



June 18, 2020

Ms. Vicky Peacey
RESOLUTION COPPER
102 Magma Heights
P.O. Box 1944
Superior, Arizona 85273

**RE: RESOLUTION COPPER PROJECT
CLEAN WATER ACT MITIGATION SITES SECTION 7 COMPENDIUM**

Dear Vicky:

WestLand Resources, Inc. (WestLand) is pleased to provide Resolution Copper with this Clean Water Act (CWA) Mitigation Sites Section 7 Compendium in support of Section 7 consultation under the Endangered Species Act (ESA) for the Resolution Copper Project (the Project). This compendium includes the:

1. H&E Farm Special-Status Species Memorandum,
2. Queen Creek Project Special-Status Species Memorandum, and
3. Gila River Indian Community Managed Aquifer Recharge (MAR) 5 Project and Olberg Road Restoration Site Special-Status Species Memorandum.

While Arizona Game and Fish Department's (AGFD) Lower San Pedro Wildlife Area In-Lieu Fee Project (ILF) is also being considered as a potential source of CWA mitigation credits for the Project, the mitigation activities proposed at the ILF site are intended to be permitted by the AGFD, in conjunction with the U.S. Army Corps of Engineers (Corps), as part of the ILF Project development. The specific mitigation activities proposed have or will be undertaken on the site as part of the Corps' authorization and permitting process for ILFs. The potential effects of mitigation activities undertaken on the ILF site are effects of those proposed mitigation activities and establishment of an ILF program. The purchase of credits by an applicant through this existing ILF program is open to numerous applicants and is not part of any individual applicant's permitting process. Therefore, Section 7 consultation under the ESA and Section 106 consultation under the National Historic Preservation Act for the specific mitigation activities on the ILF site is undertaken by the Corps at the time of their authorization for ILF development.

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If you have any questions or require additional information, please do not hesitate to call.

Respectfully,
WestLand Resources, Inc.



Aaron R. Graham
Associate | Senior Project Manager – Environmental

ARG:kd

Attachments: H&E Farm Special-Status Species Memorandum
Queen Creek Project Special-Status Species Memorandum
Gila River Indian Community Managed Aquifer Recharge (MAR) 5 Project
and Olberg Road Restoration Site Special-Status Species Memorandum

cc: Mary Morissette, Resolution Copper
Kami Ballard, Resolution Copper
Tom Klimas, WestLand Resources, Inc.
Brian Lindenlaub, WestLand Resources, Inc.

H&E FARM SPECIAL-STATUS SPECIES MEMORANDUM

Prepared for: Resolution Copper, LLC
Prepared by: WestLand Resources, Inc.
Date: June 18, 2020
Project No.: 807.175

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I. INTRODUCTION AND BACKGROUND

I.1. LOCATION

Resolution Copper (Resolution) is evaluating the H&E Farm property as a potential Clean Water Act (CWA) Section 404 mitigation site. The H&E Farm is an approximately 500-acre site located along the Lower San Pedro River between Arizona State Route 77 and Camino Rio Road, approximately 3.5 miles north-northwest of the town of Mammoth in Pinal County, Arizona. The H&E Farm property is comprised entirely of private lands managed by The Nature Conservancy (TNC). A substantial portion of the property occurs on former agricultural fields located to the east of the San Pedro River floodplain. In 2011, TNC partnered with the Arizona Department of Water Resources (ADWR) to commission CWA restoration activities within a portion the inactive agricultural fields, which included the removal of agricultural ditch and berm systems, construction of two drainage channels to restore natural flow patterns between the uplands and the San Pedro River, and revegetation through native seeding and irrigation. TNC received a CWA Nationwide Permit (NWP) for this restoration work. Currently, land use within the H&E Farm property consists primarily of cattle grazing and associated ranching activities.

I.2. DESCRIPTION OF HABITAT

An intermittent reach of the San Pedro River intersects the H&E Farm property. This feature is a large, well-defined, low-gradient, braided (multi-thread) drainage system within a broad, relatively level floodplain. This reach of the San Pedro River does not support emergent riparian habitat. The closest perennial reach is located approximately 30 miles upstream from the H&E Farm property. Vegetation along the active channel at the H&E Farm property consists of narrow dense stands of mesoriparian and xeroriparian trees and shrubs. Species include large-statured mesquite (*Prosopis* sp.) and tamarisk (*Tamarix* sp.) reaching heights of approximately 25 feet, along with a few individual cottonwoods (*Populus* sp.) and patches of singlewhorl burrobush (*Ambrosia monogyra*) interspersed. Along the floodplain terraces, moderately dense medium to large statured mesquite and tamarisk are present. The historic agricultural fields, located on the eastern terrace of the site, consists of sparsely populated small to medium-statured mesquite and graythorn (*Ziziphus obtusifolia*).

