

Pima County
Multi-species
Conservation Plan
Appendices
Administrative Draft



Appendix A. Species account summaries for Covered Species

Full natural history accounts and details of modeled habitat for each species can be found at Pima County (2001). Each of the following accounts includes location information for all of Pima County, but for some lands (especially on the Tohono O'odham Nation) location information is often lacking and incomplete.

The proposed management activities in this appendix are in addition to the numerous avoidance, minimization, and mitigation tools that are covered in detail throughout the MSCP. For purposes of brevity, only those management activities that are specific to a particular species (or group of species) are highlighted in this appendix.

Proposed monitoring commitments for most species include the species, habitat, and threats program elements, which are discussed in detail in the Phase II monitoring plan and associated documents <http://www.pima.gov/cmo/sdcp/Monitoring/index.html>. If no information exists for one or more of these program elements in the following species accounts, then Pima County is not proposing monitoring that element. Most vegetation-based habitat monitoring will take place on a series of long-term monitoring sites that will be located throughout the County's preserve system. Finally, Pima County will conduct landscape pattern monitoring by using tools produced by such programs as the National Land Cover Database. These products will be used to analyze trends of these resources within each species' PCA or modeled habitat, and therefore their application to each species is not repeated in this appendix.

For all species, Pima County will encourage research to gain a better understanding of species status and ecology, especially: abundance, distribution, habitat use and associations, and movement patterns; both within the County's preserve system as well as other areas of Pima County and southern Arizona. As part of our monitoring commitment, Pima County will develop a database to store observations of Covered Species.

A note on rankings codes

In the following species accounts, conservation rankings are noted, which were taken from the Priority Ranking Definitions compiled by the Arizona Game and Fish Department Heritage Data Management System (Arizona Game and Fish Department 2009b).

Global Rank: priority ranking (1 to 5) based on the number of occurrences throughout the entire range of the element (species or subspecies)

- G1 Very Rare: 1 to 5 occurrences or very few individuals or acres.
- G2 Rare: 6 to 20 occurrences or few individuals or acres.
- G3 Uncommon or Restricted: 21 to 100 occurrences, rather rare throughout a fairly wide range, or fairly common in a rather restricted range.
- G4 Apparently Secure: more than 100 occurrences, though it could be quite rare in some parts of its range.
- G5 Demonstrably secure: more than 100 occurrences.

State Rank: priority ranking (1 to 5) based on the number of occurrences of the species with Arizona.

- S1 Very Rare: 1 to 5 occurrences in the state or very few individuals or acres within the state;.
- S2 Rare: 6 to 20 occurrences in the state or few individuals or acres within the state.
- S3 Uncommon or Restricted: 21 to 50 occurrences in the state, either rather rare throughout a fairly wide range or fairly common in a rather restricted range within the state.
- S3S4 Fairly Common: 51 to 100 occurrences and found over a rather wide range within the state.
- S4 Apparently Secure: more than 100 occurrences within the state, though it could be quite rare in some parts of the state.
- S5 Demonstrably secure: more than 100 occurrences within the state.

Plants

Pima Pineapple Cactus (*Coryphantha scheeri* var. *robustispina*)

Conservation Status

Endangered Species Act Status: Listed as endangered by USFWS in 1993.

State: Arizona Native Plant Law, Highly Safeguarded.

Other: U.S. Forest Service Sensitive; protected from international trade by CITES.

Rankings: G4, S2

Current Occurrence in Pima County and Vicinity

The Pima pineapple cactus inhabits southeastern Arizona and north-central Sonora, Mexico (U. S. Fish and Wildlife Service 2007b). In southeastern Arizona, the known range lies within Santa Cruz and Pima counties and is generally bounded to the east by the Santa Rita Mountains, to the west by the Baboquivari Mountains and north to the southern boundary of Tucson (Schmalzel 2004, WestLand Resources Inc 2004, Baker 2005, 2006, Baker 2007, Schmalzel 2008, Arizona Game and Fish Department 2009a). There are populations in the Vail area and just south of Interstate 10 and west of Highway 83, north of Mt. Fagan.

Anticipated Habitat Loss, and Current Mitigation

Anticipated acres of habitat lost to Covered Activities (Figure A-1): 19,260.

Current mitigation (includes 25% credit for State Trust Lands): 18,704.

Management and Conservation Commitments

Pima County will pursue the following management actions and conservation commitments for the Pima pineapple cactus:

- Work with experts to maintain and post a habitat suitability map and Priority Conservation Area map on a publically accessible website, such as the SDCP

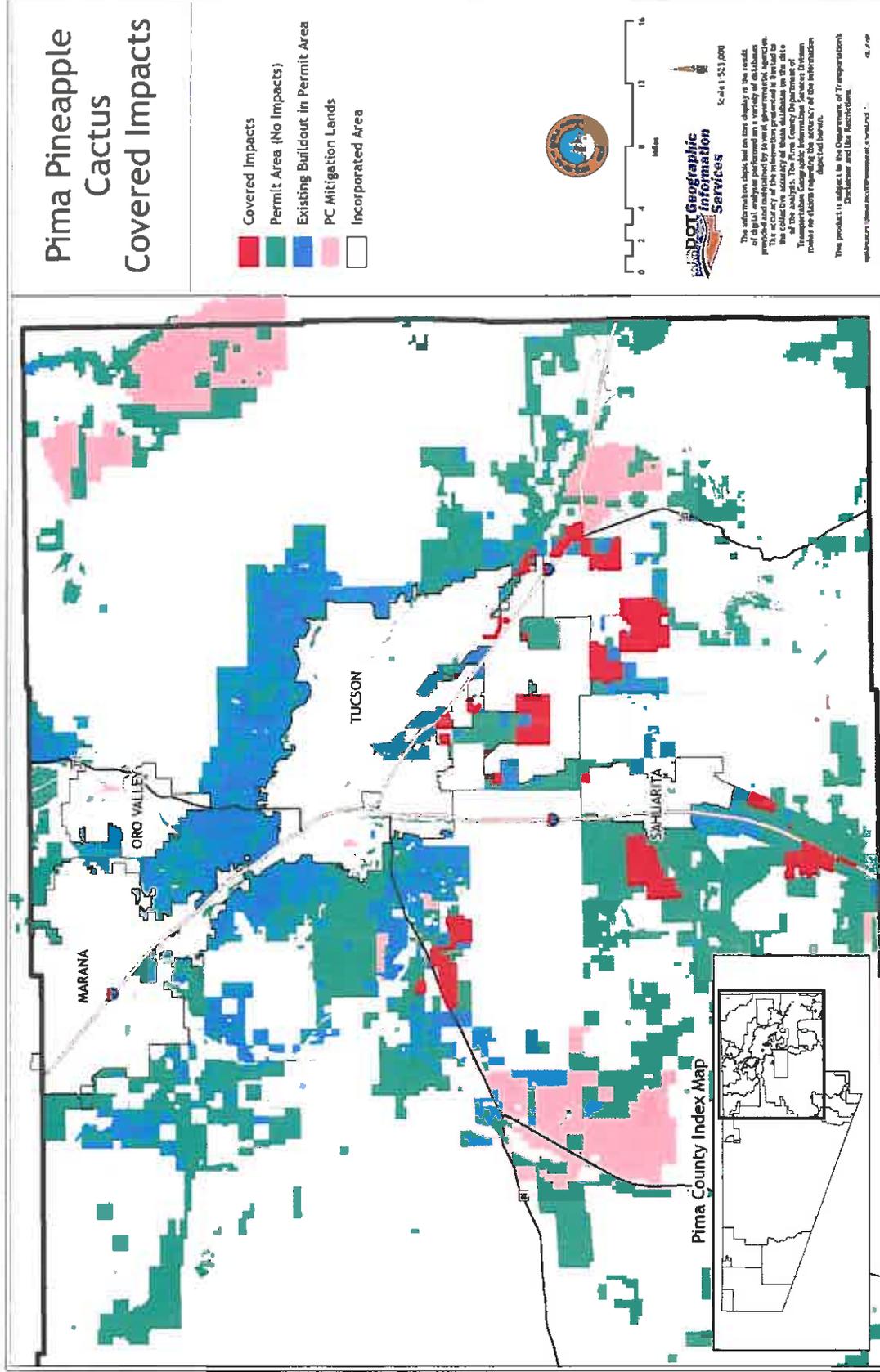


Figure A-1. Map of projected impacts for the Pima pineapple cactus.

Mapguide site, to be used as a reference for where the species may be encountered.

- Potential acquisitions in the range of the species, as defined by the PCA, will be reviewed for evidence of occupancy of the species and its habitat as part of the due diligence (pre-closing), unless precluded by the property owner.
- Seek funds or partnerships to conduct surveys on County-controlled lands in areas south of the Sierrita Mountains and west of Interstate 19, in an attempt to verify whether additional locations exist, and to determine whether additional acres of acquisition may be counted as habitat mitigation.
- Encourage studies and other scientific investigations that are designed to increase knowledge about the species. This may include but is not limited to habitat/connectivity requirements, population viability analyses, effectiveness of transplant methodologies, persistence over time in developed areas, etc.
- Place conservation easements on fee simple lands within the PCA at Marley Ranch, Rancho Seco, King 98, Canoa, Cienega Creek Natural Preserve, and Diamond Bell Ranch. Additional future land acquisitions will also likely include areas of occupancy for the species.
- If necessary, acquire additional high-value areas to offset impacts of Covered Activities.
- Continue to utilize mitigation credits from County mitigation banks or other non-County operated mitigation banks to offset impacts to Covered Activities.
- Pima County Natural Resources, Parks and Recreation Department will continue to administer mitigation banks at Madera Highlands (Altar Valley) and Elephant Head (Santa Cruz Valley) for the benefit of other County departments. The mitigation banks are protected with conservation easements.
- Management plans and master plans for County-owned open space lands in the PCA will include measures to avoid or minimize impacts to the species on those lands that we own due to such activities as prescribed fire, and ground-disturbing activities such as new trails or ranch infrastructure.

- For private development covered under this permit, Pima County will continue to apply avoidance and minimization measures through rezoning procedures and compliance with County environmental ordinances, as appropriate.
- Establish or work with private landowners to establish mitigation banks that will be available for use by the private sector.
- Participate in the recovery planning with the USFWS.

Monitoring

Species monitoring. Numbers and survival of a suite of known individuals on County-owned and maintained mitigation banks will be monitored every 2-3 years. Known individuals on these lands have been and will be tagged so that individual fates can be recorded. Additional surveys for recruitment and additional individuals will be monitored every four years. Pima County will work with USFWS to establish monitoring on other sites within the Preserve system, including those individuals found during surveys for populations that are not currently known (e.g., Altar Valley near Arivaca). These surveys will involve line transect surveys (Roller 1996) but Pima County will work the USFWS to refine the sampling protocol to possibly incorporate the use of occupancy models that account for imperfect detectability. In addition, Pima County will recommend a refinement of the spatial sampling protocol to use adaptive cluster sampling for this species. Finally, Pima County will develop a database for observations of this species made while County staff performs other functions.

Habitat and threats. At County mitigation banks, Pima County will note the collection and/or destruction of tagged individuals during periodic surveys. These data, along with data collected by others in the region, can be used by the USFWS to investigate the effects of collecting on this species. Loss of PCA acres due to Covered Activities will be reported, as noted in the MSCP. As habitat needs for this species become more refined, Pima County will link these habitat needs with data collected at long-term monitoring sites within the species' PCA.

Needle-spined pineapple cactus (*Echinomastus erectocentrus* var. *erectocentrus*)

Conservation Status

Endangered Species Act Status: None, but former federal Candidate 2 species.

State: Arizona Native Plant Law, Salvage Restricted.

Other: USFWS Species of Concern; U.S. Forest Service Sensitive.

Rankings: G3 S3.

Current Occurrence in Pima County

This species occurs in disjunct populations primarily in Pima and Cochise counties, south and east of Tucson and in southeastern Pinal County near to the San Pedro River (Arizona Game and Fish Department 2009a). Recent search efforts by Baker (Baker 2000, Baker 2005, 2006, Baker 2007) have revealed >1,000 individuals southeast of Tucson. Large areas of the potential range between known locations have never been searched adequately to find this species, so expansion of known range is likely.

Anticipated Habitat Loss, and Current Mitigation

Anticipated acres of habitat lost to Covered Activities (Figure A-2): 908

Current mitigation (includes 25% credit for State Trust Lands): 8,655

Management and Conservation Commitments

Pima County will seek to pursue the following management actions and conservation commitments for the needle-spined pineapple cactus:

- Include measures to avoid and minimize impacts to species in management and master plans in Pima County-controlled Mitigation Lands within the PCA.
- For private development covered under this permit, Pima County will continue to apply avoidance and minimization measures through rezoning procedures and compliance with County environmental ordinances, as appropriate.

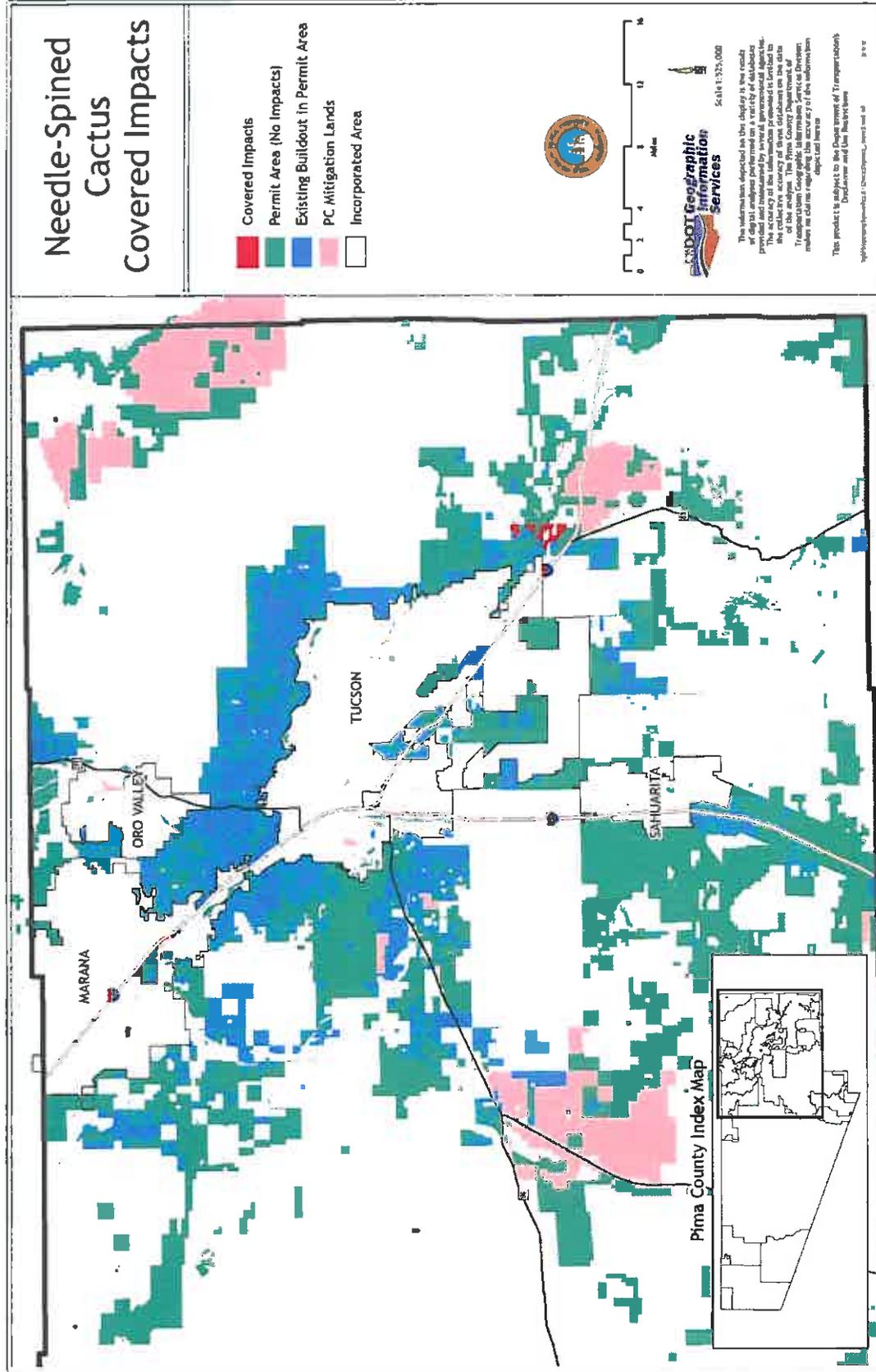


Figure A-2. Map of projected impacts for the needle-spined pineapple cactus.

