Kirkland Mine Biological Resources Survey Report

Submitted to:

Bureau of Land Management:
Phoenix District Office

Prepared by:
Environmental Planning Group, LLC

March 2017

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INTRODUCTION

Kirkland Mining Company (KMC) is proposing mining activities on lands administered by the Bureau of Land Management (BLM) Hassayampa Field Office in Yavapai County, Arizona. KMC proposes to mine material characterized as Class N High Quality Natural Pozzolan (HQP) from the Capital placer claim and remove a stockpile of screened fines from a previous mining operation within the Kirkland Mine Site. KMC also proposes ancillary activities and facilities associated with the temporary storage and loading for transport of the HQP on privately owned lands adjacent to the Kirkland Mine Site. BLM regulations published in the Code of Federal Regulations (CFR) at 43 CFR part 3809 (BLM 2016), and the BLM's Surface Management Handbook (BLM Handbook H-3809-1, revised September 17, 2012 [BLM 2012]) are applicable to KMC's proposed mining activities.

This report is prepared by Environmental Planning Group, LLC (EPG), in support of Kirkland Mining's mine plan of operations, and is intended to provide the BLM with a description and record of the current conditions on the site and the surrounding vicinity (Figure 24, referred to in this report as the Study Area) with respect to biological resources.

METHODS

EPG reviewed existing information on the potential for any special-status species to occur in the Study Area. EPG performed queries on the U.S. Fish and Wildlife Service Information, Planning, and Conservation (IPaC) online database for species listed under the Endangered Species Act (ESA), the Arizona Game and Fish Department HabiMap online database which searches their Heritage Data Management System, and reviewed BLM's 2017 sensitive species list for Arizona. Species from the BLM sensitive species list identified as potentially occurring in the Phoenix District Office were evaluated for potential presence in Yavapai County, and in the Study Area. Table 1 lists species that were reviewed in further detail for potential presence in the Study Area and the IPaC query report is attached to this document as Appendix A.

One EPG biologist conducted a pedestrian survey of the Study Area on March 30, 2015. The survey focused on identifying and recording observed flora and fauna, as well as examining potential bat habitat in rock crevices. Survey results reflect the general conditions but do not provide complete coverage of the Study Area. The biologist carried a GPS unit to record a track log of the surveyed area. Tracks and photo points for photos used in this document are shown on Figure 24, following the summary of survey results.

The Study Area is located in interior chaparral, with patches of semidesert grassland and riparian vegetative communities (Brown 1982). This report provides descriptions of several subdivisions of the Study Area, where terrain or vegetation changes were likely to result in a change in wildlife and plant species. A complete list of plants observed on the survey is provided in Table 2, following the survey results.

Table 1. Special-status Species that Were Evaluated for Potential Occurrence within the Study Area

BGEPA: Bald and Golden Eagle Protection Act
BLMS: BLM Sensitive
DPS: Distinct Population Segment
E: ESA Endangered Species
NEP: Nonessential Experimental Population
PD: Proposed for delisting under the ESA
PT: ESA Proposed Threatened Species
T: ESA Threatened Species
WSC: Wildlife of Special Concern in Arizona.

Common Name *Scientific Name*	Status	Critical Habitat	Habitat and Notes	Potential in Study Area
Mammals				
Black-footed Ferret *Mustela nigripes*	E (NEP)	NA	Arid plains and grasslands. Strongly associated with prairie dogs.	Study Area is outside known distribution.
Lesser Long-nosed Bat *Leptonycteris curasoae yerbabuenae*	E (PD)	No	Desert grassland and shrubland up to the oak transition. Roosts in caves, mine tunnels, and occasionally abandoned buildings. Forages for nectar and pollen in cactus flowers.	Study Area is outside known distribution.
Allen's Big-eared Bat *Idionycteris phyllotis*	BLMS	NA	Ponderosa pine, piñon-juniper woodlands, and riparian habitats dominated by sycamore, cottonwood, and willows. Roosts in caves and abandoned mineshafts. Forages over water for insects.	No suitable habitat in the Study Area.
Arizona Myotis *Myotis occultus*	BLMS	NA	Ponderosa pine and pine-oak woodlands adjacent to water. Roosts in snags, tree cavities, and crevices in close proximity to water.	No suitable habitat in the Study Area.
Banner-tailed Kangaroo Rat *Dipodomys spectabilis*	BLMS	NA	Great Basin desertscrub and desert grasslands with scattered shrubs, mesquite, or junipers.	Study Area is outside known distribution.
California Leaf-nosed Bat *Macrotus californicus*	BLMS; WSC	NA	Sonoran desertscrub. Roosts in mines, caves, and rock shelters. Captures large, flying insects in air.	Study Area is outside known distribution.
Cave Myotis *Myotis velifer*	BLMS	NA	Desertscrub. Roosts in caves, tunnels, mineshafts, under bridges, and abandoned buildings. Forages above the vegetation canopy.	Yes
Greater Western Mastiff Bat *Eumops perotis californicus*	BLMS	NA	Sonoran desertscrub, near cliffs in rocky canyons. Roosts in crevices above a vertical drop to launch into flight. Forages for insects at substantial heights over open areas.	Yes
Gunnison's Prairie Dog *Cynomys gunnisoni*	BLMS	NA	Grassy areas in mountain valleys and plateaus between 6,000 and 12,000 feet in elevation.	Study Area is outside known distribution.
Spotted Bat *Euderma maculatum*	BLMS; WSC	NA	Various biotic communities including arid desertscrub, riparian, piñon-juniper woodlands, and montane coniferous forests. Roosts in crevices and cracks of cliff faces. Forages over open ground.	Yes
Pale Townsend's Big-eared Bat *Corynorhinus townsendii pallescens*	BLMS	NA	Desertscrub to coniferous forests. Day roosts in caves, night roosts in abandoned buildings. Hibernates in cold caves, lava tubes, and mines during the winter. Gleans insects from leaves.	Yes