2. PROPOSED CLEAN WATER ACT MITIGATION ACTIVITIES

CWA mitigation activities proposed for the H&E Farm include reestablishment of the ephemeral drainage channels on the eastern floodplain terrace and restoration of their associated vegetation. No other mitigation activities would occur except for those within the historic agricultural fields on the eastern side of the San Pedro River. Proposed work includes minimal earthwork and planting of native riparian trees and shrubs. This work is intended to reestablish the San Pedro River's access to its river right floodplain and terrace, enhance the wetland features present in this area, and restore a more

native vegetation community along this bank of the river. These efforts are intended to mirror previous mitigation strategies implemented by TNC as well as ongoing CWA mitigation at the Arizona Game and Fish Department (AGFD) Lower San Pedro Wildlife Area, contiguous to the western and northern boundaries of the H&E Farm property. Mitigation activities would occur outside of yellow-billed cuckoo (YBC; *Coccyzus americanus*) and southwestern willow flycatcher (SWFL; *Empidonax traillii eximius*) breeding seasons (April 15 – September 30).

3. SPECIAL-STATUS SPECIES

The U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) Report online query was used to identify species listed or proposed for listing as threatened or endangered under the Endangered Species Act (ESA), hereafter special-status species, that should be included in an analysis of the mitigation site. The IPaC query also identifies whether designated or proposed critical habitat for these special-status species occurs within or in the vicinity of the mitigation site. The AGFD Heritage Data Management System (HDMS) online environmental review tool was also queried to identify occurrence records of special-status species within 5 miles of the mitigation site. Special-status species identified in the IPaC and HDMS include:

- YBC
- SWFL
- Gila topminnow (*Poeciliopsis occidentalis occidentalis*)
- Loach minnow (*Tiaroga cobitis*)
- Spikedace (*Meda fulgida*)
- Ocelot (*Leopardus pardalis*)
- Northern Mexican gartersnake (NMGS; *Thamnophis eques megalopsis*)

Based on the special-status species lists generated from the above sources, a brief analysis of these seven species is provided as follows.

3.1. YELLOW-BILLED CUCKOO

YBC is listed as threatened with proposed critical habitat under the ESA. The USFWS IPaC has indicated this species should be included in an analysis of the mitigation site, and there are HDMS records of this species within 5 miles of the mitigation site. There is also an eBird report of this species within the vicinity of the H&E Farm property, approximately 5 miles south near Mammoth, Arizona.¹

Vegetation at the H&E Farm property may provide habitat for this species, however, the proposed critical habitat within the mitigation site consists of a narrow, dense band of mature mesquite and

¹ eBird. 2020. "Yellow-billed Cuckoo (*Coccyzus americanus*) Species Map." Cornell Lab of Ornithology. <https://ebird.org/home>. Ithaca, New York. Accessed online May 23, 2020.

tamarisk. Surrounding terrace vegetation is moderately-dense to sparse, and not suitable for breeding. Additionally, no mitigation activities would occur within designated critical habitat; with terrace mitigation activities occurring outside of breeding season, as discussed in **Section 2**.

3.2. SOUTHWESTERN WILLOW FLYCATCHER

SWFL is listed as endangered with designated critical habitat under the ESA. The USFWS IPaC has indicated this species should be included in an analysis of the mitigation site, and HDMS has records of this species documented within 5 miles of the property. There is also an eBird report of this species within the vicinity of the H&E Farm property, approximately 3.3 miles south of the parcel.¹ However, the sighting occurred in September, so it was likely a migratory willow flycatcher. There is designated critical habitat for SWFL located within the H&E Farm.

Vegetation at the H&E Farm property may provide habitat for this species, however, the designated critical habitat within the mitigation site does not support emergent riparian vegetation. Vegetation along the banks consists of a narrow dense band of mature mesquite and tamarisk. Surrounding terrace vegetation is moderately-dense to sparse, and not suitable for breeding. Additionally, no mitigation activities would occur within designated critical habitat; with terrace mitigation activities occurring outside of breeding season, as discussed in **Section 2**.

3.3. GILA TOPMINNOW

Gila topminnow is listed as endangered with no critical habitat under the ESA. The USFWS IPaC has indicated this species should be included in an analysis of the mitigation site, however, there are no HDMS records within 5 miles.

The H&E Farm property is not anticipated to provide habitat for this species. Although the mitigation site is within the geographical range of the species, it does not contain any perennial aquatic environments. Additionally, no mitigation activities would occur within the active channel of the San Pedro River.

3.4. LOACH MINNOW

Loach minnow is listed as endangered with designated critical habitat under the ESA. The USFWS IPaC has indicated this species should be included in an analysis of the mitigation site. No designated critical habitat exists within H&E Farm and there are no HDMS records within 5 miles.