- Explore partnerships with developers and ranchers to jointly achieve conservation of this species.

Monitoring

Species Monitoring. Pima County will develop a database for incidental observations of this species while Pima County staff performs other functions.

Habitat. Long-term monitoring will take place in known and potential locations of this species in the County's preserve system. As more information about the habitat needs for this species become more refined, Pima County will link these habitat needs with data collected at long-term monitoring sites within the species' PCA.

Threats. Loss of PCA acres due to Covered Activities will be reported. In addition, habitat fragmentation will be monitored in the species PCA through the use of remote sensing tools and prospective tools such as planned rezonings.

Huachuca water umbel (*Lilaeopsis schaffneriana recurva*)

Conservation Status

Endangered Species Act Status: Listed As Endangered by the USFWS in 1997.

State: Highly Safeguarded.

Other: U.S. Forest Service Sensitive Species.

Rankings: G4, T2, S2

Current Occurrence in Pima County

Three populations are thought to exist in Pima County (Arizona Game and Fish Department 2009a): (1) Empire Gulch, a tributary of Cienega Creek, which is managed by the BLM as part of the Empire-Cienega Resource Conservation Area; (2) Cienega Creek Natural Preserve; and (3) Bingham Cienega Preserve. Additional populations may exist but be undetected because the species is very difficult to find. The population at Cienega Creek Preserve was found in 2001 (Engineering and Environmental

Consultants Inc. 2001), but subsequent visits failed to detect the species, most likely because of lack of effort. Surveys were conducted at the La Cebadilla Property, where it was thought to be previously present; it was not found (Engineering and Environmental Consultants Inc. 2001). It may also be possible to reestablish populations in the effluent-dominated portion of the Santa Cruz River and in the portion of the San Pedro River within Pima County.

Anticipated Habitat Loss, and Current Mitigation

Anticipated acres of habitat lost to Covered Activities (Figure A-3): 500.

Current mitigation (includes 25% credit for State Trust Lands): 4,056.

Management and Conservation Commitments

Pima County will seek to pursue the following management actions and conservation commitments for the Huachuca water umbel:

- Implement the Pima County Riparian Protection Ordinance to minimize loss of habitat for this species.
- Protect existing habitat in the County-controlled Mitigation Lands from invasive species and controllable desiccation.
- Acquire and protect water rights to maintain and restore habitat.
- Survey for this species in suitable habitat during inventories of new properties.
- Consider establishing or re-introducing this species at aquatic sites on County-controlled Mitigation Lands; such activities would be conducted in a manner consistent with the Recovery Plan for this species, should one be initiated.
- Aid in the development of a Recovery Plan for this species, should one be initiated.

Monitoring

Species monitoring. Presence at known locations (Cienega Creek and Bingham Cienega preserves) will be monitored every 2-3 years according to the methods used by Engineering and Environmental Consultants Inc. (2001). Additional surveys for new

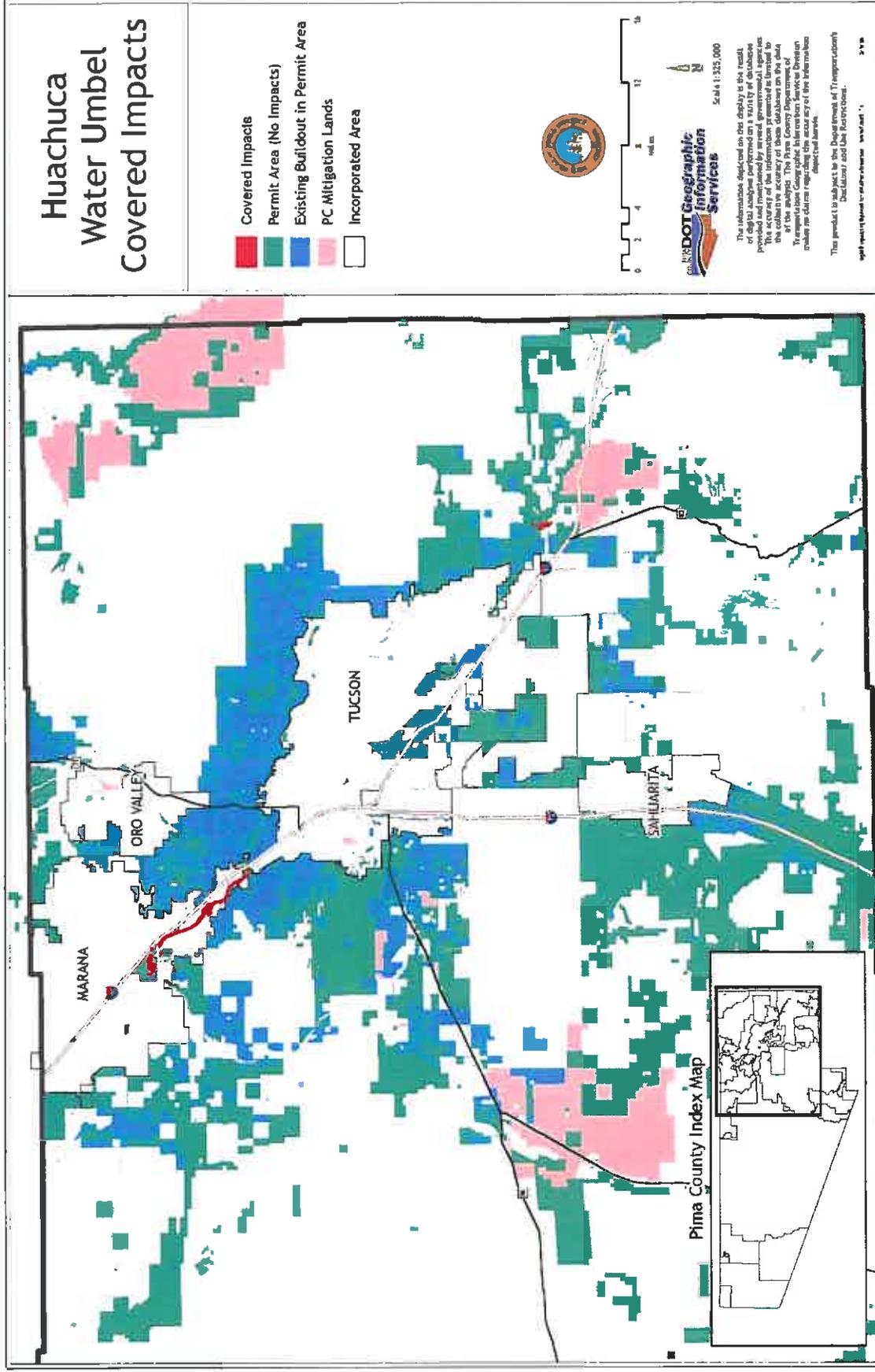


Figure A-3. Map of projected impacts for the Huachuca water umbel.

populations in Cienega Creek preserve will be conducted every four years. Pima County will facilitate and encourage research on this species, particularly improved methods for detection of this difficult-to-survey species.

Habitat. Long-term wet/dry mapping along Cienega Creek will continue according to the protocol by Pima Association of Governments (1998).

Threats. Loss of PCA acres from Covered Activities will be reported. In addition, habitat fragmentation will be monitored in the species PCA through the use of remote sensing tools and prospective tools such as planned rezonings, as noted in the MSCP.

Tumamoc globeberry (*Tumamoca macdougalii*)

Conservation Status

Endangered Species Act Status: None. Species had been listed as endangered, but was found to be more abundant and widespread than was thought at the time of listing.

State: Arizona Native Plant Law: Salvage Restricted.

Other: U.S. Forest Service Sensitive Species; Bureau of Land Management Sensitive;

Rankings: G4.

Current Occurrence in Pima County and Vicinity

The species' range in Pima County covers much of the County, with the highest concentrations found west of I-10 and east of the Tohono O'Odham Nation (Reichenbacher 1990, Rondeau et. al. 1996), and west to Organ Pipe Cactus National Monument (cited in Schmidt et. al. 2007). Frank Reichenbacher maintains long-term monitoring sites at Sabino Canyon, Tumamoc Hill, and Tucson Mountains. Bureau of Reclamation maintains long-term monitoring sites in the Avra Valley. Surveys for this species will likely increase its known range in Pima County.

Anticipated Habitat Loss, and Current Mitigation

Anticipated acres of habitat lost to Covered Activities (Figure A-4): 19,521.

Current mitigation (includes 25% credit for State Trust Lands): 21,266.

Management and Conservation Commitments

Pima County will seek to pursue the following management actions and conservation commitments for the Tumamoc globeberry:

- Evaluate newly discovered populations within the County preserve system for presence of threats and protective measures to be taken.
- Minimize impacts by participating in buffelgrass management efforts within the Sonoran desertscrub vegetation community.
- Work with the City of Tucson and Bureau of Reclamation to conserve suitable habitat in the Avra Valley.

Monitoring

Species monitoring. Assistance with periodic monitoring of populations and individuals in the Tucson basin established by Frank Reichenbacher (Reichenbacher 2008) and provide assistance with periodic resurveying of populations on the Central Arizona Project preserve.

Habitat. Dominant host plants for this species (e.g., *Larrea* and *Ambrosia*) will be monitored at long-term monitoring sites. Changes in host plant abundance can be cause for further investigation.

Threats. Loss of PCA acres due to Covered Activities will be reported. In addition, habitat fragmentation will be monitored in the species PCA through the use of remote sensing tools and prospective tools such as planned rezonings, as noted in the MSCP. Buffelgrass is likely a threat to this species and Pima County will continue to provide information on the spatial distribution and relative abundance of this species within the County's mitigation lands. The Buffelgrass Coordination Center is developing standardized protocols for this work (Rogstad 2008). Javelina can be a problem for this

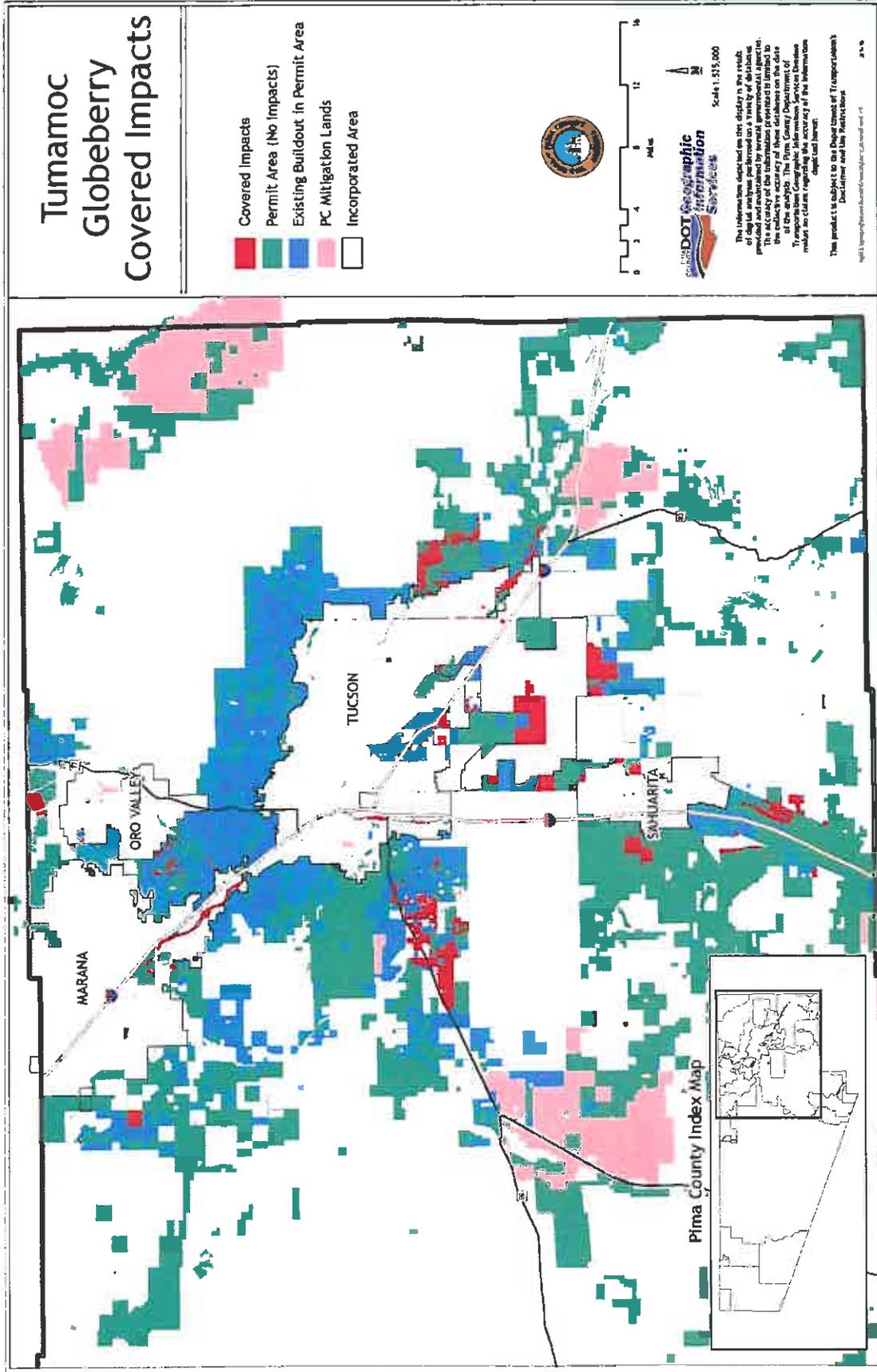


Figure A-4. Map of projected impacts for the Tumamoc globeberry.

species (via predation of roots) and the Arizona Game and Fish Department periodically monitors this species using helicopters.

Mammals

Lesser long-nosed bat (*Leptonycteris curasoae yerbabuena*)

Conservation Status

Endangered Species Act Status: Listed as Endangered in 1988.

State: Wildlife of Special Concern in Arizona.

Other: U.S. Forest Service Sensitive Species; Threatened in Mexico. "Red" Priority Species by Western Bat Working Group.

Rankings: G3, S2.