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Common Name ***Scientific Name***	**Status**	**Critical Habitat**	**Habitat and Notes**	**Potential in Study Area**
Birds				
American Peregrine Falcon *Falco peregrinus anatum*	BLMS; WSC	NA	Nests on cliffs, often forages near water and in open expanses.	Yes
Bald Eagle *Haliaeetus leucocephalus*	BGEPA; BLMS; WSC	NA	Common in winter along water courses and reservoirs. Typical roost sites are often clumps of mature, deciduous trees in riparian areas protected from human disturbance.	Yes
California Condor *Gymnogyps californianus*	E; NEP	Yes, outside Study Area	Steep terrain with rock outcroppings, cliffs, and caves. Arizona populations are NEP.	Study Area is outside known distribution.
Desert Purple Martin *Progne subis hesperia*	BLMS	NA	Sonoran desertscrub. Nests in cavities of Saguaro Cacti.	No suitable habitat in the Study Area.
Ferruginous Hawk *Buteo regalis*	BLMS; WSC	NA	Arid grasslands and adjacent farmlands. Wintering habitat may include desertscrub.	Yes
Gilded Flicker *Colaptes chrysoides*	BLMS	NA	Strongly associated with giant cactus forests of Southwest deserts, but also inhabits riparian woodlands dominated by cottonwoods and willows.	No suitable habitat in the Study Area.
Golden Eagle *Aquila chrysaetos*	BGEPA; BLMS	NA	Open and semi-open habitats within mountainous canyons and grasslands.	Yes
Le Conte's Thrasher *Toxostoma lecontei*	BLMS	NA	Arid and sparsely vegetated plains dominated by saltbush and creosote bush on sandy ground.	No suitable habitat in the Study Area.
Mexican Spotted Owl *Strix occidentalis lucida*	T	Yes, outside Study Area	Mixed-conifer woodlands in shaded canyons.	No suitable habitat in the Study Area.
Northern Goshawk *Accipiter gentilis atricapillus*	BLMS; WSC	NA	High, forested mountains and plateaus, usually above 6,000 feet in elevation.	Study Area is outside known distribution.
Pinyon Jay *Gymnorhinus cyanocephalus*	BLMS	NA	Healthy pinyon-juniper woodlands.	No suitable habitat in the Study Area.
Western Burrowing Owl *Athene cunicularia hypugaea*	BLMS	NA	Prairie grasslands with few scattered shrubs and other open, nearly flat habitats.	Yes
Yellow-billed Cuckoo, Western DPS *Coccyzus americanus*	T	Proposed, outside Study Area	Nests in large blocks of mature riparian woodland.	No suitable habitat in the Study Area.

