

IBA Report

University of Arizona Crown Castle

Trileaf # 604293

Prepared For:

Crown Castle 5350 N. 48th Street
Chandler, AZ 85226

Prepared By:

Trileaf Corporation
10845 Olive Blvd, Suite 310
Saint Louis, MO 63141

On:

January 8, 2013



**Informal Biological Assessment
Crown Castle
Project Name: University of Arizona
Trileaf #604293**

In accordance with 47 CFR 1.1307 (a)3, Trileaf performed an Informal Biological Assessment for the subject Property. The purpose is to document whether the proposed undertaking will affect listed or proposed threatened or endangered species, designated critical habitat, wetlands, or migratory birds. Furthermore, particular emphasis on potential effects to migratory birds will be made to address the Federal Communication Commission's (FCC) concerns.

Property Location:

The Property is located at 7501 South Kolb Road, Tucson, Pima County Arizona 85756, on an undeveloped parcel just outside the city limits of Tucson, Arizona and is associated with the University of Arizona. The Property is approximately 2810 feet above mean sea level.

Site Characteristics:

The proposed undertaking consists of moving an existing 102-ft monopole tower from 7551 S. Kolb Road to 7501 S. Kolb Road and Interstate 10, a move of approximately 600 feet northeast. The tower height for the proposed new monopole tower will increase to 150-ft and will be located within a 60-ft by 60-ft lease area compound, including all appurtenances. The proposed 20-ft wide access and utility easement will extend west approximately 644 feet connecting with Kolb Road. Currently the habitat is undeveloped, desert land with sparse vegetation and is adjacent to the Julian Wash Greenway which consists of a nature preserve and walking trail. Surrounding the Property to the north is open, undeveloped desert landscape fragmented by a railroad tract. The surrounding property to the east consists of the walking trail followed by the natural preserve area, followed by a railroad tract and undeveloped, desert land. Surrounding the Property to the south is a parking lot and shelter that are associated with the Julian Wash Greenway. Further south is the Julian Wash Retention Basin followed by undeveloped desert land that is fragmented by IBM road and Interstate-10/Frontage Road. Surrounding the Property to the west consists of undeveloped desert scrub followed by South Kolb Road, followed undeveloped, desert scrub.

According to the U.S. Soil Conservation Service Soil Survey of Pima County, Arizona, the tower location is underlain by Hantz loam with 0 to 1 percent slope. The Hantz series consists of very deep, well drained soils that formed in stratified mixed alluvium. A typical profile for Hantz loam consists of a surface layer of loam that extends to a depth 5 inches and a subsurface layers of clay loam that extends from 5 to 12 inches and clay that extends from 12 to 45 inches. Hantz loam occasionally floods and the depth to water table and the most restrictive feature is more than 80 inches. This soil does not meet hydric criteria; in addition no hydric soils or hydrophytic vegetation was observed during the site reconnaissance.

According to FEMA's FIRM map panel #04019C2905L the Property is located within Flood Zone A, which is defined as within the 100-year floodplain. The project is located within the Kolb Road Regional Detention Basin and is adjacent to the Julian Wash, which is a dry manmade culvert with a 1% annual chance of flood discharge.

Proximity to lotic and lentic water bodies was reviewed using topographic maps, U.S. Fish and Wildlife Service National Wetland Inventory (NWI) map, the U.S. Soil Conservation soil survey, and area reconnaissance. The closest NWI mapped wetland has been identified as a lacustrine, unconsolidated bottom open water wetland (labeled as a lake), and is located approximately 0.4 miles east of the Property. There is a second mapped wetland, identified as a freshwater pond, and is located approximately 0.58 miles west of the Property. However looking at the aerial images and during the area reconnaissance, neither the identified lake nor the freshwater pond is actually open bodies of water. The closest mapped wetland is a natural preserve area that does not appear to be saturated or have open water. The natural preserve area is adjacent and above the Julian Wash. It is possible that during heavy rains, when overflow from the Julian Wash occurs, the natural preserve may become heavily saturated. Both wetland areas are underlain by Hantz loam. While Hantz loam is identified as well drained, it does have slow permeability and is subject to flooding. Therefore, the soils absorption rate is slow, which may cause the area to retain large amounts of open water for an extended period of time. None of the mapped wetlands are located on the Property and should not be affected by the construction activities.

Designated Wilderness Areas, Wildlife Preserves, or Refuges:

Trileaf reviewed topographic maps, the wilderness.net and www.fws.gov/refuges websites, as well as conducted a site reconnaissance to determine if designated wilderness areas, wildlife preserves, or refuges are located at or near the project location that may provide habitat for threatened or endangered species or migratory birds. On December 28, 2012, a staff scientist took photographs and performed a visual survey of the Property during a site visit. Trileaf determined that the tower is not located in or within one mile of these special wildlife areas.

Listed, Threatened or Endangered Species and Critical Habitat:

Trileaf has researched the listed and/or proposed threatened or endangered species or designated critical habitat for the project area. This includes any such species that have been reported to exist within the state where the project is located. The list of federally threatened or endangered species was acquired from the U.S. Fish and Wildlife Service and is broken down by county. The list of state at risk species was obtained from the Arizona Game and Fish Department and is broken down by county. Additionally, these species are given a state rank and classification. The table includes species that are classified as Wildlife of Special Concern (WSC) and ranked as either S1, which is defined as critically imperiled in Arizona, or S2, which is defined as imperiled in Arizona. Additionally, plants with a classification of Highly Safeguarded (HS) and a S1

or S2 ranking that can grow at the elevation of the proposed Project, 2,810 feet, have been included in the below table.

The Property is not located within an aquatic environment; therefore any obligate aquatic species should not be impacted by this project and are not included in the table below. However, due to the proximity of the New Julian Wash, amphibians have been included. A list of remaining species and site observations are summarized in the table below.

The Property and surrounding area do not contain any officially designated critical habitat. Furthermore, the Property it is not designated as critical habitat, is highly fragmented by the surrounding developments, and the proposed lease area is small and does not require a significant amount of disturbance. Therefore, no effects to habitat or federal and state listed species are expected by the construction of this tower.

The following sites were used to identify the threatened and endangered species for federal and State listings within Pima County, Arizona.

- U.S. Fish and Wildlife Service, Arizona, Threatened and Endangered Species, Pima County: <http://www.ecos.fws.gov>
- State of Arizona Game and Fish Department: http://www.azgfd.com/w_c/edits/hdms_species_lists.shtml
- U.S. Fish and Wildlife Service, Critical Habitat Portal: <http://criticalhabitat.fws.gov/crithab>

Species	Federal/State Status	Habitat Requirements	Species Effect	Notes/Documentation
Acuna Cactus (Echinomastus erectocentrus var. acunensis)	Proposed Endangered/ HS – S1	Found on well-drained knolls and gravel ridges between 1300 – 3937feet elevation in the Sonoran desert scrub	No Effect	Habitat assessment indicated no suitable habitat present
American Peregrine Falcon (Falco peregrinus)	Recovery	Breed in open landscapes with cliffs. Found nesting along rivers and coastlines	No Effect	Habitat assessment indicated no suitable habitat present
Arizona Grasshopper Sparrow (Ammodramus savannarum ammolegus)	S1S2	Prefer areas with significant grass cover and a few scattered shrubs for perching	No Effect	Habitat assessment indicated no suitable habitat present

Species	Federal/State Status	Habitat Requirements	Species Effect	Notes/Documentation
Baird's Sparrow (<i>Ammodramus bairdii</i>)	S2N-WSC	Breeds in native mixed-grass and fescue prairie. Winters in grasslands	No Effect	Habitat assessment indicated no suitable habitat present
Black Vulture (<i>Coragyps atratus</i>)	S1S2	Roosts in dense forests with large trees, and searches open spaces for carrion	No Effect	Habitat assessment indicated no suitable habitat present
Brown Vinesnake (<i>Oxybelis aeneus</i>)	S1 - WSC	Found in trees or low shrubs on relatively open, steep, and grassy slopes but is also encountered along canyon bottoms with dense vegetation	No Effect	Habitat assessment indicated no suitable habitat present
Cactus Ferruginous Pygmy – Owl (<i>Glaucidium brasilianum cactorum</i>)	S1- WSC	Occurs in a variety of habitats, including river bottom woodlands, mesquite bosques, desert scrub, and plains and desert grasslands	No Effect	Habitat assessment indicated no suitable habitat present
California Least Tern (<i>Sterna antillarum browni</i>)	Endangered	Need to nest close to shoreline areas where prey is abundant	No Effect	Habitat assessment indicated no suitable habitat present
Chiricahua Leopard Frog (<i>Lithobates chiricahuensis</i>)	Threatened/ S2-WSC	Restricted to springs, livestock tanks, and streams in upper portion of watersheds	No Effect	Habitat assessment indicated no suitable habitat present
Crested Caracara (<i>Caracara cheriway</i>)	S1S2 – WSC	Preferred habitat is open, lowland countryside, like pastures, savannas, river edges, and ranches	No Effect	Habitat assessment indicated no suitable habitat present
Five-striped Sparrow (<i>Amphispiza quinquestriata</i>)	S1S2	Dense bushy vegetation and grasses on steep hillsides, especially with acacia, mesquite or	No Effect	Habitat assessment indicated no suitable habitat present

Species	Federal/State Status	Habitat Requirements	Species Effect	Notes/Documentation
		riparian vegetation		
Jaguar (<i>Panthera onca</i>)	Endangered/ S1 – WSC	Habitat varies from wet lowland habitats on its center range to arid habitats along its northern range	No Effect	Habitat assessment indicated no suitable habitat present
Lesser Long-nosed Bat (<i>Leptonycteris curasoae yerbabuenae</i>)	Endangered / S2 - WSC	Typically found in the desert scrub habitat. Roosting occurs in caves, abandoned buildings and mines which are usually located at the base of mountains where food sources are present	No Effect	Habitat assessment indicated no critical habitat present
Lowland Burrowing Treefrog (<i>Smilisca fodiens</i>)	S2-WSC	Inhabits valleys within Sonoran Desert scrub, often where mesquite is common	No Effect	Habitat assessment indicated no suitable habitat present
Masked Bobwhite quail (<i>Colinus virginianus ridgwayi</i>)	Endangered/ S1 - WSC	The masked bobwhite inhabits savannah grasslands where grass and shrubs provide sufficient ground cover	No Effect	Habitat assessment indicated no suitable habitat present
Mexican Spotted Owl (<i>Strix occidentalis lucida</i>)	Threatened / WSC	Occurs in a variety of habitats, consisting of mature montane forests, shady canyons, and steep canyons	No Effect	Habitat assessment indicated no suitable habitat present
Nichol Turk's Head Cactus (<i>Echinocactus horizonthalonius</i> var. <i>nicholii</i>)	Endangered/ HS – S2	Occurs in semi-arid Sonoran desert scrub. It persists on limestone outcropping and limestone derived soils in incline	No Effect	Habitat assessment indicated no suitable habitat present

Species	Federal/State Status	Habitat Requirements	Species Effect	Notes/Documentation
		terraces, saddles, and alluvial fans at elevations from 2,400 to 4,100 feet		
Northern Buff-breasted Flycatcher (<i>Empidonax fulvifrons pygmaeus</i>)	S1 – WSC	Open stands of pine, sycamore, or grassy under story areas. Likes riparian vegetation and does not tolerate dense vegetation	No Effect	Habitat assessment indicated no suitable habitat present
Ocelot (<i>Felis pardalis</i>)	Endangered	In Arizona, its presence is usually found in desert scrub communities with thick undercover	No Effect	Habitat assessment indicated no suitable habitat present
Pima Pineapple Cactus (<i>Coryphantha scheeri</i> var. <i>robustispina</i>)	Endangered/ HS – S2	The cactus grows in semi desert grassland and in Sonoran desert scrub between an elevation of 2,300 and 5,000 feet. It often occurs in open areas on flat ridge tops	No Effect	Habitat assessment indicated no critical habitat present
Rose-throated Becard (<i>Pachyramphus aglaiae</i>)	S1-WSC	Found in desert riparian forests, open woodlands, and mangroves	No Effect	Habitat assessment indicated no suitable habitat present
Sonoran Pronghorn Antelope (<i>Antilocapra americana sonoriensis</i>)	Endangered / S1 – WSC	Found in broad, alluvial valleys separated by granite mountains and mesas	No Effect	Habitat assessment indicated no critical habitat present Proposed lease area is minimal in size, limited to a total lease area of 3,600 square feet
Swainson's Thrush (<i>Catharus ustulatus</i>)	S1	Prefer coniferous forests, but will use high elevation willow and/or alder thickets along lowlands/shaded streams and aspen forests	No Effect	Habitat assessment indicated no suitable habitat present

Species	Federal/State Status	Habitat Requirements	Species Effect	Notes/Documentation
Underwood's Gonnated Bat (Eumops underwoodi)	S1	Lower and upper Sonoran desertscrub near cliffs, preferring the rugged rocky canyons with abundant crevices.	No Effect	Habitat assessment indicated no suitable habitat present
Western Barking Frog (Craugastor augusti cactorum)	S2 - WSC	Found on limestone, rhyolite, granite, and perhaps other rock outcrops on the hillsides of canyons	No Effect	Habitat assessment indicated no suitable habitat present
Western Burrowing Owl (Athene cunicularia hypugaea)	Protected by the Migratory Bird Treaty Act/ S3	Found in dry, open areas with low vegetation where fossorial mammals congregates such as grasslands, deserts, farmlands, rangelands, golf courses, and vacant lots in urban areas.	No Effect	Habitat assessment indicated no critical habitat present. Proposed lease area is minimal in size, limited to a total lease area of 3,600 square feet.
Whisk Fern (Psilotum nudum)	HS-S1	Grow in tropical or subtropical regions, where they occur on rich soil or as epiphytes	No Effect	Habitat assessment indicated no suitable habitat present
Yellow Billed Cuckoo (Coccyzus americanus)	Candidate/ S3-WSC	Open woodlands with clearings and dense scrubby vegetation, often along water	No Effect	Habitat assessment indicated no suitable habitat present

Migratory Birds

Per the interim guidelines of the FCC Programmatic Environmental Assessment of the Antenna Structure Registration Program (FCC PEA), implemented on June 18, 2012, towers over 450-feet in height require additional environmental review for potential migratory bird concerns. While the proposed tower 150-foot monopole tower is under the maximum height limit of 450-feet, this report is being provided as a supplement to the EA. Therefore, Trileaf conducted a review of the available information to determine the Project's potential for migratory bird impacts.

