large insect fauna (for example, cicadas, caterpillars, katydids, grasshoppers, large beetles, dragonflies) and tree frogs for adults and young in breeding areas during the nesting season and in post-breeding dispersal areas.

PCE 3: Dynamic riverine processes. 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 (e.g. lower gradient streams and broad floodplains, elevated subsurface groundwater table, and perennial rivers and streams). This allows habitat to regenerate at regular intervals, leading to riparian vegetation with variously aged patches from young to old.

Status of the Species

Southwestern Willow Flycatcher

A complete description of the biology of the southwestern willow flycatcher (*Empidonax traillii extimus*) is contained in the *Southwestern Willow Flycatcher Recovery Plan* (FWS 2002). Furthermore, the Status of the Species, including the listing and critical habitat, is substantively unchanged from that which appeared in the October 31, 2013 *Final Biological and Conference Opinion for the Rosemont Copper Mine, Pima County, Arizona* (File Number 22410-2009-F-0389) and the June 28, 2016, final biological opinion on the Kelvin Bridge Replacement Project (File Number 02EAAZ00-2016-F-0222). The applicable content of these prior documents are incorporated herein via reference.

Yellow-billed cuckoo

The Status of the Species section from the April 28, 2016, Amended Final Reinitiated Biological and Conference Opinion for the Rosemont Copper Mine, Pima County, Arizona (File Number 22410-2009-F-0389R1) and final biological opinion on the Kelvin Bridge Replacement Project (File Number 02EAAZ00-2016-F-0222) contain complete descriptions of the biology and status of the taxon's listing and critical habitat. The content of these prior consultations is incorporated herein via reference.

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.

Action Area

The Action Area for the Proposed Action includes all areas within the Corps' National Environmental Policy Act (NEPA) Scope of Analysis and subject to direct surface disturbance (including the realignment of portions of the Florence-Kelvin Highway, a SCIP 69-kV power

line, and the Arizona Trail), areas downstream of the tailings storage facility and associated diversion structures to the Gila River, and the proposed Clean Water Act Section 404 mitigation sites on the San Pedro River (BA Figure 5). The Gila River reach from the proposed pipeline bridge crossing upstream of the Florence-Kelvin Bridge to downstream of Zelleweger Wash is also included as part of the action area as part of the Action Area in order to assess the riparian and aquatic effects associated with the construction of the pipeline bridge, the loss of runoff from approximately 2,636 acres of watershed in the tailings storage facility footprint and downstream from the Project's stormwater diversion infrastructure (primarily in Ripsey Wash) that would no longer provide ephemeral flow to the Gila River, and the diversion of upstream flows around the tailings storage facility to Zelleweger Wash.

The Gila River begins in western New Mexico and flows westward through southern Arizona to the Colorado River. The San Pedro River's headwaters are in northern Sonora, Mexico; the river flows northwards into the United States and enters the Gila River near the town of Kearny.

Within the action area, the Gila River is largely perennial (U.S. Geological Survey [USGS] 2017). The Bureau of Indian Affairs operates Coolidge Dam and releases water based on the demands of downstream users. Water releases occur year-round with the highest generally occurring during summer months. However, in some years, the reservoir does not have sufficient volume to maintain continual releases, and as a result the Gila River can have intermittent flows, although the channel within the project limits usually retains saturated soils and isolated pools at a minimum. Natural inflows from the San Pedro River, which joins the Gila River approximately 15 mi upstream of the project area, contributes to the Gila River's hydrograph.

The upland portions of the action area includes disturbed and undisturbed areas within the Sonoran desertscrub biotic community (Brown 1994). Disturbed areas are primarily associated with existing roadways, which include the highway, paved county roads, unpaved secondary roads, roadway shoulders, and railroads.

The portion of the action area associated with the San Pedro mitigation properties is situated within the Lower San Pedro Basin. The San Pedro River basin is divided into two distinct geographic units, referenced as the upper and lower basins. The Upper San Pedro Basin extends from the headwaters in Mexico to "the Narrows" north (downstream) of Benson and the Lower San Pedro Basin extends from "the Narrows" to the Gila River (Arizona Department of Water Resources [ADWR] 1988). But for a small diversion in the St. David area well upstream of the action areas, the San Pedro River is largely undammed. Flows depend on a variety of factors including groundwater pumping and water diversions for agricultural use (ADWR 2010). Recent studies in upstream reaches indicate that San Pedro groundwater is being pumped in excess of recharge (National Riparian Service Team 2012). Cordova *et al.* (2015, page 18) also stated that groundwater flows in both deep and shallow aquifers from the Benson area to reaches in the lower San Pedro River downstream further downstream. Haney and Lombard (2005, entire) provided further indirect evidence that the floodplain alluvial aquifer at Three Links Farm, a conservation property on the San Pedro River downstream of Benson, is maintained by interbasin transfer of groundwater from the Benson Area; local mountain-front recharge is of insufficient volume to explain the quantities of alluvial water present at the site. Baseline deficit groundwater pumping was estimated to be 1,300 acre feet per annum (afa) in 2002 (Arizona

Department of Water Resources, personal communication as referenced in Haney and Lombard 2005, page 2) in the Benson sub-area of the Upper San Pedro groundwater basin in which the proposed project is situated. The value may have increased in the 11 years since Haney and Lombard (2005) was published.

Riparian areas within the Gila and San Pedro rivers within the action area are classified as Sonoran riparian deciduous forest, Sonoran riparian scrubland, or Sonoran interior marshland (Brown 1994). Within the action area, vegetation is variously dominated by dense, mature stands of tamarisk (*Tamarix* spp.), with some Fremont cottonwood (*Populus fremontii*), Goodding's willow (*Salix gooddingii*), and velvet mesquite (*Prosopis velutina*) intermixed. Some tamarisk trees are up to 40 feet in height, and most of the cottonwoods and willows are 20-40 feet tall. Vegetative cover is 80% or more, and tree branches hang over the river and in places extend over the water 5-15 feet.

Habitat within Mitigation Sites A through D is variable, and is described in detail in the BA.

San Pedro River Mitigation Sites A and B, located on the eastern side of the San Pedro River, are dominated by velvet mesquite. Site A, adjacent to and contiguous with the riparian zone along the river, provides a mesquite bosqué, while the mesquite in Site B is more sparse and intermixed with other native trees and shrubs. San Pedro River Mitigation Site C, located on the western side of the San Pedro River on a terrace above the active river channel, is sparsely vegetated having been impacted by past agricultural practices and possible fuel-wood-harvesting. San Pedro River Mitigation Site D is within the active floodplain of the San Pedro River and is dominated by tamarisk.

Stretching along approximately 7 miles of the Lower San Pedro River, the LSPRWA ILF Project has the potential to support high-value mesoriparian and hydroriparian habitats, and provide regional conservation benefits. While the mitigation measures proposed within the LSPRWA ILF Project are not focused on the type of xeroriparian habitat associated with the ephemeral drainages to be impacted by the Project, the habitats within the mitigation site that will be preserved, enhanced, and restored are more rare within the regional landscape, have higher productivity, and possess higher wildlife values than the impacted xeroriparian habitats (Lowery *et al.* 2016) , including designated and proposed critical habitats for southwestern willow flycatcher and yellow-billed cuckoo.

<u>Southwestern Willow Flycatcher</u>

Flycatcher occurrence on the Gila River and at Kelvin Bridge has been well documented since 1995 as a result of increased monitoring efforts that followed the species' listing that year, and protocol surveys done specifically to assess the effects of the Kelvin Bridge replacement, as well as the proposed action, have been performed since 2006. The BA contains a detailed history of the taxon's occurrence - and increasing trends - through the 2015 survey season in the Gila River reach adjacent to the tailings storage facility portion of the action area; it is incorporated herein via reference.

WestLand (2016a and 2017a) are the most current survey report for the Kelvin Bridge area. Eleven detections occurred in proximity to the Kelvin Bridge (WestLand 2016a). Detections in

2016 included 5 confirmed pairs of flycatchers within 6 territories. There was only one confirmed pair in 5 territories in 2017. Breeding status was considered likely but not confirmed for any of the individuals or pairs.

WestLand has not conducted formal southwestern willow flycatcher survey within the proposed mitigation sites. However, WestLand biologists have heard willow flycatchers calling along the San Pedro River in proximity to Mitigation Sites A through D during field visits to conduct fence inspections. Also, in a study of southwestern willow flycatcher habitat selection on the Gila and San Pedro Rivers, Paradzick (2005) compared occupied and unoccupied habitat patches. Paradzick surveyed many different locations along these rivers between Mammoth and Kelvin, and occupied patches of habitat were identified upstream from Site D and downstream from Sites A, B, and C on the San Pedro River.

Southwestern Willow Flycatcher

Factors Affecting Species Environment and Critical Habitat within the Action Area

Two primary and related factors influence flycatcher abundance and distribution within and near the project limits and throughout the designated critical habitat unit: (1) water releases from Coolidge Dam on the Gila River, upstream; and (2) the effects of stream flows on flycatcher habitat. The timing of releases is also important.