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Common Name *Scientific Name*	Status	Critical Habitat	Habitat and Notes	Potential in Study Area
Southwestern Willow Flycatcher *Empidonax traillii extimus*	E	Yes, outside of Study Area	Dense riparian habitat of willow, saltcedar, and box elder.	Study Area is outside known distribution.
Reptiles				
Northern Mexican Gartersnake *Thamnophis eques megalops*	T	Proposed, outside Study Area	Ponds, cienegas, lowland river riparian woodlands, and upland stream gallery forests.	Study Area is outside known distribution.
Sonora Mud Turtle *Kinosternon sonoriense sonoriense*	BLMS	NA	Springs, creeks, ponds, and waterholes of intermittent streams.	No suitable habitat in the Study Area.
Sonoran Desert Tortoise *Gopherus morafkai*	BLMS; WSC	NA	Rocky, steep slopes and bajadas in paloverde-mixed cacti associations. May use desert washes and valley bottoms.	No suitable habitat in the Study Area.
Amphibians				
Arizona Toad *Anaxyrus microscaphus*	BLMS	NA	Central Arizona mountains, in canyons and riparian areas or near other water sources.	Yes
Chiricahua Leopard Frog *Lithobates chiricahuensis*	T	Yes, outside Study Area	Cienegas, pools, livestock tanks, lakes, reservoirs, streams, and rivers.	Study Area is outside known distribution.
Lowland Leopard Frog *Lithobates yavapaiensis*	BLMS	NA	Rivers, beaver ponds, cienegas, livestock tanks, and springs.	No suitable habitat in the Study Area.
Fish				
Colorado Pikeminnow *Ptychocheilus Lucius*	E; NEP	NA	Relatively swift waters with clean cobble bottoms. NEP in Salt and Verde River drainages.	Study Area is outside known distribution.
Desert Pupfish *Cyprinodon macularius*	E	Yes, outside Study Area	Shallow waters of springs, small streams, and marshes.	Study Area is outside known distribution.
Desert Sucker *Catostomus clarki*	BLMS	NA	Rapids and flowing pools of streams and rivers.	Study Area is outside known distribution.
Gila Chub *Gila intermedia*	E	Yes, outside Study Area	Smaller headwater streams, cienegas and springs or marshes of the Gila River basin.	Study Area is outside known distribution.
Gila Topminnow *Poeciliopsis occidentalis*	E	No	Shallow, warm water with moderate currents and dense aquatic vegetation in headwater springs.	Study Area is outside known distribution.
Gila Trout *Oncorhynchus gilae*	T	No	Small, mountain, headwater streams.	Study Area is outside known distribution.

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Common Name ***Scientific Name***	**Status**	**Critical Habitat**	**Habitat and Notes**	**Potential in Study Area**
Headwater Chub *Gila nigra*	PT	NA	Cool to warm water in headwater stretches of mid-sized streams in the Gila River basin.	Study Area is outside known distribution.
Loach Minnow *Tiaroga cobitis*	E	Yes, outside Study Area	Turbulent, rocky riffles of mainstream rivers and tributaries.	Study Area is outside known distribution.
Longfin Dace *Agosia chrysogaster*	BLMS	NA	Intermittent, hot, low-desert streams to clear and cool brooks at higher elevations.	Study Area is outside known distribution.
Razorback Sucker *Xyrauchen texanus*	E	Yes, outside Study Area	Various habitat types from slow backwaters of large streams to mainstream rivers and reservoirs.	Study Area is outside known distribution.
Roundtail Chub, Lower Colorado River Basin DPS *Gila robusta*	PT	NA	Cool to warm water in mid-elevation streams and rivers.	Study Area is outside known distribution.
Spikedace *Meda fulgida*	E; WSC	Yes, outside Study Area	Mid-water habitats of runs, pools, and swirling eddies.	Study Area is outside known distribution.
Sonora Sucker *Catostomus insignis*	BLMS	NA	Gravelly or rocky pools in streams and rivers.	Study Area is outside known distribution.
Speckled Dace *Rhinichthys osculus*	BLMS	NA	Rocky riffles, runs and pools of headwaters, creeks, and small rivers.	Study Area is outside known distribution.
Woundfin *Plagopterus argentissimus*	NEP; WSC	NA	Swift, silty streams avoiding clear waters and pools.	Study Area is outside known distribution.
Invertebrates				
Monarch *Danaus plexippus*	BLMS	NA	Migratory, and may also reproduce in Arizona. Dependent on milkweed species.	Yes
Plants				
Arizona Cliffrose *Purshia subintegra*	E	No	Slopes, open basins, and limestone ledges and outcrops. Restricted to nutrient-deficient calcareous soils. Endemic to Burro Creek and near Cottonwood in Yavapai County.	Study Area is outside known distribution.
Arizona Sonoran Rosewood *Vauquelinia californica sonorensis*	BLMS	NA	Base of cliffs, along canyon bottoms and on moderate to steep slopes.	Study Area is outside known distribution.

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Common Name ***Scientific Name***	**Status**	**Critical Habitat**	**Habitat and Notes**	**Potential in Study Area**
California Flannelbush *Fremontodendron californica*	BLMS	NA	Well-drained, rocky hillsides and ridges in chaparral and oak/pine woodland.	Yes
Giant Sedge *Carex spissa* var. *ultra*	BLMS	NA	Moist soils near perennially wet springs and streams.	Study Area is outside known distribution.
Murphey Agave *Agave murpheyi*	BLMS	NA	Benches or alluvial terraces on gentle bajada slopes above major drainages in desertscrub.	Study Area is outside known distribution.

FIELD SURVEY RESULTS

ROADWAY IMPROVEMENT AREA

The access road would be improved by repairing the surface of the road and removing vegetation encroaching on the roadway. The road area was surveyed from the vehicle during ingress and egress of the Study Area, but was not surveyed on foot. Vegetation present along the roadway is similar to that along the northern wash, described below.

NORTHERN WASH

This segment is located in the northern part of the Study Area. Survey results reflect the general conditions on this segment but do not provide complete coverage of the segment. Elevations surveyed in the northern wash ranged from approximately 4,050 to 4,100 feet.