Current Occurrence in Pima County

The migrant species occurs in southern Arizona during the spring and summer. Most of the currently known roost sites are inactive mines. In eastern Pima County, roosts are found throughout Pima County and adjacent areas including in the Santa Catalina, Rincon, and Santa Rita mountains (Davis and Sidner 1992, Swann and Powell 2006, Arizona Game and Fish Department 2009a, WestLand Resources Inc 2009). A maternity roost of this species once occurred in Colossal Cave and efforts have been made to restore the suitability of this roost for the bat (U. S. Fish and Wildlife Service 1995). It has been recorded in a number of locations in western Arizona including Cabeza Prieta National Wildlife Refuge and Organ Pipe Cactus National Monument (Cockrum 1981, Cockrum and Petryszyn 1986, Petryszyn and Cockrum 1990). Monitoring efforts associated with the Habitat Conservation Plans of the Town of Marana and the City of Tucson indicate that the lesser long-nosed bat forages in the exurban areas of Tucson and avoids the densely populated areas (Arizona Game and Fish Department, unpublished data).

Anticipated Habitat Take and Current Mitigation

Anticipated lethal take: 50

Anticipated acres of habitat lost to Covered Activities (Figure A-5): 16,353.

Current mitigation (includes 25% credit for State Trust Lands): 79,298.

Management and Conservation Commitments

Pima County will seek to pursue the following management actions and conservation commitments for the lesser long-nosed bat:

- Minimize disturbance of the species on County preserves.
- Protect existing known roosts and foraging habitats of this species on County-controlled Mitigation Lands.
- Investigate the purchase of valid mining claims for mines with known roosts; look into opportunities for creating roost preserves and install bat-friendly exit gates, where appropriate and economically feasible.
- Restrict discretionary activities within 1 kilometer of known roosts during May to September if this can be accomplished without disclosure of roost locations.
- Evaluate known roosts of this species on County preserves for conditions and needs for structural stabilization. Where appropriate, such stabilization will be carried out using techniques that minimize disturbance and alteration of conditions.
- For private development covered under this permit, Pima County will continue to apply avoidance and minimization measures through rezoning procedures and compliance with County environmental ordinances, as appropriate..

Monitoring

Species monitoring. Pima County has determined that species-level monitoring is warranted for this species because ongoing monitoring of roost sites is being implemented and provides local information on lesser long-nosed bat use patterns and

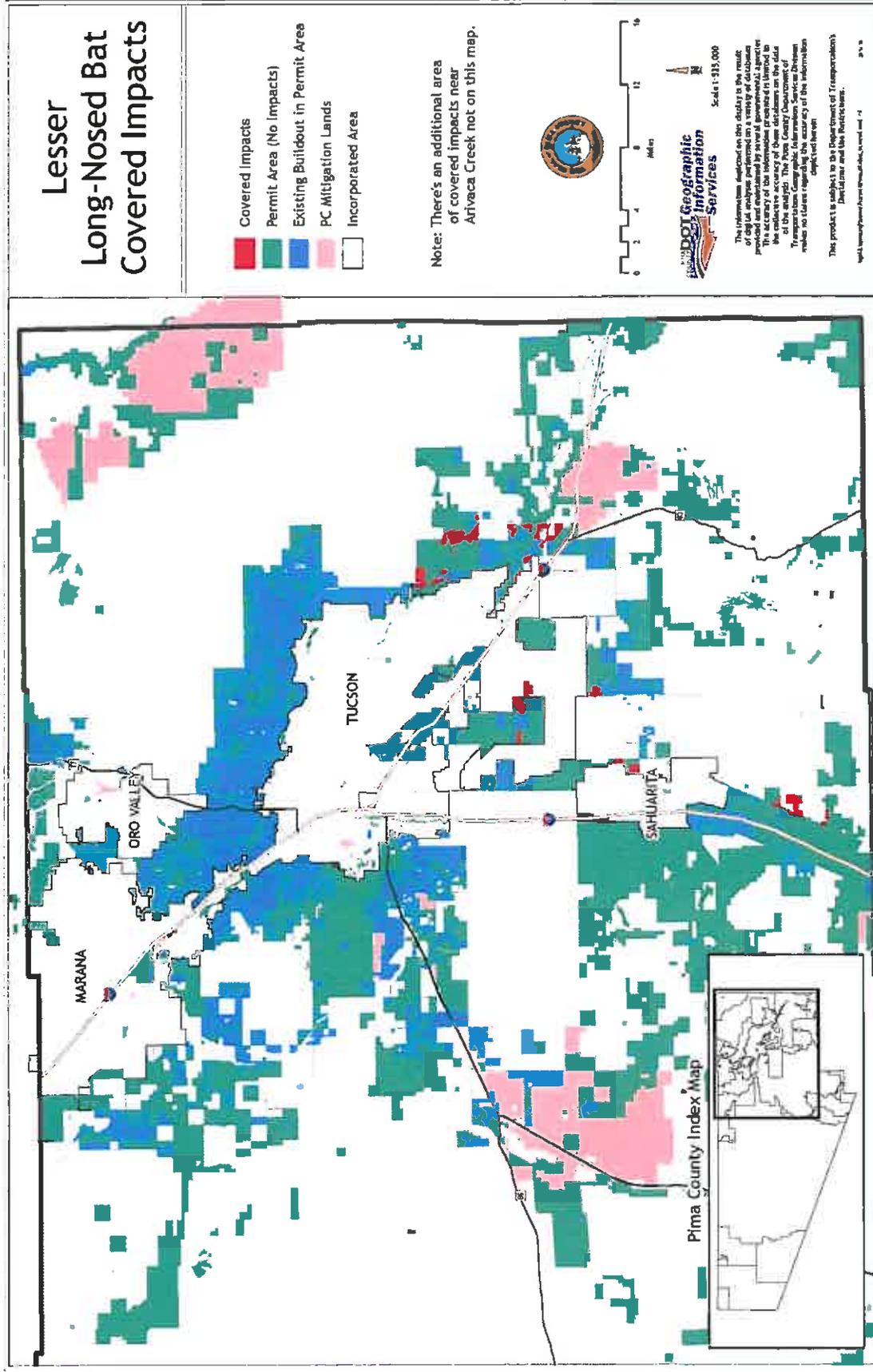


Figure A-5. Map of projected impacts for the lesser long-nosed bat.

occupancy. Therefore, Pima County will: (1) participate in coordinated exit counts at sites that contain bats that use the Permit Area and in coordination with other agency personnel; (2) visit known cave, mine, and adit roost sites within the County's preserve system every 2-3 years to observe presence of this and other bat species. Exit counts will use infra-red video cameras, and Pima County will provide technical assistance to the USFWS to develop a more detailed protocol. Pima County will develop a cave visitation protocol (including what kinds of equipment to be used) to minimize disturbance to this and other species. Surveys will take place at appropriate times of year (June-August) to ensure occupancy by this species. Pima County may participate in species-level monitoring for this and other bat species as part of Arizona Game and Fish Department's bat monitoring plan; that plan is not complete. Finally, with funding from the USFWS, Dr. Robert Steidl (University of Arizona) and a graduate student are developing a regional monitoring program for this species. Pima County will evaluate our potential role in that program after the plan is complete.

Habitat and Threats. The lesser long-nosed bat is closely tied to Palmer's agave (eastern Pima County) and saguaro cacti (western Pima County), resources that will be monitored at a host of long-term monitoring sites throughout the County's preserve system, including in the bat's known habitat. Though those particular plant species are not be targeted as separate monitoring components, Pima County anticipate that enough plots will be established to determine trends in these important plant species. Pima County will also monitor the condition of potential roost sites throughout the County's preserve system every 2-3 years. Condition parameters will begin with initial characterization of cave conditions (e.g., size and dimensions, geological features, and evidence of recent human use), to be followed by assessments of condition, especially evidence of collapse and vandalism. Pima County will periodically quantify the loss and fragmentation of habitat in the species' PCA.

Mexican Long-tongued Bat (*Choeronycteris mexicana*)

Conservation Status

Endangered Species Act Status: None.

State: Wildlife of Species Concern in Arizona.

Other: USFWS Species of Concern; California Species of Special Concern, U.S. Forest Service Sensitive Species. "Red" Priority Species by Western Bat Working Group.

Rankings: G2, S1.

Current Occurrence in Pima County

The Mexican long-tongued bat is found throughout Pima County, particularly in the eastern portion (Hoffmeister 1986). Roost sites have been found in the Santa Catalina, Rincon, Baboquivari, and Santa Rita mountains (Don Carter, unpublished data; Cryan and Bogan 2003, Arizona Game and Fish Department 2009a, WestLand Resources Inc 2009). Individuals have been netted at Rincon Creek (Swann and Powell 2006) and in Organ Pipe Cactus National Monument (Organ Pipe Cactus National Monument 1999, 2006). Work by Wolf and Shaw (unpublished data) at hummingbird feeders in and around Tucson found Mexican long-tongued bats throughout the Tucson Basin, particularly along the Pantano, Rillito, and Agua Caliente washes and Tanque Verde Creek. Ronnie Sidner has studied the species extensively at the Fort Huachuca Military Reservation (Cochise County; unpublished data).

Anticipated Lethal Take, Habitat Loss, and Current Mitigation

Anticipated lethal take: 25

Anticipated acres of habitat lost to Covered Activities (Figure A-6): 5,979.

Current mitigation (includes 25% credit for State Trust Lands): 44,473.

Management and Conservation Commitments

Pima County will seek to pursue the following management actions and conservation commitments for the Mexican long-tongued bat:

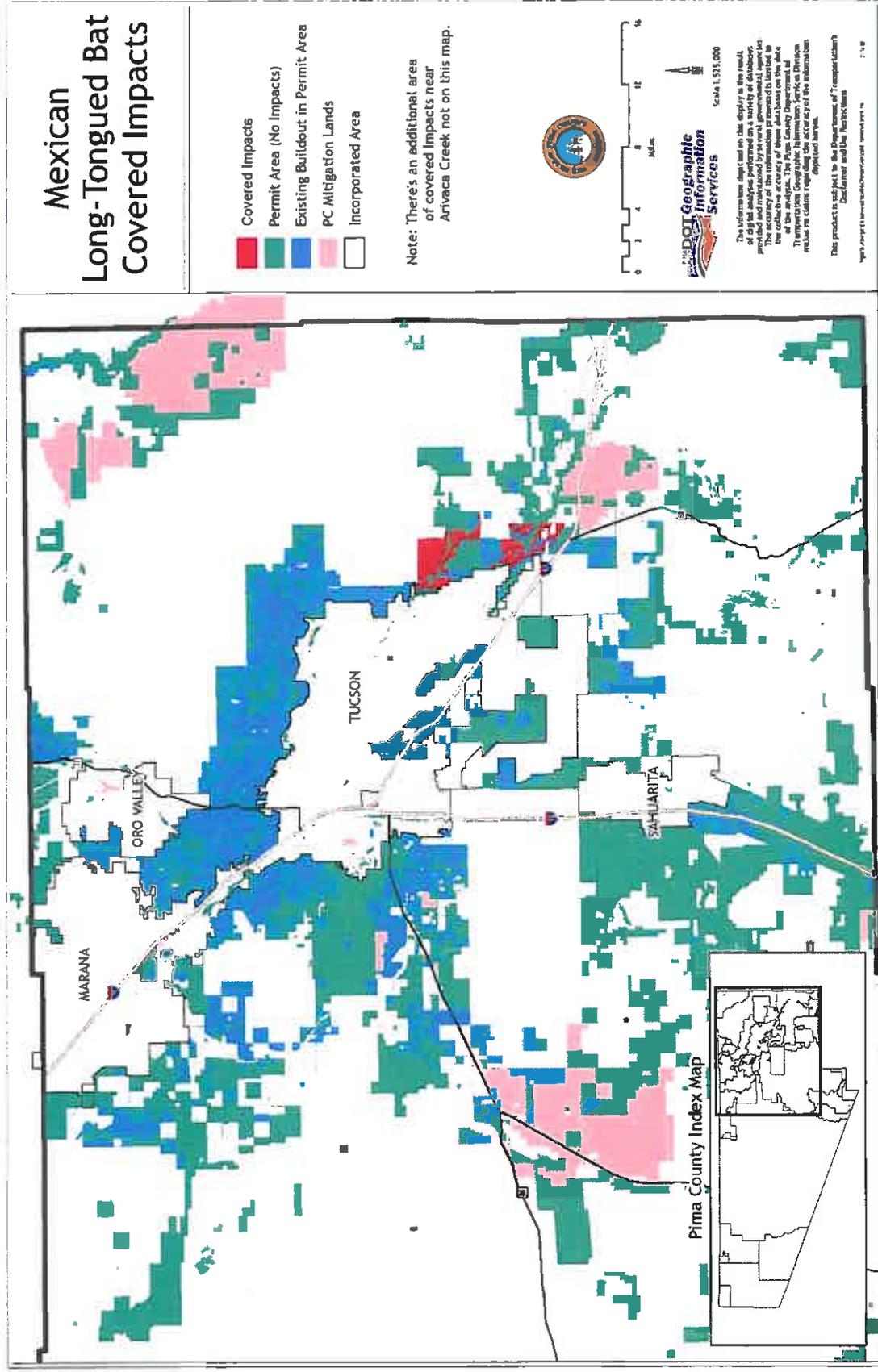


Figure A-6. Map of projected impacts for the Mexican long-tongued bat.

- Minimize recreational impacts upon the species within County preserves.
- Evaluate known roosts of this species on County preserves for conditions and needs for structural stabilization. Where appropriate, such stabilization will be carried out using techniques that will minimize disturbance and alteration of conditions. Install bat-friendly exit gates, where appropriate and feasible.
- Emphasize management for this species within Cienega Creek Natural Preserve and Colossal Cave Mountain Park.
- For private development covered under this permit, Pima County will continue to apply avoidance and minimization measures through rezoning procedures and compliance with County environmental ordinances, as appropriate.
- Support the installation of new lighting within the cave tour portion of Colossal Cave Mountain Park to reduce stress on bats and to promote higher abundance and occupancy.

Monitoring

Species monitoring. Pima County will monitor presence of this species while conducting surveys of known cave, mine, and adit roost sites in the County's preserve system, as well as periodic checks of habitat improvement (stabilization) projects, such as at Cienega Creek Preserve. Pima County will develop a cave visitation protocol (including what kinds of equipment to be used) to minimize disturbance to this and other bat species. This is particularly important for this species because it is very sensitive to disturbance. As a result, population estimation at roost sites may not be appropriate. Surveys will take place at appropriate times of year (June-August) to ensure occupancy by this species. Additional monitoring of populations through the employment of passive detectors (e.g., Duchamp et al. 2006) will be reviewed periodically to determine application of this technology to the County's needs. Pima County may participate in species-level monitoring for this and other bat species as part of Arizona Game and Fish Department's bat monitoring plan; that plan has not yet been released.

Habitat. This pollen-loving bat cues into floristic, rather than structural features of vegetation, and is therefore closely tied to agave and cacti (particularly saguaro), resources. These resources will be monitored at a host of long-term monitoring sites throughout the County's preserve system, including with the bat's known habitat. Though those particular plant species are not be targeted as separate monitoring components, we anticipate that enough plots will be established to determine trends in these important plant species. In addition to it food resources, Pima County will monitor the condition of potential roost sites throughout the County's preserve system every 2-3 years. Condition parameters will begin with initial characterization of cave conditions (e.g., size and dimensions, geological features, and evidence of recent human use), to be followed by assessments of condition, especially evidence of collapse and vandalism.

Threats. Pima County will periodically quantify the loss and fragmentation of habitat in the species' PCA and note any vandalism activities at roost sites.