The Property is not located within a main route of a migratory bird flyway. Upon our site investigation, it was determined that the project area is not located in an NWI mapped wetland, waterway, wildlife refuge, national wilderness area, native grassland or forest area, ridge-line, mountain top, coastline or area commonly known to have high incidences of fog or low clouds, where migratory birds may be found. Although there are NWI mapped wetlands near the Property, they are small, isolated wetlands that are only periodically wet, therefore they are unlikely to attract migratory birds.

There are no significant topographic features on the landscape near the site, and the tower is not located on a local high point that would increase potential effects to migratory birds. Additionally, the tower's proximity to the town of Tucson as well as the proximity to the Davis Monthan Air Force Base further decreases the potential for migratory birds to interact with the tower. Using the FAA's ASR database, a total of 34 towers were identified within a 5 mile radius from the Property. The siting of this tower being near so many additional towers reduces the sensitivity of the area and decreases the potential effects to migratory birds. The surrounding habitat is a mixture of isolated undeveloped desert landscapes, surrounded by residential development, industrial development, and foregone partially developed areas all fragmented by railways, roadways and major interstates. The proximity to the air base, fragmentation, scattered development and disturbance all decrease the value of the land to migratory birds and decrease the chances the area would be used by passing flocks.

The siting and design process for this project could not conform to all the USFWS recommendations. Therefore, it has included mitigating factors such as consideration of collocation, tower siting with existing towers or in minimally sensitive areas, limiting tower height to 150-ft and eliminating the need for guy wires. Therefore, based upon the efforts undertaken during this IBA as well as the current data made available, we have concluded that this Project will have no additional adverse effect on migratory birds; however, the presence of migratory birds cannot be ruled out.

Special considerations:

- During the construction of the tower, measures to reduce habitat destruction and degradation for the burrowing owl should be taken. While no burrows were observed during the area reconnaissance, a man-made habitat area was identified nearby the nature preserve, with its exact location unknown. Precautions should be taken if a Western Burrowing Owl is spotted.

Conclusion

In conclusion, there are no threatened or endangered species or designated critical habitat that is expected to be adversely affected by the proposed tower construction. Furthermore, due to the absence of features on the landscape to attract migratory birds, the tower's siting among additional towers, and the adjacent development of the city of Tucson, it is expected that this Project poses no additional adverse effect to migratory

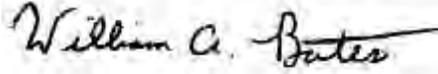
Crown Castle – University of Arizona
Trileaf #604293

birds. The Property is located within Flood Zone A, as well as in close proximity to NWI mapped wetlands.

It should be noted that this informal biological assessment was conducted in accordance with the Scope of Work and does not constitute a Section 7 Biological Assessment under the Endangered Species Act (50 CFR Part 402.01).



Megan Wardlow
Environmental Specialist



William A. Bates
Senior Reviewer

Property Location and Photographs

Tucson SE Quadrangle, Arizona (DeLorme)

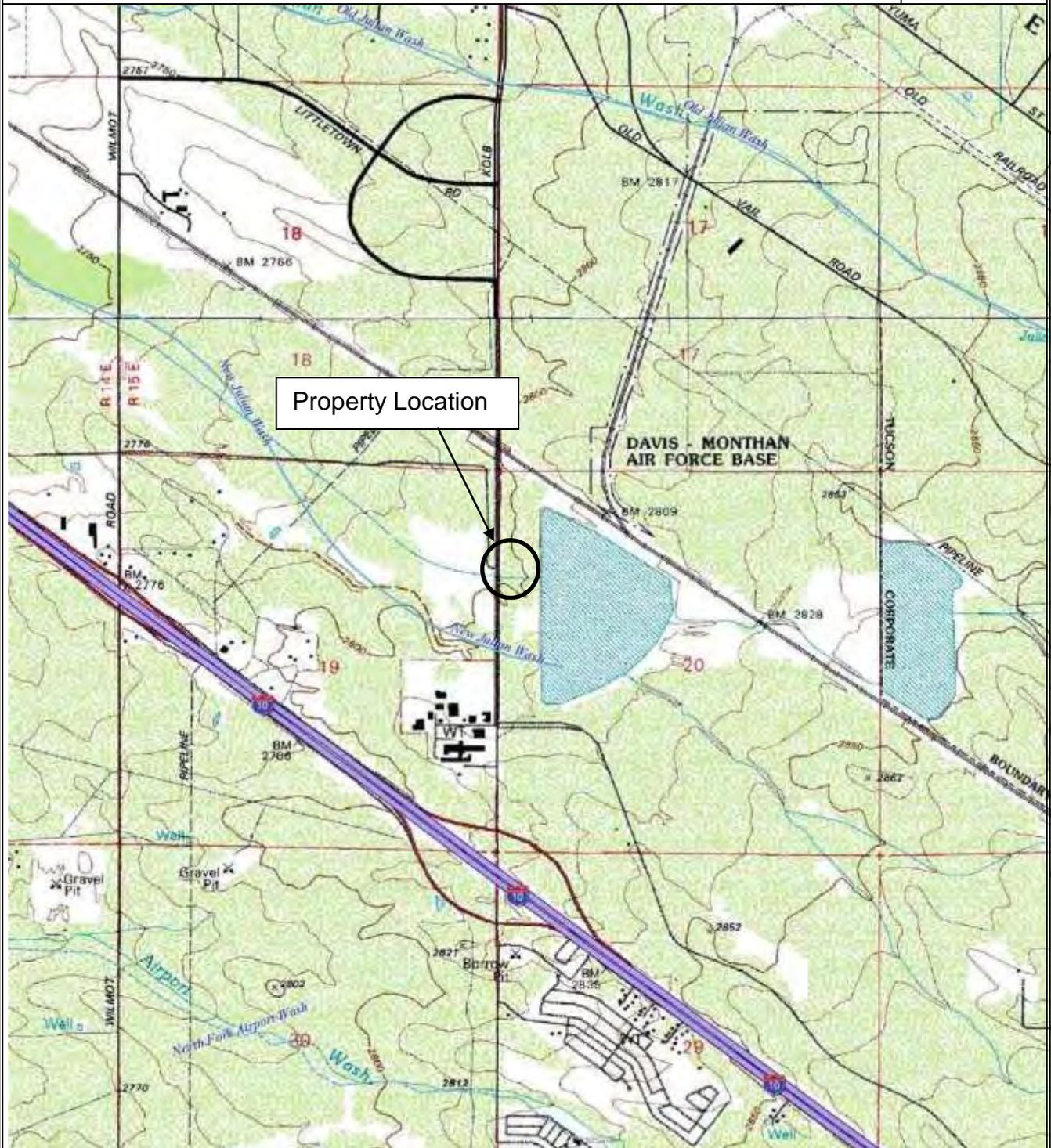
Contour Interval = 10 Feet

Scale

1 Inch = 2,000 Feet



North



USGS Topographic Map – Location Map

Crown Castle – University of Arizona
7501 S. Kolb Road
Tucson, AZ 85756





Site Photograph 1 – Looking north at the Property



Site Photograph 2 – Looking south at the Property

Site Photographs

Crown Castle – University of Arizona
7501 S. Kolb Road
Tucson, AZ 85756

Photographed:
December 28, 2012





Site Photograph 3 – Looking east at the Property



Site Photograph 4 – Looking west at the Property

Site Photographs

Crown Castle – University of Arizona
7501 S. Kolb Road
Tucson, AZ 85756

Photographed:
December 28, 2012





Site Photograph 5 – Looking north away from the Property



Site Photograph 6 – Looking south away from the Property

Site Photographs

Crown Castle – University of Arizona
7501 S. Kolb Road
Tucson, AZ 85756

Photographed:
December 28, 2012

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Site Photograph 7 – Looking west away from Property



Site Photograph 8 – Looking east away from the Property

Site Photographs

Crown Castle – University of Arizona
7501 S. Kolb Road
Tucson, AZ 85756

Photographed:
December 28, 2012





Site Photograph 9 – Looking west along the access easement



Site Photograph 10 – Looking west along the utility easement

Site Photographs

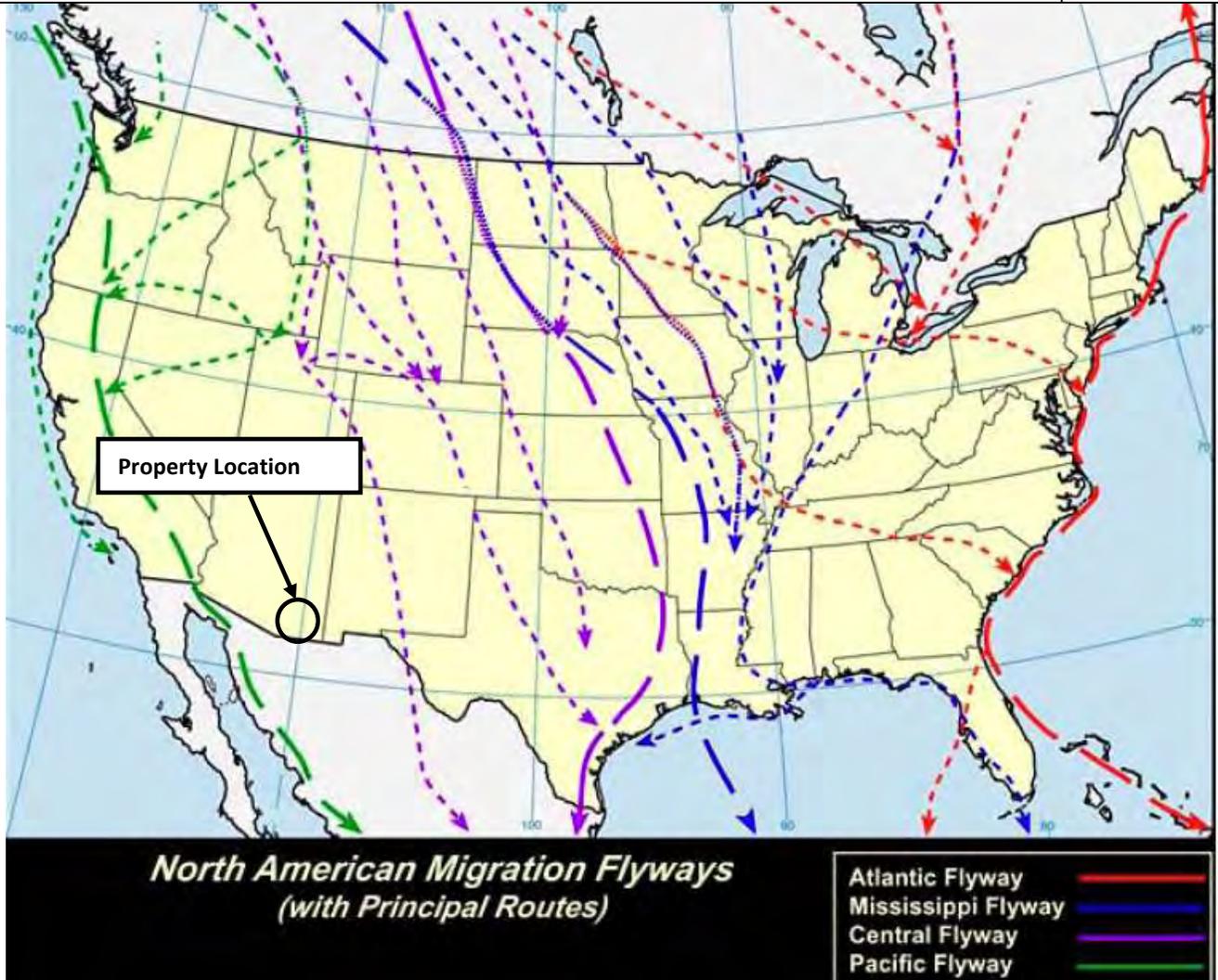
Crown Castle – University of Arizona
7501 S. Kolb Road
Tucson, AZ 85756

Photographed:
December 28, 2012



Map Appendix

North American Migration Flyways



Migratory Bird Flyway Map

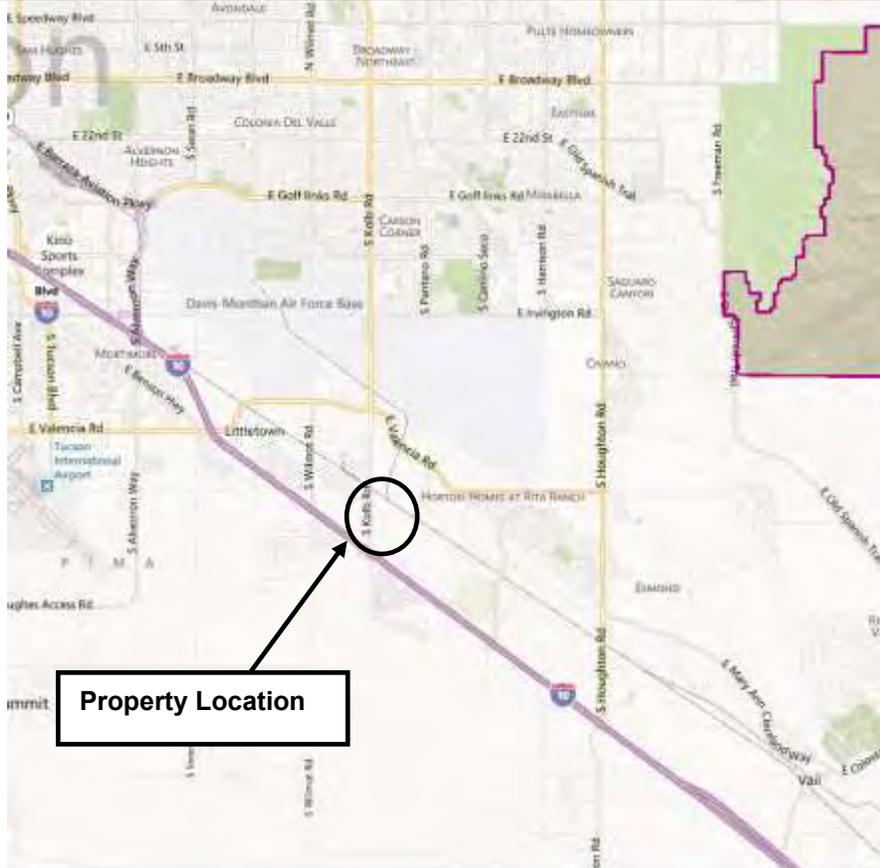
Crown Castle – University of Arizona
7501 S. Kolb Road
Tucson, AZ 85756