Figure 1 represents the relatively level interior chaparral and desert wash present. Dominant plant species include: Sonoran Scrub Oak (*Quercus turbinella*), Hollyleaf Redberry (*Rhamnus ilicifolia*), Alderleaf Mountain Mahogany (*Cercocarpus montanus*), Stansbury Cliffrose (*Purshia stansburiana*), and Broom Snakeweed (*Gutierrezia sarothrae*).

Figure 1. Representative vegetation in northern wash. UTM 344853E, 3812094N, 12S.

PLATEAU

The plateau contains multiple west-facing rock formations as well as patches of exposed tufa bedrock. When examined, no signs of bats were observed in crevices of the rock formations. A semidesert grassland vegetative community dominates the landscape, although sparse junipers (*Juniperus* spp.) exist throughout. Dominant plants include Curly-Mesquite (*Hilaria belangeri*), Broom Snakeweed, Velvet Mesquite (*Prosopis velutina*) and Catclaw Acacia (*Acacia greggii).* The stockpile is close to a monoculture of Stansbury Cliffrose. Elevations surveyed on the plateau ranged from approximately 4,050 to 4,140 feet.

Figure 2. Overlooking the plateau. UTM 344956E, 3811969N, 12S.

Figure 3. Second overview of plateau. UTM 344956E, 3811969N, 12S.

Figure 4. Overview of Study Area. UTM 344956E, 3811969N, 12S.

Figure 5. Plateau overview. UTM 344956E, 3811969N.

Figure 6. Plateau in central Study Area. UTM 345066E, 3811694N, 12S

Figure 7. Vegetation on plateau. UTM 344977E, 3811614N, 12S.

Figure 8. Rock formation. UTM 344977E, 3811614N, 12S.

Figure 9. Plateau. UTM 345066E, 3811694N, 12S.

Figure 10. Rock formation. UTM 344800E, 3811602N, 12S.

Figure 11. Top of rock formation near mine site. UTM 344800E, 3811602N, 12S.

Figure 12. West-facing rock formation. UTM 344800E, 3811602N, 12S.

Figure 13. Second view of formation from Figure 17. UTM 344862E, 3811745N, 12S.

Figure 14. Third view of formation from Figure 17. UTM 344862E, 3811745N, 12S.

Figure 15. Millings from mine. UTM 344800E, 3811602N, 12S.

Figure 16. Millings pile. UTM 344900E, 384605N, 12S.

Figure 17. Millings pile. UTM 344900E, 384605N, 12S.

Figure 18. Millings pile. UTM 344900E, 384605N, 12S.

SOUTHERN WASH

This segment is located at the southern end of the Study Area. Elevations surveyed in the southern wash ranged from approximately 4,040 to 4,100 feet.

Figure 19 through Figure 23 are representative of the relatively level, desert wash riparian community present. Dominant plant species include: Fremont Cottonwood (*Populus fremontii),* Willow (*Salix* sp.), and Stansbury Cliffrose (*Purshia stansburiana*).

Figure 19. Southern wash. UTM 345230E, 3811457N, 12S.

Figure 20. Southern wash. UTM 345230E, 3811457N, 12S.

Figure 21. Rock crevice in southern wash. UTM 345059E, 3811230N, 12S.

Figure 22. Cattle tank near southern wash. UTM 344776E, 3811342N, 12S.

Figure 23. Second view of Figure 31. UTM 344776E, 3811342N, 12S.

SUMMARY

The survey conducted revealed no sign of bats roosting in the Study Area, although rock crevices are present within the rock formations. Each segment (northern wash, plateau, and southern wash) contains semidesert grassland, riparian, and chaparral vegetation communities. On the mine site and millings pile, a monoculture of Stansbery Cliffrose (with few other herbaceous plants) developed following the mine closure. No special-status species were observed during the survey. Table 2 provides lists of common plant species observed in the Study Area.

Several BLM sensitive species listed in Table 1 have some potential to occur in the Study Area, including four species of bats (Cave Myotis, Greater Western Mastiff Bat, Spotted Bat, and Pale Townsend's Big-eared Bat), five species of raptors (Peregrine Falcon, Bald Eagle, Golden Eagle, Ferruginous Hawk, and Burrowing Owl), one amphibian (Arizona Toad), one invertebrate (Monarch), and one plant (California Flannelbush).

The field survey attempted to focus on areas with the highest potential to support bat roosts, and none were found. However, there is potential for some of the cliff and crevice features to support small bat roosts. No larger caves or mine tunnels were observed or expected in the Study Area, as all past mining activity was limited to surface mining.

The Study Area does not contain suitable or appropriate nesting habitat for the Peregrine Falcon, Bald Eagle, Golden Eagle, or Ferruginous Hawk, although these species may migrate through or occasionally forage in the Study Area. Burrowing Owls can use open habitat similar to portions of the Study Area (e.g., Figure 2) if the soil is deep enough for the area to support burrowing rodents and the creation of deep burrows. However, no Burrowing Owls or suitable burrows were observed.