The H&E Farm property is not anticipated to provide habitat for this species. Although the mitigation site is within the geographical range of the species, it does not contain any perennial aquatic environments. Additionally, no mitigation activities would occur within the active channel of the San Pedro River.

3.5. SPIKEDACE

Spikedace is listed as endangered with designated critical habitat under the ESA. The USFWS IPaC has indicated this species should be included in an analysis of the mitigation site and HDMS records document this species within 5 miles.

The H&E Farm property is not anticipated to provide habitat for this species. Although the mitigation site is within the historical geographical range of the species, the property does not contain any perennial aquatic environments. Additionally, no mitigation activities would occur within the active channel of the San Pedro River.

3.6. OCELOT

Ocelot is listed as endangered under the ESA. The USFWS IPaC has indicated this species should be included in an analysis of the mitigation site. No designated or proposed critical habitat exists for this species, and there are no AGFD HDMS records within 5 miles.

Although H&E Farm property is within the geographical range of the species, and the San Pedro River riparian corridor may act as a movement corridor for ocelot, this species is very rare and suitable habitat occurs in portions of the H&E Farm property where no mitigation activities would take place.

3.7. NORTHERN MEXICAN GARTERSNAKE

NMGS is listed as threatened with proposed critical habitat under the ESA. The USFWS IPaC has indicated this species should be included in an analysis of the mitigation site. No designated critical habitat exists within the H&E Farm property, and there are no HDMS records within 5 miles.

The H&E Farm property is not anticipated to provide habitat for this species. The mitigation site is intermittent with the nearest perennial reach approximately 30 miles upstream. This species depends on water for its primarily aquatic prey base and is heavily dependent on fish species.^{2,3} Additionally, multiple surveys have previously been conducted in the Lower San Pedro River basin, resulting in no detections.⁴

² Arizona Game and Fish Department. 2012. Northern Mexican Gartersnake (*Thamnophis eques megalops*). *Unpublished abstract compiled and edited by the Heritage Data Management System*. Phoenix, Arizona: Arizona Game and Fish Department. July 20, 2012. 8 pp.

³ U.S. Fish and Wildlife Service. 2013. Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Northern Mexican Gartersnake and Narrow-headed Gartersnake; Proposed Rule. U.S. Department of the Interior. July 10, 2013. *Federal Register*, 78:41550-41608.

⁴ U.S. Fish and Wildlife Service. 2020. Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Northern Mexican Gartersnake and Narrow-headed Gartersnake; Revised Proposed Rule. U.S. Department of the Interior. April 28, 2020. *Federal Register*, 85:23608-23668.

4. SUMMARY

Based on the habitat characteristics of the mitigation site and the known distribution of these species, there is no suitable habitat for Gila topminnow, loach minnow, spikedace, and NMGS. Ocelot is a very rare species, and it is unlikely the species would occur. It is possible for YBC and SWFL to occur, however, given the habitat conditions of the mitigation site, it is not expected.

THE QUEEN CREEK PROJECT SPECIAL-STATUS SPECIES MEMORANDUM

Prepared for: Resolution Copper, LLC
Prepared by: WestLand Resources, Inc.
Date: June 18, 2020
Project No.: 807.175

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I. INTRODUCTION AND BACKGROUND

I.1. LOCATION

Resolution Copper (Resolution) is evaluating a 1.2-mile segment of Queen Creek as a potential Clean Water Act (CWA) Section 404 mitigation site. Approximately 79 acres, the proposed Queen Creek mitigation site is composed of Resolution and BHP Mineral Resources, Inc. parcels in Township 2 South, Range 12 East, Sections 3 and 4.

I.2. DESCRIPTION OF HABITAT

An ephemeral reach of the Queen Creek intersects the Queen Creek site, which is defined as a medium to large, well-defined, single to multi-threaded, low-gradient drainage system. The drainage within the site is composed of quaternary alluvial and surficial deposits where depth to groundwater is approximately 75 feet below the active channel near U.S. Highway 60 and approximately 16 feet below the active channel near the Superior Wastewater Treatment Plant (SWWTP). Approximately 0.5-miles downstream from the proposed mitigation site, Queen Creek receives treated effluent from the SWWTP via a small earthen canal. Immediately downgradient of the SWWTP discharge point, water is periodically released from the dewatering of the Imerys Perlite USA, Inc. mine into the active channel. Because of these point-source discharges, this segment of Queen Creek is known as an effluent-dependent water, a surface water that would be ephemeral if not for the discharge of treated wastewater into the channel. Throughout the majority of the proposed mitigation site, Queen Creek is designated by the Arizona Department of Environmental Quality (ADEQ) as impaired for: copper, lead, and selenium.