Ellis *et al.* (2008) and Graber and Koronkiewicz (2009) examined the effects of declining stream flows on flycatchers from Coolidge Dam during the late 1990s and early 2000s, followed by the return of more consistent flows from 2005-2007, using linear regression. Graber *et al.* 2012 continued monitoring flycatchers and flows after 2007. The study included protocol survey points from Dripping Springs Wash to the Kelvin Bridge, or to the town of Florence, downstream of the Ashurst-Hayden Diversion Dam when flows were high enough to survey from rafts or kayaks. They used mean monthly Gila River streamflow data collected at two USGS gauging stations (Number 09469500, below Coolidge Dam; Number 09474000, at Kelvin). Monthly streamflows from the two stations were averaged for use in the analysis. Linear regressions were performed on streamflow over four periods: 1) May of the previous year through April of the current year (annual); 2) July of the previous year through April of the current year (monsoon to breeding); 3) April–August (breeding); and 4) December–April (winter and spring).

All linear regressions showed a positive relationship between Gila River streamflow and the number of flycatcher territories. Streamflow from the beginning of the previous monsoon season through the beginning of the breeding season (July of the previous year through April of the current year) had the strongest relationship with the number of territories ($R2 = 0.58$, $t = 3.31$, $P= 0.011$). July through April streamflow explained 58% of the variation in flycatcher territories from 1998 to 2007. On average, an increase of 1.3 territories occurred for every additional 100 cubic feet per second (cfs) of water flow.

From 1998 to 1999, mean monthly streamflow from July to April was 327 cfs and territory numbers increased by 30% along the Gila River (Graber *et al.* 2009 Appendix I). A high of 69 flycatcher territories were detected in 1999. From 2000 to 2004, July to April streamflow at the

Gila River study area decreased to 160 cfs and became inconsistent due to limited releases from Coolidge Dam (the years 2000-2004 were drought years; McPhee *et al.* 2004). In 2004, only 14 territories were confirmed. The drought ended in 2005, storage at the San Carlos Reservoir increased, along with downstream water demand, and mean monthly flows increased to 300 cfs, 88 percent higher than the 2000-2004 flows. Territory numbers increased to 39 in 2006 and to 62 in 2007. Graber *et al.* (2012) reported streamflows above 300 cfs every year from 2008-2011, and during that time flycatcher abundance continued to increase, from 63 to 188 pairs.

Graber *et al.* (2012) concluded that the presence of water and/or saturated soil immediately adjacent to and/or under river bank vegetation is likely the primary habitat feature that drives flycatcher colonization and breeding. The presence of water at the time flycatchers arrive depends on precipitation and/or water releases prior to their arrival (Graber *et al.* 2012). Surface water may positively affect flycatchers in several ways. Stream flows, standing pools, even saturated soils along with a substantially closed canopy help to create microclimates that are cooler and more humid than surrounding areas. Surface water may also influence the abundance of insect prey (Brown and Li 1996). These factors may contribute to adult physiological condition after adults arrive on nesting areas, may improve offspring survival, and may increase the chances of a successful second nesting attempt. Streamflows before flycatchers arrive on their territories (and presumably during the breeding period) may also have positive effects on streamside vegetation. Surface and ground water availability (influenced by rainfall and dam discharge) positively affected woody and herbaceous species richness and cover on the San Pedro River near its confluence with the Gila River (Lite *et al.* 2005).

The importance of surface water to flycatchers and their streamside vegetation is also evident when we focus on flycatchers and habitat conditions (i.e., critical habitat) in the reach containing the Kelvin Bridge. Results of protocol surveys there from 1995-2015 show a pattern of occupancy and abundance similar to that of the critical habitat unit as a whole. Flycatchers were found at Kelvin from 1996 to 1999 (2 territories each year, 5 in 1999), in 2006 (1 territory), and from 2012-2016 (at least 2 territories each year, 5 in 2014 and 6 in 2016). Thus, flycatchers were present before the drought, were absent during the drought, and returned after the drought (one territory was found in 2006). Interestingly, flycatcher numbers at Kelvin did not increase steadily immediately after the drought, as they did in the critical habitat unit as a whole. Territory numbers at Kelvin did not reach pre-drought levels until 2014. The reason for this, we suspect, is that habitat conditions declined during the drought and did not fully recover until well after the drought ended. When we issued our first biological opinion for the Kelvin Bridge Project in 2006 (June 27, 2006; File Number 02EAAZ00-2006-F-0429), vegetation within the project limits was dominated by tamarisk with intermixed cottonwood and willow, as it is today. However, in our 2006 biological opinion we noted that the riparian woodland at and near the Kelvin Bridge had "intermediate" density, presumably meaning that canopy closure was well less than it is now (80%). We also described the riparian habitat as "nominal" migration, stopover, foraging, dispersal, and feeding habitat, and referred to the "baseline near-absence of breeding habitat within the project area." In 2006, we considered it probable that habitat suitable for nesting flycatchers would develop at the site over time, and this is what occurred.

Flycatcher habitat within the project limits and immediately upstream and downstream contain all physical and biological features of PCE 1 (riparian vegetation) that are essential for flycatcher breeding, foraging, dispersal and migration. Within the project limits, riparian vegetation occurs

as a broad, continuous belt of dense, young to mature woodland with a multilayered closed canopy and adjacent perennial surface water providing moisture and shade. Vegetation structure is patchy and complex, with variable species compositions, and tamarisk as the dominant species overall. We have no data on insect prey populations (PCE 2), but judging from recent survey results, indicating that flycatcher numbers at Kelvin have reached pre-drought levels, we assume that insect prey are readily available for flycatchers.

The Kelvin Bridge Project was not completed following our April 23, 2012, biological opinion on the action. The action was consulted upon again, culminating in our June 28, 2016, final biological for the Bureau of Land Management (BLM) regarding the implementation of the Kelvin Bridge Replacement Project (File Number 02EAAZ00-2016-F-0222). In this 2016 biological opinion, we anticipated incidental take of southwestern willow flycatchers and yellow-billed cuckoos.

The incidental take of flycatchers was expected to be in the form of loss of habitat and harassment, causing displacement, reduced productivity, and reduced survivorship as a result of noise and increased activity from construction activities occurring adjacent to nesting southwestern willow flycatchers for up to two breeding periods. Based on the existence of one to two territories within and directly adjacent to the project limits, we estimate that four individuals will be taken from habitat loss and disturbance associated with construction activities each year of the replacement project.

Western Yellow-billed Cuckoo

The occurrence of yellow-billed cuckoos on the Gila River in general, and in the vicinity of the Kelvin Bridge specifically, has been documented since 2012 (WestLand 2012, 2013, 2014b, 2015b, 2016b, and 2017b). The BA contains a detailed history of the taxon's occurrence through the 2015 survey season; it is incorporated herein via reference.

WestLand (2017b) is the most current survey report for the Kelvin Bridge area. Four cuckoos were detected at Transect 3 in 2017, representing at least two individuals if paired birds were detected. Surveys were not conducted while construction was active at the Kelvin Bridge site.

No specific surveys have been conducted for yellow-billed cuckoo at the proposed mitigation areas on the San Pedro or Gila River. We have identified the Gila and San Pedro Rivers as locations with greater than 10 breeding pairs of yellow-billed cuckoo. The Arizona Breeding Bird Atlas indicates probable yellow-billed cuckoo breeding along the lower San Pedro River and possible breeding on the Gila River between Kearny and Kelvin (Corman and Wise-Gervais 2005). Data available on eBird (2014) provide numerous records of yellow-billed cuckoo observations along the San Pedro River between the mouth of Aravaipa Creek and Dudleyville, an area that includes the San Pedro River Mitigation Areas.

The pipeline crossing at the Kelvin Bridge and the mitigation properties are located within the cuckoo's proposed Lower San Pedro and Gila River Critical Habitat Unit 28 in Cochise, Pinal, and Pima Counties, Arizona (79 FR 48548). On the San Pedro River, the unit extends from above the Town of Mammoth downstream to the San Pedro/Gila River confluence. On the Gila River, the unit begins at the confluence and continues downstream nearly to the town of

Florence. The unit encompasses 23,399 acres and 59 miles of the river.

The riparian woodlands in and around the project limits that were surveyed for cuckoos contain some but not all of the physical and biological features of PCE 1 (riparian vegetation). Woodlands at the bridge extend continuously upstream and downstream of the bridge for many miles and have the spatial extent, canopy closure (80%), and structural development of cuckoo breeding and foraging habitat, but they are dominated by tamarisk. Cuckoos occasionally nest in tamarisk, but nests are usually in willows within mixed willow/cottonwood stands (Laymon 1980, Hughes 1999, Corman and Magill 2000). Cottonwoods and willows are present in the project area but are intermixed with tamarisk or occur in small patches where they are the dominant species.

Recent FWS guidance on consultations involving cuckoos caution that habitats containing tamarisk should not be overlooked as potential cuckoo breeding habitat (FWS 2016). In Arizona and New Mexico, cuckoos breed in mixed native/tamarisk habitat, and tamarisk may contribute toward cover, temperature amelioration, increased humidity, and insect production where native habitat has been compromised by altered hydrology. In some areas, if tamarisk is removed, the remaining more exposed, hotter and drier habitat may be rendered unsuitable. For example, on the Rio Grande in New Mexico, a dense understory comprised of tamarisk, Russian olive, or native vegetation (e.g. willow) appears to be an important component for territory establishment (Sechrist *et al.* 2009). Cuckoos have not been found breeding in monotypic tamarisk habitat in Arizona, but in some areas, in particular several reaches of the Gila River, cuckoos have been found breeding in tamarisk-dominated habitat.