Arizona Toads may be present in Skull Valley Wash and tributary canyons around the edges of the Study Area. No suitable habitat, such as temporary pools, are likely to be present away from these tributaries in the Study Area.

Monarchs are a migratory butterfly, with primary corridors in the Midwest and along the Pacific coast. However, the species migrates through Arizona in smaller numbers and is recorded reproducing in Arizona (Morris et al. 2015). Monarchs are dependent on many species of milkweed plants as hosts for their larvae. No milkweed plants were observed during the survey of the Study Area, and milkweeds would be uncommon in the interior chaparral and semidesert grassland vegetation present in the Study Area.

The California Flannelbush occurs in interior chaparral and has been recorded from southern Yavapai County, but the species was not observed in the Study Area.

No ESA-listed species are present in the Study Area. Although several BLM sensitive species could occasionally occur in the Study Area, highly suitable, preferred habitat is not present for any of these species, with the exception of the potential for Arizona Toads to be present in canyons and washes near the Study Area.

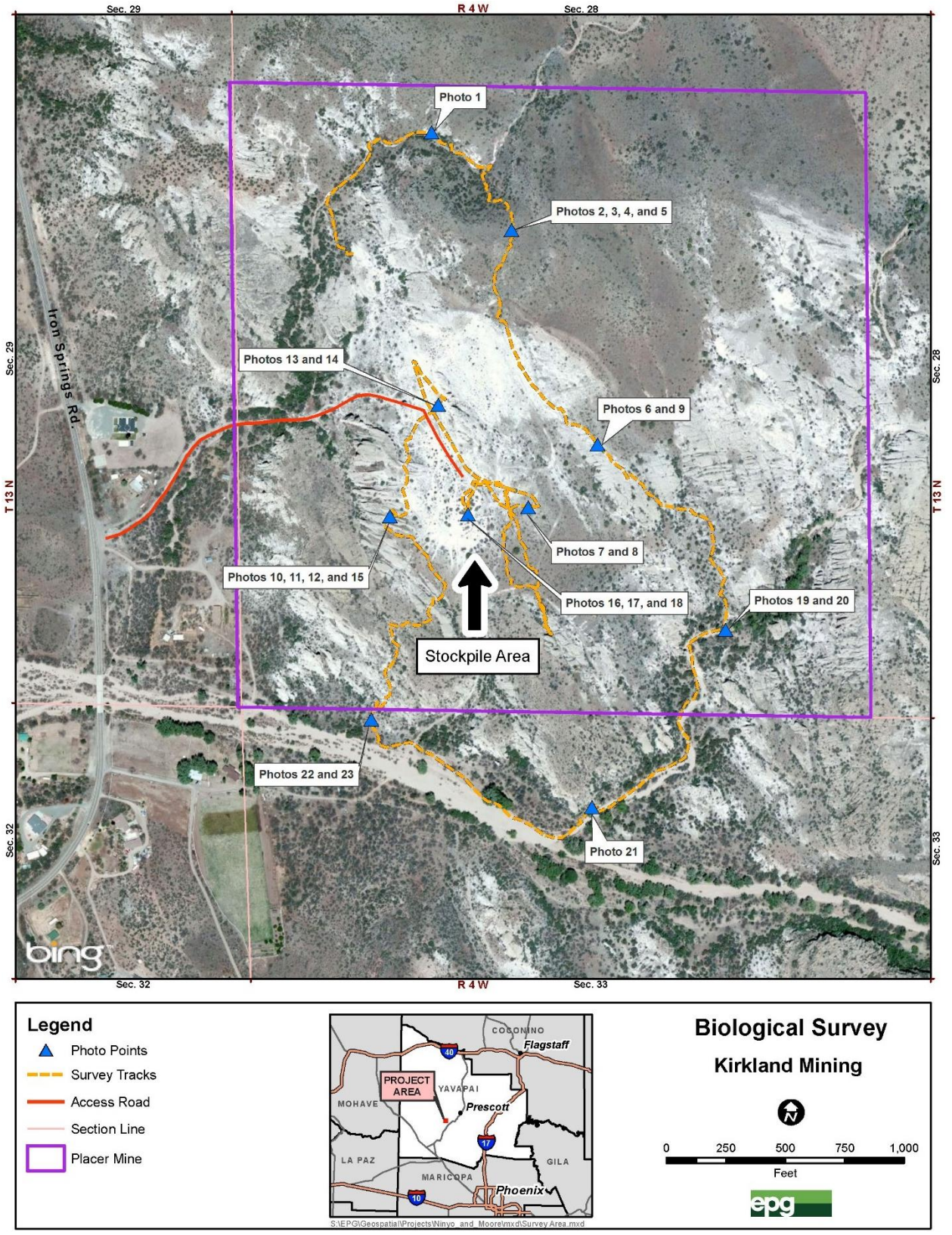


Figure 24. Map of Study Area, photo points, and survey track.