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U.S. National Wilderness Preservation System Map



North



Property Location

Wilderness.net Map
Crown Castle – University of Arizona
7501 S. Kolb Road
Tucson, AZ 85756



U.S. Fish and Wildlife Service
National Wildlife Refuge System Map



North

Arizona



Property Location

U.S. FWS Wildlife Preserves and Refuges

Crown Castle – University of Arizona

7501 S. Kolb Road

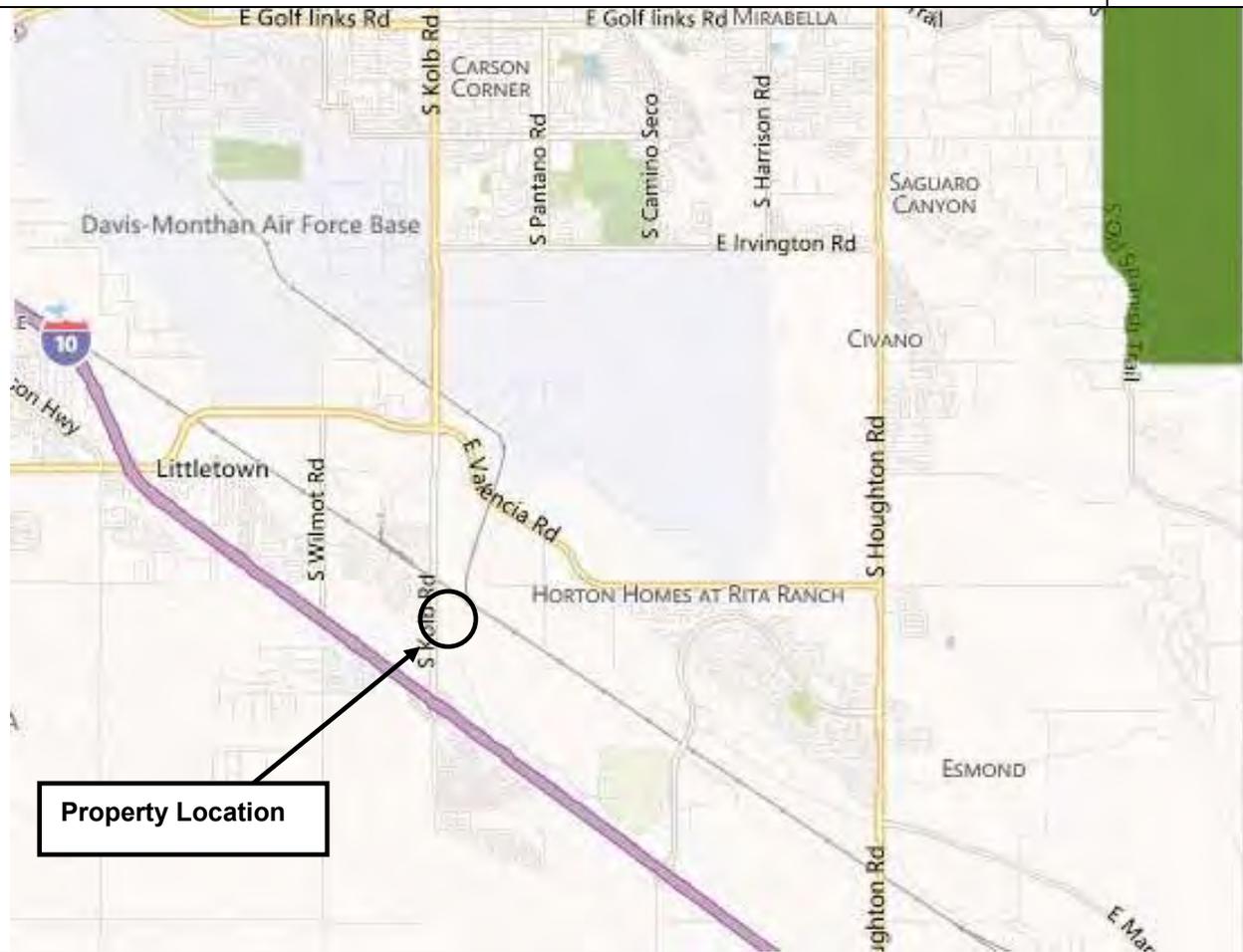
Tucson, AZ 85756



**National Park Service
State Parks Map**



North



Property Location

National Park Service – State Parks Map

Crown Castle – University of Arizona
7501 S. Kolb Road
Tucson, AZ 85756



U.S. Fish and Wildlife Service Critical Habitat Map



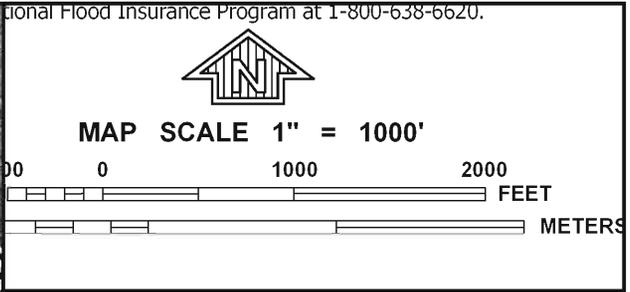
North



Fish and Wildlife Critical Habitat Map

Crown Castle – University of Arizona
7501 S. Kolb Road
Tucson, AZ 85756





NATIONAL FLOOD INSURANCE PROGRAM

PANEL 2905L

FIRM

FLOOD INSURANCE RATE MAP

PIMA COUNTY,
ARIZONA
AND INCORPORATED AREAS

PANEL 2905 OF 4750

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
PIMA COUNTY	040073	2905	L
TUCSON, CITY OF	040076	2905	L

Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.



MAP NUMBER
04019C2905L

MAP REVISED
JUNE 16, 2011

Federal Emergency Management Agency

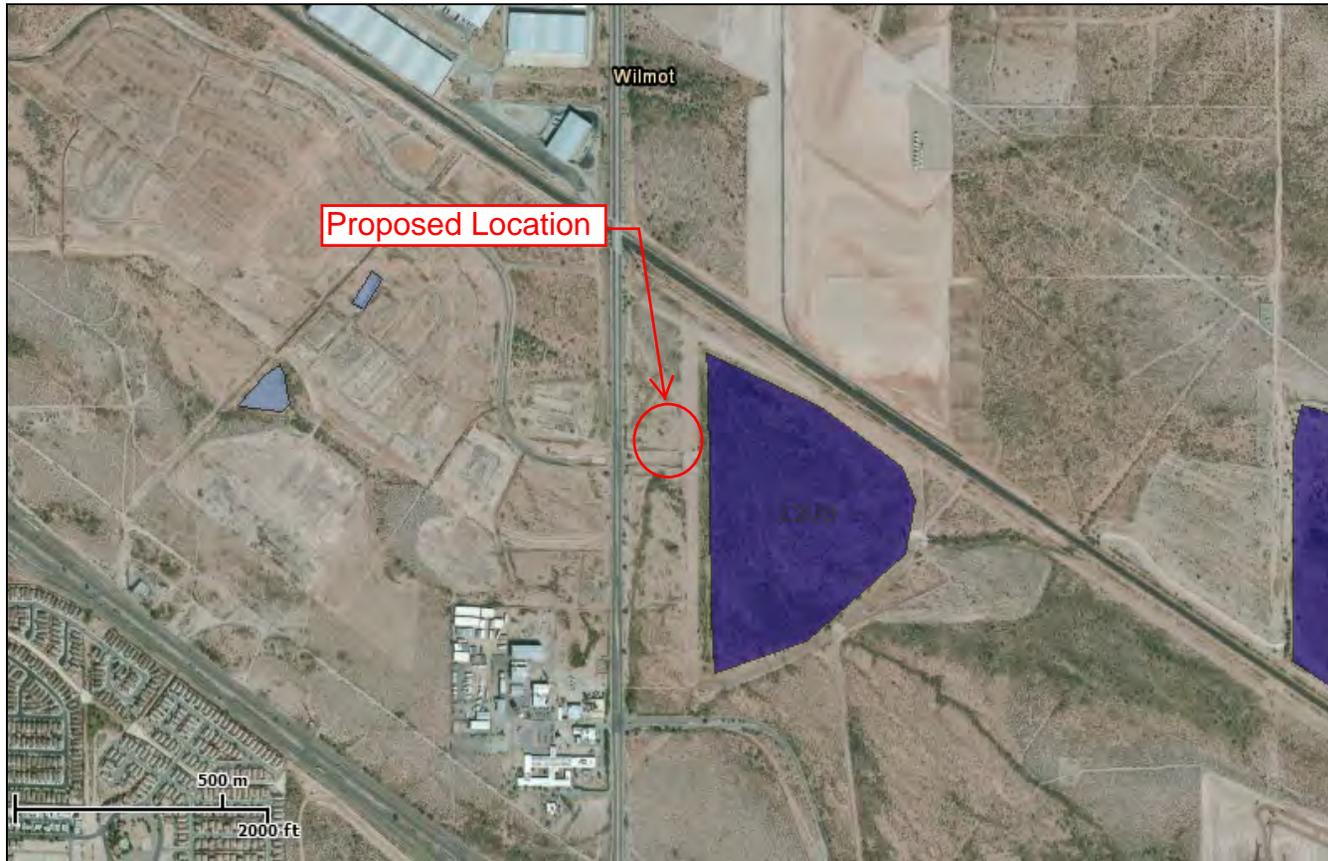
This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov



U.S. Fish and Wildlife Service National Wetlands Inventory

University of
Arizona

Jan 3, 2013



Wetlands

- Freshwater Emergent
- Freshwater Forested/Shrub
- Estuarine and Marine Deepwater
- Estuarine and Marine
- Freshwater Pond
- Lake
- Riverine
- Other

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

User Remarks:

Scale: 1:18,056

Additional Resources

ASR Registration Search

Registration Search Results**Displayed Results****PA** = Pending Application(s)**Specified Search**

Latitude='32-6-56.7 N', Longitude='110-50-22.4 W', Radius=8 Kilometers

	Registration Number	Status	File Number	Owner Name	Latitude/Longitude	Structure City/State	Overall Height Above Ground (AGL)
1	1001582	Constructed	A0793505	NEW CINGULAR WIRELESS PCS, LLC	32-06-34.1N 110-50-55.8W	TUCSON, AZ	50.9
2	1001591	Constructed	A0792678	NEW CINGULAR WIRELESS SERVICES, INC.	32-09-31.0N 110-54-34.9W	TUCSON, AZ	31.1
3	1001816	Terminated	A0620992	Alltel Communications of the Southwest Limited Partnership	32-03-31.0N 110-51-33.5W	TUCSON, AZ	58.5
4	1001978	Constructed	A0300902	CROWN ATLANTIC COMPANY, LLC	32-07-38.0N 110-49-55.0W	TUCSON, AZ	24.4
5	1004575	Cancelled	A0118195	TUCELL LIMITED PARTNERSHIP DBA = AIRTOUCH CELLULAR	32-10-59.0N 110-53-08.0W	TUCSON, AZ	16.5
6	1007193	Constructed	A0198944	Tucson Electric Power Company	32-09-43.0N 110-54-22.0W	TUCSON, AZ	60.9
7	1011616	Constructed	A0529710	Verizon Wireless (VAW) LLC	32-06-45.0N 110-51-09.0W	TUCSON, AZ	19.5
8	1016045	Constructed	A0704174	STC Five LLC	32-10-53.6N 110-51-23.9W	TUCSON, AZ	19.5
9	1040495	Constructed	A0702263	STC Five LLC	32-06-17.7N 110-50-07.8W	TUSCON, AZ	32.0
10	1200937	Dismantled	A0428947	El Paso Natural Gas Company	32-08-33.3N 110-53-43.3W	Tucson, AZ	21.3

CLOSE WINDOW

ASR Registration Search

Registration Search Results**Displayed Results** = Pending Application(s)**Specified Search**