The draft FWS guidance on consultations involving cuckoos (FWS 2016) also points out that cuckoo foraging may extend into the uplands adjacent to currently suitable breeding habitat and may vary in species composition and density. The amount of non-riparian foraging habitat cuckoos use in fact may exceed the amount of riparian habitat they use. Foraging habitat types include mesquite bosqués, Madrean evergreen woodlands, shrubby habitat that may or may not include mesquite, and semi-desert grassland. Cuckoos may use monotypic tamarisk habitat for foraging if it is adjacent to or near mixed native/tamarisk habitat.

The cuckoo survey protocol (Halterman *et al.* 2015), results of Westland's cuckoo surveys in and near the project limits (Westland 2012, 2013, 2014, 2015, 2016b, and 2017b), and recent draft FWS guidance on consultations involving cuckoos (FWS 2016) suggest that some of the 33 cuckoos detected during protocol surveys were migrants, and that riparian vegetation at and near the Kelvin Bridge is suitable as resting and foraging habitat for migrants. The survey protocol (Page 16, Figure 2) indicates that cuckoos detected during any of the 3 survey periods could be breeders, but birds detected during the first period only (June 15-July 1) are likely to be migrants. In 2014, all three detections were in June. Habitat needs during migration are not well understood; however, they appear to include a relatively wide variety of conditions. Migrating 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.

The Halterman *et al.* (2015) survey protocol also indicates that most cuckoos detected during July are likely to be breeders. The fact that more than 70 percent of Westland's detections occurred in July suggests that some of the 33 cuckoos detected during all three years of surveys

were breeding birds. Although we have no direct evidence of cuckoos breeding in or near the project limits, we consider it probable that cuckoos do breed within the action area.

Factors Affecting Species Environment and Critical Habitat within the Action Area

The cuckoo is a riparian obligate breeder but much of its historical riparian habitat has been lost, altered, or degraded (Governor's Riparian Habitat Task Force 1990, Ohmart 1994). Most riparian habitats in the Southwest have been fundamentally altered by a century or more of urban and agricultural development, water diversions, dam building, ground water pumping, livestock grazing, and other human disturbances.

In the past, riparian habitats occupied by cuckoos by their nature were dynamic and were governed primarily by floods and flow patterns. Historically, cuckoos depended on natural flood cycles to generate the riparian woodlands and galleries it used for nesting, and to recycle old habitats as they grew out of suitability. Periodic flooding allowed the deposition of moist sediments and regeneration of native riparian species, i.e., willows and cottonwoods.

The stretch of the Gila River downstream from Coolidge Dam does not receive the magnitude and variability of annual peak flows from flood events that occurred prior to construction of the dam, and today very few patches of native riparian habitat exist below the dam. Currently, water releases from Coolidge Dam may occur year-round with the highest releases generally occurring during summer months, and the lowest during spring. However, in some years, the reservoir does not have sufficient volume to maintain continual releases, and as a result the Gila River can have intermittent flows. A natural inflow from the San Pedro River, which joins the Gila River approximately 15 mi upstream of the project area, contributes to the Gila River's hydrograph. However, flows from the San Pedro River depend on a variety of factors, including groundwater pumping and water diversions for municipal and industrial use (Arizona Department of Water Resources [ADWR] 2010). Recent studies indicate that San Pedro groundwater is pumped in excess of recharge (National Riparian Service Team 2012).

Thus, past and current conditions within the action area—the loss of natural, periodic flooding, diminished and in some years non-existent spring peak flows, combined with relatively higher late-spring and summer flows in the Gila River, along with intermittent contributions from the San Pedro River—tend to disfavor the establishment and/or maintenance of native cottonwood/willow forests while creating the conditions under which nonnative tamarisk thrives. Current conditions within the project limits tend to promote flycatcher nesting habitat at the expense of cuckoo nesting habitat. These factors, coupled with the inability of native vegetation to regenerate under altered hydrological conditions, are a significant threat to the cuckoo within the action area and throughout its range.

We have completed one recent formal consultation in the action area. On June 28, 2016, we transmitted a final biological opinion to the Bureau of Land Management (BLM) regarding the implementation of the Kelvin Bridge Replacement Project (File Number 02EAAZ00-2016-F-0222). In this biological opinion, we anticipated incidental take of yellow-billed cuckoos.

The incidental take of cuckoos was anticipated to be in the form of loss of habitat and harassment, causing displacement, reduced productivity, and reduced survivorship as a result of

noise and increased activity from construction activities occurring adjacent to one cuckoo nesting territory; thus, we estimated that two individual cuckoos would be taken during each year of the Kelvin Bridge replacement project. The Kelvin Bridge was under construction as of the 2017 survey season (WestLand 2017b)

Effects of the Proposed Action

As stated above, your June 27, 2016, letter characterizes the proposed action as containing two primary components, which are: (1) the proposed tailings storage facility and associated infrastructure; and (2) a grouping of five compensatory mitigation areas (A-E) identified herein as the bulk of the conservation measures. The proposed tailings storage facility is a complex engineering undertaking involving appreciable and permanent alterations to the existing environment. The mitigation actions, which are geographically isolated from the tailings storage facility, exhibit appreciably lesser effects to the environment and are intended to minimize the adverse effects of the tailings storage facility portion of the action.

Effects to Southwestern Willow Flycatcher

Highway, Utility, Infrastructure, Arizona Trail, and Tailings Storage Facility

The relocation of the Florence-Kelvin Highway, the relocation of the SCIP power line, and the placement of tailings and seepage collection facilities within Ripsey Wash are anticipated to have no measurable effect to southwestern willow flycatchers; the habitat is xeric and dominated by xeric species not known to support breeding activities (see BA pages 20-21).

Florence-Kelvin Highway traffic is expected to increase 25 to 50 percent over current levels during the 3-year peak construction period for the tailings storage facility, which includes the construction of the pipeline bridge and other pipeline infrastructure including the drain-down pond, the realignment of the Florence-Kelvin Highway and SCIP powerline, site preparation, and the construction of the starter dam and stormwater diversion and seepage collection infrastructure (see BA page 20). The Gila River in the vicinity has been occupied by southwestern willow flycatchers under past- and present-day Florence-Kelvin Highway traffic levels as well as frequent disturbances by trains using the Copper Basin railway. Mortality of individual flycatchers under baseline, pre-project conditions, is unknown, but we are not aware of any data that would permit us to determine the magnitude of future mortality that may result from the 3-year increase in traffic volume.

Other Project activities along the Gila River riparian corridor related to the relocation of the Florence-Kelvin Highway, the relocation of the SCIP power line and Arizona Trail, and seepage collection in Ripsey Wash would affect areas in already-disturbed sites and/or areas that are dominated by velvet mesquite, desert broom, and other xeroriparian plant species (Corps letter dated February 2, 2018, Figure 2a) that are relatively less likely to support occurrences of southwestern willow flycatchers than the more mesic habitat adjacent to the Gila River. We note, however, that 5.8 acres of these xeric areas are as close as 0.2-mile from a perennial reach of the Gila River and are mapped as critical habitat for the species (see Corps letter dated February 2, 2018, Figure 2a and the critical habitat effects analysis, below). In addition, habitat north of the Copper Basin Railway and east of the proposed drain-down pond, booster pump

station, and electrical switchgear would be affected by the proposed action (Corps letter dated February 2, 2018, Figure 2a). Construction-related disturbance is anticipated to have insignificant effects to flycatcher foraging but not to breeding, as these areas are also dominated by small-stature velvet mesquite and other xeroriparian plant species. The noise level of the booster pump, which will be in constant operation once the project is operational; is anticipated to be similar to a normal human conversation (BA page 21) at the Gila River, along which flycatchers breed. Noise is not a novel effect; the noise associated with the existing use of the Florence-Kelvin Highway and Copper Basin Railway is much greater.

Ripsey Wash is ephemeral, and flows only in response precipitation. The placement of tailings in Ripsey Wash will result in a small effect to the peak flow hydrograph of the Gila River, but we anticipate that the alteration will be insignificant. The impoundment of the Gila River within the San Carlos Reservoir by Coolidge Dam, situated approximately 50 miles upstream of the Kelvin Bridge, already strongly attenuates flood flows originating in upstream reaches of the Gila River, and alters downstream baseflow hydrology due to the highly managed delivery of irrigation water to the Ashurst-Hayden Diversion Dam, approximately 21 miles downstream. The San Pedro River, the confluence of which is approximately 19 miles upstream from the Kelvin Bridge, exhibits relatively intact flood-flow hydrology, though near-stream groundwater withdrawals exert a strong influence on base flows.

The U.S. Geological Survey (USGS) stream gage near Kelvin (Number 09474000) is located approximately 2 miles downstream of the Kelvin Bridge. The watershed area at the gage is approximately 11,527,040 acres (USGS 2017). Of the watershed area, approximately 8,234,240 acres are above Coolidge Dam, and approximately 3,280,000 acres are below Coolidge Dam, the largest contributing area of which is the San Pedro River (USGS 2017). The cessation of peak flows from approximately 1,975-acres in the Ripsey Wash watershed is unlikely to result in a measurable change in the hydrology of the Gila River downstream from the Ripsey Wash confluence. Breeding flycatcher abundance is correlated to stream flows (see Ellis *et al.* 2008, Graber and Koronkiewicz 2009, and Graber et al. 2012), but we feel that the proposed action's indiscernible additional perturbation to the baseline level of hydrologic alteration is unlikely to result in detectable changes in flycatcher abundance within the action area.