Allen's big-eared bat (*Idionycteris phyllotis*)

Conservation Status

Endangered Species Act Status: None, but former Category 2 candidate for federal listing.

State: None.

Other: USFWS Species of Concern; California Species of Special Concern; Nevada Special Status Species. "Red" Priority Species by Western Bat Working Group.

Rankings: G4, S2, S3

Current Occurrence in Pima County and Vicinity

This species has not been confirmed in Pima County (Petryszyn 1989, Arizona Game and Fish Department 2009a). Davis and Sidner (1992) indicated that it has been found in the Galiuro Mountains (Graham County) and Cockrum and Musgrove (1964) also

note that it was caught in Graham and Cochise counties, but always >5,000 feet in elevation. The species has been captured in Portal, AZ (Western Bat Working Group, unpublished data, 1995), but is more common north of the Mogillon Rim (Siders and Jolley 2009, Solvesky and Chambers 2009). If it does occur in Pima County, it would most likely be found along the San Pedro River and mine tunnels along the east side of the Catalina Mountains. In northern Arizona and in other areas of its range it is found in ponderosa pine, pinyon-juniper, Mexican woodland and riparian areas with sycamores, cottonwoods, and willows at elevations ranging from 2,600 feet to 9,800 feet (Hoffmeister 1986).

Anticipated Lethal Take, Habitat Loss, and Current Mitigation

Anticipated lethal take: 2

Anticipated acres of habitat lost to Covered Activities (Figure A-7): 1

Current mitigation (includes 25% credit for State Trust Lands): 2,263.

Management and Conservation Commitments

Pima County will seek to pursue the following management actions and conservation commitments for the Allen's big-eared bat:

- Minimize recreational impacts upon the species within County preserves.
- Protect any roosts that occur or are discovered on County preserves from all potentially detrimental activities. Install bat-friendly exit gates, where appropriate and feasible.
- Support the installation of new lighting within the cave tour portion of Colossal Cave Mountain Park to reduce stress on bats and to promote occupancy.

Monitoring

Species monitoring. Pima County will monitor presence of this species while conducting surveys of known cave, mine, and adit roost sites in the County's preserve system (see Habitat, below). Pima County will develop a cave visitation protocol

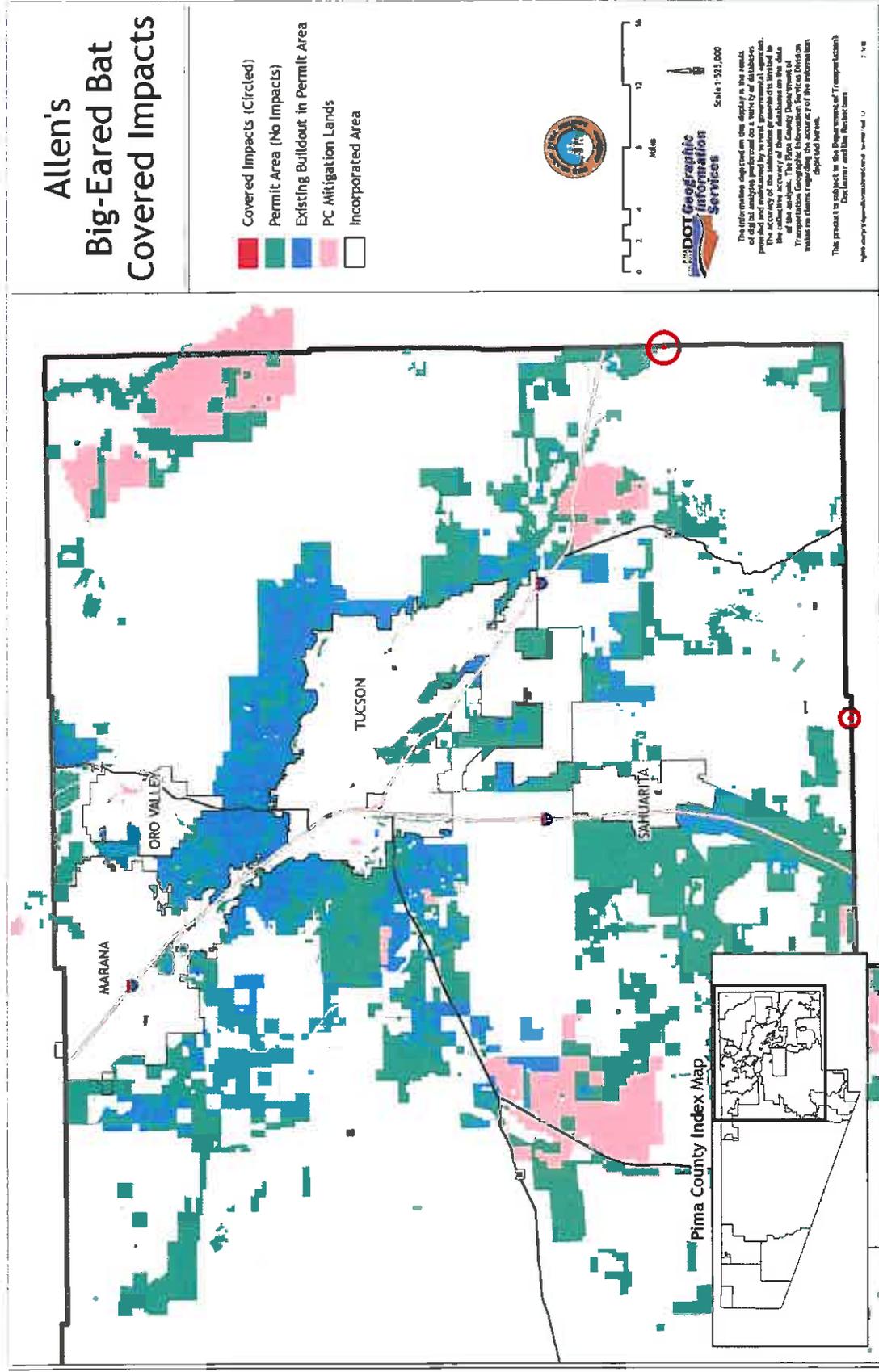


Figure A-7. Map of projected impacts for the Allen's big-eared bat.

(including what kinds of equipment to be used) to minimize disturbance to this and other species. This is particularly important for this species because it is very sensitive to disturbance (Arizona Game and Fish Department 2003). As a result, population estimation may not be appropriate without causing significant disturbance. Surveys will take place at appropriate times of year to ensure greatest chance for occupancy by this species. Additional monitoring of populations through the employment to passive detectors (e.g., Duchamp et al. 2006) will be reviewed periodically to determine application of this technology to the County's needs. Pima County may participate in species-level monitoring for this and other bat species as part of Arizona Game and Fish Department's bat monitoring plan; that plan has not yet been released.

Habitat. Habitat features that are important for this species are 1) caves, mines, and adits for roosting, 2) water resources for foraging, 3) cavities for temporary roosting, and 4) vegetation structure and composition, particularly along stream courses. Pima County will monitor the condition of potential roost sites throughout the County's preserve system every 2-3 years. Condition parameters will begin with initial characterization of cave conditions (e.g., size and dimensions, geological features, and evidence of recent human use), to be followed by periodic assessments of condition, especially evidence of collapse and vandalism. Habitat outside of potential roost sites is unknown, but is likely riparian areas, which will be monitored at long-term monitoring plots and possibly using remote sensing tools such as Light Detection and Ranging (LiDAR) technology.

Threats. Pima County will periodically quantify the loss and fragmentation of habitat in the species' PCA and note any vandalism activities at roost sites. If white-nosed syndrome is found in Arizona (high likelihood), the Allen's big-eared bat may be particularly susceptible because it hibernates. Pima County will work with state and federal officials to initiate a more rigorous, state-wide monitoring program.

Western red bat (*Lasiurus blossevillii*)

Conservation Status

Endangered Species Act Status: None.

State: Species of Special Concern in Arizona.

Other: U.S. Forest Service Sensitive Species; "Red" Priority Species by Western Bat Working Group.

Rankings: G5, S2.

Current Occurrence in Pima County

Found throughout Pima County including the Santa Rita Experimental Range, Empire Gulch, East of the Boboquivari Mountains, Santa Catalina Mountains including Sabino Canyon (Arizona Game and Fish Department 2009a), Rincon Creek (Swann and Powell 2006), and Colossal Cave Mountain Park. Primarily associated with broadleaf riparian deciduous forests and woodlands.

Anticipated Lethal Take, Habitat Loss, and Current Mitigation

Anticipated lethal take: 20

Anticipated acres of habitat lost to Covered Activities (Figure A-8): 170.

Current mitigation (includes 25% credit for State Trust Lands): 20,850.

Management and Conservation Commitments

Pima County will seek to implement the Pima County Riparian Protection Ordinance to minimize loss of habitat for this species.

Monitoring

Species monitoring. There are no plans to directly monitor this species. However, population monitoring through the employment to passive detectors (e.g., Duchamp et al. 2006) will be reviewed periodically to determine application of this technology to the County's needs. Pima County may participate in species-level monitoring for this and

other bat species as part of Arizona Game and Fish Department's bat monitoring plan; that plan has not yet been released.

Habitat. Habitat features that are important for this species are 1) many types of water resources for foraging, and 2) structure and composition of vegetation (especially overstory and midstory) for daytime roosts in vegetation, particularly along stream courses. Pima County will monitor mesic riparian vegetation at long-term monitoring plots that will be located within the species PCA, with particular emphasis on monitoring condition and size classes of mesic trees.

Threats. Pima County will periodically quantify the loss and fragmentation of habitat in the species' PCA. Pima County may also monitor groundwater levels in select sites in eastern Pima County (e.g., Tanque Verde Creek and Cienega Creek Preserve) according to the protocol recommendations of Fonseca (2008); groundwater levels too low will threaten the broadleaf riparian vegetation that is so important to this species.

Southern yellow bat (*Lasiurus ega*)

Conservation Status

Endangered Species Act Status: None.

State: Wildlife of Special Concern in Arizona.

Other: U.S. Forest Service Sensitive Species. "Red" Priority Species by Western Bat Working Group.

Rankings: G5, S1

Current Occurrence in Pima County and Vicinity

Most known records of southern yellow bats from Arizona are from urban Tucson and Phoenix, where they are associated with planted fan palms (Arizona Game and Fish Department 2009a). It has been found in recent years in Sasabe, Sabino Canyon, and the Galiuro Mountains (Graham County).

Anticipated Lethal Take, Habitat Loss, and Current Mitigation

Anticipated lethal take: 25

Anticipated acres of habitat lost to Covered Activities (Figure A-9): 126.

Current mitigation (includes 25% credit for State Trust Lands): 8,377.

Management and Conservation Commitments

Pima County will seek to pursue the following management actions and conservation commitments for the southern yellow bat:

- Implement the Pima County Riparian Protection Ordinance to minimize loss of habitat.
- Because this species is thought to be associated with untrimmed palm trees within the urban environment, Pima County will support public education about the importance of leaving palm trees untrimmed and may support a small project to map the location of palm tree resources.

Monitoring

Species monitoring. There are no plans to directly monitor this species. However, population monitoring through the employment to passive detectors (e.g., Duchamp et al. 2006) will be reviewed periodically to determine application of this technology to the County's needs. Pima County may participate in species-level monitoring for this and other bat species as part of Arizona Game and Fish Department's bat monitoring plan; that plan has not yet been released.

Habitat. Habitat features that are important for this species are 1) many types of water resources for foraging, and 2) structure and composition of vegetation (especially overstory) for daytime roosts in vegetation, particularly palm trees and cottonwood trees along stream courses. Pima County will monitor mesic riparian vegetation using long-term monitoring plots that will be located within the County's preserve system. Particular emphasis will be placed on monitoring condition and size classes of mesic trees. It should be noted that few plots will be located within the species' urban habitat,

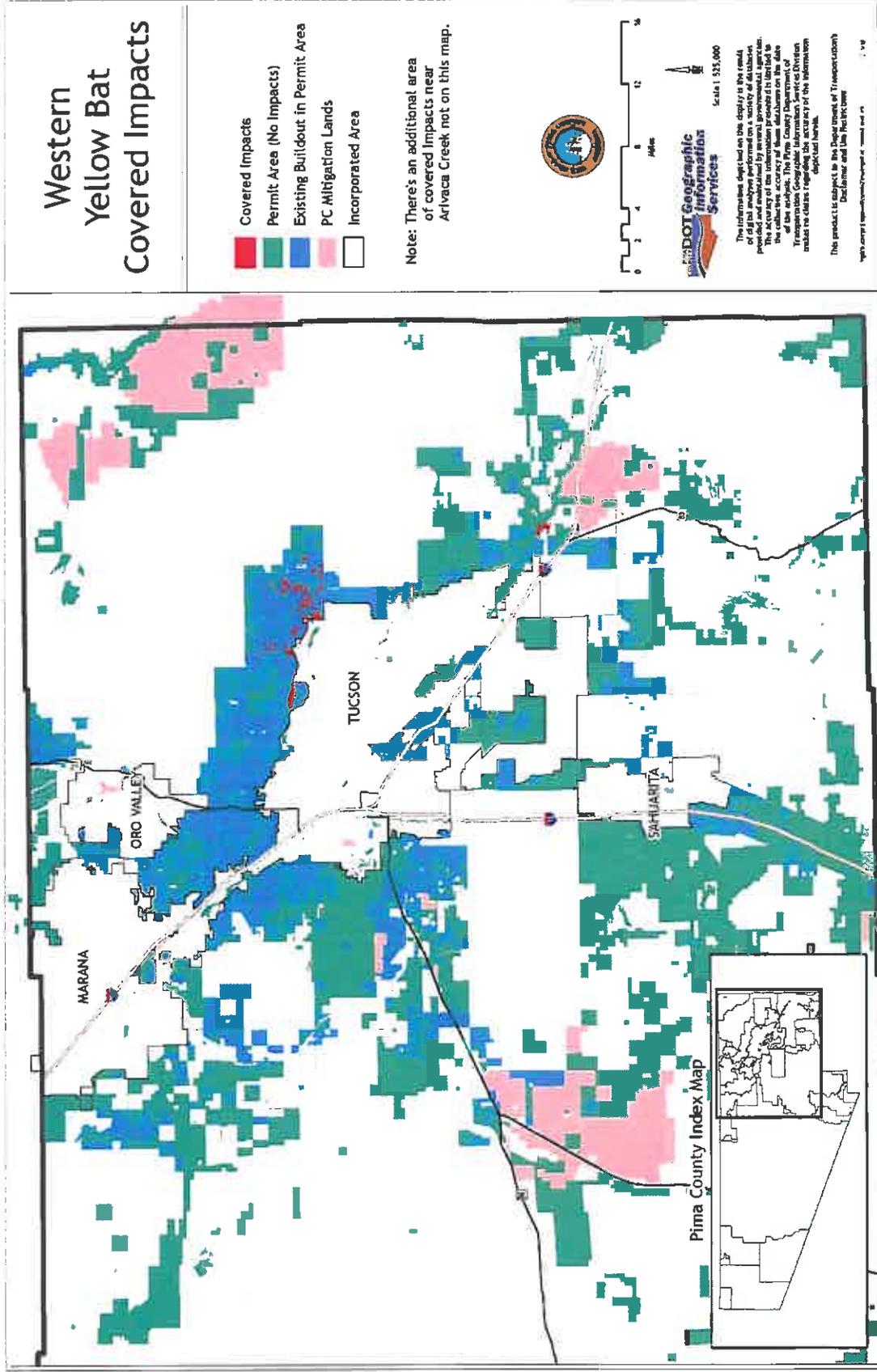


Figure A-9. Map of projected impacts for the southern yellow bat.

and therefore a different approach to monitoring important features for this species may be appropriate. This might include use of citizen scientists to monitor condition of palm trees (e.g., proportion of palms with untrimmed “skirts” that are so important for this species).