Due to a continuum of available moisture, stream flow characteristics, and depth to groundwater, three different vegetation communities are present within the Queen Creek site.

Dense acacia-mesquite shrublands occur streamside of the drainage. Mature, medium-stature catclaw acacia (*Acacia greggii*) and velvet mesquite (*Prosopis velutina*) shrubs, with heights reaching approximately 16 feet, dominate this vegetation community creating an approximately 95-percent canopy cover.

Moderately dense mesquite shrublands occur within the floodplain terraces. Medium-stature mesquites dominate here and can also reach heights of 16 feet resulting in an approximately 65-percent canopy cover.

Creosote shrublands occur in the uplands. Medium-stature creosote (*Larrea tridentata*), reaches heights of 10 feet resulting in an approximately 38-percent canopy cover.

Throughout the site, anthropogenic disturbances are present, including debris piles, unauthorized trails, and roads.

2. PROPOSED CLEAN WATER ACT MITIGATION ACTIVITIES

Proposed mitigation activities for the Queen Creek site would include ecological improvements to the riparian habitat. Within the xeroriparian corridor, limited removal of sparsely populated tamarisk and other invasive species would occur, followed by planting and seeding of native plant species. In portions of the site where there are anthropogenic disturbances, selective debris would be removed while avoiding disturbance to existing mature woody vegetation; seeding of native plant species would follow. The remaining portions of the mitigation site would be preserved, providing protection to riparian and wildlife habitat. Exotic species and debris removal would occur outside of yellow-billed cuckoo (YBC; *Coccyzus americanus*) and southwestern willow flycatcher (SWFL; *Empidonax traillii eximius*) breeding seasons (April 15 through September 30).

3. SPECIAL-STATUS SPECIES

The U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) Report online query was used to identify species listed or proposed for listing as threatened or endangered under the Endangered Species Act (ESA), hereafter special-status species, that should be included in an analysis of the mitigation site. The IPaC query also identifies whether designated or proposed critical habitat for these special-status species occurs within or in the vicinity of the mitigation site. The Arizona Game and Fish Department (AGFD) Heritage Data Management System (HDMS) online environmental review tool was also queried to identify occurrence records of special-status species within 5 miles of the mitigation site. Special-status species identified in the IPaC and HDMS include:

- YBC
- SWFL
- Northern Mexican gartersnake (NMGS; *Thamnophis eques megalops*)
- Arizona hedgehog cactus (AHC; *Echinocereus triglochidiatus* var. *arizonicus*)
- Gila topminnow (*Poeciliopsis occidentalis occidentalis*)

Based on the special-status species lists generated from the above sources, a brief analysis of these five species is provided as follows.

3.1. YELLOW-BILLED CUCKOO

YBC is listed as threatened with proposed critical habitat under the ESA. The USFWS IPaC query listed YBC as having potential to occur in the vicinity of the Queen Creek site, with HDMS records of this species documented within 5 miles. There is also an eBird report of this species within the

vicinity of the Queen Creek site, approximately 1.5 miles west near the Boyce Thompson Arboretum.¹ The Queen Creek site is located outside the proposed YBC critical habitat.

The Queen Creek site consists of an ephemeral reach with dense acacia-mesquite shrublands; therefore, it is not anticipated to provide breeding habitat for YBC. Surrounding terrace and upland vegetation is moderately-dense to sparse shrublands and is also not suitable for breeding. Audubon Arizona and WestLand have completed multiple years of YBC survey along Queen Creek in the vicinity of the proposed mitigation site and no detections have been made. YBC has only been detected approximately 10 miles downgradient, near Whitlow Ranch Dam. Surveys conducted at Whitlow Ranch Dam since 2015 resulted in one detection in 2016 and three detections in 2017. The attached annotated bibliography describes survey results for all survey years (2015, 2016, 2016, 2017, 2018, and 2019).

3.2. SOUTHWESTERN WILLOW FLYCATCHER

SWFL is listed as endangered with designated critical habitat under the ESA. This species was not included in the IPaC report, but there are HDMS records of this species documented within 5 miles of the Queen Creek site. There is an eBird report of this species from September 2016, a willow flycatcher likely a migrant, was located approximately 1.5 miles downgradient from the mitigation site.¹

The Queen Creek site is not anticipated to provide breeding habitat for this species as it does not support emergent riparian vegetation; instead, the site consists of an ephemeral reach with dense acacia-mesquite shrublands. Surrounding terrace and upland vegetation is moderately-dense to sparse shrublands, and not suitable for breeding. WestLand has completed multiple years of SWFL survey along several reaches of Queen Creek and no detections have been made. Surveys conducted by WestLand in 2017 and 2018 along Middle Queen Creek each had a single willow flycatcher detection, although subspecies was not confirmed (WestLand 2017, 2018). Both detections were prior to the non-migrant period; therefore, they are not presumed to be adult residents with a territory (i.e., SWFL).