Table 2. Common Plant Species Observed while Surveying for the Kirkland Mine Project	
Common Name ***Scientific Name***	**Family**
Banana Yucca *Yucca baccata*	Agavaceae
Broom Snakeweed *Gutierrezia sarothrae*	Asteraceae
Button Brittlebush *Encelia frutescens*	Asteraceae
Brittlebush *Encelia farinosa*	Asteraceae
Desertbroom *Baccharis sarothroides*	Asteraceae
Spreading Fleabane *Erigeron divergens*	Asteraceae
Algerita *Mahonia trifoliata*	Berberidaceae
Combseed *Pectocarya* sp.	Boraginaceae
Cryptantha *Cryptantha* sp.	Boraginaceae
Mustard *Brassica* sp.	Brassicaceae
Pepperweed *Lepidium* sp.	Brassicaceae
Cactus Apple *Opuntia engelmannii*	Cactaceae
Christmas Cactus *Leptocaulis cylindropuntia*	Cactaceae
Kingcup Cactus *Echinocereus triglochidiatus*	Cactaceae
Crucifixion Thorn *Canotia holacantha*	Celastraceae
Prickly Russian Thistle *Salsola tragus*	Chenopodiaceae
Juniper *Juniperus* sp.	Cupressaceae
Alfalfa *Medicago* sp.	Fabaceae
Catclaw acacia *Acacia greggii*	Fabaceae
Catclaw Mimosa *Mimosa aculeaticarpa*	Fabaceae
Coues' Cassia *Senna covesii*	Fabaceae
Foothill Deervetch *Lotus humistratus*	Fabaceae
Lupine *Lupinus* sp.	Fabaceae

Table 2. Common Plant Species Observed while Surveying for the Kirkland Mine Project	
Common Name ***Scientific Name***	**Family**
Milkvetch *Astragalus* sp.	Fabaceae
Velvet Mesquite *Prosopis velutina*	Fabaceae
Whitethorn Acacia *Acacia constricta*	Fabaceae
Sonoran Scrub Oak *Querccus turbinella*	Fagaceae
Wright's Silktassel *Garrya wrightii*	Garryaceae
Redstem Stork's Bill *Erodium cicutarium*	Geraniaceae
Phacelia *Phacelia* sp.	Hydrophyllaceae
Bluedicks *Dichelostemma capitatum*	Liliaceae
Sacahuista *Nolina microcarpa*	Liliaceae
Desert Globemallow *Sphaeralcea ambigua*	Malvaceae
Stretchberry *Forestiera pubescens* var. *pubescens*	Oleaceae
Plantain *Plantago* sp.	Plantaginaceae
Blue Grama *Bouteloua gracilis*	Poaceae
Curly-Mesquite *Hilaria belangeri*	Poaceae
Low Woollygrass *Dasyochloa pulchella*	Poaceae
Mutton Bluegrass *Poa fendleriana*	Poaceae
Red Brome *Bromus rubens*	Poaceae
Threeawn *Aristida* sp.	Poaceae
Bastardsage Eriogonum wrightii	Polygonaceae
Buckwheat *Eriogonum* Sp.	Polygonaceae
Desert Trumpet *Eriogonum inflatum*	Polygonaceae
Dock *Rumex* Sp.	Polygonaceae
Desert Ceanothus *Ceanothus greggii*	Rhamnaceae
Hollyleaf Redberry *Rhamnus ilicifolia*	Rhamnaceae

Table 2. Common Plant Species Observed while Surveying for the Kirkland Mine Project	
Common Name ***Scientific Name***	**Family**
Alderleaf Mountain Mahogany *Cercocarpus montanus*	Rosaceae
Stansbury Cliffrose *Purshia stansburiana*	Rosaceae
Fremont Cottonwood *Populus fremontii*	Salicaceae
Willow *Salix* sp.	Salicaceae
Florida Hopbush *Dodonaea viscosa*	Sapindaceae
Northwestern Indian Paintbrush *Castilleja angustifolia*	Scrophulariaceae
Nightshade *Solanum* sp.	Solanaceae
Southwestern Mock Vervain *Glandularia gooddingii*	Verbenaceae
Mistletoe *Phoradendron* sp.	Viscaceae

REFERENCES

Brown, D. E. 1982. Desert Plants: Biotic Communities of the American Southwest-United States and Mexico. The University of Arizona for Boyce Thompson Southwestern Arboretum, Superior, Arizona. 342 pp.

Morris, G.M., C. Kline, and S.M. Morris. 2015. Status of *Danaus plexippus* population in Arizona. Journal of the Lepidopterists' Society 69 (2): 91-107.