Threats. Pima County will periodically quantify the loss and fragmentation of habitat in the species’ PCA.

California leaf-nosed bat (*Macrotus californicus*)

Conservation Status

Endangered Species Act Status: None. Former Category 2 Candidate.

State: Wildlife Species of Special Concern in Arizona.

Other: USFWS Species of Concern; U.S. Forest Service Sensitive Species; “Red” Priority Species by Western Bat Working Group.

Rankings: G4, S3S4.

Current Occurrence in Pima County

A common species of caves, mines, and rock shelters throughout the County, especially low-elevation areas including in Organ Pipe Cactus National Monument (Cockrum 1981, Cockrum and Petryszyn 1986, Petryszyn and Cockrum 1990) and mountain ranges near Tucson including the Tucson Mountains (Swann and Powell 2007), and Waterman, Silverbell, Santa Catalina, Rincon, Sierrita, and Baboquivari mountains (Arizona Game and Fish Department 2009a).

Anticipated Lethal Take, Habitat Loss, and Current Mitigation

Anticipated lethal take: 10

Anticipated acres of habitat lost to Covered Activities (Figure A-10): 180.

Current mitigation (includes 25% credit for State Trust Lands): 12,632.

Management and Conservation Commitments

Pima County will seek to pursue the following management actions and conservation commitments for the California leaf-nosed bat.

- Protect existing known roosts and foraging habitat from all potentially detrimental activities on County preserve lands.
- Investigate the purchase of valid mining claims for mines with known roosts; look into opportunities for creating roost preserves. Each roost will be considered for gating, and where appropriate, proper gates will be installed.
- On County preserves, restrict discretionary activities within 1 kilometer of known roosts during May to September if this can be accomplished without disclosure of roost locations.
- Evaluate known roosts of this species on County-controlled Mitigation Lands for conditions and needs for structural stabilization. Where appropriate, such stabilization will be carried out using techniques that minimize disturbance and alteration of conditions.
- Support the installation of new lighting within the cave tour portion of Colossal Cave Mountain Park to reduce stress on bats and to promote higher abundance and occupancy.

Monitoring

Species monitoring. Pima County will monitor presence of this species while conducting surveys of known cave, mine, and adit roost sites in the County's preserve system (see Habitat, below). Pima County will develop a cave visitation protocol (including what kinds of equipment to be used) to minimize disturbance to this and other species. Pima County may participate in species-level monitoring for this and other bat species as part of Arizona Game and Fish Department's bat monitoring plan; that plan has not yet been released.

Habitat and Threats. Habitat features that are of known important for this species are caves, mines, and adits for roosting, which will be monitored every 2-3 years for

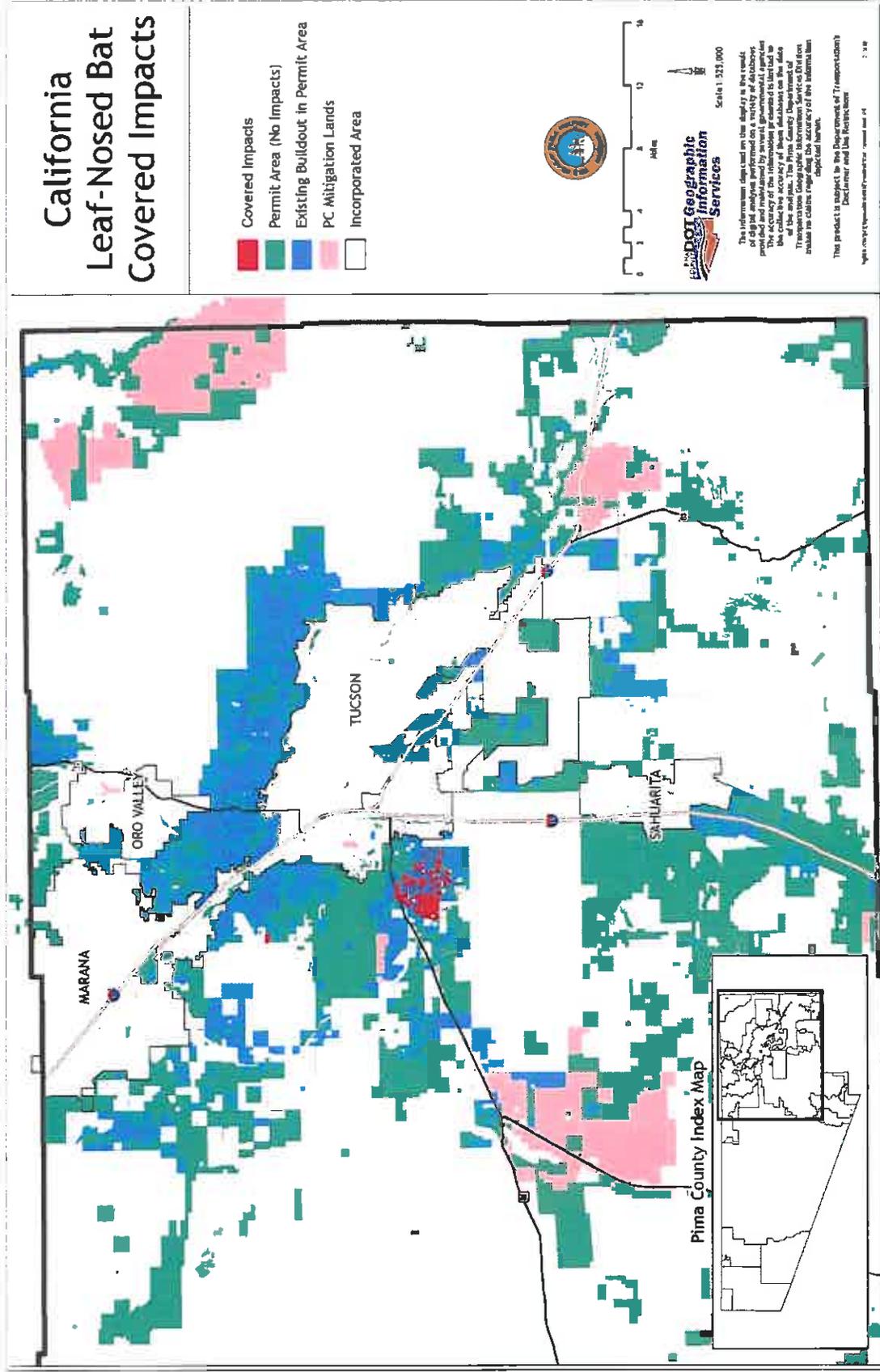


Figure A-10. Map of projected impacts for the California leaf-nosed bat.

changes in condition. Condition parameters will begin with initial characterization of cave conditions (e.g., size and dimensions, geological features, and evidence of recent human use), to be followed by periodic assessments of condition, especially evidence of collapse and vandalism. Pima County will periodically quantify the loss and fragmentation of habitat in the species' PCA.

Pale Townsend's big-eared bat (*Plecotus townsendii pallescens*)

Conservation Status

Endangered Species Act Status: None. Former Category 2 candidate.

State: Wildlife of Special Concern in Arizona.

Other: USFWS Species of Concern; "Red" Priority Species by Western Bat Working Group.

Rankings: G4T4, S3S4.

Current Occurrence in Pima County

In Pima County, this species is frequently found in small groups in inactive mines and caves, and occasionally in buildings. It has been found across a wide elevational range in Pima County (Arizona Game and Fish Department 2009a). This species has been observed at Colossal Cave Mountain Park, Rincon Mountains (Davis and Sidner 1992, Swann and Powell 2006), Tucson Mountains (Swann and Powell 2007), Sierrita Mountains (Snow et. al. 1996), Baboquivari Mountains (Hoffmeister 1986), Santa Rita Mountains (Snow et al. 1996, WestLand Resources Inc 2009), and Organ Pipe Cactus National Monument (Cockrum 1981, Cockrum and Petryszyn 1986). There are likely roosts that are not currently identified in the Tortolita, Tucson, and Silverbell mountains.

Anticipated Lethal Take, Habitat Loss, and Current Mitigation

Anticipated lethal take: 10

Anticipated acres of habitat lost to Covered Activities (Figure A-11): 1,591.

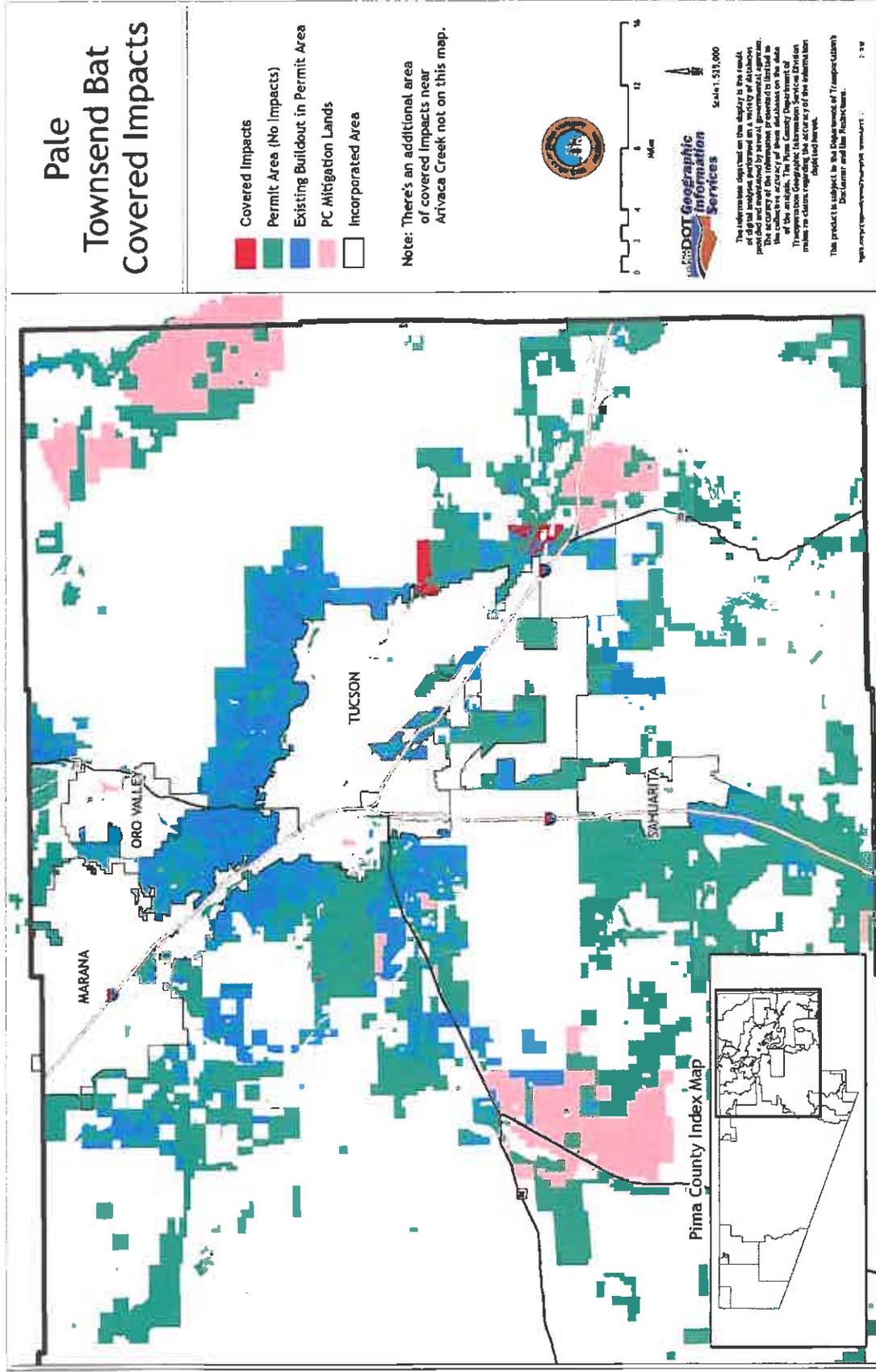


Figure A-11. Map of projected impacts for the pale Townsend's big-eared bat.

Current mitigation (includes 25% credit for State Trust Lands): 26,173.

Management and Conservation Commitments

Pima County will seek to pursue the following management actions and conservation commitments for the pale Townsend's big-eared bat:

- Protect existing known roosts and foraging habitats of this species in County preserves from all potentially detrimental activities.
- Investigate the purchase of valid mining claims for mines with known roosts; look into opportunities for creating roost preserves. Each roost will be considered for gating, and where appropriate and financially feasible, proper gates will be installed.
- On County-controlled Mitigation Lands restrict discretionary activities within 1 kilometer of known roosts during May to September if this can be accomplished without disclosure of roost locations.
- Evaluate known roosts of this species on County-controlled Mitigation Lands for conditions and needs for structural stabilization. Where appropriate, such stabilization will be carried out using techniques that minimize disturbance and alteration of conditions.
- Support the installation of new lighting within the cave tour portion of Colossal Cave Mountain Park to reduce stress on bats and to promote higher abundance and occupancy.

Monitoring

Species monitoring. Pima County will monitor presence of this species while conducting surveys of known cave, mine, and adit roost sites in the County's preserve system (see Habitat, below). Pima County will develop a cave visitation protocol (including what kinds of equipment to be used) to minimize disturbance to this and other species. This is particularly important for this species because it is very sensitive to disturbance, particularly maternity colonies (Arizona Game and Fish Department 2003). As a result, population estimation may not appropriate unless feasible by not causing significant disturbance. Pima County may participate in species-level monitoring for this

and other bat species as part of Arizona Game and Fish Department's bat monitoring plan; that plan has not yet been released.

Habitat. Known habitat features that are important for this species are 1) caves, mines, and adits for roosting, 2) water resources for foraging, 3) trees and buildings for temporary night roosts. Habitat monitoring for this species will take place at caves, mines and adits within the preserve system, with visits taking place every 2-3 years. Water resources, such as presence of water in select locations (e.g., Cienega Creek Preserve), will be monitored at least once per year. Though there is no link to specific vegetation features, vegetation monitoring will take place at long-term monitoring sites throughout the species' PCA. As more information is known about the habitat requirements of this species, Pima County will link this information back to the data that will be collected at these plots.

Threats. All caves, mines, and adits will be visited every 2-3 years to document changes to conditions, especially vandalism or modification. Pima County will periodically quantify the loss and fragmentation of habitat in the species' PCA. If white-nosed syndrome is found in Arizona (high likelihood), the Pale Townsend's big-eared bat may be particularly susceptible because the species hibernates. Pima County will work with state and federal officials to initiate a more rigorous, state-wide monitoring program and adhere to cave-visiting protocols so as not to transmit the disease.

Merriam's mouse (*Peromyscus merriami*)

Conservation Status

Endangered Species Act Status: None.

State: Wildlife of Special Concern in Arizona.

Other: None.

Rankings: G5, S3.