3.3. NORTHERN MEXICAN GARTERSNAKE

NMGS is listed as threatened with proposed critical habitat under the ESA. The USFWS IPaC query listed NMGS as having potential to occur in the vicinity of the Queen Creek site. However, there are no HDMS records of this species within 5 miles. The Queen Creek site is located outside the proposed NMGS critical habitat.

The Queen Creek site is not anticipated to provide habitat for this species, as this reach of Queen Creek is ephemeral and does not support any perennial aquatic environments. This species depends

¹ eBird. 2020. "Yellow-billed Cuckoo (*Coccyzus americanus*) Species Map." Cornell Lab of Ornithology. <https://ebird.org/home>. Ithaca, New York. Accessed online May 23, 2020.

on water for its primarily aquatic prey base and is heavily dependent on fish species.^{2,3} Additionally, Queen Creek is a major tributary of the Gila River, whose only known populations on the Gila River mainstem occur in the Upper Gila River Subbasin, in New Mexico.⁴ To our knowledge, the closest detection was in 2002, approximately 148 miles southeast of the Queen Creek site.

3.4. ARIZONA HEDGEHOG CACTUS

AHC is listed as endangered species with no critical habitat under the ESA. The USFWS IPaC query listed AHC as having potential to occur, and HDMS documents occurrence within 5 miles, although the Queen Creek site is outside of known AHC habitat.

The Queen Creek site is not anticipated to provide habitat for AHC. WestLand has completed multiple surveys for this species within the Resolution project area and the nearest known AHC is located approximately 3 miles away. Additionally, the Queen Creek site is outside of known geographic range, below known elevational range, and lacks appropriate geological substrate and habitat for AHC.

3.5. GILA TOPMINNOW

Gila topminnow is listed as endangered with no critical habitat under the ESA. The USFWS IPaC query listed Gila topminnow as having potential to occur in the vicinity of the Queen Creek site, however, there are no HDMS records within 5 miles.

The Queen Creek site is not anticipated to provide habitat for this species. Although the mitigation site is within the geographical range of the species, the mitigation site does not contain any perennial aquatic environments.

4. SUMMARY

Based on the habitat characteristics of the mitigation site and the known distribution of these species, there is no suitable habitat for Gila Topminnow, AHC, and NMGS. It is possible for YBC and SWFL to occur, however, given the habitat conditions of the mitigation site, it is not expected.

² Arizona Game and Fish Department. 2012. Northern Mexican Gartersnake (*Thamnophis eques megalops*). *Unpublished abstract compiled and edited by the Heritage Data Management System*. Phoenix, Arizona: Arizona Game and Fish Department. July 20, 2012. 8 pp.

³ U.S. Fish and Wildlife Service. 2013. Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Northern Mexican Gartersnake and Narrow-headed Gartersnake; Proposed Rule. U.S. Department of the Interior. July 10, 2013. *Federal Register*, 78:41550-41608.

⁴ U.S. Fish and Wildlife Service. 2020. Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Northern Mexican Gartersnake and Narrow-headed Gartersnake; Revised Proposed Rule. U.S. Department of the Interior. April 28, 2020. *Federal Register*, 85:23608-23668.

5. ANNOTATED BIBLIOGRAPHIES

5.1. YELLOW-BILLED CUCKOO

Audubon Arizona. 2015. “Western Yellow-Billed Cuckoo (*Coccyzus Americanus Occidentalis*); 2015 Yellow-Billed Cuckoo Surveys on Queen and Arnett Creeks.” *Prepared for Resolution Copper*. Phoenix, Arizona: Audubon Arizona.

Surveys were conducted on lower Queen Creek and Arnett Creek near Picketpost Mountain. No cuckoos were detected on any of the three Arnett or Queen Creek transects during the 2015 survey season.

Audubon Arizona. 2016. “Western Yellow-Billed Cuckoo (*Coccyzus Americanus*); 2016 Yellow-Billed Cuckoo Surveys on Queen and Arnett Creeks.” *Prepared for Resolution Copper*. Phoenix, Arizona: Audubon Arizona.

Surveys were conducted on lower Queen Creek and Arnett Creek near Picketpost Mountain. No cuckoos were detected on any of the three Arnett or Queen Creek transects during the 2016 survey season.

Audubon Arizona. 2017. “Western Yellow-Billed Cuckoo (*Coccyzus Americanus*); 2017 Yellow-Billed Cuckoo Surveys on Queen and Arnett Creeks.” *Prepared for Resolution Copper*. Phoenix, Arizona: Audubon Arizona.