Pipeline Bridge

The removal of riparian vegetation to accommodate the pipeline bridge has the potential to adversely affect southwestern willow flycatchers via habitat loss. Surveys conducted on the Gila River in 2014 and 2015 within the action area indicate that two breeding territories are present upstream from the Kelvin Bridge (WestLand 2014a, 2015a, 2016a, and 2017a).

The proposed pipeline bridge construction activities are planned on the northern and southern banks of the river within approximately 110-foot-wide corridors on either side of the Gila River channel (see BA Figure 8). Combined, these two construction areas encompass approximately 1.0 acre. Within this 1.0-acre area, 0.2 acre will be permanently affected by the 14-feet-wide pipeline bridge span and the placement of six bridge piers. Direct effects also include disturbance and harassment of flycatchers that arrive in the project area during construction, including migrants and resident birds that would remain in the area to breed.

The proposed pipeline bridge will be elevated, and existing vegetation will remain in place upstream of and downstream from the bridge. Vegetation is anticipated to eventually reestablish in cleared areas near the bridge itself. The bridge is not expected to act as a barrier to long-distance migrations or local dispersal movements.

The proposed pipeline bridge is adjacent to the existing Kelvin Bridge, which conveys vehicles and non-motorized traffic across the Gila River. The Arizona Department of Transportation (ADOT) had proposed to construct a new bridge span at Kelvin, while retaining the existing bridge for non-motorized uses. We transmitted a final biological opinion (BO) on the Kelvin Bridge Replacement Project to the Bureau of Land Management (BLM; involved in the ADOT consultation via the bridge's Public Land right-of-way) (File number 02EAAZ00-2016-F-0222) on June 28, 2016. The bridge is currently under construction, albeit with seasonal restrictions.

Vegetation removal activities for the ADOT Kelvin Bridge project will be restricted to the period October 1-March 31, when flycatchers are on their wintering grounds; thus, no direct impacts (injuries or fatalities) to adult flycatchers, their eggs, or young were expected to occur as a result of vegetation removal operations.

In the June 28, 2016, Kelvin Bridge BO, we found that direct effects to flycatchers would result from the removal of a total of 1.2 acres of suitable nesting, foraging, and migration habitat, comprised of 0.4 acre of riparian vegetation that would be permanently removed for the bridge's piers, and 0.8 acre that would be removed temporarily for workspace and equipment access and would be restored after project completion. Direct effects of the Kelvin Bridge are substantively the same as those anticipated for the proposed pipeline bridge, and include disturbance and harassment of flycatchers that arrive in the project area during construction, including migrants and resident birds that would remain in the area to breed.

Construction of the new Kelvin Bridge began during 2017, prior to the construction of the proposed pipeline bridge. A 0.3-acre portion of the 0.8-acre temporarily affected proposed pipeline bridge construction corridor in the Gila River will thus have already been cleared (see BA Figure 8) by the time the pipeline bridge begins construction. The proposed action will therefore have a net effect to 0.7 acre of habitat. The 0.2-acre of permanent effects from the pipeline bridge and piers will remain unchanged. These net effects will nevertheless result in direct effects including disturbance and harassment of flycatchers that arrive in the project area during construction, including migrants and resident birds that would remain in the area to breed.

The Conservation Measures (see above) state that riparian vegetation along the Gila River will be cleared for the pipeline bridge project outside of the breeding season for the southwestern willow flycatcher (April 15 to September 15) and yellow-billed cuckoo (May 15 to September 30). When both species' breeding seasons are considered, the vegetation clearing window will be from October 1 to April 14. During this time period, flycatchers are on the wintering grounds; thus, no direct impacts (injuries or fatalities) to adult flycatchers, their eggs, or young would be expected to occur as a result of vegetation removal operations. The proposed action also states that vegetation will be pre-cleared and that work will then take place during the breeding season. By this time, flycatchers will have had ample opportunity to relocate, and the two known territories on site will have already been disturbed (and incidentally taken, with authorization) by Kelvin Bridge clearance and construction activities. We note that the pipeline

bridge work window differs from the October 31 through March 31 work window being implemented by ADOT and the BLM for the adjacent Kelvin Bridge project. The 15-day difference nevertheless minimizes effects to flycatchers, which may establish territories as early as mid-April (FWS 2002, page 21).

We are also aware that part of the pipeline's purposes is to provide fresh water to the tailings storage facility site, and we understand the source of fresh water is from Asarco wellfields near the confluence of the Gila and San Pedro rivers (ADEQ 2002), which pump Gila River subflow pursuant to federal decreed surface water rights. We also understand that the proposed action at Ripsey Wash is to replace the existing Elder Gulch Tailings Storage Facility (C. Marr pers. comm. 2016). There will be a period of overlap (approximately 1 to 3 years) during which water needs now associated with producing tailings stored at the Elder Gulch tailings storage facility will decrease and water needs associated with producing tailings stored at the Ripsey Wash tailings storage facility will increase; however, total water use associated with production during and after this period of overlap is not expected to increase because overall tailings generation rates are expected to remain commensurate with current levels. We are unable to analyze the effects of any potential temporary increase in water withdrawals associated with the period of overlap but anticipate those effects will be minimized by Ripsey Wash coming on-line while Elder Gulch is going off-line.

Mitigation Properties

The proposed action conservation measures include four mitigation sites located along the San Pedro River (Sites A through D) that are approximately 29 river miles upstream from the constructed portion of the proposed action and the purchase of mitigation credits form to the LSPRWA ILF Project. Table 1, above briefly describes the five proposed offsite mitigation properties.

In brief, management activities will include, active riparian management, and control of access to exclude grazing, trespass, and fuelwood harvest. On Mitigation Site C on the lower San Pedro River, approximately 25.8 acres of tamarisk and other nonnative plants will be removed and replaced with native species. Portions of these sites are within critical habitat for the southwestern willow flycatcher. Heavy equipment will be used to remove tamarisk and herbicides will be applied post-removal to discourage resprouting. These activities will be conducted between October 1 and April 14, outside of the flycatcher's breeding season, and will be conducted in accordance with the *Recommended Protection Measures for Pesticide Applications in Region 2 of the U.S. Fish and Wildlife Service* (White/FWS 2007).

We note that Mitigation Sites A, B, C, and D, are contained within and/or adjacent to the larger Asarco PZ Ranch Mitigation Site parcel, the management of which was subject to informal consultation under the Act on June 18, 2009, and, as a reinitiation, on January 5, 2017(File Numbers 22410-2009-I-0335 and 22410-2009-I-0335R1, respectively). In both of our prior informal PZ Ranch-related consultations, we determined that the proposed management activities – which are identical to those associated with the currently-proposed action in sites A through D, are not likely to adversely affect the southwestern willow flycatcher and its critical habitat. The prior analyses as they pertain to the flycatcher are incorporated herein via reference, but our justification for those findings will appear in the species' conclusion section, below.

The purchase of 77.06 acres of mitigation credits from the AGFD LSPRWA (advance credits are available; see the Draft ILF Enabling Instrument; Corps 2018) will ensure that southwestern willow flycatcher habitat, and critical habitat, is protected and/or restored and conserved in perpetuity.

Effects to Southwestern Willow Flycatcher Critical Habitat

Southwestern willow flycatcher critical habitat along the Gila River within the pipeline bridge portion of the action area exhibits all of the physical and biological features of critical habitat PCE 1 (riparian vegetation) that are essential for flycatcher breeding, foraging, dispersal and migration. Within the pipeline bridge area, riparian vegetation occurs as a broad, continuous belt of dense, young to mature woodland with a multilayered closed canopy and adjacent perennial surface water providing moisture and shade. Vegetation structure is patchy and complex, with variable species compositions, and tamarisk as the dominant species overall. We have no data on insect prey populations (PCE 2), but judging from recent survey results (see Environmental Baseline section, above), indicating that flycatcher numbers at Kelvin have reached pre-drought levels, we assume that insect prey are readily available for flycatchers.

The proposed pipeline bridge will cross the Gila River and pass through designated critical habitat for the southwestern willow flycatcher (BA Figure 8). The footprint of the approximately 14-foot-wide pipeline bridge spanning the river and the associated six piers within the river's riparian corridor (approximately 0.2 acre) represents a permanent loss of flycatcher critical habitat. The pipeline bridge's landward construction activities within the approximately 110-foot-wide corridors on either side of the Gila River channel encompass approximately 0.8 acre of additional critical habitat (BA Figure 8). Combined, these two construction areas encompass approximately 1.0 acre of critical habitat.

As stated above, construction of the new Kelvin Bridge by ADOT began in 2017, prior to the construction of the proposed pipeline bridge. A 0.3-acre portion of the 0.8-acre temporarily affected proposed pipeline bridge construction corridor within southwestern willow flycatcher critical habitat along the Gila River will thus have already been cleared (see BA Figure 8) by the time the pipeline bridge begins construction. The pipeline bride element of the proposed action will therefore have a net effect to 0.7-acre of critical habitat (again, 0.5 acre inland, and 0.2 acre for the bridge and piers).

Approximately 6.4 acres of southwestern willow flycatcher critical habitat north of the Copper Basin Railway and east of the proposed drain-down pond, pump station, and electrical switchgear will be removed to accommodate project activities (Corps letter dated February 2, 2018, Figure 2a). In these areas, PCEs 1 and 2 are represented to a lesser extent than along the river, as riparian habitat becomes progressively less dense and hydric with increasing distance from the water and in the most inland portions of the critical habitat, vegetation transitions into small-statured, xeric species. These inland/upland critical habitat losses are nevertheless an effect to southwestern willow flycatcher. We also note that roads, infrastructure, and similar constructed landscapes are excluded from critical habitat.