Current Occurrence in Pima County

Merriam's mouse was once common along larger washes and rivers in Pima County (e.g., Arnold 1940). It now occurs in isolated pockets throughout the County, including at Organ Pipe Cactus National Monument (Petryszyn and Russ 1996) and in a number of sites in eastern Pima County including the Tucson Mountains, Cienega Creek, the northwest foothills of the Santa Rita Mountains, and the Altar Valley (Kingsley 2006). Hoffmeister (1986) reports the species from historical Ft. Lowell, Sabino Canyon, Baboquivari Mountains, and near Arivaca.

Anticipated Lethal Take, Habitat Loss, and Current Mitigation

Anticipated lethal take: 20

Anticipated acres of habitat lost to Covered Activities (Figure A-12): 390.

Current mitigation (includes 25% credit for State Trust Lands): 8,360.

Management and Conservation Commitments

Pima County will seek to pursue the following management actions and conservation commitments for the Merriam's mouse.

- Implement the Pima County Riparian Protection Ordinance to minimize loss of habitat.
- Restore mesquite bosque communities, where feasible.
- Where feasible, incorporate wildlife crossings into transportation project design in appropriate locations to benefit the species.

Monitoring

Habitat. Habitat features that are important for this species are: 1) course woody debris, 2) vegetation structure and composition in all three height categories. This species is particularly associated with bottomland mesquite forests, which will be included in the monitoring program using long-term monitoring plots, a few of which will be located within the species' PCA. Course woody debris is a parameter that will be monitored at all long-term monitoring sites. Pima County will investigate trends in the

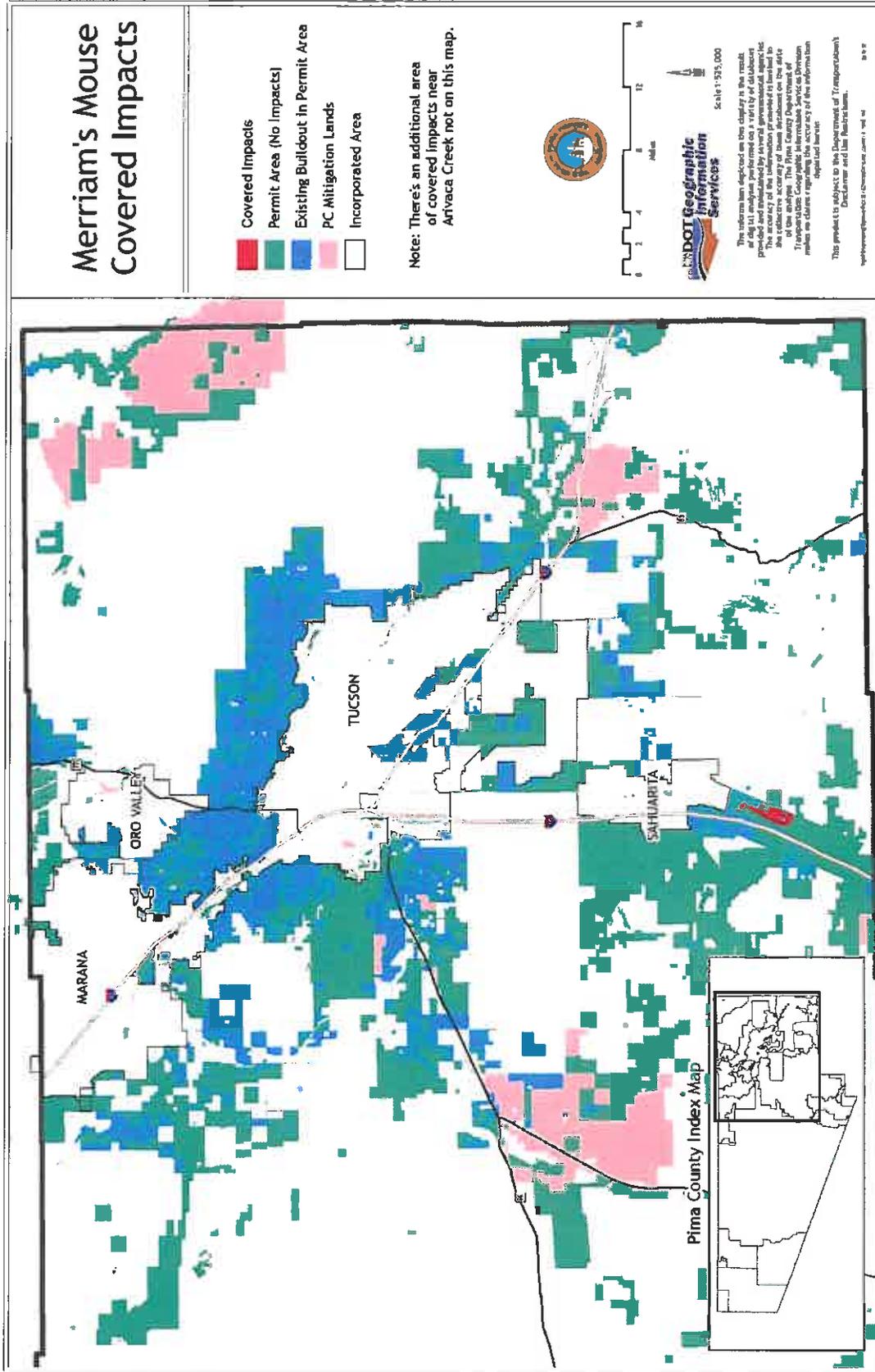


Figure A-12. Map of projected impacts for the Merriam's mouse.

density and cover of key plant species (mesquite) for this mammal and will research observed declines in this important resources.

Threats. Pima County will periodically quantify the loss and fragmentation of habitat in the species' PCA.

Birds

Burrowing owl (*Athene cunicularia hypugaea*)

Conservation Status

Endangered Species Act Status: None.

State: None.

Other: Species of Special Concern in Utah; Migratory bird under the Migratory Bird Treaty Act.

Rankings: G4,TU,S4.

Current Occurrence in Pima County

In western Pima County this species breeds on and near to the Barry M. Goldwater Range (Corman and Wise-Gervais 2005) and have been observed at Organ Pipe Cactus National Monument (Groschupf et. al. 1988). Burrowing owls have been well studied in eastern Pima County (Brown and Mannan 2002), where they occur in three primary areas: (1) in the Altar Valley north to the Santa Cruz River in Marana; (2) along the Santa Cruz River, primarily south of downtown Tucson to the Santa Cruz County line; and (3) in and around the Davis-Monthan Air Force Base (Estabrook 1998, Alanen 2003, Corman and Wise-Gervais 2005, Garcia and Conway 2007, Arizona Game and Fish Department 2009b, Town of Marana 2009, Tucson Bird Count 2009).

Anticipated Lethal Take, Habitat Loss, and Current Mitigation

Anticipated lethal take: 15

Anticipated acres of habitat lost to Covered Activities (Figure A-13): 1,486.

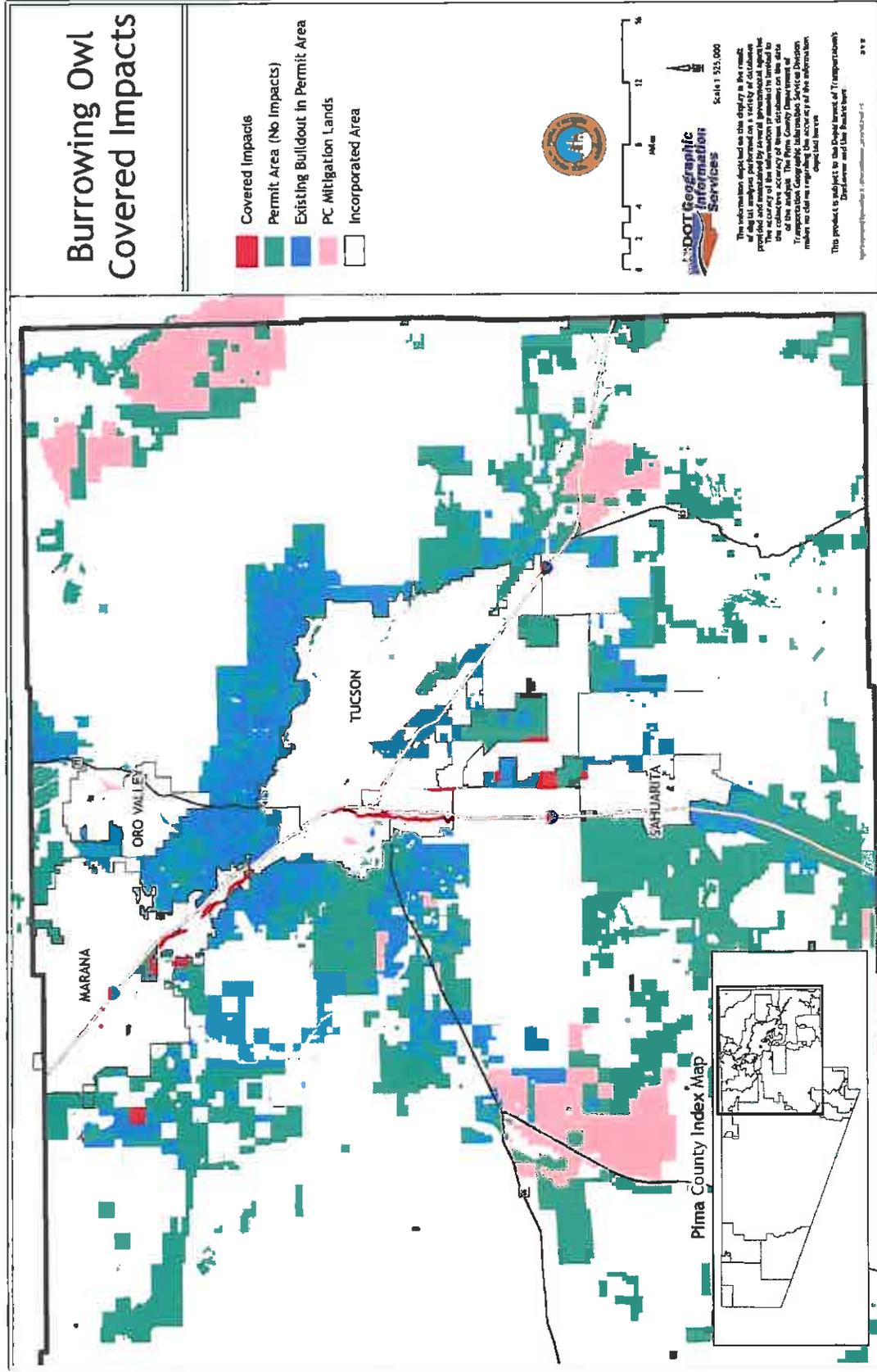


Figure A-13. Map of projected impacts for the burrowing owl.

Current mitigation (includes 25% credit for State Trust Lands): 2,663.

Management and Conservation Commitments

Pima County will seek to pursue the following management actions and conservation commitments for the burrowing owl:

- For private development covered under this permit, Pima County will continue to apply avoidance and minimization measures through rezoning procedures and compliance with County environmental ordinances, as appropriate.
- Clearance surveys prior to construction of CIP projects that are located in the PCA.
- Collaborate with the Town of Marana and City of Tucson HCPs and management strategies, in order to protect this species.
- Collaborate with federal partners and conservation groups (e.g., Tucson Audubon Society) to development of guidelines for successful implementation of artificial burrows.
- On County preserve lands, enact a 100-m buffer “restricted activity zone” around known nests during the nesting period. Allow only short duration “pass through” activities.

Monitoring

Species Monitoring. Pima County will conduct surveys prior to CIP ground-disturbing activities within the species’ PCA to determine nest-site occupancy. For this, Pima County will employ the protocol by Conway and Simon (2003), which uses a combination of visual encounter surveys and call-broadcasts. A minimum of three surveys will be conducted prior to ground-breaking activities in natural areas. Pima County will also develop a database for incidental observations of this conspicuous species while Pima County staff performs other functions.

Habitat. Habitat features that are important for this species are: 1) alluvial soils with existing burrows, usually located along river banks or in abandoned agricultural fields or other areas cleared of vegetation, 2) lack of vegetation in all height categories. Pima

County will monitor these resources at long-term monitoring sites within the species PCA that are located within the County's preserve system.

Threats. Buffelgrass is likely a threat to this species and Pima County will continue to collect information on the spatial distribution and relative abundance of this species within the County' preserve system and provide this information to the Buffelgrass Coordination Center, which is standardizing the protocol for buffelgrass mapping and abundance estimates (Rogstad 2008). Pima County will periodically quantify the loss and fragmentation of habitat in the species' PCA.

Cactus ferruginous pygmy-owl (*Glaucidium brasilianum cactorum*)

Conservation Status

Endangered Species Act Status: No current protected status, but it was listed as Endangered until 2007 and is currently under review for the potential of relisting.

State: Wildlife Species of Special Concern in Arizona.

Other: U.S. Forest Service Sensitive Species; Threatened in Mexico.

Rankings: G5, T3, S1.

Current Occurrence in Pima County

The current distribution and abundance in Pima County is unknown; the population in southern Arizona and northern Sonora, Mexico has been declining. In 1999 a total of 78 individual owls were detected in Arizona in the Organ Pipe Cactus National Monument, Tohono O'odham Nation, Altar Valley, northwest Tucson, and the Tortolita and Roskrige mountains (Richardson et. al. 2000). The owls are thought to currently persist in three areas of Pima County: the Tohono O'odham Nation, the Altar Valley, and in Organ Pipe Cactus National Monument. Monitoring has taken place in the Altar Valley of Sonora, Mexico since 2000 where a documented decline in occupancy and abundance has been noted in most years (Flesch and Steidl 2006, Flesch 2008b, Flesch 2008c).

Anticipated Lethal Take, Habitat Loss, and Current Mitigation

Anticipated lethal take: 2

Anticipated acres of habitat lost to Covered Activities (Figure A-14): 7,908.

Current mitigation (includes 25% credit for State Trust Lands): 41,795.

Management and Conservation Commitments

Pima County has spent considerable resources on this species by funding surveys, research (genetic work), and telemetry and habitat analysis studies. Pima County will continue this commitment by working with the USFWS to develop a set of Permit coverage conditions for this species. Pima County will seek to pursue additional management actions and conservation commitments for the cactus ferruginous pygmy owl:

- For private development covered under this permit, Pima County will continue to review for potential impacts to known CFPO nest sites and apply avoidance and minimization measures through rezoning procedures and compliance with County environmental ordinances, as appropriate.
- Maintaining permeability will be the first priority for on-site CLS set asides on private development covered under this Section 10 permit that occur within key Special Species Management Areas.
- Support and participate in research experiments and other scientific efforts to benefit and increase knowledge of this species in collaboration with the USFWS, AGFD, and other partners.
- Implement the Riparian Protection Ordinance to minimize loss of habitat.
- Facilitate the release of captive-bred birds on Pima County lands.
- Work with citizen's group to build and install nest boxes on County owned or managed properties that the USFWS deems appropriate for such use.
- On County-owned lands, enact a 250 m buffer "restricted activity zone" around known nests during the nesting period. Allow only short duration "pass through" activities.

Monitoring

Species Monitoring. Pima County will assist with the delineation and mapping of high-quality habitat within the Permit Area and Pima County. Once that map is complete, Pima County will conduct surveys at a subset of those lands within the County's preserve system according to a survey protocol that is acceptable to the USFWS. The number of monitoring sites and revisit pattern will be determined after the habitat model has been developed. Pima County will also continue surveys for this species prior to construction of Capital Improvement Projects within the species' PCA.