Latitude='32-6-56.7 N', Longitude='110-50-22.4 W', Radius=8 Kilometers

	Registration Number	Status	File Number	Owner Name	Latitude/Longitude	Structure City/State	Overall Height Above Ground (AGL)
11	1203544	Granted	A0096999	WAGON WHEELS INVESTMENT, INC.	32-08-56.2N 110-52-56.3W	TUCSON, AZ	29.6
12	1212685	Constructed	A0327902	Tucson, City of	32-06-35.1N 110-50-36.6W	Tucson, AZ	36.5
13	1215359	Constructed	A0702678	STC Five LLC	32-08-22.8N 110-53-48.3W	Tucson, AZ	30.5
14	1218582	Constructed	A0804876	T-MOBILE WEST TOWER LLC	32-08-25.2N 110-52-29.4W	Tucson, AZ	36.6
15	1223305	Constructed	A0634543	STC Five LLC	32-08-12.4N 110-50-34.6W	Tucson, AZ	25.0
16	1229720	Cancelled	A0445299	Titan Towers, LP	32-10-42.5N 110-54-46.9W	Tucson, AZ	82.3
17	1230952	Constructed	A0781977	American Towers, LLC.	32-06-37.0N 110-48-21.0W	Tucson, AZ	15.2
18	1235170	Constructed	A0337516	SAN RAFAEL RESEARCH INC	32-10-13.0N 110-54-26.0W	TUCSON, AZ	33.5
19	1239899	Constructed	A0804888	T-MOBILE WEST TOWER LLC	32-08-55.4N 110-55-00.4W	Tucson, AZ	21.3
20	1242005	Constructed	A0812093	SBA 2012 TC Assets, LLC	32-08-39.5N 110-53-39.1W	Tuscon, AZ	24.4

CLOSE WINDOW

ASR Registration Search

Registration Search Results**Displayed Results** = Pending Application(s)**Specified Search**

Latitude='32-6-56.7 N', Longitude='110-50-22.4 W', Radius=8 Kilometers

	Registration Number	Status	File Number	Owner Name	Latitude/Longitude	Structure City/State	Overall Height Above Ground (AGL)
21	1243042	Constructed	A0449834	Universal Avionics Systems Corporation	32-07-54.6N 110-55-20.9W	Emery Park, AZ	21.9
22	1250561	Cancelled	A0475953	Sprint Spectrum, LP (PH63XC602)	32-09-47.3N 110-49-27.4W	Tucson, AZ	20.1
23	1253810	Constructed	A0540167	Trillion Partners Inc.	32-08-36.8N 110-54-53.0W	Tucson, AZ	19.2
24	1253812	Constructed	A0540166	Trillion Partners Inc.	32-08-11.3N 110-54-18.7W	Tucson, AZ	25.2
25	1265825	Constructed	A0761554	SBA Monarch Towers II, LLC	32-06-12.0N 110-47-57.4W	Tucson, AZ	15.2
26	1283608	Constructed	A0801255	New Cingular Wireless PCS, LLC	32-11-04.8N 110-55-14.8W	Tucson, AZ	24.7
27	1283834	Constructed	A0801318	New Cingular Wireless PCS, LLC	32-10-19.2N 110-55-27.3W	Tucson, AZ	24.7
28	1284165	Constructed	A0772541	UNION PACIFIC RAILROAD	32-08-46.3N 110-53-15.4W	DREXEL-ALVERNON, AZ	13.7
29	1284284	Granted	A0775465	Tucson Unified School District	32-10-25.0N 110-49-18.0W	Tucson, AZ	24.9
30	1284358	Constructed	A0775699	Union Pacific Railroad	32-06-48.6N 110-49-46.1W	Littletown, AZ	13.7

CLOSE WINDOW

ASR Registration Search

Registration Search Results

Displayed Results

 = Pending Application(s)

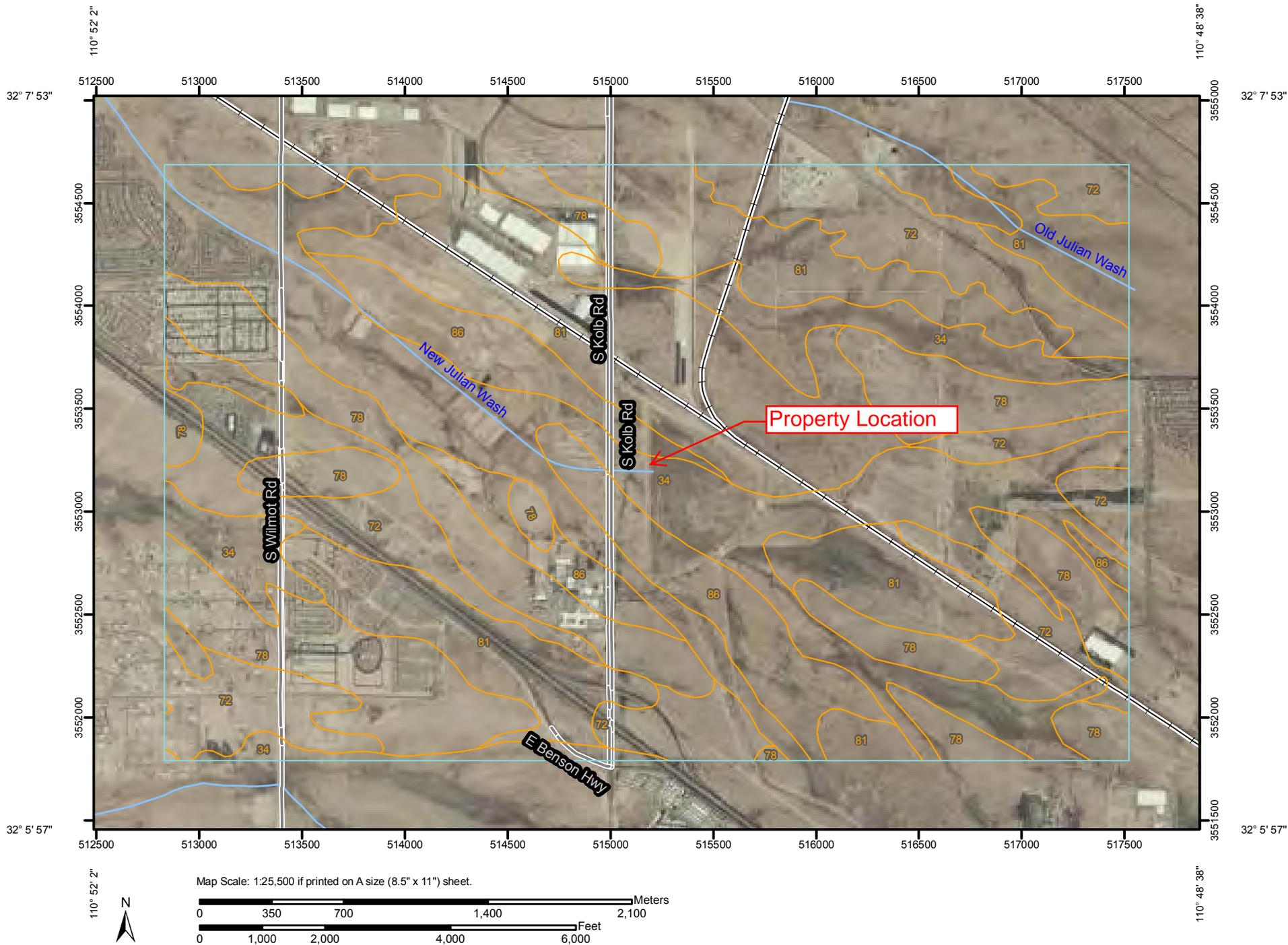
Specified Search

Latitude='32-6-56.7 N', Longitude='110-50-22.4 W', Radius=8 Kilometers

	Registration Number	Status	File Number	Owner Name	Latitude/Longitude	Structure City/State	Overall Height Above Ground (AGL)
31	1284439	Constructed	A0801420	New Cingular Wireless PCS, LLC	32-06-36.4N 110-48-19.9W	Tucson, AZ	15.9
32	1285312	Granted	A0781871	UNION PACIFIC RAILROAD	32-08-46.3N 110-53-15.4W	Drexel-Alvernon, AZ	13.7
33	1285313	Granted	A0781898	UNION PACIFIC RAILROAD	32-06-48.6N 110-49-46.1W	Littleton, AZ	13.7
34	1285419	Granted	A0782224	UNION PACIFIC RAILROAD COMPANY	32-07-46.6N 110-51-29.7W	Littleton, AZ	13.7

[CLOSE WINDOW](#)

Soil Map—Pima County, Arizona, Eastern Part



MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Units

Special Point Features

-  Blowout
-  Borrow Pit
-  Clay Spot
-  Closed Depression
-  Gravel Pit
-  Gravelly Spot
-  Landfill
-  Lava Flow
-  Marsh or swamp
-  Mine or Quarry
-  Miscellaneous Water
-  Perennial Water
-  Rock Outcrop
-  Saline Spot
-  Sandy Spot
-  Severely Eroded Spot
-  Sinkhole
-  Slide or Slip
-  Sodic Spot
-  Spoil Area
-  Stony Spot

-  Very Stony Spot
-  Wet Spot
-  Other

Special Line Features

-  Gully
-  Short Steep Slope
-  Other

Political Features

-  Cities

Water Features

-  Streams and Canals

Transportation

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

MAP INFORMATION

Map Scale: 1:25,500 if printed on A size (8.5" × 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
 Coordinate System: UTM Zone 12N NAD83

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Pima County, Arizona, Eastern Part
 Survey Area Data: Version 8, Sep 8, 2008

Date(s) aerial images were photographed: 6/25/2007

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Pima County, Arizona, Eastern Part (AZ669)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
34	Hantz loam, 0 to 1 percent slopes	869.5	25.9%
72	Sahuarita soils, mohave soils and urban land, 1 to 5 percent slopes	597.3	17.8%
78	Stagecoach-Sahuarita association, 1 to 8 percent slopes	687.3	20.5%
81	Tubac gravelly loam, 1 to 8 percent slopes	902.5	26.9%
86	Yaqui fine sandy loam, 1 to 3 percent slopes	300.2	8.9%
Totals for Area of Interest		3,356.9	100.0%

Pima County, Arizona, Eastern Part

34—Hantz loam, 0 to 1 percent slopes

Map Unit Setting

Elevation: 2,400 to 3,600 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 64 to 70 degrees F
Frost-free period: 220 to 280 days

Map Unit Composition

Hantz and similar soils: 80 percent

Description of Hantz

Setting

Landform: Flood plains, alluvial fans, swales
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread, dip
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed alluvium

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water
(Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Occasional
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Gypsum, maximum content: 4 percent
Maximum salinity: Nonsaline to slightly saline (0.0 to 8.0 mmhos/cm)
Sodium adsorption ratio, maximum: 13.0
Available water capacity: Moderate (about 8.9 inches)

Interpretive groups

Farmland classification: Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season
Land capability classification (irrigated): 3w
Land capability (nonirrigated): 7w
Hydrologic Soil Group: D
Ecological site: Clayey Swale 10-13" p.z. (R040XA102AZ)

Typical profile

0 to 5 inches: Loam
5 to 12 inches: Clay loam
12 to 45 inches: Clay

45 to 60 inches: Clay

Data Source Information

Soil Survey Area: Pima County, Arizona, Eastern Part
Survey Area Data: Version 8, Sep 8, 2008

Group	Name	Population	Status	Lead Office	Recovery Plan Name	Recovery Plan Stage
Amphibians	Chiricahua leopard frog (Rana		Threatened	Arizona Ecological Services	Chiricahua Leopard Frog	Final
Birds	Masked bobwhite (quail)	Entire	Endangered	Buenos Aires National Wildlife	Masked Bobwhite Recovery	Final Revision 2
Birds	American peregrine falcon		Recovery	Ventura Fish And Wildlife Office		
Birds	California least tern (Sterna		Endangered	Carlsbad Fish And Wildlife	Revised California Least Tern	Final Revision 1
Birds	Yellow-billed Cuckoo (Coccyzus	Western U.S. DPS	Candidate	Sacramento Fish And Wildlife		
Birds	Mexican spotted owl (Strix	Entire	Threatened	Arizona Ecological Services	Final Recovery Plan for the	Final Revision 1
Birds	Southwestern willow flycatcher	Entire	Endangered	Arizona Ecological Services	Final Recovery Plan for the	Final
Fishes	Gila topminnow (incl. Yaqui)	U.S.A. only	Endangered	Arizona Ecological Services	Draft Revised Recovery Plan for	Draft Revision 1
Fishes	Gila topminnow (incl. Yaqui)	U.S.A. only	Endangered	Arizona Ecological Services	Gila/Yaqui Topminnow (2 ssp.)	Draft Revision 1
Fishes	Gila chub (Gila intermedia)		Endangered	Arizona Ecological Services		
Fishes	Desert pupfish (Cyprinodon		Endangered	Arizona Ecological Services	Desert Pupfish (Cyprinodon	Final
Flowering Plants	Acuna Cactus (Echinomastus		Proposed Endangered	Arizona Ecological Services		
Flowering Plants	Nichol's Turk's head cactus		Endangered	Arizona Ecological Services	Nichol's Turk's-head Cactus	Final
Flowering Plants	Kearney's blue-star (Amsonia		Endangered	Arizona Ecological Services	Kearney's Blue-star	Final
Flowering Plants	Pima pineapple cactus		Endangered	Arizona Ecological Services		
Flowering Plants	Huachuca water-umbel		Endangered	Arizona Ecological Services		
Mammals	Sonoran pronghorn (Antilocapra	Entire	Endangered	Cabeza Prieta National Wildlife	Sonoran Pronghorn	Final Revision 1
Mammals	Sonoran pronghorn (Antilocapra	Entire	Endangered	Cabeza Prieta National Wildlife	Recovery Criteria and Estimates	Final Revision 1
Mammals	Jaguar (Panthera onca)	U.S.A.(AZ,CA,LA,NM,TX),Mexic	Endangered	Arizona Ecological Services	Recovery Outline for the Jaguar	Outline
Mammals	Ocelot (Leopardus (=Felis)	U.S.A.(AZ, TX) to Central and	Endangered	Laguna Atascosa National	Ocelot (Leopardus pardalis)	Draft Revision 1
Mammals	Lesser long-nosed bat	Entire	Endangered	Arizona Ecological Services	Lesser Long-nosed Bat	Final
Reptiles	Northern Mexican gartersnake		Candidate	Arizona Ecological Services		
Reptiles	Sonoyta mud turtle (Kinosternon		Candidate	Arizona Ecological Services		
Reptiles	Tucson shovel-nosed Snake		Candidate	Arizona Ecological Services		
Reptiles	Sonoran desert tortoise		Candidate	Arizona Ecological Services		
Snails	Rosemont talussnail (Sonorella		Candidate	Arizona Ecological Services		