We anticipate that there will be 6.6 acres of permanent effects to designated PCE 1 (riparian vegetation) and PCE 2 (insect prey populations) within critical habitat in the action area—or

approximately 5.1 x 10^{-4} percent of the 12,824.2 acres of the designated Middle Gila-San Pedro Critical Habitat Management Unit, and 3.2 x 10^{-5} percent of the 208,973 acres of designated critical habitat range-wide. The 0.2 acre of temporary effects is *de minimis* in scale, given the high likelihood that it will be of a short duration. These effects represent immeasurably small impacts to the flycatcher's critical habitat. The preservation and/or future restoration of 77.06 acres of riparian habitat at the AGFD LSRWA ILF site (via credit purchase) will further contribute to the long-term conservation of southwestern willow flycatcher critical habitat, though we note such an action may necessitate future section 7 consultation.

The remainder of the Ripsey Wash tailings storage facility and associated infrastructure is located outside critical habitat for southwestern willow flycatcher. We do not anticipate that the 1,975-acres of tailings to be placed in the Ripsey Wash watershed will indirectly affect – via altered peak-flow hydrology - southwestern willow flycatcher habitat in downstream reaches. Our rationale for this determination appears in the Highway, Utility, Infrastructure, Arizona Trail, and Tailings Storage Facility subsection, above.

The eventual operation of the proposed tailings storage facility is not expected to have any direct effect on southwestern willow flycatcher critical habitat. The pipeline system has been designed to minimize any risk of spillage into the Gila River by means of containment pipes and a drain-down pond north of the river. In addition, noise levels from the pumps at the booster station and the operational traffic using the Florence-Kelvin Highway would be insignificant when compared with current routine train noise levels.

The conservation and management of the mitigation parcels along the Gila and San Pedro rivers will exclude livestock grazing, off-road vehicle access, and wood-harvesting. These beneficial actions should allow further development of the mesquite bosqué and riparian vegetation, which would be expected to enhance conditions within the southwestern willow flycatcher designated critical habitat.

Vegetation clearing of the fence line on the eastern side of San Pedro River Mitigation Site A and the western side of San Pedro River Mitigation Site C has been conducted for fence maintenance purposes. This clearing would continue as part of maintaining the fence around these mitigation lands.. An approximately 10-foot-wide corridor would be maintained along the fence line to allow access for fence repairs and reduce the potential for damage to the fence from fallen vegetation. This clearing of vegetation would be conducted along the boundary of the riparian vegetation and on adjacent lands that include agricultural fields and open desert areas. These areas are located along the outer boundary of mapped critical habitat for southwestern willow flycatcher.

There would be no impacts to southwestern willow flycatcher critical habitat associated with the proposed realignment of the Arizona Trail.

<u>Effects to Yellow-billed Cuckoo</u>

The effects to yellow-billed cuckoos are similar to those described for the southwestern willow flycatcher, above, in that various elements of the proposed action will result in the loss of

riparian vegetation along and adjacent to the Gila River. The effects to cuckoos differ in that the taxon occurs in a wider range of riparian habitat (i.e. more xeric sites) than does the flycatcher.

Highway, Utility, Infrastructure, Arizona Trail, and Tailings Storage Facility

The relocation of the Florence-Kelvin Highway, the relocation of the SCIP power line, and the placement of tailings and seepage collection facilities within Ripsey Wash are anticipated to have little measurable effect to yellow-billed cuckoos; the habitat is xeric and dominated by xeric species not known to support breeding activities (see BA pages 31-32).

As stated above, Florence-Kelvin Highway traffic is expected to increase 25 to 50 percent over current levels during the 3-year peak construction period for the tailings storage facility, which includes the construction of the pipeline bridge and other pipeline infrastructure including the drain-down pond, the realignment of the Florence-Kelvin Highway and SCIP powerline, site preparation, and the construction of the starter dam and stormwater diversion and seepage collection infrastructure (see BA page 20). The Gila River in the vicinity has been occupied by yellow-billed cuckoos under past- and present-day Florence-Kelvin Highway traffic levels as well as frequent disturbances by trains using the Copper Basin railway. Mortality of individual cuckoos under baseline, pre-project conditions, is unknown, but we are not aware of any data that would permit us to determine the magnitude of future mortality that may result from the 3-year increase in traffic volume.

Other Project activities along the Gila River riparian corridor related to the relocation of the Florence-Kelvin Highway, the relocation of the SCIP power line and Arizona Trail, and seepage collection in Ripsey Wash would affect areas already-disturbed sites and/or areas that are dominated by velvet mesquite, desert broom, and other xeroriparian plant species (Corps letter dated February 2, 2018, Figure 2b) that are relatively less likely to support breeding activities of yellow-billed cuckoos than the more mesic habitat adjacent to the Gila River. We note, however, that these areas may provide foraging habitat for cuckoos, which have large home ranges and range widely in search of prey (FWS 2014b).

In addition, habitat north of the Copper Basin Railway and east of the proposed drain-down pond, booster pump station, and electrical switchgear would be affected by the proposed action (Corps letter dated February 2, 2018, Figure 2b). Construction-related disturbance is anticipated to have insignificant effects to cuckoo foraging but not to breeding, as these areas are also dominated by small-stature velvet mesquite and other xeroriparian plant species. The noise level of the booster pump, which will be in constant operation once the project is operational; is anticipated to be similar to a normal human conversation (BA page 21) at the Gila River, along which cuckoos breed. Noise is not a novel effect; the noise associated with the existing use of the Florence-Kelvin Highway and Copper Basin Railway is much greater.

The tailings storage facility in the ephemeral Ripsey Wash will result in approximately 1,975 acres of watershed area that will no longer contribute peak flows to the Gila River. Unlike the flycatcher, we are not aware of any literature that justifies a link between stream discharge and the breeding success of yellow-billed cuckoos. We feel, however, that it is reasonable to assume that a flow regime that maintains riparian habitat (albeit tamarisk-dominated, with native species interspersed) along the Gila River will, in turn, support the continued occurrence of yellow-billed

cuckoos. We analyzed the proposed action's potential for peak flow-related hydrologic effects in the southwestern willow flycatcher section, above, and found them to be negligible in terms of baseline levels of hydrologic alteration. The cessation of peak flows from the Ripsey Wash watershed is therefore unlikely to result in a measurable change in the hydrology of the Gila River downstream from the Ripsey Wash confluence.

Pipeline Bridge

The removal of riparian vegetation to accommodate the pipeline bridge has the potential to adversely affect yellow-billed cuckoos via habitat loss. Surveys conducted in 2012 detected cuckoos upstream and downstream of the proposed pipeline bridge construction area; surveys conducted in 2013 and 2014 did not detect any yellow-billed cuckoos in the proposed pipeline bridge construction area (WestLand 2014d); and surveys conducted in 2015 detected yellow-billed cuckoos upstream from the Florence-Kelvin Bridge and near the confluence of Zelleweger Wash along the Gila River (WestLand 2015c). The detections in 2015 near the confluence of Zelleweger Wash indicate a possible breeding territory per FWS survey guidance (Halterman *et al.* 2015).

The pipeline bridge portion of the proposed action, as analyzed in the southwestern willow flycatcher effects analysis, above, will result in approximately 1.0 acre of disturbance within riparian habitat. Within this 1.0 acre area, which is also habitat for yellow-billed cuckoos, 0.2 acre will be permanently affected by the pipeline bridge span and the placement of six bridge piers. Direct effects also include disturbance and harassment of cuckoos that arrive in the project area during construction, including migrants and resident birds that would remain in the area to breed.

The proposed pipeline bridge will be elevated, and existing vegetation will remain in place upstream of and downstream from the bridge. Vegetation is anticipated to eventually reestablish in cleared areas near the bridge itself. The bridge is not expected to act as a barrier to long-distance migrations or local dispersal movements of cuckoos.

Also as stated in the southwestern willow flycatcher analysis, above, the proposed pipeline bridge is adjacent to the existing Kelvin Bridge and the site of a new span. Construction of the new Kelvin Bridge began during 2017, prior to the construction of the proposed pipeline bridge. A 0.3-acre portion of the 0.8-acre temporarily affected proposed pipeline bridge construction corridor in the Gila River will thus have already been cleared (see above and BA Figure 8) by the time the pipeline bridge begins construction. The pipeline bridge portion of the proposed action will therefore have a net effect to 0.7-acre of habitat. The 0.2-acre of permanent effects from the pipeline bridge and piers will remain unchanged. These net effects will nevertheless result in direct effects including disturbance and harassment of cuckoos that arrive in the project area during construction, including migrants and resident birds that would remain in the area to breed.

The Conservation Measures (see above) state that riparian vegetation along the Gila River will be cleared for the pipeline bridge project outside of the breeding season for the southwestern willow flycatcher (April 15 to September 15) and yellow-billed cuckoo (May 15 to September 30). When both species' breeding seasons are considered, the vegetation clearing window will be from October 1 to April 14. During this time period, cuckoos are on their wintering grounds;

thus, no direct impacts (injuries or fatalities) to adult cuckoos, their eggs, or young would be expected to occur as a result of vegetation removal operations. The proposed action also states that vegetation will be pre-cleared and that work will then take place during the breeding season. By this time, cuckoos will have had ample opportunity to relocate, and the two known territories on site will have already been disturbed (and incidentally taken, with authorization) by Kelvin Bridge clearance and construction activities.