Habitat. Habitat features that are important for this species are: 1) cavities for nesting, 2) vegetation in all height categories including ash, mesquite, and ironwood. Pima County will monitor these vegetation resources at long-term monitoring sites within the species' PCA and Special Species Management Areas that are located within the County's preserve system. Pima County is also investigating the use of LiDAR to monitor vegetation structure, which is very important for this species.

Threats. Pima County will periodically quantify the loss and fragmentation of habitat in the species' PCA using methods outlined in the MSCP.

Rufous-winged sparrow (*Aimophila carpalis*)

Conservation Status

Endangered Species Act Status: None.

State: None.

Other: Species of Special Concern in Utah; Migratory bird under the Migratory Bird Treaty Act.

Rankings: G4,S3.

Current Occurrence in Pima County

The rufous-winged sparrow is a year-round resident in the eastern two-thirds of Pima County including the Santa Cruz and Avra valleys, and the foothills of the major

mountain ranges of eastern Pima County (Phillips et. al. 1964, Lowther et. al. 1999, Corman and Wise-Gervais 2005, Powell 2006, 2007, Tucson Bird Count 2009).

Anticipated Lethal Take, Habitat Loss, and Current Mitigation

Anticipated lethal take: 20

Anticipated acres of habitat lost to Covered Activities (Figure A-15): 19,747.

Current mitigation (includes 25% credit for State Trust Lands): 37,237.

Management and Conservation Commitments

Pima County will seek to pursue the following management actions and conservation commitments for the rufous-winged sparrow:

- For private development covered under this permit, Pima County will continue to apply avoidance and minimization measures through rezoning procedures and compliance with County environmental ordinances, as appropriate.
- Monitor grazing on Pima County lease lands for range health and avoid over-grazing on all County-controlled Mitigation Lands.

Monitoring

Species monitoring. Pima County will collect information about the species from other sources (e.g., reports and program results such as from the Tucson Bird Count) and use these data to populate the Covered Species Information Database. Pima County will also develop a database for incidental observations of this species while Pima County staff performs other functions.

Habitat. Habitat features that are important for this species are primarily vegetation in the overstory, midstory, and understory. Plant species associated with nesting and foraging habitat include mesquite and palo verde trees, hackberry, greythorn, and the

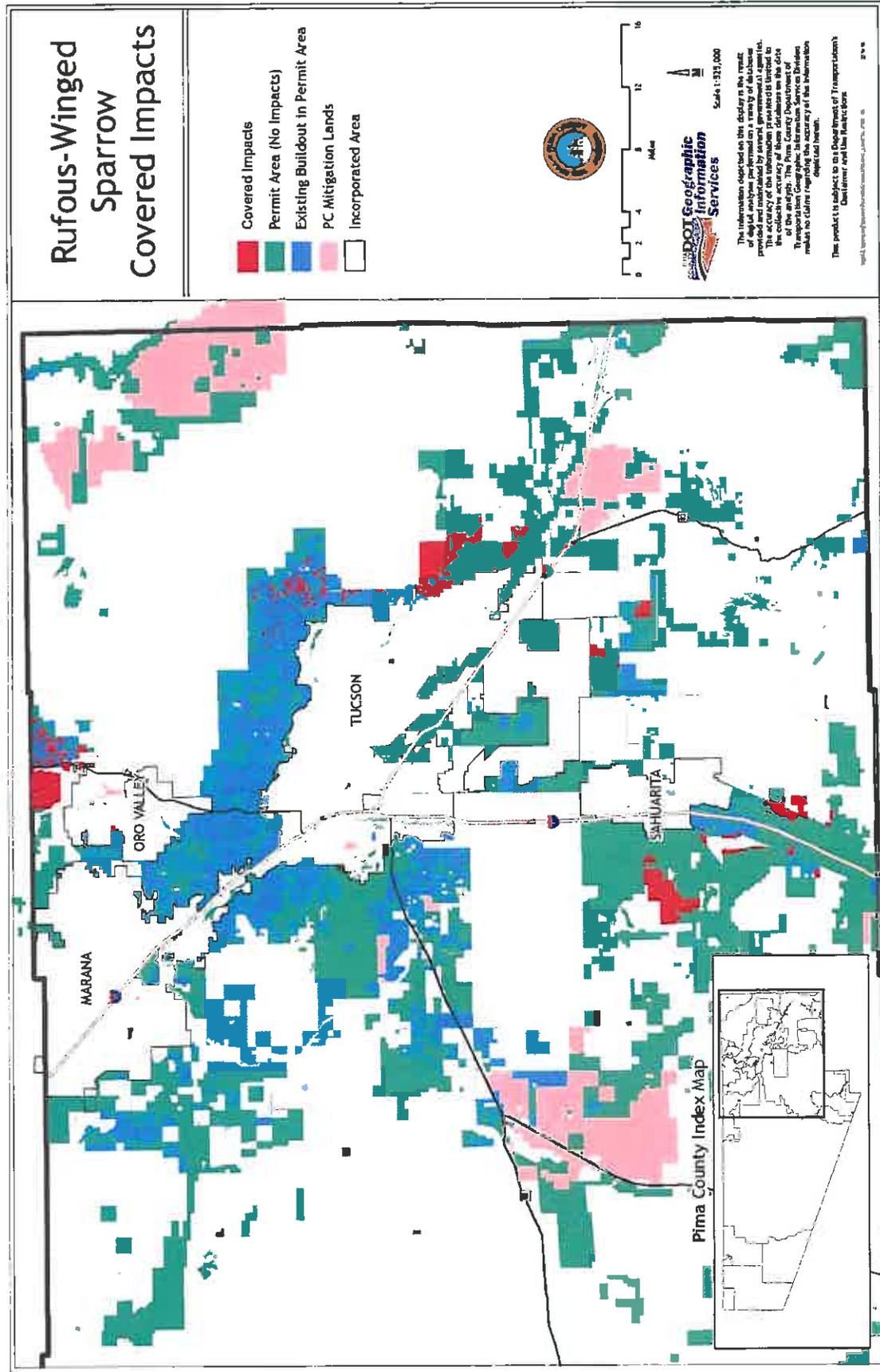


Figure A-15. Map of projected impacts for the rufous-winged sparrow.

species seems to be associated with the presence of some understory grasses. Pima County will monitor these vegetation resources at long-term monitoring sites within the species' PCA located within the County's preserve system. Changes in understory composition, especially the increase in buffelgrass, may impact this species. Pima County is also investigating the use of LiDAR to monitor vegetation structure, which will be very useful for this species.

Threats. Pima County will periodically quantify loss and fragmentation of habitat in the species' PCA. As noted in the habitat section (above), Pima County will continue to collect information on the spatial distribution and relative abundance of buffelgrass within the County' preserve system and provide this information to the Buffelgrass Coordination Center, which is standardizing the protocol for buffelgrass mapping and abundance estimates (Rogstad 2008).

Swainson's hawk (*Buteo swainsoni*)

Conservation Status

Endangered Species Act Status: Former federal Candidate.

State: Arizona Wildlife Species of Special Concern.

Other: USFWS Species of Concern; Migratory species; U.S. Forest Service Sensitive Species; restricted from international trade by CITES.

Rankings: G5, S3.

Current Occurrence in Pima County

The Swainson's hawk is a common breeder in semi-desert grasslands of southeastern Arizona, particularly east of Pima County (Corman and Wise-Gervais 2005). In Pima County it is an uncommon breeder in the Altar Valley and other isolated pockets of semi-desert grasslands such as in the foothills of the Santa Rita, Santa Catalina and Las Guijas Mountains and near the Pantano Wash (Nishida et. al. 2001, Hobbs 2004, Corman and Wise-Gervais 2005, Arizona Game and Fish Department 2009b).

Anticipated Lethal Take, Habitat Loss, and Current Mitigation

Anticipated lethal take: 5

Anticipated acres of habitat lost to Covered Activities (Figure A-16): 11,400.

Current mitigation (includes 25% credit for State Trust Lands): 53,733.

Management and Conservation Commitments

Pima County will seek to pursue the following management actions and conservation commitments for the Swainson's hawk:

- For private development covered under this permit, Pima County will continue to apply avoidance and minimization measures through rezoning procedures and compliance with County environmental ordinances, as appropriate.
- Continue to prioritize protection and acquisition of high-quality habitat;
- Where feasible, restore semi-desert grasslands by introducing wildlife fire and other methods to reduce shrub cover.
- Enact a 400 m buffer "restricted activity zone" around known nests during the nesting period. Allow only short duration "pass through" activities.

Monitoring

Species Monitoring. Pima County will develop a database for incidental observations of this conspicuous species while Pima County staff performs other functions.

Habitat. Habitat features that are important for this species are primarily vegetation in understory (perennial grasses and general lack of shrubs) and lack of vegetation in the overstory and midstory, except for the importance of nesting trees along washes bordering semi-desert grasslands. Pima County will monitor these key vegetation resources at long-term monitoring sites, many of which will be the species' PCA and within the County's preserve system. Particular attention will be paid to the increase in shrubs in semi-desert grassland areas within the preserve system. Data from long-term

monitoring plots will help inform management efforts to restore grasslands. In addition to the plot-based measures at long-term monitoring plots, Pima County is also investigating the use of LiDAR to monitor vegetation structure, which (as noted earlier) is very important for this species.

Threats. Pima County will periodically quantify loss and fragmentation of habitat in the species' PCA using the methods outlined in the MSCP.

Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*)

Conservation Status

Endangered Species Act Status: Candidate species; petitioned for listing as endangered in 1998. USFWS initiated a 1-year status review process in 2000, but there has been no further action.

State: Wildlife of Special Concern in Arizona.

Other: Listed as a migratory bird under the Migratory Bird Treaty Act; U.S. Forest Service Sensitive Species.

Rankings: G5T3, S3.

Current Occurrence in Pima County

The Neotropical yellow-billed cuckoo breeds in eastern Pima County in cottonwood/willow forests. It has been found nesting at Cienega Creek (Empire Ranch, Davidson Canyon confluence, and Upper Cienega Creek), Arivaca Creek and several sites in the Altar Valley (Corman and Magill 2000, Arizona Game and Fish Department 2009b) including confirmed nesting in Brown Canyon (B. Powell, unpublished data). There was a high density of nesting pairs along the Santa Cruz River in Santa Cruz County in 2000 (Powell 2000). Yellow-billed cuckoos have been recorded in the pecan groves in Green Valley and Sahuarita (Kingsley 1989). They have been recorded as rare transients in the Rincon Mountain District of Saguaro National Park, but no breeding has been reported in Rincon Creek, the most likely habitat for the species in the park (Powell 2004, 2006). Recent unconfirmed breeding in eastern Pima County

includes along the Santa Cruz River north of Tucson in 2005 (Crawford 2005) and 2002 (Sage Landscape Architecture and Environmental Inc 2003) and along Tanque Verde Creek in 2002 (Sage Landscape Architecture and Environmental Inc 2003).

Anticipated Lethal Take, Habitat Loss, and Current Mitigation

Anticipated lethal take: 5

Anticipated acres of habitat lost to Covered Activities (Figure A-17): 74.

Current mitigation (includes 25% credit for State Trust Lands): 8,962.

Management and Conservation Commitments

Pima County will seek to pursue the following management actions and conservation commitments for the yellow-billed cuckoo:

- Implement the Pima County Riparian Protection Ordinance to minimize loss of habitat for this species.
- Seek to additional protections of select areas such as Cienega Creek Preserve from OHV/paintball/target shooting, or similar wildlife disturbing activity intrusions.
- For County-controlled Mitigation Lands, enact a 250 m buffer "restricted activity zone" around known nests during the nesting period. Allow only short duration "pass through" activities.

Monitoring

Species Monitoring. Pima County will monitor occupancy and abundance of this species at Cienega Creek Preserve using a standardized protocol (Wiggins 2005) that uses a broadcasted call of the species to elicit a response (Johnson et. al. 1981). Pima County will survey suitable habitat within the Preserve at least twice per year during June.

Habitat. Habitat features that are important for this species are primarily mesic and hydro-riparian trees and large mesquite trees adjacent to these areas. Because of the importance of these resources for this and many other species, Pima County will place particular emphasis on monitoring these key vegetation resources at long-term

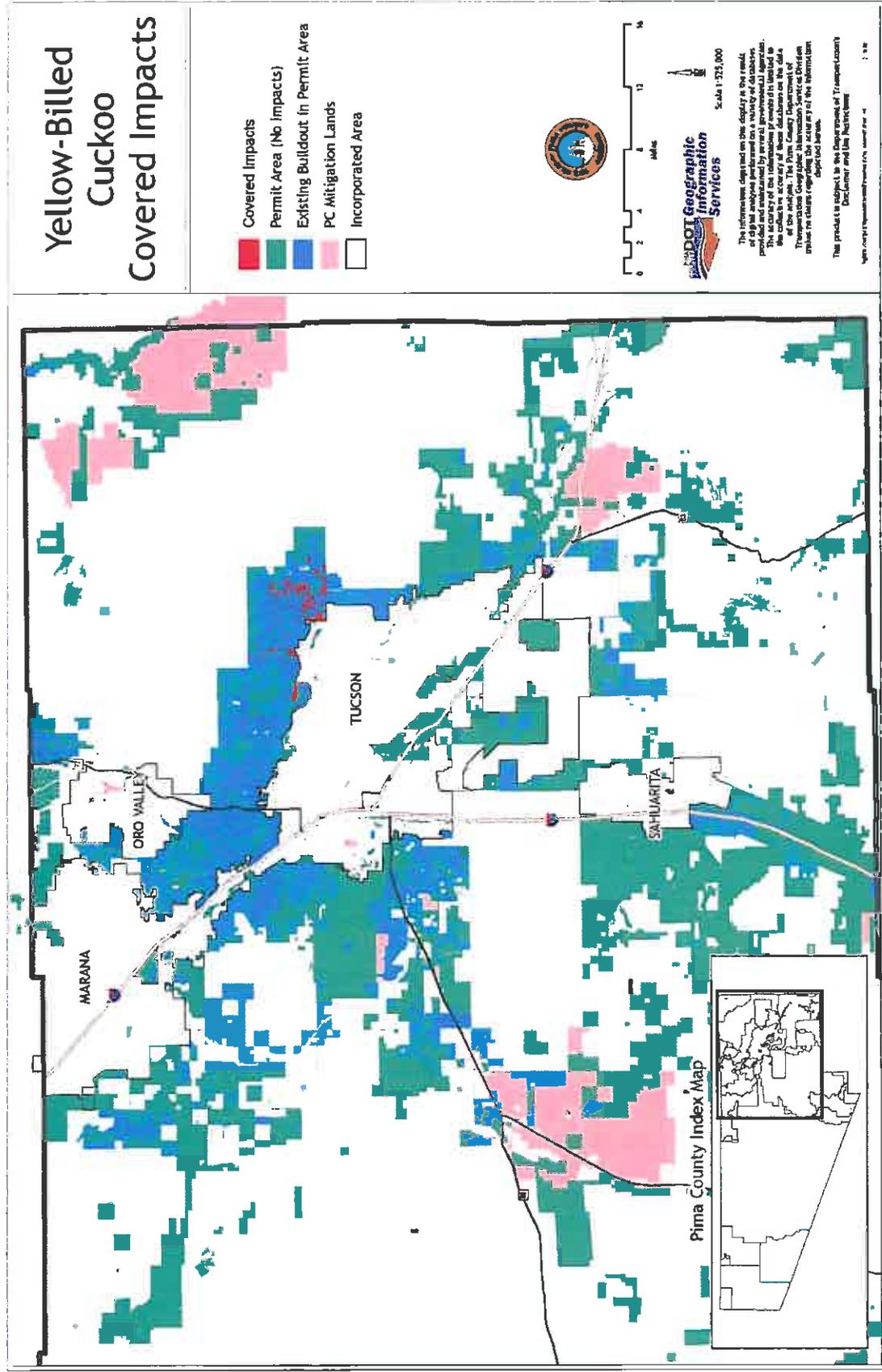


Figure A-17. Map of projected impacts for the yellow-billed cuckoo.

monitoring sites, many of which will be the species' PCA and within the County's preserve system. Pima County is also investigating the use of LiDAR to monitor vegetation structure, which is very important for this species.