Surveys were conducted on upper Queen Creek adjacent to Legends of the Superior Train, lower Queen Creek near Whitlow Ranch Dam, and Arnett Creek near Picketpost Mountain. During the 2017 survey season, four individual cuckoo detections were made, with one cuckoo detected on Arnett Creek and three at Whitlow Dam. No detections were made on Upper Queen Creek.

Audubon Arizona. 2018. “Western Yellow-Billed Cuckoo (*Coccyzus Americanus*); 2017 Yellow-Billed Cuckoo Surveys on Queen and Rancho Rio Creeks.” *Prepared for Resolution Copper*. Phoenix, Arizona: Audubon Arizona.

Surveys were conducted on upper Queen Creek between the U.S. 60 bridge and tunnel, and Rancho Rio Creek southeast of Oak Flat Campground. No cuckoos were detected on Upper Queen Creek or Rancho Rio Creek during the 2018 survey season.

WestLand Resources, Inc. 2015. “2015 Yellow-Billed Cuckoo (*Coccyzus Americanus*) Survey Whitlow Ranch Dam, Devils Canyon and Mineral Creek, Pinal County, Arizona.” *Prepared for Resolution Copper Mining*. Tucson, Arizona: WestLand Resources, Inc.

No detections were made at Whitlow Ranch Dam transect. WestLand did not observe any YBC breeding behavior to confirm breeding or the presence of breeding territories during this survey. Using the method of inference described in Halterman et al. (2015), there were also no possible or probable breeding territories within the Survey Area.

WestLand Resources, Inc. 2016. “2016 Yellow-Billed Cuckoo (*Coccyzus Americanus*) Survey Whitlow Ranch Dam, Devils Canyon and Mineral Creek, Pinal County, Arizona.” *Prepared for Resolution Copper*. Tucson, Arizona: WestLand Resources, Inc.

A total of nine YBC detections were recorded during the 2016 survey, including three from the Whitlow Ranch Dam transect. According to the survey protocol (Haltermann et al. 2016), detection locations can be compared to estimate the total number of cuckoos detected at a site. Surveyors considered YBC movements, compass bearings, and estimated distance, as well as the timing of detections to estimate the number of individual YBCs detected. Thus, according to the guidance for interpreting results provided in the 2016 survey protocol (Haltermann et al. 2016), one individual YBC was likely detected along the Whitlow Ranch Dam transect.

WestLand Resources, Inc. 2017. “2017 Yellow-Billed Cuckoo Survey for the Resolution Copper Project.” *Prepared for Resolution Copper*. Tucson, Arizona: WestLand Resources, Inc.

Surveys were conducted at upper and lower Queen Creek during the 2017 surveys. WestLand did not detect YBC during the 2017 survey. As such, no breeding territories were detected. It should be noted however, that survey conducted within the Upper Queen Creek and Upper Queen Creek Tributary 2 transects do not constitute a complete survey season (Haltermann et al. 2016), since only three of the four required survey visits were conducted. The fourth survey visit was missed in these areas due to hazardous conditions caused by a combination of adverse weather conditions, rugged terrain, and limited accessibility of the transects.

WestLand Resources, Inc. 2018. “2018 Yellow-Billed Cuckoo Survey for the Resolution Copper Project.” *Prepared for Resolution Copper*. Tucson, Arizona: WestLand Resources, Inc.

Surveys were conducted at upper and lower Queen Creek during the 2018 surveys. WestLand did not detect YBC during the 2018 survey. As such, no breeding territories were identified.

5.2. SOUTHWESTERN WILLOW FLYCATCHER

WestLand Resources, Inc. 2017. “2017 Southwestern Willow Flycatcher Survey for the Resolution Copper Project”. *Prepared for Resolution Copper Mining*. Tucson, Arizona: WestLand Resources, Inc.

Only one willow flycatcher was detected during the 2017 survey. This detection occurred on the Boyce Thompson Arboretum transect during the second survey session on June 3, too early in the season to be considered an adult resident. Therefore, no breeding territories were identified within the survey area for the 2017 survey season.

WestLand Resources, Inc. 2018. “2018 Southwestern Willow Flycatcher Survey for the Resolution Copper Project”. *Prepared for Resolution Copper Mining*. Tucson, Arizona: WestLand Resources, Inc.

Two willow flycatchers were detected during the 2018 survey. These detections occurred within the Whitlow Ranch Dam survey area and along the Boyce Thompson Arboretum transect. The Whitlow

Ranch Dam detection occurred during the first survey period on May 16, and the Boyce Thompson Arboretum detection occurred during the first visit of the second survey period on June 7. Both willow flycatchers were detected prior to the non-migrant period (June 20 to July 17); therefore, these detections are not considered to be adult residents with a territory (i.e., SWFL).