Again, part of the pipeline's purposes is to provide fresh water to the tailings storage facility site. We understand the source of fresh water is from Asarco wellfields near the confluence of the Gila and San Pedro rivers (ADEQ 2002), which pump Gila River subflow pursuant to federal decreed surface water rights, and that the proposed action at Ripsey Wash is to replace the existing Elder Gulch tailings storage facility. There will be a period of overlap (approximately 1 to 3 years) during which water needs now associated with producing tailings stored at the Elder Gulch tailings storage facility will decrease and water needs associated with producing tailings stored at the Ripsey Wash tailings storage facility will increase; however, total water use associated with production during and after this period of overlap is not expected to increase because overall tailings generation rates are expected to remain commensurate with current levels. We are unable to analyze the effects of any potential temporary increase in water withdrawals associated with the period of overlap but, as stated in the effects analysis for southwestern willow flycatcher, we anticipate those effects will be minimized by Ripsey Wash coming on-line while Elder Gulch is going off-line.

Mitigation Properties

The proposed action conservation measures include four mitigation sites located along the San Pedro River (Sites A through D) that are approximately 29 river miles upstream from the constructed portion of the proposed action and payment to the LSPRWA ILF project. Table 1, above briefly describes the five proposed offsite mitigation properties.

In brief, management activities at all sites will include varying extents of active riparian management, and control of access to exclude grazing, trespass, and fuelwood harvest. On Mitigation Site C on the lower San Pedro River, approximately 25.8 acres of tamarisk and other nonnative plants will be removed and replaced with native species. Portions of these sites are within proposed critical habitat for the yellow-billed cuckoo. Heavy equipment will be used to remove tamarisk and herbicides will be applied post-removal to discourage resprouting. These activities will be conducted between October 1 and April 14, outside of the cuckoo's breeding season.

We note that Mitigation Sites A, B, C, and D, are contained within and/or adjacent to the larger Asarco PZ Ranch Mitigation Site parcel, the management of which was subject to informal consultation under the Act on June 18, 2009, and, as a reinitiation, on January 5, 2017(File Numbers 22410-2009-I-0335 and 22410-2009-I-0335R1, respectively). In the latter informal PZ Ranch-related consultation, we determined that the proposed management activities at sites A through D– which are comparable to those associated with the currently-proposed action, are not likely to adversely affect the yellow-billed cuckoo and its proposed critical habitat (in conference). The prior analyses as they pertain to the cuckoo are incorporated herein via

reference, but our justification for those findings will appear in the species' conclusion section, below.

The purchase of 77.06 acres of mitigation credits from the AGFD LSPRWA (advance credits are available; see the Draft ILF Enabling Instrument; Corps 2018) will ensure that yellow-billed cuckoo habitat, and proposed critical habitat, is protected and/or restored and conserved in perpetuity.

Effects to Yellow-billed Cuckoo Proposed Critical Habitat

The proposed action's total effect to yellow-billed cuckoo proposed critical habitat is 4.3 acres (3.8 acres of permanent effects at the pipeline bridge and in landward areas and 0.5 acre of temporary effects at the bridge.

As stated in the effects analysis for the pipeline bridge, above, construction of the proposed span will result in approximately 1.0 acre of disturbance within riparian habitat. This riparian habitat is also proposed critical habitat for the yellow-billed cuckoo, and exhibits PCE 1 (riparian woodlands), PCE 2 (adequate prey base), and PCE 3 (dynamic riverine processes). Within this 1.0 acre of proposed critical habitat, 0.2 acre will be permanently affected by the pipeline bridge span and the placement of six bridge piers. Also, as stated above, the proposed pipeline bridge is adjacent to the existing Kelvin Bridge and the site of its new span. Construction of the new Kelvin Bridge began during 2017, prior to the construction of the proposed pipeline bridge. A 0.3-acre portion of the 0.8-acre temporarily affected proposed critical habitat in the Gila River will thus have already been cleared (see above and BA Figure 8) by the time the pipeline bridge begins construction. The pipeline bridge portion of the proposed action will therefore have a net effect to 0.7-acre of proposed habitat. The 0.2-acre of permanent effects to proposed critical habitat from the pipeline bridge and piers will remain unchanged.

An additional approximately 3.5 acres of yellow-billed cuckoo proposed critical habitat will be affected by the Florence-Kelvin Highway relocation, the SCIP power line relocation, and seepage collection system in Ripsey Wash. The more xeric riparian vegetation in these areas is likely relatively more important to the wide-ranging yellow-billed cuckoo than to the southwestern willow flycatcher. These inland areas exhibit PCE 1 (riparian woodlands) and PCE 2 (adequate prey base), but PCE 3 (dynamic riverine processes) is not represented in such non-fluvial areas.

In terms of the affected land area, the 4.3 acres (3.8 acres permanently, 0.5 acre temporarily) of proposed critical habitat effects represents 1.8×10^{-4} percent of the 23,399-acre Lower San Pedro and Gila River Critical Habitat Unit and 7.9×10^{-6} percent of the 546,335 acres rangewide.

The preservation and/or retention of 77.06 acres of riparian habitat at the AGFD LSRWA ILF site will further contribute to the long-term conservation of yellow-billed cuckoo proposed critical habitat.

The remainder of the Project construction activities, including the construction of the tailings storage facility, would occur outside proposed critical habitat for yellow-billed cuckoo. Operation of the proposed tailings storage facility is not expected to have any direct effect on yellow-billed cuckoo proposed critical habitat. The pipeline system has been designed to

minimize any risk of spillage into the Gila River by means of containment pipes and a drain-down pond north of the river. The noise levels from the pumps at the booster station and increased traffic would be insignificant when compared to the routine rail traffic noise levels from the Copper Basin Railway.

Indirect effects, via altered peak-flow hydrology, to proposed critical habitat from the tailings storage facility's placement in Ripsey Wash are unlikely, for the reasons discussed in southwestern willow flycatcher and yellow-billed cuckoo effects analyses, above. Again, the cessation of peak flows from the Ripsey Wash watershed is therefore unlikely to result in a measurable change in the hydrology, and therefore in riparian ecosystem, of the Gila River downstream from the Ripsey Wash confluence.

Cumulative Effects to Southwestern Willow Flycatcher and its Critical Habitat; and Yellow-billed Cuckoo and its Proposed Critical Habitat

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 BE. 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. Approximately 30 percent of the lands within and adjacent to the project limits are managed by BLM, and any actions by BLM in or near the project limits that could potentially affect flycatchers and cuckoos would be subject to section 7 consultation.

Other lands within and adjacent to the project limits are owned or managed by Pinal County, Union Pacific Railroad, American Smelting and Refining Company, San Carlos Irrigation Project, and private individuals. The Florence-Kelvin Highway and existing Kelvin Bridge are managed by Pinal County and are located on ROW easements granted by BLM. However, other than the proposed bridge replacement, as described in this BO and CO, Pinal County has no additional plans for activities within this right-of-way. Use of the old bridge as part of a national trail system may increase non-motorized recreational use within and adjacent to the project limits and could increase access to critical habitat, habitat fragmentation, fire risk, spread of invasive species, trash deposition, and contamination of surface and groundwater. Livestock grazing, nearby mining activities (e.g., Ray Mine, Ripsey Wash Tailing Storage Project), operation of the Coolidge Dam, and other various unregulated activities on non-Federal lands in or near the project area could also affect endangered species.

Conclusion for the Southwestern Willow Flycatcher and its Critical Habitat

- Effects to critical habitat are a useful surrogate for effects to riparian habitat. We anticipate that the proposed action's effect to 0.7 acre of riparian vegetation (0.2 acre permanently, 0.5 acre temporarily) designated as critical habitat (see below) will affect one breeding pair of southwestern willow flycatchers occurring at the Kelvin Bridge/pipeline bridge site via removal of riparian nesting and foraging habitat. This represents a measurable effect to the 5 confirmed pairs of flycatchers within 6 territories detected in the vicinity of the Kelvin Bridge by WestLand (2016a) however; a single breeding pair represents an immeasurably small proportion of the up-to 188 pairs detected by Graber *et al.* (2012) pairs that have been detected within the lower Gila River.