Appendix A IPaC Report

IPaC Information for Planning and Consultation **U.S. Fish & Wildlife Servi**

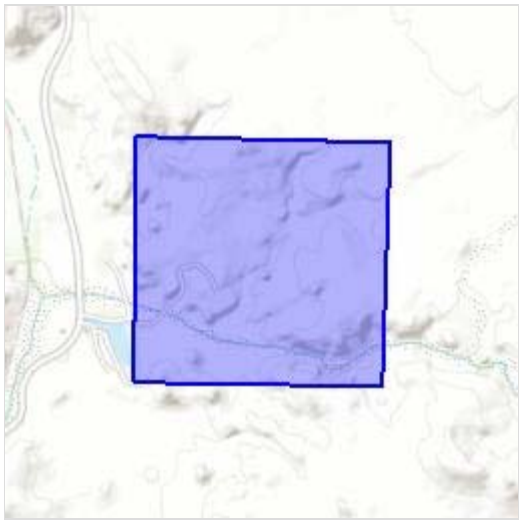
IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as trust resources) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Yavapai County, Arizona



Local office

Arizona Ecological Services Field Office

(602) 242-0210

(602) 242-2513

9828 North 31st Ave
#c3
Phoenix, AZ 85051-2517

http://www.fws.gov/southwest/es/arizona/
http://www.fws.gov/southwest/es/EndangeredSpecies_Main.html

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] are managed by the Endangered Species Program of the U.S. Fish and Wildlife Service.

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information.

The following species are potentially affected by activities in this location:

Birds

NAME	STATUS
Mexican Spotted Owl Strix occidentalis lucida There is a **final** critical habitat designated for this species. Your location is outside the designated critical habitat. https://ecos.fws.gov/ecp/species/8196	Threatened
Yellow-billed Cuckoo Coccyzus americanus There is a **proposed** critical habitat for this species. Your location is outside the proposed critical habitat. https://ecos.fws.gov/ecp/species/3911	Threatened

Fishes

NAME	STATUS
Headwater Chub Gila nigra No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/1373	Proposed Threatened
Roundtail Chub Gila robusta No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/2782	Proposed Threatened

Reptiles

NAME	STATUS
Northern Mexican Gartersnake Thamnophis eques megalops There is a **proposed** critical habitat for this species. Your location is outside the proposed critical habitat. https://ecos.fws.gov/ecp/species/7655	Threatened

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any activity that results in the take (to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct) of migratory birds or eagles is prohibited unless authorized by the U.S. Fish and Wildlife Service[3]. There are no provisions for allowing the take of migratory birds that are unintentionally killed or injured.

Any person or organization who plans or conducts activities that may result in the take of migratory birds is responsible for complying with the appropriate regulations and implementing appropriate conservation measures.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Conservation measures for birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Year-round bird occurrence data http://www.birdscanada.org/birdmon/default/datasummaries.jsp

The migratory birds species listed below are species of particular conservation concern (e.g. Birds of Conservation Concern) that may be potentially affected by activities in this location. It is not a list of every bird species you may find in this location, nor a guarantee that all of the bird species on this list will be found on or near this location. Although it is important to try to avoid and minimize impacts to all birds, special attention should be made to avoid and minimize impacts to birds of priority concern. To view available data on other bird species that may occur in your project area, please visit the AKN Histogram

Tools and Other Bird Data Resources. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

NAME	SEASON(S)
Bald Eagle Haliaeetus leucocephalus https://ecos.fws.gov/ecp/species/1626	Wintering
Bell's Vireo Vireo bellii https://ecos.fws.gov/ecp/species/9507	Breeding
Bendire's Thrasher Toxostoma bendirei https://ecos.fws.gov/ecp/species/9435	Breeding
Black-chinned Sparrow Spizella atrogularis https://ecos.fws.gov/ecp/species/9447	Breeding
Brewer's Sparrow Spizella breweri https://ecos.fws.gov/ecp/species/9291	Wintering
Burrowing Owl Athene cunicularia https://ecos.fws.gov/ecp/species/9737	Year-round
Common Black-hawk Buteogallus anthracinus	Breeding
Costa's Hummingbird Calypte costae https://ecos.fws.gov/ecp/species/9470	Breeding
Elf Owl Micrathene whitneyi https://ecos.fws.gov/ecp/species/9085	Breeding
Flammulated Owl Otus flammeolus https://ecos.fws.gov/ecp/species/7728	Breeding
Fox Sparrow Passerella iliaca	Wintering
Gila Woodpecker Melanerpes uropygialis https://ecos.fws.gov/ecp/species/5960	Year-round