COUNTY	TAXON	SCIENTIFIC NAME	COMMON NAME	ESA	BLM	CRIT HAB	USFS	NESL	MEXFED	STATE	ELCODE	S RANK	G RANK
Navajo	PLANT	<i>Pediocactus papyracanthus</i>	Paper-spined Cactus	SC						SR	PDCAC0J0K0	S2S3	G4
Navajo	PLANT	<i>Pediocactus peeblesianus</i> var. <i>peeblesianus</i>	Peebles Navajo Cactus	LE						HS	PDCAC0E053	S1	G1
Navajo	PLANT	<i>Penstemon nudiflorus</i>	Flagstaff Beardtongue				S				PDSCR1L4A0	S2S3	G2G3
Navajo	PLANT	<i>Penstemon pseudoputus</i>	Kaibab Beardtongue								PDSCR1L7K0	S3	G3
Navajo	PLANT	<i>Penstemon strictus</i>	Rocky Mountain Beardtongue								PDSCR1L5Y0	S3S4	G5
Navajo	PLANT	<i>Phacelia howelliana</i>	Howell Phacelia								PDHYD0C220	S1	G2
Navajo	PLANT	<i>Platanthera zothecina</i>	Alcove Bog-orchid	SC			S	3			PMORC1Y130	S2	G2
Navajo	PLANT	<i>Polygala acanthoclada</i>	Thorn Milkwort								PDPGL02020	S4	G4
Navajo	PLANT	<i>Polygala intermontana</i>	Intermountain Milkwort								PDPGL021U0	S1	G3?
Navajo	PLANT	<i>Pteryxia davidsonii</i>	Davidson Cliff Carrot				S				PDAP11X010	S1	G2
Navajo	PLANT	<i>Pyrrhopappus rothrockii</i>	False Dandelion								PDAST7V050	S3	G4
Navajo	PLANT	<i>Salvia pachyphylla</i> ssp. <i>eremopictus</i>	Arizona Rose Sage					4			PDLAM1S2F1	S1	G4T1
Navajo	PLANT	<i>Sclerocactus parviflorus</i>	Glen Canyon Cactus								PDCAC0J040	S3	G4
Navajo	PLANT	<i>Sophora stenophylla</i>	Narrowleaf Mescal Bean								PDFAB3N080	S2	G4
Navajo	PLANT	<i>Zigadenus vaginatus</i>	Sheathed Deathcamas					3			PMLIL280C0	S1	G2
Navajo	REPTILE	<i>Lampropeltis triangulum taylori</i>	Utah Milksnake					4			ARADB19058	S2	G5T4Q
Navajo	REPTILE	<i>Phrynosoma hernandesi</i>	Greater Short-horned Lizard								ARACF12080	S4	G5
Navajo	REPTILE	<i>Thamnophis eques megalops</i>	Northern Mexican Gartersnake	C*			S		A	WSC	ARADB36061	S1	G5T5
Navajo	REPTILE	<i>Thamnophis rufipunctatus</i>	Narrow-headed Gartersnake	SC			S			WSC	ARADB36110	S1	G3G4
Pima	AMPHIBIAN	<i>Anaxyrus retiformis</i>	Sonoran Green Toad		S				PR		AAABB01140	S3	G3G4
Pima	AMPHIBIAN	<i>Craugastor augusti cactorum</i>	Western Barking Frog				S			WSC	AAABD04171	S2	G5T5
Pima	AMPHIBIAN	<i>Gastrophryne olivacea</i>	Western Narrow-mouthed Toad		S		S		PR	WSC	AAABE01020	S3	G5
Pima	AMPHIBIAN	<i>Lithobates chiricahuensis</i>	Chiricahua Leopard Frog	LT		Y			A	WSC	AAABH01080	S2	G3
Pima	AMPHIBIAN	<i>Rana yavapaiensis</i>	Lowland Leopard Frog	SC	S		S		PR	WSC	AAABH01250	S3	G4
Pima	AMPHIBIAN	<i>Smilisca fodiens</i>	Lowland Burrowing Treefrog		S					WSC	AAABC06010	S2	G4

COUNTY	TAXON	SCIENTIFIC NAME	COMMON NAME	ESA	BLM	CRIT HAB	USFS	NESL	MEXFED	STATE	ELCODE	S RANK	G RANK
Pima	BIRD	Accipiter gentilis	Northern Goshawk	SC	S		S	4	A	WSC	ABNKC12060	S3B	G5
Pima	BIRD	Ammodramus bairdii	Baird's Sparrow	SC			S			WSC	ABPBXA0010	S2N	G4
Pima	BIRD	Ammodramus savannarum ammolegus	Arizona grasshopper sparrow		S		S				ABPBXA0021	S1S2	G5TU
Pima	BIRD	Amphispiza quinquestriata	Five-striped Sparrow								ABPBX97030	S1S2	G4
Pima	BIRD	Antrostomus ridgwayi	Buff-collared Nightjar				S				ABNTA07060	S2S3	G5
Pima	BIRD	Aquila chrysaetos	Golden Eagle		S			3	P		ABNKC22010	S4	G5
Pima	BIRD	Ardea herodias	Great Blue Heron								ABNGA04010	S5	G5
Pima	BIRD	Asio otus	Long-eared Owl								ABNSB13010	S2B,S3S4N	G5
Pima	BIRD	Athene cunicularia hypugaea	Western Burrowing Owl	SC	S		S	4	A		ABNSB10012	S3	G4T4
Pima	BIRD	Buteo albonotatus	Zone-tailed Hawk				S				ABNKC19090	S4	G4
Pima	BIRD	Buteo lineatus	Red-shouldered Hawk								ABNKC19030	SA	G5
Pima	BIRD	Buteo plagiatus	Gray Hawk	SC			S		PR	WSC	ABNKC19150	S3	G5
Pima	BIRD	Buteo swainsoni	Swainson's Hawk				S				ABNKC19070	S3	G5
Pima	BIRD	Buteogallus anthracinus	Common Black-Hawk				S		A	WSC	ABNKC15010	S3	G4G5
Pima	BIRD	Calamospiza melanocorys	Lark Bunting								ABPBX98010	S1B,S5N	G5
Pima	BIRD	Camptostoma imberbe	Northern Beardless-Tyrannulet				S				ABPAE04010	S4	G5
Pima	BIRD	Caracara cheriway	Crested Caracara	No Status						WSC	ABNKD02020	S1S2	G5
Pima	BIRD	Cathartes aura	Turkey Vulture								ABNKA02010	S5	G5
Pima	BIRD	Catharus ustulatus	Swainson's Thrush								ABPBJ18100	S1	G5
Pima	BIRD	Chloroceryle americana	Green Kingfisher								ABNXD02020	S2	G5
Pima	BIRD	Coccyzus americanus	Yellow-billed Cuckoo (Western U.S. PS:C* DPS)				S	2		WSC	ABNRB02020	S3	G5
Pima	BIRD	Colinus virginianus ridgwayi	Masked Bobwhite	LE					P	WSC	ABNLC21022	S1	G5T1
Pima	BIRD	Coragyps atratus	Black Vulture								ABNKA01010	S1S2	G5
Pima	BIRD	Dendrocygna autumnalis	Black-bellied Whistling-Duck							WSC	ABNJB01040	S3	G5
Pima	BIRD	Dendrocygna bicolor	Fulvous Whistling-Duck	SC							ABNJB01010	SAN	G5

COUNTY	TAXON	SCIENTIFIC NAME	COMMON NAME	ESA	BLM	CRIT HAB	USFS	NESL	MEXFED	STATE	ELCODE	S RANK	G RANK
Pima	BIRD	Empidonax fulvifrons pygmaeus	Northern Buff-breasted Flycatcher	SC			S			WSC	ABPAE33141	S1	G5T5
Pima	BIRD	Empidonax traillii extimus	Southwestern Willow Flycatcher	LE		Y		2		WSC	ABPAE33043	S1	G5T1T2
Pima	BIRD	Falco peregrinus anatum	American Peregrine Falcon	SC	S		S	4	A	WSC	ABNKD06071	S4	G4T4
Pima	BIRD	Glaucidium brasilianum cactorum	Cactus Ferruginous Pygmy-owl	SC	S		S		A	WSC	ABNSB08041	S1	G5T3
Pima	BIRD	Himantopus mexicanus	Black-necked Stilt								ABNND01010	S2	G5
Pima	BIRD	Icterus bullockii	Bullock's Oriole								ABPBXB9220	S4BS1N	G5
Pima	BIRD	Mniotilta varia	Black-and-white Warbler								ABPBX05010	S1B,S1N	G5
Pima	BIRD	Pachyramphus aglaiae	Rose-throated Becard				S			WSC	ABPAE53070	S1	G4G5
Pima	BIRD	Pandion haliaetus	Osprey							WSC	ABNKC01010	S2B,S4N	G5
Pima	BIRD	Parabuteo unicinctus	Harris's Hawk						A		ABNKC16010	S5	G5
Pima	BIRD	Peucaea carpalis	Rufous-winged Sparrow								ABPBX91080	S3	G4
Pima	BIRD	Polioptila nigriceps	Black-capped Gnatcatcher							WSC	ABPB08040	S1	G5
Pima	BIRD	Rallus longirostris yumanensis	Yuma Clapper Rail	LE					P	WSC	ABNME0501A	S3	G5T3
Pima	BIRD	Spinus tristis	American Goldfinch						A		ABPBY06110	S1B,S5N	G5
Pima	BIRD	Strix occidentalis lucida	Mexican Spotted Owl	LT		Y		3	A	WSC	ABNSB12012	S3S4	G3T3
Pima	BIRD	Trogon elegans	Elegant Trogon							WSC	ABNWA02070	S3	G5
Pima	BIRD	Tyrannus crassirostris	Thick-billed Kingbird				S			WSC	ABPAE52040	S2	G5
Pima	BIRD	Tyrannus melancholicus	Tropical Kingbird							WSC	ABPAE52010	S3	G5
Pima	BIRD	Zonotrichia leucophrys	White-crowned Sparrow								ABPBXA4040	S1B,S5N	G5
Pima	FISH	Agosia chrysogaster chrysogaster	Gila Longfin Dace	SC	S		S		A		AFCJB37151	S3S4	G4T3T4
Pima	FISH	Catostomus clarkii	Desert Sucker	SC	S		S				AFCJC02040	S3S4	G3G4
Pima	FISH	Cyprinodon eremus	Quitobaquito Pupfish	LE		Y				WSC	AFCNB02140	S1	G1
Pima	FISH	Cyprinodon macularius	Desert Pupfish	LE		Y			P	WSC	AFCNB02060	S1	G1
Pima	FISH	Gila intermedia	Gila Chub	LE		Y			P	WSC	AFCJB13160	S2	G2
Pima	FISH	Poeciliopsis occidentalis occidentalis	Gila Topminnow	LE					A	WSC	AFCNC05021	S1S2	G3

COUNTY	TAXON	SCIENTIFIC NAME	COMMON NAME	ESA	BLM	CRIT HAB	USFS	NESL	MEXFED	STATE	ELCODE	S RANK	G RANK
Pima	INVERTEBRATE	Abaeis nicippe	Sleepy Orange								IILEPB4110	S?	G5
Pima	INVERTEBRATE	Agathymus aryxna	Arizona Giant Skipper								IILEP87080	S5	G4G5
Pima	INVERTEBRATE	Agathymus gentryi	Gentry's Giant-skipper								IILEP87220	S?	G3G4
Pima	INVERTEBRATE	Agathymus polingi	Poling's Giant Skipper								IILEP87190	S2	G4
Pima	INVERTEBRATE	Albiorix anophthalmus	A Cave Obligate Pseudoscorpion								ILARAD4010	S?	G1G2
Pima	INVERTEBRATE	Amblyscirtes nysa	Nysa Roadside Skipper								IILEP80160	S?	G5
Pima	INVERTEBRATE	Amblyscirtes tolteca	Toltec Roadside-skipper								IILEP80110	S?	G3G4
Pima	INVERTEBRATE	Anthocharis cethura	Desert Orangetip								IILEPA6010	S4	G4G5
Pima	INVERTEBRATE	Anthocharis thoosa	Sonoran Orangetip								IILEPA6090	S5	G5
Pima	INVERTEBRATE	Apodemia palmerii	Palmer's Metalmark								IILEPH7040	S?	G5
Pima	INVERTEBRATE	Appias drusilla	Tropical White								IILEPA0010	S?	G5
Pima	INVERTEBRATE	Argia sabino	Sabino Canyon Dancer	SC			S				IIOOD68100	S2	G2
Pima	INVERTEBRATE	Asterocampa leilia	Empress Leilia								IILEPM7050	S?	G5
Pima	INVERTEBRATE	Battus philenor	Pipevine Swallowtail								IILEP92010	S?	G5
Pima	INVERTEBRATE	Brephidium exilis	Western Pygmy-blue								IILEPF5010	S?	G5
Pima	INVERTEBRATE	Calephelis arizonensis	Arizona Metalmark								IILEPH2073	S2	G3G4
Pima	INVERTEBRATE	Celastrina "argiolus-ladon complex"	Azures in Part								IILEPG0090	S?	G5
Pima	INVERTEBRATE	Chlosyne californica	California Patch								IILEPJ9060	S?	G5
Pima	INVERTEBRATE	Chlosyne fulvia	Fulvia Checkerspot								IILEPJA040	S?	G5
Pima	INVERTEBRATE	Chlosyne lacinia	Bordered Patch								IILEPJ9070	S?	G5
Pima	INVERTEBRATE	Cicindela sedecimpunctata	Western Red-bellied Tiger Beetle								IICOL024F0	S5	G5
Pima	INVERTEBRATE	Cogia hippalus	Acacia Skipper								IILEP21020	S?	G5
Pima	INVERTEBRATE	Colias eurytheme	Alfalfa Sulphur								IILEPA8020	S?	G5
Pima	INVERTEBRATE	Copaeodes aurantiaca	Orange Skipperling								IILEP58010	S?	G5
Pima	INVERTEBRATE	Cylindera lemiscata	White-striped Tiger Beetle								IICOL025W0	S5	G5