- An additional 6.4 acres of southwestern willow flycatcher critical habitat will be permanently removed north of the Copper Basin Railway and east of the proposed drain-down pond, pump station, and electrical switchgear. This habitat is less mesic than that affected along the Gila River, but its status as critical habitat (see below) indicates that it contributes to the recovery of the taxon.
- A total of 12.9 acres (0.5 acre temporarily, 12.4 acres permanently) of southwestern willow flycatcher habitat will be affected by the proposed action. We have no reliable estimate of the amount of riparian habitat, but it is reasonable to assume that it is greater than the acreage designated as critical habitat (see the critical habitat analysis above and conclusion, below). The 12.9 acres of effects therefore represent an immeasurably small proportion of the total riparian habitat available to the taxon in the Gila and San Pedro Rivers and an even smaller fraction rangewide.
- Vegetation clearing activities will be conducted outside of the flycatcher breeding period (April 15-September 15), thus minimizing direct effects such as harm and harassment of individual southwestern willow flycatchers.
- Bridge construction will occur during the breeding period, but would be ongoing when flycatchers arrive at their breeding areas. As a result, flycatchers may simply avoid the construction area and move into adjacent habitat. As we noted earlier, riparian vegetation in the action area is continuous for many miles upstream and downstream of the Kelvin Bridge.
- We anticipate 12.2 acres of permanent effects to designated PCE 1 (riparian vegetation) and PCE 2 (insect prey populations) within critical habitat in the action area. The effects to critical habitat are distributed among 6.4 acres north of the Copper Basin Railway and east of the proposed drain-down pond, pump station, and electrical switchgear and an additional 5.8 acres associated with the construction of the relocation of the Florence-Kelvin Highway, relocation of the SCIP power line, and construction of the seepage collection system near the confluence of Ripsey Wash and the Gila River. The 12.2 acres of critical habitat represent approximately 9.51×10^{-4} percent of the 12,824.2 acres of the designated Middle Gila-San Pedro Critical Habitat Management Unit, and 5.84×10^{-5} percent of the 208,973 acres of designated critical habitat range-wide.
- Thus, although there is a measurable amount of riparian vegetation affected and the amount of insect prey may decrease proportionately at the site scale, the effects are so small that the proposed critical habitat would remain functional to serve the intended conservation role for the flycatcher.
- The altered peak flow hydrology resulting from the placement of tailings in Ripsey wash is unlikely to result in measurable changes in riparian community structure in downstream reaches of the Gila River, including within southwestern willow flycatcher critical habitat.
- The total effects to southwestern willow flycatcher habitat and critical habitat are proportionally too small to appreciably diminish the value of critical habitat for the conservation of the taxon.
- The purchase of 77.06 acres of advance credits from the AGFD LSPRWA – within critical habitat - will ensure that existing riparian habitat and/or the eventual restoration of less optimal habitat will contribute to the recovery of the southwestern willow flycatcher.
- Management of mitigation sites A through D will exclude livestock grazing, off-road vehicle access, and wood harvesting, and routine maintenance and monitoring activities are expected to result in an overall benefit to the flycatcher within the site.
- Further development of broadleaf riparian vegetation (i.e. Fremont cottonwood, *Populus*

fremontii; and Goodding's willow, *Salix gooddingii*) on mitigation sites A through D is anticipated to occur, thus increasing flycatcher breeding habitat suitability and extent.

- Potential recreational uses within the mitigation sites, such as hiking and hunting, may disturb flycatcher individuals, but are not expected to result in any measurable adverse effects. Most hunting activities would be conducted outside southwestern willow flycatcher breeding season due to State hunting regulations. Continued management of the larger PZ Ranch complex primarily for its mitigative value and protection of the aquatic and riparian resources under the future conservation easement will ensure that recreational uses will not adversely impact this species.
- Fence clearing within flycatcher critical habitat has been occurring since approved in our August 10, 2009, concurrence on PZ Ranch management, and thus represents a baseline condition with respect to the continuation of the action.
- Routine mitigation and monitoring activities are not expected to have any indirect adverse effect on flycatchers (see page 2 of our August 10, 2009, concurrence).

<u>Conclusion for the Yellow-billed Cuckoo and its Proposed Critical Habitat</u>

- Effects to yellow-billed cuckoo proposed critical habitat within the action area are a useful surrogate for effects to riparian habitat. We anticipate that the proposed action's effect to 0.7 acre of riparian vegetation (0.2 acre permanently, 0.5 acre temporarily) designated as proposed yellow-billed cuckoo critical habitat (see below) will affect one breeding pair of yellow-billed cuckoos occurring at or near the Kelvin Bridge/pipeline bridge site (i.e. Zelleweger Wash) via removal of riparian nesting and foraging habitat. This represents a measurable effect to the only known breeding pair and five detections (WestLand 2015) of cuckoos in the action area however; a single breeding pair represents an immeasurably small proportion of the large numbers of cuckoos known to breeding the middle Gila and lower San Pedro Rivers.
- An additional 3.5 acres of proposed critical habitat (see below) will be permanently removed Florence-Kelvin Highway, relocation of the SCIP power line, and construction of the seepage collection system. This habitat is less mesic than that affected along the Gila River, but its status as critical habitat (see below) indicates that it contributes to the recovery of the taxon.
- A total of 4.3 acres (0.5 acre temporarily, 3.8 acres permanently) of proposed critical habitat will be affected by the proposed action. We have no reliable estimate of the amount of riparian habitat available to cuckoos in general, but it is reasonable to assume that it is greater than the proportion designated as critical habitat (see the critical habitat analysis above and conclusion, below). The 4.3 acres of effects therefore represent an immeasurably small proportion of the total riparian habitat available to the taxon in the Gila and San Pedro Rivers and an even smaller fraction rangewide.
- Vegetation clearing activities will be conducted outside of the southwestern willow flycatcher's breeding period (April 15-September 15), which encompasses the yellow-billed cuckoo's breeding season. This will minimize direct effects such as harm and harassment of individual cuckoos.
- Bridge construction will occur during the breeding period, but would be ongoing when cuckoos arrive at their breeding areas. As a result, cuckoos may simply avoid the construction area and move into adjacent habitat. As we noted earlier, riparian vegetation in the action area is continuous for many miles upstream and downstream of the Kelvin Bridge.

- We anticipate 4.3 acres of effects to designated PCE 1 (riparian woodlands), PCE 2 (adequate prey base), and PCE 3 (dynamic riverine processes) within yellow-billed cuckoo proposed critical habitat in the action area. The 4.3 acres of proposed critical habitat effects represents 1.8×10^{-4} percent of the 23,399-acre Lower San Pedro and Gila River Critical Habitat Unit and 7.9×10^{-6} percent of the 546,335 proposed acres rangewide. Although there is a measurable amount of riparian vegetation affected and the amount of insect prey may decrease proportionately at the site scale, the effect to proposed critical habitat in this unit and rangewide from the amount of vegetation and prey impacted by the proposed action is so small that there will be no appreciable diminishment of the value of critical habitat for the conservation of the taxon.
- The purchase of 77.06 acres of advance credits from the AGFD LSPRWA - within proposed critical habitat - will ensure that existing riparian habitat and/or the eventual restoration of less optimal habitat will contribute to the recovery of the yellow-billed cuckoo.
- The altered peak flow hydrology resulting from the placement of tailings in Ripsey Wash is unlikely to result in measurable changes in riparian community structure in downstream reaches of the Gila River, including within proposed yellow-billed cuckoo critical habitat.
- The total effects to yellow-billed cuckoo habitat and proposed critical habitat are proportionally too small to meaningfully affect the ability to recover the species.
- Management of mitigation sites A through D will exclude livestock grazing, off-road vehicle access, and wood harvesting, and routine maintenance and monitoring activities are expected to result in an overall benefit to the cuckoo within the site.
- Further development of broadleaf riparian vegetation (i.e. Fremont cottonwood, *Populus fremontii*; and Goodding's willow, *Salix gooddingii*) on mitigation sites A through D is anticipated to occur, thus increasing flycatcher breeding habitat suitability and extent.
- Vegetation clearing of fence lines adjacent to mitigation sites A and C has been and would continue to be maintained as part of the PZ ranch fence maintenance that is required to exclude livestock grazing. The cleared corridor is also adjacent to agricultural fields east of the site. Individual cuckoos are not anticipated to nest in these areas.
- Potential recreational uses within the mitigation sites, such as hiking and hunting, may disturb cuckoo individuals, but are not expected to result in any measurable adverse effects. Most hunting activities would be conducted outside the yellow-billed cuckoo breeding season due to State hunting regulations. Continued management of the larger PZ Ranch complex primarily for its mitigative value and protection of the aquatic and riparian resources under the future conservation easement will ensure that recreational uses will not adversely impact this species.
- Fence clearing within yellow-billed cuckoo proposed critical habitat has been occurring since approved in our January 5, 2017, letter of concurrence on the continued implementation of mitigation at the PZ Ranch restoration site, and thus represents an ongoing, baseline condition with respect to the additional implementation of mitigation for the proposed action.
- Routine mitigation and monitoring activities are not expected to have any indirect adverse effect on cuckoos (see page 5 of our January 5, 2017, concurrence).

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 defined (50 CFR 17.3) and means an act which actually kills or injures wildlife. Such act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering. "Harass" is defined (50 CFR 17.3) and means an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral 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.

Amount or Extent of the Take

Southwestern Willow Flycatcher

The FWS anticipates take of southwestern willow flycatchers as a result of this proposed action. Although flycatchers are migratory and spend only part of the year at the construction site, the area is still considered to be occupied because flycatchers exhibit high site fidelity and are expected to return to the same areas to nest from one year to the next (FWS 2002). The incidental take is expected to be in the form of loss of habitat and harassment, causing displacement, reduced productivity, and reduced survivorship as a result of noise and increased activity from construction activities occurring adjacent to nesting southwestern willow flycatchers for up to two breeding periods. Based on the existence of one to two territories within and directly adjacent to the project limits, we estimate that four individuals will be taken from habitat loss and disturbance during each year of near-river construction activities that occur subsequent to completion of the Kelvin Bridge.

Take will be considered to be exceeded if any portion of the occupied habitat outside of the areas identified in the BA and this BO are physically damaged by equipment during implementation of the proposed action, or if construction activities directly result in mortality of any southwestern willow flycatchers (i.e. not via the habitat modification discussed previously).

Also note that this amount of incidental take is identical to that we anticipated to result from construction of the new Kelvin Bridge (see pages 27-28 in our June 28, 2016, BO and CO). Again, the Kelvin Bridge project has already proceeded the Ripsey Wash Tailings Storage Facility, but we have included the take herein due to the differing landward activities associated with the respective actions.