Golden Eagle Aquila chrysaetos https://ecos.fws.gov/ecp/species/1680	Year-round
Gray Vireo Vireo vicinior https://ecos.fws.gov/ecp/species/8680	Breeding
Lawrence's Goldfinch Carduelis lawrencei https://ecos.fws.gov/ecp/species/9464	Year-round
Le Conte's Thrasher toxostoma lecontei https://ecos.fws.gov/ecp/species/8969	Year-round
Loggerhead Shrike Lanius ludovicianus https://ecos.fws.gov/ecp/species/8833	Year-round
Lucy's Warbler Vermivora luciae https://ecos.fws.gov/ecp/species/6626	Breeding
Peregrine Falcon Falco peregrinus https://ecos.fws.gov/ecp/species/8831	Year-round
Pinyon Jay Gymnorhinus cyanocephalus https://ecos.fws.gov/ecp/species/9420	Year-round
Prairie Falcon Falco mexicanus https://ecos.fws.gov/ecp/species/4736	Year-round
Red-faced Warbler Cardellina rubrifrons	Breeding
Rufous-crowned Sparrow Aimophila ruficeps https://ecos.fws.gov/ecp/species/9718	Year-round
Short-eared Owl Asio flammeus https://ecos.fws.gov/ecp/species/9295	Wintering
Sonoran Yellow Warbler Dendroica petechia ssp. sonorana https://ecos.fws.gov/ecp/species/2893	Breeding

Swainson's Hawk Buteo swainsoni https://ecos.fws.gov/ecp/species/1098	Breeding
Western Grebe aechmophorus occidentalis https://ecos.fws.gov/ecp/species/6743	Breeding
Williamson's Sapsucker Sphyrapicus thyroideus https://ecos.fws.gov/ecp/species/8832	Wintering
Willow Flycatcher Empidonax traillii https://ecos.fws.gov/ecp/species/3482	Breeding

What does IPaC use to generate the list of migratory bird species potentially occurring in my specified location?

Landbirds:

Migratory birds that are displayed on the IPaC species list are based on ranges in the latest edition of the National Geographic Guide, Birds of North America (6th Edition, 2011 by Jon L. Dunn, and Jonathan Alderfer). Although these ranges are coarse in nature, a number of U.S. Fish and Wildlife Service migratory bird biologists agree that these maps are some of the best range maps to date. These ranges were clipped to a specific Bird Conservation Region (BCR) or USFWS Region/Regions, if it was indicated in the 2008 list of Birds of Conservation Concern (BCC) that a species was a BCC species only in a particular Region/Regions. Additional modifications have been made to some ranges based on more local or refined range information and/or information provided by U.S. Fish and Wildlife Service biologists with species expertise. All migratory birds that show in areas on land in IPaC are those that appear in the 2008 Birds of Conservation Concern report.

Atlantic Seabirds:

Ranges in IPaC for birds off the Atlantic coast are derived from species distribution models developed by the National Oceanic and Atmospheric Association (NOAA) National Centers for Coastal Ocean Science (NCCOS) using the best available seabird survey data for the offshore Atlantic Coastal region to date. NOAANCCOS assisted USFWS in developing seasonal species ranges from their models for specific use in IPaC. Some of these birds are not BCC species but were of interest for inclusion because they may occur in high abundance off the coast at different times throughout the year, which potentially makes them more susceptible to certain types of development and activities taking place in that area. For more refined details about the abundance and richness of bird species within your project area off the Atlantic Coast, see the Northeast Ocean Data Portal. The Portal also offers data and information about other types of taxa that may be helpful in your project review.

About the NOAANCCOS models: the models were developed as part of the NOAANCCOS project: Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf. The models resulting from this project are being used in a number of decision-support/mapping products in order to help guide decision-making on activities off the Atlantic Coast with the goal of reducing impacts to migratory birds. One such product is the Northeast Ocean Data Portal, which can be used to explore details about the relative occurrence and abundance

of bird species in a particular area off the Atlantic Coast.

All migratory bird range maps within IPaC are continuously being updated as new and better information becomes available.

Can I get additional information about the levels of occurrence in my project area of specific birds or groups of birds listed in IPaC?

Landbirds:

The Avian Knowledge Network (AKN) provides a tool currently called the "Histogram Tool", which draws from the data within the AKN (latest,survey, point count, citizen science datasets) to create a view of relative abundance of species within a particular location over the course of the year. The results of the tool depict the frequency of detection of a species in survey events, averaged between multiple datasets within AKN in a particular week of the year. You may access the histogram tools through the Migratory Bird Programs AKN Histogram Tools webpage.

The tool is currently available for 4 regions (California, Northeast U.S., Southeast U.S. and Midwest), which encompasses the following 32 states: Alabama, Arkansas, California, Connecticut, Delaware, Florida, Georgia, Illinois, Indiana, Iowa, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, New Hampshire, New Jersey, New York, North, Carolina, Ohio, Pennsylvania, Rhode Island, South Carolina, Tennessee, Vermont, Virginia, West Virginia, and Wisconsin.

In the near future, there are plans to expand this tool nationwide within the AKN, and allow the graphs produced to appear with the list of trust resources generated by IPaC, providing you with an additional level of detail about the level of occurrence of the species of particular concern potentially occurring in your project area throughout the course of the year.

Atlantic Seabirds:

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAANCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Facilities

Wildlife refuges and fish hatcheries

REFUGE AND FISH HATCHERY INFORMATION IS NOT AVAILABLE AT THIS TIME

Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

THERE ARE NO KNOWN WETLANDS AT THIS LOCATION.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency

regulatory programs and proprietary jurisdictions that may affect such activities.