COUNTY	TAXON	SCIENTIFIC NAME	COMMON NAME	ESA	BLM	CRIT HAB	USFS	NESL	MEXFED	STATE	ELCODE	S RANK	G RANK
Pima	INVERTEBRATE	Danaus gilippus	Queen								IILEPP2020	S?	G5
Pima	INVERTEBRATE	Danaus plexippus	Monarch						PR		IILEPP2010	S?	G5
Pima	INVERTEBRATE	Dymasia dymas	Dymas Checkerspot								IILEPK1010	S?	G5
Pima	INVERTEBRATE	Echinargus isola	Reakirt's Blue								IILEPF8030	S?	G5
Pima	INVERTEBRATE	Erynnis funeralis	Funereal Dusky Wing								IILEP37130	S?	G5
Pima	INVERTEBRATE	Erynnis tristis	Mournful Dusky Wing								IILEP37090	S?	G5
Pima	INVERTEBRATE	Euphilotes bernardino	Bernadino Blue								IILEPG2070	S?	G3G4
Pima	INVERTEBRATE	Euptoieta claudia	Variiegated Fritillary								IILEPJ5010	S?	G5
Pima	INVERTEBRATE	Eurema mexicana	Mexican Yellow								IILEPB4030	S?	G5
Pima	INVERTEBRATE	Heliopyrgus domicella	Erichson's White-skipper								IILEP39010	S?	G5
Pima	INVERTEBRATE	Hemiargus ceraunus	Ceraunus Blue								IILEPF8020	S?	G5
Pima	INVERTEBRATE	Hylephila phyleus	Fiery Skipper								IILEP61010	S?	G5
Pima	INVERTEBRATE	Junonia coenia	Buckeye								IILEPL0010	S?	G5
Pima	INVERTEBRATE	Kricogonia lyside	Lyside								IILEPB3010	S?	G5
Pima	INVERTEBRATE	Leptotes marina	Marine Blue								IILEPF6020	S?	G5
Pima	INVERTEBRATE	Lerodea arabus	Violet-clouded Skipper								IILEP81020	S?	G5
Pima	INVERTEBRATE	Lerodea eufala	Eufala Skipper								IILEP81010	S?	G5
Pima	INVERTEBRATE	Limenitis archippus obsoleta	Obsolete Viceroy Butterfly								IILEPL3024	S4	G5T3T4
Pima	INVERTEBRATE	Ministrymon leda	Leda Hairstreak								IILEPD6020	S?	G5
Pima	INVERTEBRATE	Myscelia cyananthe	Blackened Bluewing								IILEPL5040	S?	G5
Pima	INVERTEBRATE	Nathalis iole	Dainty Sulphur								IILEPB7010	S?	G5
Pima	INVERTEBRATE	Neophasia terlooii	Chiricahua Pine White								IILEP99020	S4	G3G4
Pima	INVERTEBRATE	Nymphalis antiopa	Mourning Cloak								IILEPK6030	S?	G5
Pima	INVERTEBRATE	Papilio cresphontes	Giant Swallowtail								IILEP94120	S?	G5
Pima	INVERTEBRATE	Papilio multicaudata	Two-tailed Swallowtail								IILEP94200	S?	G5

COUNTY	TAXON	SCIENTIFIC NAME	COMMON NAME	ESA	BLM	CRIT HAB	USFS	NESL	MEXFED	STATE	ELCODE	S RANK	G RANK
Pima	INVERTEBRATE	Papilio polyxenes	Black Swallowtail								IILEP94010	S?	G5
Pima	INVERTEBRATE	Phoebis sennae	Cloudless Sulphur								IILEPB1010	S?	G5
Pima	INVERTEBRATE	Pholisora catullus	Common Sooty Wing								IILEP41010	S?	G5
Pima	INVERTEBRATE	Pieris rapae	Cabbage Butterfly								IILEPA2030	SE	G5
Pima	INVERTEBRATE	Polygonus leo	Hammock Skipper								IILEP05010	S?	G5
Pima	INVERTEBRATE	Pyrgus albescens	Western Checkered Skipper								IILEP38060	S?	G5
Pima	INVERTEBRATE	Pyrgus philetas	Philetas Checkered Skipper								IILEP38080	S?	G5
Pima	INVERTEBRATE	Pyrisitia proterpia	Tailed Orange								IILEPB4050	S1S2B	G5
Pima	INVERTEBRATE	Sonorella eremita	San Xavier Talussnail	SC							IMGASC9240	S1	G1
Pima	INVERTEBRATE	Sonorella papagorum	Black Mountain Talussnail								IMGASC9480	S1	G1
Pima	INVERTEBRATE	Sonorella rosemontensis	Rosemont Talussnail	C*							IMGASC9520	S1	G3
Pima	INVERTEBRATE	Staphylus ceos	Ceos Skipper								IILEP25010	S?	G5
Pima	INVERTEBRATE	Strymon melinus	Gray Hairstreak								IILEPF2010	S?	G5
Pima	INVERTEBRATE	Systasea zampa	Arizona Powdered Skipper								IILEP30020	S?	G5
Pima	INVERTEBRATE	Texola elada	Elada Checkerspot								IILEPK2010	S?	G5
Pima	INVERTEBRATE	Tryonia quitobaquita	Quitobaquito Tryonia	SC							IMGASJ7130	S1	G1
Pima	INVERTEBRATE	Urbanus dorantes	Dorantes Skipper								IILEP12040	S?	G5
Pima	INVERTEBRATE	Vanessa annabella	West Coast Lady								IILEPK7030	S?	G5
Pima	INVERTEBRATE	Vanessa atalanta	Red Admiral								IILEPK7040	S?	G5
Pima	INVERTEBRATE	Vanessa cardui	Painted Lady								IILEPK7020	S?	G5
Pima	INVERTEBRATE	Vanessa virginiensis	American Painted Lady								IILEPK7010	S?	G5
Pima	INVERTEBRATE	Zerene cesonia	Southern Dogface								IILEPA9010	S?	G5
Pima	MAMMAL	Antilocapra americana sonoriensis	Sonoran Pronghorn	LE					P	WSC	AMALD01012	S1	G5T1
Pima	MAMMAL	Antrozous pallidus	Pallid Bat								AMACC10010	S4	G5
Pima	MAMMAL	Baiomys taylori	Northern Pygmy Mouse				S				AMAFF05010	S3	G4G5

COUNTY	TAXON	SCIENTIFIC NAME	COMMON NAME	ESA	BLM	CRIT HAB	USFS	NESL	MEXFED	STATE	ELCODE	S RANK	G RANK
Pima	MAMMAL	Bat Colony									OBATCOLONY	SU	GNR
Pima	MAMMAL	Bat Foraging Area	High Netting Concentration								OBATFORAG1	SU	GNR
Pima	MAMMAL	Chaetodipus intermedius	Rock Pocket Mouse								AMAFD05060	S5	G5
Pima	MAMMAL	Choeronycteris mexicana	Mexican Long-tongued Bat	SC	S		S		A	WSC	AMACB02010	S3	G4
Pima	MAMMAL	Corynorhinus townsendii pallescens	Pale Townsend's Big-eared Bat	SC	S		S	4			AMACC08014	S3S4	G3G4T3T4
Pima	MAMMAL	Cynomys ludovicianus	Black-tailed Prairie Dog	SC	S		S		A	WSC	AMAFB06010	SXS1	G4
Pima	MAMMAL	Didelphis virginiana californica	Mexican Opossum								AMAAA01011	S3	G5TNR
Pima	MAMMAL	Eptesicus fuscus	Big Brown Bat								AMACC04010	S4S5	G5
Pima	MAMMAL	Eumops perotis californicus	Greater Western Bonneted Bat	SC	S		S				AMACD02011	S3	G5T4
Pima	MAMMAL	Eumops underwoodi	Underwood's Bonneted Bat	SC							AMACD02020	S1	G4
Pima	MAMMAL	Lasionycteris noctivagans	Silver-haired Bat						PR		AMACC02010	S3S4	G5
Pima	MAMMAL	Lasiurus blossevillii	Western Red Bat				S			WSC	AMACC05060	S3	G5
Pima	MAMMAL	Lasiurus cinereus	Hoary Bat			No Status					AMACC05030	S4	G5
Pima	MAMMAL	Lasiurus xanthinus	Western Yellow Bat				S			WSC	AMACC05070	S2S3	G5
Pima	MAMMAL	Leptonycteris curasoae yerbabuena	Lesser Long-nosed Bat	LE						WSC	AMACB03030	S2S3	G4
Pima	MAMMAL	Lepus alleni	Antelope Jackrabbit								AMAEB03070	S3	G5
Pima	MAMMAL	Macrotus californicus	California Leaf-nosed Bat	SC	S		S			WSC	AMACB01010	S3	G4
Pima	MAMMAL	Myotis californicus	California Myotis								AMACC01120	S4S5	G5
Pima	MAMMAL	Myotis occultus	Arizona Myotis	SC	S						AMACC01160	S3	G3G4
Pima	MAMMAL	Myotis thysanodes	Fringed Myotis	SC							AMACC01090	S3S4	G4
Pima	MAMMAL	Myotis velifer	Cave Myotis	SC	S						AMACC01050	S3S4	G5
Pima	MAMMAL	Neotoma mexicana	Mexican Woodrat								AMAFF08070	S5	G5
Pima	MAMMAL	Notiosorex cockrumi	Cockrum's Desert Shrew				S				AMABA05020	S1	GNR
Pima	MAMMAL	Nyctinomops femorosaccus	Pocketed Free-tailed Bat				S				AMACD04010	S3	G4
Pima	MAMMAL	Nyctinomops macrotis	Big Free-tailed Bat	SC							AMACD04020	S3	G5

COUNTY	TAXON	SCIENTIFIC NAME	COMMON NAME	ESA	BLM	CRIT HAB	USFS	NESL	MEXFED	STATE	ELCODE	S RANK	G RANK
Pima	MAMMAL	<i>Panthera onca</i>	Jaguar	LE		P			P	WSC	AMAJH02010	S1	G3
Pima	MAMMAL	<i>Parastrellus hesperus</i>	Canyon Bat								AMACC03010	S5	G5
Pima	MAMMAL	<i>Peromyscus eremicus</i>	Cactus Mouse								AMAFF03010	S5	G5
Pima	MAMMAL	<i>Peromyscus merriami</i>	Merriam's Deer mouse					S			AMAFF03020	S2	G5
Pima	MAMMAL	<i>Reithrodontomys fulvescens</i>	Fulvous Harvest Mouse					S			AMAFF02050	S4	G5
Pima	MAMMAL	<i>Reithrodontomys montanus</i>	Plains Harvest Mouse					S			AMAFF02010	S3	G5
Pima	MAMMAL	<i>Sciurus arizonensis</i>	Arizona Gray Squirrel					S	A		AMAFB07060	S4	G4
Pima	MAMMAL	<i>Sigmodon ochrognathus</i>	Yellow-nosed Cotton Rat	SC				S			AMAFF07040	S4	G4G5
Pima	MAMMAL	<i>Tadarida brasiliensis</i>	Brazilian Free-tailed Bat								AMACD01010	S3S4	G5
Pima	MAMMAL	<i>Thomomys bottae</i>	Botta's Pocket Gopher								AMAF01020	S5	G5
Pima	PLANT	<i>Abutilon parishii</i>	Pima Indian Mallow	SC	S		S			SR	PDMAL020E0	S3	G2
Pima	PLANT	<i>Abutilon reventum</i>	Yellow Indian Mallow								PDMAL020J0	S2	G3G5
Pima	PLANT	<i>Abutilon thurberi</i>	Thurber Indian Mallow							SR	PDMAL020P0	S1	G2?
Pima	PLANT	<i>Acacia farnesiana</i>	Sweet Acacia								PDFAB020D0	S1S2	G5
Pima	PLANT	<i>Agastache rupestris</i>	Baboquivari Giant Hyssop								PDLAM030D0	S2	G3?
Pima	PLANT	<i>Agave parviflora ssp. parviflora</i>	Santa Cruz Striped Agave	SC			S		A	HS	PMAGA010L2	S3	G3T3
Pima	PLANT	<i>Agave schottii var. treleasei</i>	Trelease Agave	SC			S			HS	PMAGA010N2	S1	G5T1Q
Pima	PLANT	<i>Allium gooddingii</i>	Goodding Onion	SC			S	3		HS	PMLIL02120	S3S4	G4
Pima	PLANT	<i>Allium plummerae</i>	Plummer Onion							SR	PMLIL021V0	S3	G4
Pima	PLANT	<i>Aloysia gratissima</i>	Common Bee Brush								PDVER02010	S3	G5
Pima	PLANT	<i>Amoreuxia gonzalezii</i>	Saiya	SC			S			HS	PDBIX01010	S1	G1
Pima	PLANT	<i>Amsonia grandiflora</i>	Large-flowered Blue Star	SC			S				PDAP003060	S2	G2
Pima	PLANT	<i>Amsonia kearneyana</i>	Kearney's Blue-star	LE						HS	PDAP0030M0	S1	G1
Pima	PLANT	<i>Anoda abutiloides</i>	False Indian Mallow								PDMAL07010	S2	G3
Pima	PLANT	<i>Antirrhinum kingii</i>	King Snapdragon								PDSCR2S040	S3	G4