**GILA RIVER INDIAN COMMUNITY MAR-5 PROJECT
AND OLBERG ROAD RESTORATION SITE
SPECIAL-STATUS SPECIES MEMORANDUM**

Prepared for: Resolution Copper, LLC
Prepared by: WestLand Resources, Inc.
Date: June 18, 2020
Project No.: 807.175

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I. INTRODUCTION AND BACKGROUND

I.1. LOCATION

The Gila River Indian Community (GRIC, the Community) Managed Aquifer Recharge Project (MAR-5) is a 5-year pilot study to evaluate the effectiveness of recharging a portion of the GRIC allotment of Central Arizona Project (CAP) water into the Gila River, on the Community's lands. Over the 5-year pilot study, CAP water was discharged at a single turnout near the Olberg Road Bridge in GRIC District 3. Water discharge at the site was initiated in August 2015, and vegetation monitoring was conducted at the site each year from 2015 through 2017, including baseline data collection in June 2015.

The GRIC Department of Environmental Quality has recently conducted limited tamarisk removal and native plant reseeding at the GRIC MAR-5 site and has identified a large tamarisk thicket directly upstream that is likely a major seed source contributing to the tamarisk colonization and proliferation at the GRIC MAR-5 site. The identified tamarisk thicket is located in the proposed 23-acre Olberg Road Restoration Site (ORRS), located along the south bank of the Gila River just east of the Olberg Bridge in GRIC District 3.

I.2. DESCRIPTION OF HABITAT

The GRIC MAR-5 site is located along an ephemeral reach of the Gila River. The pre-discharge vegetation consisted of a sparse collection of upland woody shrubs with desert forbs and Bermudagrass (*Cynodon dactylon*), along with the nonnative, invasive tamarisk (*Tamarix* spp.). In 2015, the instream discharge of CAP water into the Gila River created an approximately 123-acre wetted area at the GRIC MAR-5 site. Several months annually, the Salt River Project (SRP) temporarily stops flows to the delivery canal, causing a dry-up of soils at the GRIC MAR-5 site. Vegetation surveys conducted in 2017 showed an increase in total vegetation volume and total herbaceous cover from the baseline recorded in 2015. Species recorded in 2017 included cattails (*Typha* spp.) and young Goodding's willow (*Salix gooddingii*). Tamarisk density at the site also increased. While riparian vegetation increased at the MAR-5 site, both the tamarisk and Goodding's willow are sparsely distributed and of limited stature.¹ Vegetation within the floodplain terrace is similar to pre-discharge vegetation structure and composition, consisting of small-statured and sparsely populated creosote (*Larrea tridentata*) and desert forbs. Vegetation stature and density are further reduced in the surrounding uplands, consisting of small-statured and sparsely populated creosote and desert forbs.

While previous mitigation activities have not occurred at the ORRS, it is located immediately upgradient of the GRIC MAR-5 site. The ORRS contains an ephemeral reach of the Gila River and is surrounded by xeroriparian habitat containing dense stands of tamarisk. Although no formal density measurements have been taken, tamarisk within the ORRS reaches approximately 20 feet in height.

¹ WestLand Resources, Inc. 2017. "Gila River Indian Community MAR-5 Vegetation Monitoring Report." Prepared for Resolution Copper. Tucson, Arizona: WestLand Resources, Inc.

Vegetation within the floodplain terrace and surrounding uplands consists of small-statured and sparsely populated creosote and desert forbs. The nearest perennial reach is approximately 28 miles upgradient of both mitigation sites.

2. PROPOSED CLEAN WATER ACT MITIGATION ACTIVITIES

Proposed mitigation activities for the GRIC MAR-5 site include continued scheduled CAP water discharges, limited tamarisk removal and control, and seeding of native plant species. Mitigation activities at the ORRS consist of tamarisk removal and control within the entire 23-acre site, followed by seeding of native plant species. Exotic tree species removal and control, combined with seeding of native plant species, at both sites would allow for the establishment and maintenance of a riparian habitat dominated by native tree species and would eliminate a large, local source of exotic tree species seed from that section of the Gila River.

At both mitigation sites, exotic species removal would occur outside of yellow-billed cuckoo (YBC; *Coccyzus americanus*) breeding season (April 15 through September 30).

3. SPECIAL-STATUS SPECIES

The U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) Report online query was used to identify species listed or proposed for listing as threatened or endangered under the Endangered Species Act (ESA), hereafter special-status species, that should be included in an analysis of the mitigation sites. The IPaC query also identifies whether designated or proposed critical habitat for these special-status species occurs within or in the vicinity of the mitigation sites. The Arizona Game and Fish Department (AGFD) Heritage Data Management System (HDMS) online environmental review tool was also queried to identify occurrence records of special-status species within 5 miles of the mitigation sites.