Yellow-billed Cuckoo

Yellow-billed cuckoos have been detected in and near the project limits during six consecutive years (2012-2017), and there is a high degree of probability that cuckoos breed in the Kelvin Bridge area. Western yellow-billed cuckoos require large blocks of riparian habitat for breeding. Home ranges are large but vary in size depending on seasonal food abundance. Recent radio

telemetry studies on the Rio Grande in New Mexico, the San Pedro River in Arizona, and the Colorado River in Arizona and California have shown that cuckoos use home ranges between 95 and 204 acres (FWS 2013). Given the size of a cuckoo home range, and acreage within the project limits (4.3 acres), we anticipate that no more than 1 nesting territory, i.e., a single pair of cuckoos, would be affected by the project. Thus, we anticipate take in the form of loss of habitat and harassment, causing displacement, reduced productivity, and reduced survivorship as a result of noise and increased activity from construction activities occurring adjacent to one cuckoo nesting territory; thus, we estimate that two individuals will be taken during each year of construction of the project.

Take will be considered to be exceeded if any portion of the occupied habitat outside of the areas identified in the BA and this BO are physically damaged by equipment during implementation of the proposed action, or if construction activities directly result in mortality of any yellow-billed cuckoos (i.e. not via the habitat modification discussed previously).

Also note that this amount of incidental take is identical to that we anticipated to result from construction of the new Kelvin Bridge (see page 28 in our June 28, 2016, BO and CO). Again, the Kelvin Bridge replacement project has already preceded the Ripsey Wash Tailings Storage Facility, but we have included the take herein due to the differing landward activities associated with the respective actions.

Effect of the Take

Southwestern Willow Flycatcher and Yellow-billed Cuckoo

In this biological opinion, the FWS determines that this level of anticipated take is not likely to result in jeopardy to the species or destruction or adverse modification of critical habitat or, in conference, proposed critical habitat for the yellow-billed cuckoo for the reasons stated in the respective effects analyses and Conclusions sections, above. Although the proposed action may adversely affect the southwestern willow flycatcher and yellow-billed cuckoo in the short-term through habitat loss and disturbance, the proposed action will not result in the permanent loss of either species in the action area.

Reasonable and Prudent Measures

Southwestern Willow Flycatcher and Yellow-billed Cuckoo

No reasonable and prudent measures above and beyond the conservation measures outlined within this BO and CO are necessary or advisable to minimize the effects of incidental take.

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.

- We recommend that The Corps work with us and the Arizona Game and Fish Department (AGFD) to participate in recovery planning and implementation of conservation actions for the southwestern willow flycatcher and western yellow-billed cuckoo and improve the abundance and quality of riparian and other woodland habitats.

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

REINITIATION NOTICE

This concludes formal consultation for the southwestern willow flycatcher and its critical habitat, the yellow-billed cuckoo, and informal consultation for the northern Mexican gartersnake on the actions outlined in the request, and no further section 7 consultation is required for this project and these species and critical habitat at this time.

This also concludes the conference opinion and report, respectively, for the proposed critical habitats for the yellow-billed cuckoo and northern Mexican gartersnake. You may ask us to confirm the conference opinion for the yellow-billed cuckoo proposed critical habitat as a biological opinion issued through formal consultation if the proposed 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. There is no need to make a written request to confirm the conference report for the northern Mexican gartersnake propose critical habitat. Please note that we anticipate revising the proposed critical habitat rules for both the yellow-billed cuckoo and northern Mexican gartersnake, and recommend that you consider any revisions on your future conference adoption request(s).

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. § 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 FWS. The Eagle Act prohibits anyone, without a FWS 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.

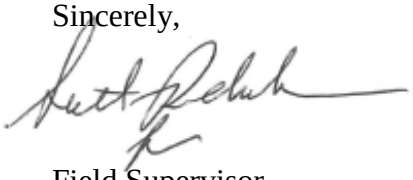
For more information regarding the MBTA and Eagle Act, please visit the following websites. More information on the MBTA and available permits can be retrieved from http://www.fws.gov/migratorybirds and http://www.fws.gov/migratorybirds/mbpermits.html.

For information on protections for bald eagles, please refer to the FWS'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).

The FWS appreciates efforts by the Corps to identify and minimize effects to listed species from this project. We encourage you to coordinate the review of this project with AGFD. We also appreciate your ongoing coordination during implementation of this program. In keeping with our trust responsibilities to American Indian Tribes, we are providing copies of this final biological and conference opinion to the Bureau of Indian Affairs and are notifying affected Tribes.

This concludes formal consultation for your proposed action and further serves as a conference opinion for the proposed critical habitat for the yellow-billed cuckoo and northern Mexican gartersnake. No further section 7 consultation is required for this project at this time, except with respect to adoption of the conference opinion, as discussed above. Should project plans change, or if information on the distribution or abundance of listed species or proposed or final critical habitat becomes available, our determinations may need to be reconsidered. In all future correspondence on this project, please refer to consultation number 02EAAZ00-2016-F-0740. If we can be of further assistance, please contact Jason Douglas at 520-670-6150 (x226) or Scott Richardson at 520-670-6150 (x242).

Sincerely,



Field Supervisor

cc (electronic):

Field Supervisor, U.S. Fish and Wildlife Service, Phoenix, AZ
Assistant Field Supervisor, U.S. Fish and Wildlife Service, Tucson, AZ
Michael Langley, U.S. Army Corps of Engineers, Phoenix, AZ
Chairman, Ak Chin Indian Community, Maricopa, AZ
Chairman, White Mountain Apache Tribe, Whiteriver, AZ
Chairman, Fort McDowell Yavapai Nation, Fort McDowell, AZ
Chairman, Salt River Pima-Maricopa Indian Community, Scottsdale, AZ
Chairman, San Carlos Apache Tribe, San Carlos, AZ
Chairman, Gila River Indian Community, Sacaton, AZ
Chairman, Tohono O'odham Nation, Sells, AZ

Chairman, Pascua Yaqui Tribe, Tucson, AZ
Environmental Specialist, Environmental Services, Western Regional Office, Bureau of Indian Affairs, Phoenix, AZ
Chief, Habitat Branch, Arizona Game and Fish Department, Phoenix, AZ (pep@azgfd.gov)
Raul Vega, Regional Supervisor, Arizona Game and Fish Department, Tucson, AZ

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Appendix A: Concurrence for the Northern Mexican Gartersnake

Northern Mexican Gartersnake

The gartersnake's status is described in detail in the final rule listing the species as threatened (79 FR 38678) (FWS 2014d) and the proposed critical habitat rule (78 FR 41550) (FWS 2013b); these documents are incorporated herein via reference. The gartersnake is a cryptic, highly mobile species that occurs in intermittent and ephemeral aquatic habitats and adjacent terrestrial habitats in which sufficient prey resources are available. It is not known to occur in the Gila River within the action area, but is likely extant in low density populations along the San Pedro River from the International Border to its confluence with the Gila River.

The contents of the final listing and proposed critical habitat rules are incorporated herein by reference. Further, we expect to publish a modified re-proposal for critical habitat and an accompanying Notice of Availability announcing the draft Environmental Assessment and draft Economic Analysis in 2017.

The lower San Pedro River, adjacent to the proposed mitigation lands (Sites A, B, C, and D), is part of a larger river reach that exhibits perennial and spatially-interrupted stream reaches, a suitable prey base, and was considered occupied at the time of listing; see 78 FR 41550 (FWS 2013b), pages 41566-41567; and Miscione 2009, entire). The species may also occur in uplands away from the river.

We note that Mitigation Sites A, B, C, and D, are contained within and/or adjacent to the larger Asarco PZ Ranch Mitigation Site parcel, the management of which was subject to informal consultation under the Act on June 18, 2009, and, as a reinitiation, on January 5, 2017(File Numbers 22410-2009-I-0335 and 22410-2009-I-0335R1, respectively). In our latter informal PZ Ranch-related consultation, we determined that the proposed management activities – which are identical to those associated with the currently-proposed action, are not likely to adversely affect the northern Mexican gartersnake its proposed critical habitat (in conference). The prior analyses as they pertain to the gartersnake are incorporated herein via reference, but our justification for those findings is reiterated, below.

- Management of the mitigation parcels (Sites A through D will exclude livestock grazing, off-road vehicle access, and wood harvesting, and routine maintenance and monitoring activities are expected to result in an overall benefit to the gartersnake within the site.
- Potential recreational uses within the mitigation parcels, such as hiking and hunting, may disturb individual gartersnakes, but we anticipate the will flee a short distance to avoid humans. Continued management of mitigation parcels primarily for its mitigative value and protection of the aquatic and riparian resources under the future conservation easement will ensure that recreational uses will not adversely impact this species.
- We anticipate that gartersnakes will be unlikely to be adversely affected by woodcutting associated with fence maintenance. Gartersnakes will be able to easily flee humans on foot and operating woodcutting equipment and road kill by all-terrain vehicles is not reasonably certain to occur given the vehicles' relative infrequency of use.
- Routine mitigation and monitoring activities are not expected to have any indirect adverse effect on gartersnakes; there is no trapping of aquatic species such as northern Mexican

gartersnakes.

- The proposed critical habitat for northern Mexican gartersnakes will not be affected by the aforementioned activities because the activities listed above will not affect the PCEs.