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Pima	PLANT	Arabis tricornuta	Chiricahua Rock Cress				S				PDBRA06200	S1	G1
Pima	PLANT	Arceuthobium apachecum	Apache Dwarf Mistletoe								PDVIS03030	S3?	G3G4
Pima	PLANT	Arceuthobium blumeri	Blumer Dwarf Mistletoe								PDVIS03040	S1?	G3?
Pima	PLANT	Asclepias lemmonii	Lemmon Milkweed				S				PDASC020Z0	S2	G4?
Pima	PLANT	Asplenium dalhousiae	Dalhouse Spleenwort		S						PPASP020A0	S1	GNR
Pima	PLANT	Aster potosinus	Lemmon's Aster								PDASTE8160	S1	G2
Pima	PLANT	Atamisquea emarginata	Desert Tree Caper								PDCPP01010	S1	G4
Pima	PLANT	Ayenia jaliscana	Ayenia				S				PDSTE010C0	S1	GNR
Pima	PLANT	Berberis harrisoniana	Kofa Mt Barberry		S						PDBER02030	S1	G1G2
Pima	PLANT	Boerhavia megaptera	Tucson Mountain Spiderling								PDNYC06090	S3	G3
Pima	PLANT	Capsicum annuum var. glabriusculum	Chiltepin				S				PDSOL06012	S2	G5T5
Pima	PLANT	Cardiospermum corindum	Balloon Vine								PDSPN03010	S1	G5
Pima	PLANT	Carex chihuahuensis	Chihuahuan Sedge				S				PMCYP032T0	S2S3	G3G4
Pima	PLANT	Carex ultra	Arizona Giant Sedge		S		S				PMCYP03E50	S2	G3?
Pima	PLANT	Cathestecum erectum	False Grama								PMPOA1B010	S1	G5?
Pima	PLANT	Cheilanthes pringlei	Pringle Lip Fern								PPADI090M0	S3	G4
Pima	PLANT	Corchorus hirtus	Orinico Jute								PDTIL01030	S1	G5
Pima	PLANT	Coryphantha scheeri var. robustispina	Pima Pineapple Cactus	LE						HS	PDCAC040C1	S2	G4T2
Pima	PLANT	Cylindropuntia x kelvinensis	Kelvin Cholla							SR	PDCAC0D2M0	SHYB	GNA
Pima	PLANT	Cynanchum ligulatum	Sinaloa Milkweed Vine								PDASC050V0	S1	G4
Pima	PLANT	Dalea lumholtzii	Lumholtz's Prairie-clover								PDFAB1A0Y0	S2S3	G3G4
Pima	PLANT	Dalea tentaculoides	Gentry's Indigo Bush	SC	S		S			HS	PDFAB1A1K0	S1	G1
Pima	PLANT	Desmanthus covillei	Coville Bundleflower								PDFAB1C030	S1	G3G4
Pima	PLANT	Echinocactus horizontalonius var. nicholii	Nichol Turk's Head Cactus	LE						HS	PDCAC05022	S2	G4T2
Pima	PLANT	Echinocereus fasciculatus	Magenta-flower Hedgehog-cactus							SR	PDCAC06065	S3	G4G5T4T5

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Pima	PLANT	Echinomastus erectocentrus var. acunensis	Acuna Cactus	PE		P			P	HS	PDCAC0J0E1	S1	G3T1T2Q
Pima	PLANT	Echinomastus erectocentrus var. erectocentrus	Needle-spined Pineapple Cactus	SC						SR	PDCAC0J0E2	S3	G3T3Q
Pima	PLANT	Erigeron arisolius	Arid Throne Fleabane				S				PDAST3M510	S2	G2
Pima	PLANT	Erigeron arizonicus	Arizona Fleabane								PDAST3M0B0	S3	G3?
Pima	PLANT	Erigeron lobatus	Lobed Fleabane								PDAST3M2C0	S3	G4
Pima	PLANT	Erigeron piscaticus	Fish Creek Fleabane	SC	S		S			SR	PDAST3M4X0	S1	G1
Pima	PLANT	Eriogonum capillare	San Carlos Wild-buckwheat	SC						SR	PDPGN08100	S4	G4
Pima	PLANT	Eriogonum ericifolium var. ericifolium	Heathleaf Wild-buckwheat				S				PDPGN08231	S2	G3T2
Pima	PLANT	Eriogonum terrenatum	San Pedro River Wild Buckwheat		S						PDPGN08760	S1	G1
Pima	PLANT	Eryngium sparganophyllum	Ribbonleaf Button Snakeroot								PDAP10Z0T0	S1	G2
Pima	PLANT	Eucnide rupestris	Flor de la Piedra								PDLOA02020	S1	G3
Pima	PLANT	Euphorbia gracillima	Mexican Broomspurge								PDEUP0D110	S3	G4?
Pima	PLANT	Ferocactus cylindraceus	Desert Barrel Cactus						PR	SR	PDCAC08080	S4	G5
Pima	PLANT	Ferocactus emoryi	Emory's Barrel-cactus							SR	PDCAC08090	S1S2	G4
Pima	PLANT	Gonolobus arizonicus	Rincon Milkweed Vine								PDASC0A020	S4	G4
Pima	PLANT	Graptopetalum bartramii	Bartram Stonecrop	SC	S		S			SR	PDCRA06010	S3	G3
Pima	PLANT	Hackelia ursina	Chihuahuan Stickseed								PDBOR0G0R0	S2	G3?
Pima	PLANT	Hedeoma dentatum	Mock-pennyroyal								PDLAM0M0M0	S3	G3
Pima	PLANT	Hermannia pauciflora	Sparseleaf Hermannia								PDSTE06010	S1	G2?
Pima	PLANT	Heterotheca rutteri	Huachuca Golden Aster	SC	S		S				PDAST4V0J0	S2	G2
Pima	PLANT	Hexalectris revoluta	Chisos Coral-root				S				PMORC1C030	S1	G1G2
Pima	PLANT	Hexalectris spicata	Crested Coralroot							SR	PMORC1C040	S3S4	G5
Pima	PLANT	Hieracium pringlei	Pringle Hawkweed	SC							PDAST4W170	S1	G2Q
Pima	PLANT	Hymenoxys quinquesquamata	Five Scale Bitterweed								PDAST530F0	S3	G3
Pima	PLANT	Ibervillea tenuisecta	Texas Globe Berry								PDCUC0F020	S1	G4

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Pima	PLANT	<i>Ipomoea tenuiloba</i>	Trumpet Morning-glory								PDCON0A1H0	S4	G4
Pima	PLANT	<i>Jacquemontia pringlei</i>	Pringle's Cluster-vine								PDCON0B080	S2S3	G5
Pima	PLANT	<i>Jatropha cinerea</i>	Sangre de Drago								PDEUP0X030	S1	G5
Pima	PLANT	<i>Justicia candicans</i>	Hierba Azul								PDACA0E0L0	S2	G4
Pima	PLANT	<i>Lagascea decipiens</i>	Beguiling Mexican Daisy								PDAST5G010	S4	G5
Pima	PLANT	<i>Lilaeopsis schaffneriana</i> ssp. <i>recurva</i>	Huachuca Water-umbel	LE		Y				HS	PDAPI19051	S2	G4T2
Pima	PLANT	<i>Lilium parryi</i>	Lemmon Lily	SC			S			SR	PMLIL1A0J0	S2	G3
Pima	PLANT	<i>Listera convallarioides</i>	Broadleaf Twayblade							SR	PMORC1N050	S1	G5
Pima	PLANT	<i>Lophocereus schottii</i>	Senita							SR	PDCAC14010	S1S2	G4
Pima	PLANT	<i>Lupinus huachucanus</i>	Huachuca Mountain Lupine				S				PDFAB2B210	S2	G2
Pima	PLANT	<i>Lupinus lemmonii</i>	Lemmon's Lupine				S				PDFAB2B2A0	S1Q	G1Q
Pima	PLANT	<i>Lysiloma watsonii</i>	Littleleaf False Tamarind							SR	PDFAB2C040	S1	G4?
Pima	PLANT	<i>Machaeranthera arida</i>	Arid Tansy-aster								PDAST64040	S1	G3G4
Pima	PLANT	<i>Malaxis tenuis</i>	Slender Adders Mouth							SR	PMORC1R090	S1	G4
Pima	PLANT	<i>Malvastrum bicuspidatum</i>	Mexican Shrub Mallow								PDMAL0S030	S2	G4
Pima	PLANT	<i>Mammillaria heyderi</i> var. <i>bullingtoniana</i>	Cream Cactus							SR	PDCAC0A035	S1S2	G4?T2T4
Pima	PLANT	<i>Mammillaria mainiae</i>	Counter Clockwise Fishhook Cactus				S			SR	PDCAC0A060	S1	G3
Pima	PLANT	<i>Mammillaria thornberi</i>	Thornber Fishhook Cactus							SR	PDCAC0A0C0	S4	G4
Pima	PLANT	<i>Mammillaria viridiflora</i>	Varied Fishhook Cactus							SR	PDCAC0A0D0	S4	G4
Pima	PLANT	<i>Manihot davisiae</i>	Arizona Manihot				S				PDEUP0Z010	S2	G4
Pima	PLANT	<i>Matelea cordifolia</i>	Sonoran Milkweed Vine								PDASC0A080	S1	G4
Pima	PLANT	<i>Metastelma mexicanum</i>	Wiggins Milkweed Vine	SC			S				PDASC050P0	S1S2	G3G4
Pima	PLANT	<i>Microchloa kunthii</i>	Kunth Grass								PMPOA40010	S1	G5
Pima	PLANT	<i>Mimosa distachya</i> var. <i>laxiflora</i>	Garabatico								PDFAB2K070	S2	G5
Pima	PLANT	<i>Muhlenbergia dubioides</i>	Box Canyon Muhly				S				PMPOA480G0	S1	G1Q

COUNTY	TAXON	SCIENTIFIC NAME	COMMON NAME	ESA	BLM	CRIT HAB	USFS	NESL	MEXFED	STATE	ELCODE	S RANK	G RANK
Pima	PLANT	Muhlenbergia xerophila	Weeping Muhly				S				PMPOA48220	S1	G3
Pima	PLANT	Notholaena lemmonii	Lemmon Cloak Fern	SC							PPADI0G0D0	S1S2	G3?
Pima	PLANT	Opuntia engelmannii									PDCAC0D220	S3?	G5
Pima	PLANT	Opuntia engelmannii var. flavispina								SR	PDCAC0D224	S3?	G5T3?
Pima	PLANT	Opuntia versicolor	Stag-horn Cholla							SR	PDCAC0D1K0	S2S3	G4
Pima	PLANT	Passiflora arizonica	Arizona Passionflower				S				PDPAS01073	S2	G5T3T5
Pima	PLANT	Pectis imberbis	Beardless Chinch Weed	SC			S				PDAST6W0A0	S1	G3
Pima	PLANT	Pellaea wrightiana	Wright Cliff Brake								PPADI0H0E0	S3S4	G5
Pima	PLANT	Peniocereus greggii var. transmontanus	Desert Night-blooming Cereus						PR	SR	PDCAC0V012	S3S4	G3G4T3T4
Pima	PLANT	Peniocereus striatus	Dahlia Rooted Cereus							SR	PDCAC0V020	S1	G4
Pima	PLANT	Penstemon discolor	Catalina Beardtongue				S			HS	PDSCR1L210	S2	G2
Pima	PLANT	Penstemon superbus	Superb Beardtongue								PDSCR1L630	S2?	G3?
Pima	PLANT	Perityle ajoensis	Ajo Rock Daisy							SR	PDAST700Y0	S1	G1
Pima	PLANT	Petalonyx linearis	Longleaf Sandpaper Plant								PDLOA04010	S2	G4
Pima	PLANT	Physalis latiphysa	Broad-leaf Ground-cherry				S				PDSOL0S0H0	S1	G1
Pima	PLANT	Plagiobothrys pringlei	Pringle Popcorn-flower								PDBOR0V0V0	S2	G3G4
Pima	PLANT	Platanthera limosa	Thurber's Bog Orchid							SR	PMORC1Y0G0	S4	G4
Pima	PLANT	Polygonum fusiforme	Needles Knotweed								PDPGN0L110	S3?	G3G4Q
Pima	PLANT	Polypogon elongatus	American Rabbitfoot Grass								PMPOA50020	S1	G5
Pima	PLANT	Potentilla albiflora	White-flowered Cinquefoil				S				PDROS1B010	S1S2	G1G2
Pima	PLANT	Proboscidea parviflora	Small-flower Unicorn-plant								PDPED06040	S4	G4G5
Pima	PLANT	Psilotum nudum	Whisk Fern				S			HS	PPPSI01020	S1	G5
Pima	PLANT	Pyrrhopappus rothrockii	False Dandelion								PDAST7V050	S3	G4
Pima	PLANT	Salvia columbariae	California Sage								PDLAM1S0D0	S4S5	G5
Pima	PLANT	Samolus vagans	Chiricahua Mountain Brookweed				S				PDPRI09040	S2	G2?