Special-status species identified in the IPaC and HDMS include:

- YBC
- Northern Mexican gartersnake (NMGS; *Thamnophis eques megalops*)

Based on the special-status species lists generated from the above sources, a brief analysis of these two special-status species is provided as follows.

3.1. YELLOW-BILLED CUCKOO

YBC is listed as threatened with proposed critical habitat under the ESA. The USFWS IPaC has indicated this species should be included in an analysis of the mitigation sites. There are, however, no HDMS records of this species within 5 miles of the mitigation sites. Additionally, there have been no

eBird reports of YBC within the vicinity of the mitigation sites.² Although critical habitat has been proposed for this species, neither mitigation site is located within the proposed YBC critical habitat.

Vegetation at the GRIC MAR-5 site and the ORRS are not anticipated to provide breeding habitat for this species. The GRIC MAR-5 site consists of small-statured and sparsely distributed vegetation, and the ORRS consists of an ephemeral reach populated with tamarisk. Surrounding floodplain terraces and upland vegetation along both mitigation sites is limited. While there will be some tamarisk removal at both mitigation sites, these mitigation activities will occur outside of breeding season, as discussed in **Section 2**.

3.2. NORTHERN MEXICAN GARTERSNAKE

The NMGS is listed as threatened with proposed critical habitat under the ESA. The USFWS IPaC has indicated this species should be included in an analysis of the mitigation sites. There are, however, no HDMS records of this species within 5 miles of the mitigation sites. Although critical habitat has been proposed for this species, neither mitigation site is located within the proposed NMGS critical habitat.

The GRIC MAR-5 site and the ORRS are not anticipated to provide habitat for this species. The GRIC MAR-5 area has only recently received discharges of CAP water, with annual dry-up periods where no water is discharged. This species depends on water for its primarily aquatic prey base and is heavily dependent on fish species.^{3, 4} Surrounding floodplain terraces and upland vegetation along both mitigation sites is limited. Additionally, the NMGS is only known to occur along the main stem of the Gila River in the Upper Gila River Subbasin, in New Mexico.⁵ The closest detection was in 2002, approximately 200 miles northeast of the GRIC MAR-5 and ORRS sites.

4. SUMMARY

Based on the habitat characteristics of the mitigation site and the known distribution of these species, there is no suitable habitat for NMGS. Given the habitat conditions of the mitigation sites, YBC is not expected to occur.

² eBird. 2020. "Yellow-billed Cuckoo (*Coccyzus americanus*) Species Map." Cornell Lab of Ornithology. <https://ebird.org/home>. Ithaca, New York. Accessed online May 23, 2020.

³ Arizona Game and Fish Department. 2012. Northern Mexican Gartersnake (*Thamnophis eques megalops*). *Unpublished abstract compiled and edited by the Heritage Data Management System*. Phoenix, Arizona: Arizona Game and Fish Department. July 20, 2012. 8 pp.

⁴ U.S. Fish and Wildlife Service. 2013. Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Northern Mexican Gartersnake and Narrow-headed Gartersnake; Proposed Rule. U.S. Department of the Interior. July 10, 2013. *Federal Register*, 78:41550-41608.

⁵ U.S. Fish and Wildlife Service. 2020. Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Northern Mexican Gartersnake and Narrow-headed Gartersnake; Revised Proposed Rule. U.S. Department of the Interior. April 28, 2020. *Federal Register*, 85:23608-23668.

5. ANNOTATED BIBLIOGRAPHY

WestLand Resources, Inc. 2017. "Gila River Indian Community MAR-5 Vegetation Monitoring Report." *Prepared for Resolution Copper*. Tucson, Arizona: WestLand Resources, Inc.

WestLand collected field data along 38 transects within the GRIC MAR-5 predicted wetted area in 2016. Data collected included Total Vegetation Volume (TVV), percent cover, belt density of woody species, hydrological variables, and photographs. Overall, TVV, percent cover, and belt density all showed an increase. However, a low score was calculated from the hydrological variables, indicating that the MAR-5 Project was not functioning at its full potential as a wetland.

WestLand Resources, Inc. 2019. "2017 Avian Monitoring Report Gila River Indian Community MAR-5 Recharge Study Site." *Prepared for Resolution Copper*. Tucson, Arizona: WestLand Resources, Inc.

WestLand conducted six surveys for resident and migratory birds between spring and early autumn. Surveys were conducted on a monthly basis: April 11, May 11, June 12, July 31, August 21, and September 18, 2017. Sixty-eight avian species and a total of 1,932 individual avian observations were documented in the six-month survey period. As is typical with bird surveys, some species are relatively common and widespread throughout the year, while others are relatively uncommon and appear only during migration