COUNTY	TAXON	SCIENTIFIC NAME	COMMON NAME	ESA	BLM	CRIT HAB	USFS	NESL	MEXFED	STATE	ELCODE	S RANK	G RANK
Pima	PLANT	Schiedeella arizonica	Fallen Ladies'-tresses							SR	PMORC67020	S4	GNR
Pima	PLANT	Selaginella eremophila	Desert Spike Moss								PPSEL010G0	S3S4	G4
Pima	PLANT	Senecio carlomasonii	Seemann Groundsel								PDAST8H3W0	S2S3	G4?Q
Pima	PLANT	Senecio neomexicanus var. toumeyi	Toumey Groundsel				S				PDAST8H274	S2	G5T2Q
Pima	PLANT	Senecio parryi	Mountain Groundsel								PDAST8H2B0	S4	G4
Pima	PLANT	Sisyrinchium cernuum	Nodding Blue-eyed Grass				S				PMIRI0D0B0	S2	G5
Pima	PLANT	Solanum lumholtzianum	Lumholtz Nightshade								PDSOL0Z180	S3	G3G4
Pima	PLANT	Sophora arizonica	Arizona Necklace								PDFAB3N020	S3	G3
Pima	PLANT	Stenocereus thurberi	Organ Pipe Cactus							SR	PDCAC10020	S4	G5
Pima	PLANT	Stephanomeria schottii	Schott Wire Lettuce		S						PDAST8U0D0	S2	G2
Pima	PLANT	Stevia lemmonii	Lemmon's Stevia				S				PDAST8V010	S2	G3G4
Pima	PLANT	Streptanthus carinatus	Lyre-leaved Twistflower								PDBRA2G0C0	S3S4	G4
Pima	PLANT	Talinum angustissimum	Yellow Flame Flower								PDPOR08010	S2	G4
Pima	PLANT	Tephrosia thurberi	Thurber Hoary Pea								PDFAB3X0M0	S3	G4G5
Pima	PLANT	Thalictrum dasycarpum	Purple Meadow Rue								PDRAN0M060	S2	G5
Pima	PLANT	Thelypteris puberula var. sonorensis	Aravaipa Woodfern		S		S				PPTHE05192	S2	G5T3
Pima	PLANT	Tithonia thurberi	Thurber Tithonia								PDAST9A030	S4	G4
Pima	PLANT	Tragia laciniata	Sonoran Noseburn				S				PDEUP1D060	S3?	G3G4
Pima	PLANT	Triteleopsis palmeri	Blue Sand Lily		S					SR	PMLIL22010	S1	G3
Pima	PLANT	Tumamoca macdougalii	Tumamoc Globeberry		S		S			SR	PDCUC0S010	S3	G4
Pima	PLANT	Vauquelinia californica ssp. sonorensis	Arizona Sonoran Rosewood		S						PDROS1R024	S1S2	G4T2
Pima	PLANT	Verbena pinetorum	Chihuahua Vervain								PDVER0N0P0	S1	G2G4
Pima	PLANT	Viola umbraticola	Shade Violet				S				PDVIO042E0	S2?	G3G4
Pima	PLANT	Ziziphus obtusifolia	Lotebush								PDRHA0E030	S3S4	G4G5
Pima	REPTILE	Aspidoscelis arizonae	Arizona Striped Whiptail		S						ARACJ02071	S1S2	G2

COUNTY	TAXON	SCIENTIFIC NAME	COMMON NAME	ESA	BLM	CRIT HAB	USFS	NESL	MEXFED	STATE	ELCODE	S RANK	G RANK
Pima	REPTILE	Aspidoscelis burti stictogrammus	Giant Spotted Whiptail	SC			S				ARACJ02011	S2	G4T4
Pima	REPTILE	Aspidoscelis xanthonota	Redback Whiptail	SC							ARACJ02012	S2	G4T2
Pima	REPTILE	Chionactis occipitalis klauberi	Tucson Shovel-nosed Snake	C*		P					ARADB05012	S1	G5T3Q
Pima	REPTILE	Chionactis palarostris organica	Organ Pipe Shovel-nosed Snake								ARADB05021	S1	G3G4T2
Pima	REPTILE	Coluber bilineatus	Sonoran Whipsnake								ARADB21010	S5	G5
Pima	REPTILE	Crotalus lepidus klauberi	Banded Rock Rattlesnake						PR		ARADE02051	S3	G5T5
Pima	REPTILE	Crotaphytus nebrius	Sonoran Collared Lizard								ARACF04050	S3S4	G4
Pima	REPTILE	Gopherus morafkai	Sonoran Desert Tortoise	C*			S		A	WSC	ARAAF01013	S4	G4
Pima	REPTILE	Gyalopion canum	Chihuahuan Hook-nosed Snake								ARADB16010	S3	G5
Pima	REPTILE	Heloderma suspectum	Gila Monster						A		ARACE01010	S4	G4
Pima	REPTILE	Heloderma suspectum suspectum	Reticulate Gila Monster				S		A		ARACE01012	S4	G4T4
Pima	REPTILE	Heterodon kennerlyi	Mexican Hog-nosed Snake						PR		ARADB17012	S3	G5T4
Pima	REPTILE	Hypsiglena sp. nov.	Hooded Nightsnake								ARADB18050	S4	G4
Pima	REPTILE	Kinosternon arizonense	Arizona Mud Turtle								ARAAE01060	S2	G4
Pima	REPTILE	Kinosternon sonoriense longifemorale	Sonoyta Mud Turtle	C							ARAAE01041	S1	G4T1
Pima	REPTILE	Lampropeltis getula nigrita	Western Black Kingsnake						A		ARADB19026	S3	G5T3T4Q
Pima	REPTILE	Lichanura trivirgata trivirgata	Mexican Rosy Boa	SC							ARADA01023	S1S2	G4G5T3
Pima	REPTILE	Oxybelis aeneus	Brown Vinesnake				S			WSC	ARADB24010	S1	G5
Pima	REPTILE	Phrynosoma cornutum	Texas Horned Lizard	SC					A		ARACF12010	S3S4	G4G5
Pima	REPTILE	Phrynosoma hernandesi	Greater Short-horned Lizard								ARACF12080	S4	G5
Pima	REPTILE	Phyllorhynchus browni	Saddled Leaf-nosed Snake				PS		PR		ARADB25010	S5	G5
Pima	REPTILE	Plestiodon callicephalus	Mountain Skink				S				ARACH01030	S2	G4G5
Pima	REPTILE	Sceloporus slevini	Slevin's Bunchgrass Lizard		S		S				ARACF14180	S2	G4
Pima	REPTILE	Senticolis triaspis intermedia	Northern Green Ratsnake				S				ARADB44011	S3	G5T4
Pima	REPTILE	Tantilla nigriceps	Plains Black-headed Snake								ARADB35050	S2	G5

COUNTY	TAXON	SCIENTIFIC NAME	COMMON NAME	ESA	BLM	CRIT HAB	USFS	NESL	MEXFED	STATE	ELCODE	S RANK	G RANK
Pima	REPTILE	Tantilla wilcoxi	Chihuahuan Black-headed Snake								ARADB35120	S1	G4
Pima	REPTILE	Terrapene ornata luteola	Desert Box Turtle		S				PR		ARAAD08021	S2S3	G5T4
Pima	REPTILE	Thamnophis eques megalops	Northern Mexican Gartersnake	C*			S		A	WSC	ARADB36061	S1	G5T5
Pima	REPTILE	Uma rufopunctata	Yuman Desert Fringe-toed Lizard	SC	S				A	WSC	ARACF15040	S2	G3
Pinal	AMPHIBIAN	Anaxyrus retiformis	Sonoran Green Toad		S				PR		AAABB01140	S3	G3G4
Pinal	AMPHIBIAN	Gastrophryne olivacea	Western Narrow-mouthed Toad		S		S		PR	WSC	AAABE01020	S3	G5
Pinal	AMPHIBIAN	Rana yavapaiensis	Lowland Leopard Frog	SC	S		S		PR	WSC	AAABH01250	S3	G4
Pinal	BIRD	Antrostomus ridgwayi	Buff-collared Nightjar				S				ABNTA07060	S2S3	G5
Pinal	BIRD	Aquila chrysaetos	Golden Eagle		S			3	P		ABNKC22010	S4	G5
Pinal	BIRD	Ardea alba	Great Egret							WSC	ABNGA04040	S1B,S4N	G5
Pinal	BIRD	Ardea herodias	Great Blue Heron								ABNGA04010	S5	G5
Pinal	BIRD	Athene cunicularia hypugaea	Western Burrowing Owl	SC	S		S	4	A		ABNSB10012	S3	G4T4
Pinal	BIRD	Buteo albonotatus	Zone-tailed Hawk				S				ABNKC19090	S4	G4
Pinal	BIRD	Buteo plagiatus	Gray Hawk	SC			S		PR	WSC	ABNKC19150	S3	G5
Pinal	BIRD	Buteo swainsoni	Swainson's Hawk				S				ABNKC19070	S3	G5
Pinal	BIRD	Buteogallus anthracinus	Common Black-Hawk				S		A	WSC	ABNKC15010	S3	G4G5
Pinal	BIRD	Camptostoma imberbe	Northern Beardless-Tyrannulet				S				ABPAE04010	S4	G5
Pinal	BIRD	Caracara cheriway	Crested Caracara	No Status						WSC	ABNKD02020	S1S2	G5
Pinal	BIRD	Coccyzus americanus	Yellow-billed Cuckoo (Western U.S. PS:C* DPS)				S	2		WSC	ABNRB02020	S3	G5
Pinal	BIRD	Dendrocygna autumnalis	Black-bellied Whistling-Duck							WSC	ABNJB01040	S3	G5
Pinal	BIRD	Empidonax traillii extimus	Southwestern Willow Flycatcher	LE		Y		2		WSC	ABPAE33043	S1	G5T1T2
Pinal	BIRD	Falco peregrinus anatum	American Peregrine Falcon	SC	S		S	4	A	WSC	ABNKD06071	S4	G4T4
Pinal	BIRD	Glauucidium brasilianum cactorum	Cactus Ferruginous Pygmy-owl	SC	S		S		A	WSC	ABNSB08041	S1	G5T3
Pinal	BIRD	Haliaeetus leucocephalus (wintering pop.)	Bald Eagle - Winter Population	SC	S		S	2	P	WSC	ABNKC10015	S4N	G5TNR
Pinal	BIRD	Haliaeetus leucocephalus pop. 3	Bald Eagle - Sonoran Desert Population	SC	S		S	2	P	WSC	ABNKC10014	S2S3	G5TNR

Qualifications



MEGAN WARDLOW

PROJECT SCIENTIST

Education

B.S. Environmental Science, Policy and Management with an emphasis in Environmental Planning, Policy, Law and Society
Minor: Sustainability

University of Minnesota

Experience

Ms. Wardlow has gained experience performing informal biological assessments, wetland and floodplain determinations, threatened and endangered species determinations, critical habitat research, as well as writing National Environmental Policy Act (NEPA) environmental assessments for wireless telecommunication projects. She has conducted research regarding Section 106 compliance under the Federal Communications Commission standards. Under Section 106, she has experience with 620 and 621 Form submittal to the State Historical Preservation Offices. Ms. Wardlow is gaining experience performing Phase I Environmental Site Assessments, Indoor Air Quality Assessments as well as mold assessments.

Additionally, Ms. Wardlow has experience with the Delorme Topographic USA mapping program, Arch GIS, environmental tree surveying, and aquatic invasive species identification and prevention. She also has experience with environmental policy analyses, environmental conflict management and mediation, and consulting with city governments in expanding environmental opportunities and helping cities define and reach sustainability goals.

Certifications/Affiliations

Member of the National Association of Environmental Professionals



JENNET NGUYEN

ASSISTANT PROJECT MANAGER

Education

M.S. Ecology, Evolution, and Organismal Biology
Iowa State University

B. S. Biology with Environmental Option
New Mexico Institute of Mining and Technology

Experience

Mrs. Nguyen has gained experience performing Phase I Environmental Site Assessments and NEPA Environmental Assessments for wireless communications projects. Assessment research experience has involved multiple personal interviews and the collection and synthesis of cartographic, remotely sensed, geologic, soil, groundwater, legal, land use history, and environmental contamination data for each project. She has conducted research regarding Section 106 compliance as well as submittal of 620 and 621 Forms to State Historic Preservation Offices. She has also performed informal biological assessments, wetland and floodplain determinations, as well as NEPA Environmental Assessments for wireless communications projects. Mrs. Nguyen also has experience with Indoor Air Quality Assessments.

Mrs. Nguyen also has extensive experience in both field and laboratory settings. Her laboratory experience includes microbial work with *E. coli* performing cell cultures, PCR, and PAGE. Mrs. Nguyen's field experience includes conducting vegetation and invertebrate surveys, small mammal trapping, telemetry work with large mammals, as well as soil moisture analysis. She has had experience communicating scientific research in both the university setting and professional conferences, as well as instructing courses in biology and environmental science at the College level.

Certifications/Affiliations

USACE Wetland Delineation



William A Bates

Project Manager

Education

B.A. in Biology
Minor in Archaeology
Boston University

Fields of Special Competence

Mr. Bates specializes in performing site reconnaissance, extensive background research, sampling, and report preparation for Phase 1 Environmental Site Assessments (ESA), Phase II ESAs, National Environmental Policy Act (NEPA) reports, Environmental Assessments (EA), Nationwide Programmatic Agreement (NPA) site reviews, Indoor Air Quality (IAQ) assessments, and Migratory Bird Evaluations utilizing broad professional resources. Mr. Bates has a background in both biology and archaeology, providing critical knowledge of both environmental and historical resource considerations.

Experience

Mr. Bates has experience performing background research, site inspections, species surveys, and soil and groundwater sampling for Phase I and Phase II ESAs, NEPA site reviews, Environmental Assessments, NPA site reviews, Indoor Air Quality assessments, and Migratory Bird Evaluations. He has conducted research, mapping, and state agency correspondence activities for wireless communications and commercial development projects throughout the United States. Mr. Bates has researched aerial photography, historic topographic maps, National Wetland Inventory maps, Federal Emergency Management Agency Flood Insurance Rate Maps, Historic Sanborn Fire Insurance maps, and city directories associated with Phase I ESAs and NEPA site reviews. Further, Mr. Bates has researched wildlife considerations via the United States Fish and Wildlife Service, along with various state-level conservation agencies, and has performed wildlife surveys via Migratory Bird Evaluations and Informal Biological Assessments. Mr. Bates has written Phase I ESAs, NEPA Assessments, EAs, NPA site reviews, IAQs, Migratory Bird Evaluations, and other associated environmental reviews.

Certifications/Affiliations

40-hour OSHA Hazardous Waste Site Operations Training with 8-hour updates
Mold Assessment Consultant – State of Texas – License #MAC1222; expires 1/26/2014
Certified Mold Assessor – State of Florida – License #MRSA528; expires 7/31/2012
National Association of Environmental Professionals