Threats. Pima County will periodically quantify loss and fragmentation of habitat in the species' PCA. Pima County may also monitor groundwater levels in select sites in eastern Pima County (e.g., Tanque Verde Creek and Cienega Creek Preserve) using the protocol recommendations of (Fonseca 2008); groundwater levels too low will threaten the broadleaf riparian vegetation that is so important to this species.

Abert's towhee (*Pipilo aberti*)

Conservation Status

Endangered Species Act Status: None.

State: None.

Other: Listed as a "migratory bird" under the Migratory Bird Treaty Act.

Rankings: G3G4, S3.

Current Occurrence in Pima County

This year-round resident is found along many of the major washes and rivers of eastern Pima County including the Santa Cruz River, Brawley Wash, Rillito River, Pantano Wash; and Rincon, Cienega, and Arivaca creeks (Tweit and Tweit 1986, Powell 2004, Corman and Wise-Gervais 2005, Powell 2006, Tucson Bird Count 2009).

Anticipated Lethal Take, Habitat Loss, and Current Mitigation

Anticipated lethal take: 20

Anticipated acres of habitat lost to Covered Activities (Figure A-18): 600.

Current mitigation (includes 25% credit for State Trust Lands): 10,216.

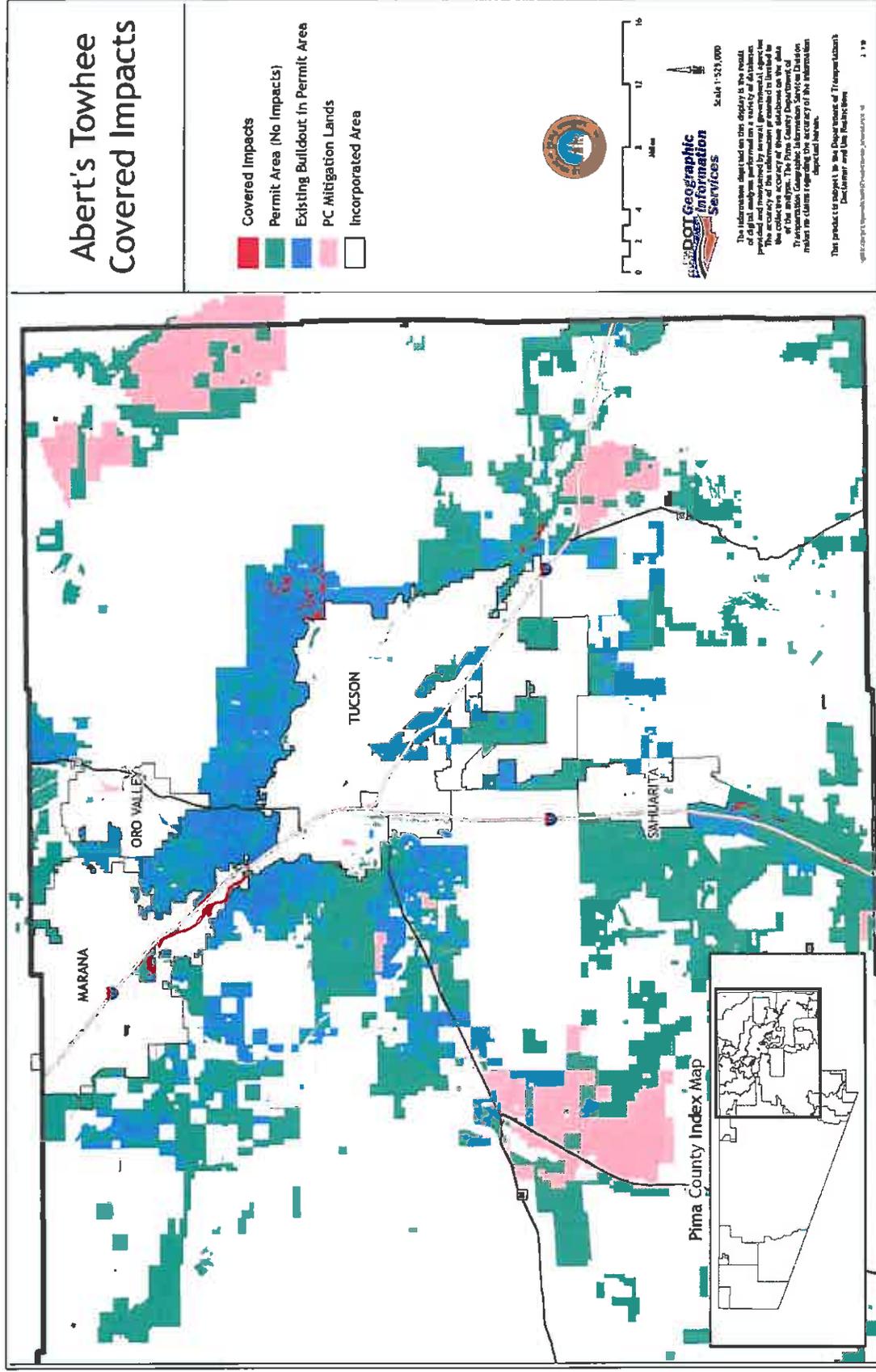


Figure A-18. Map of projected impacts for the Abert's towhee.

Management and Conservation Commitments

Pima County will seek to pursue the following management actions and conservation commitments for the Abert's towhee:

- Implement the Pima County Riparian Protection Ordinance to minimize loss of habitat.
- Identify and pursue opportunities for restoration of mesquite bosques on appropriate portions of the County-controlled Mitigation Lands.

Monitoring

Species monitoring. Pima County will collect information about the species from other sources (e.g., reports and program results such as from the Tucson Bird Count) and use these data to populate the Covered Species Information Database. Pima County will also develop a database for incidental observations of this conspicuous species while Pima County staff performs other functions.

Habitat. Habitat features that are important for this species are primarily mesic-riparian and xeric-riparian small trees and shrubs and vegetation structure in the understory and midstory. These features will be monitored at long-term monitoring sites in riparian areas within the species' PCA in the County's preserve system. Pima County is also investigating the use of LiDAR to monitor vegetation structure, which is very important for this species. Changes in dense vegetation volume in the understory and midstory will be of concern for this species.

Threats. Pima County will periodically quantify loss and fragmentation of habitat in the species' PCA.

Bell's vireo (*Vireo bellii arizonae*)

Conservation Status

Endangered Species Act Status: None. Subspecies in California is listed as

Endangered.

State: None.

Other: U.S. Forest Service Sensitive Species; Listed as a migratory bird under the Migratory Bird Treaty Act.

Rankings: G5T4, S4.

Current Occurrence in Pima County

The Bell's vireo is a common Neotropical migrant in eastern Pima County. It nests in heavily wooded xeric riparian locations including the foothills of the Santa Catalina, Rincon, Santa Rita, and Baboquivari mountains (Lloyd et. al. 1998, Powell and Steidl 2000, 2002, Corman and Wise-Gervais 2005, Powell 2006, Arizona Game and Fish Department 2009b, Tucson Bird Count 2009); large rivers, creeks, and washes of eastern Pima County including the Santa Cruz River, Rillito River, Pantano and Brawley washes, and Rincon and Cienega creeks (Mills et. al. 1989, Powell 2004, Kirkpatrick et. al. 2007, Tucson Bird Count 2009). In western Pima County they nest in xeroriparian washes such as at the Organ Pipe Cactus National Monument and Barry M. Goldwater Range (Groschupf et al. 1988, Hardy et. al. 2004, Organ Pipe Cactus National Monument 2006, Schmidt et al. 2007, Arizona Game and Fish Department 2009b).

Anticipated Lethal Take, Habitat Loss, and Current Mitigation

Anticipated lethal take: 40

Anticipated acres of habitat lost to Covered Activities (Figure A-19): 143.

Current mitigation (includes 25% credit for State Trust Lands): 7,924.

Management and Conservation Commitments

Pima County will seek to pursue the following management actions and conservation commitments for the Bell's vireo:

- Implement the Pima County Riparian Protection Ordinance to minimize loss of habitat for this species.

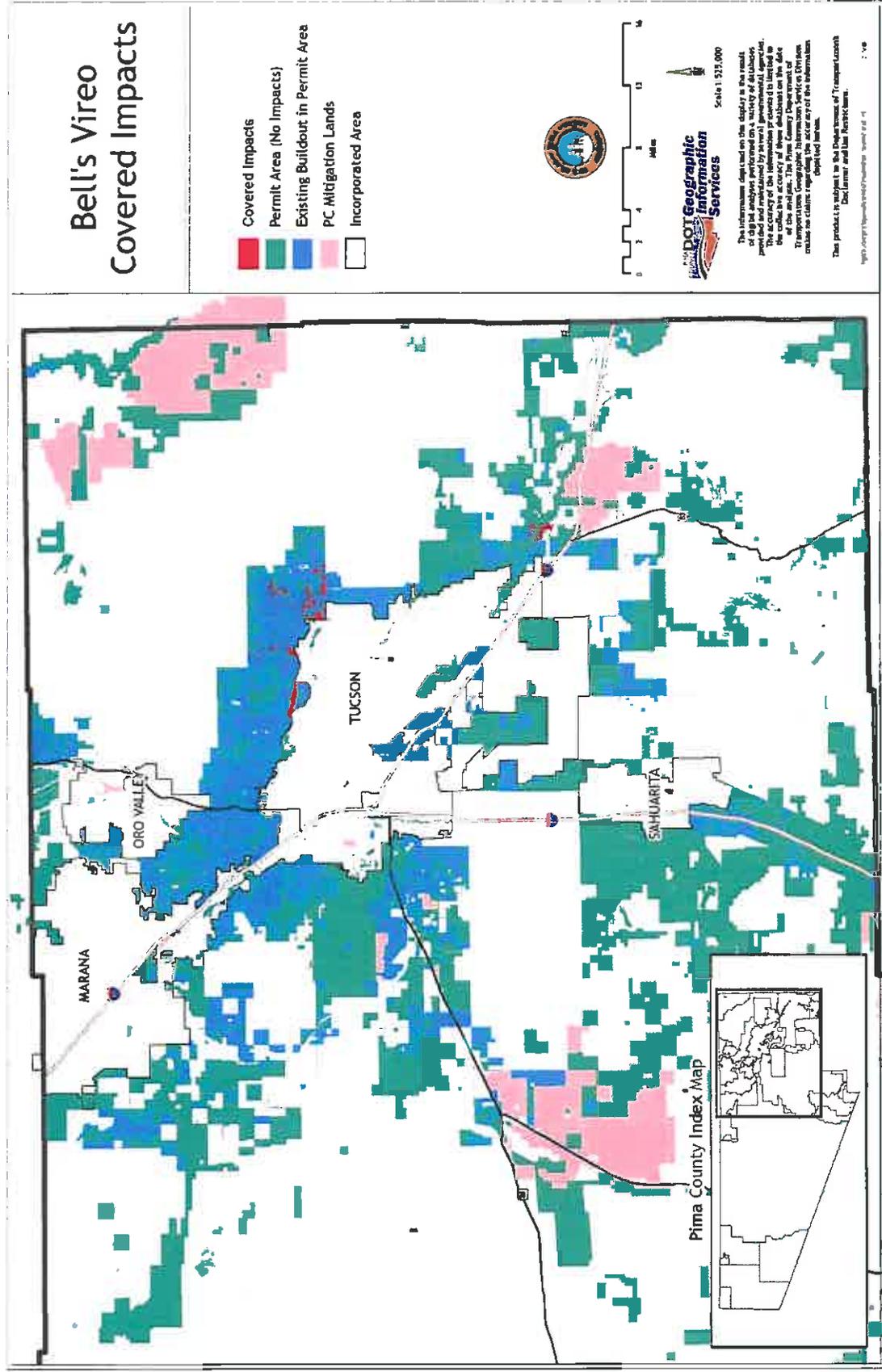


Figure A-19. Map of projected impacts for the Bell's vireo.

- Identify and pursue opportunities for restoration of mesquite bosques and xeroriparian vegetation communities on appropriate County-controlled Mitigation Lands.

Monitoring

Species monitoring. Pima County will collect information about the species from other sources (e.g., reports and program results such as from the Tucson Bird Count) and use these data to populate the Covered Species Information Database.

Habitat and threats. Pima County will monitor Bell's vireo nesting habitat, which is characterized by dense stands of xero-riparian and meso-riparian vegetation, particularly in the understory and midstory. Vegetation species of importance include hackberry, mesquite, and *Baccharis*. Pima County will monitor dominant perennial vegetation species (especially hackberry and mesquite) and vegetation density and volume as part of the habitat-based monitoring element of the PCEMP. Because of the importance of riparian systems to this and other Covered Species, Pima County will ensure that an adequate number of long-term monitoring sites and/or other monitoring (e.g., use of remote sensing tools) are within the riparian stratum. Pima County will also periodically quantify the loss and fragmentation of habitat in the Bell's vireo's PCA, as described in the MSCP.

Southwestern willow flycatcher (*Empidonax trillii extimus*)

Conservation Status

Endangered Species Act Status: Listed as Endangered in 1995.

State: Wildlife of Special Concern in Arizona.

Other: U.S. Forest Service Sensitive Species; Listed as a migratory bird under the Migratory Bird Treaty Act.

Rankings: G5T1T2, S1.

Current Occurrence in Pima County

The Neotropical migrant southwestern willow flycatcher has some of the highest breeding densities in Arizona along the San Pedro River at the confluence with the Gila River (Pinal County) (Ellis et. al. 2008), and it has been documented breeding at Reddington, along the San Pedro in Pima County in 1998 (Arizona Game and Fish Department 2009b). The species has also been documented as a breeder along Cienega Creek in Pima County, though only sporadic records exist (Arizona Game and Fish Department 2009b). Surveys along the Santa Cruz River in recent years have not found any breeding individuals (Scott Wilbor, in personal communication to the Town of Marana, 2009).

Anticipated Lethal Take, Habitat Loss, and Current Mitigation

Anticipated lethal take: 2

Anticipated acres of habitat lost to Covered Activities (Figure A-20): 0.

Current mitigation (includes 25% credit for State Trust Lands): 314.

Management and Conservation Commitments

Pima County will seek to pursue the following management actions and conservation commitments for the southwestern willow flycatcher:

- Implement the Pima County Riparian Protection Ordinance to minimize loss of habitat for this species.
- Protect Binghamton Cienega from OHV/paintball/target shooting, or similar wildlife disturbing activity intrusions.
- For County-controlled Mitigation Lands, enact a 100 m buffer "restricted activity zone" around known nests during the nesting period. Allow only short duration "pass through" activities will be allowed.
- Develop management guidelines for County-controlled Mitigation Lands that include efforts to reduce impacts from feral pets (e.g., cats and dogs) in the vicinity of occupied habitat.

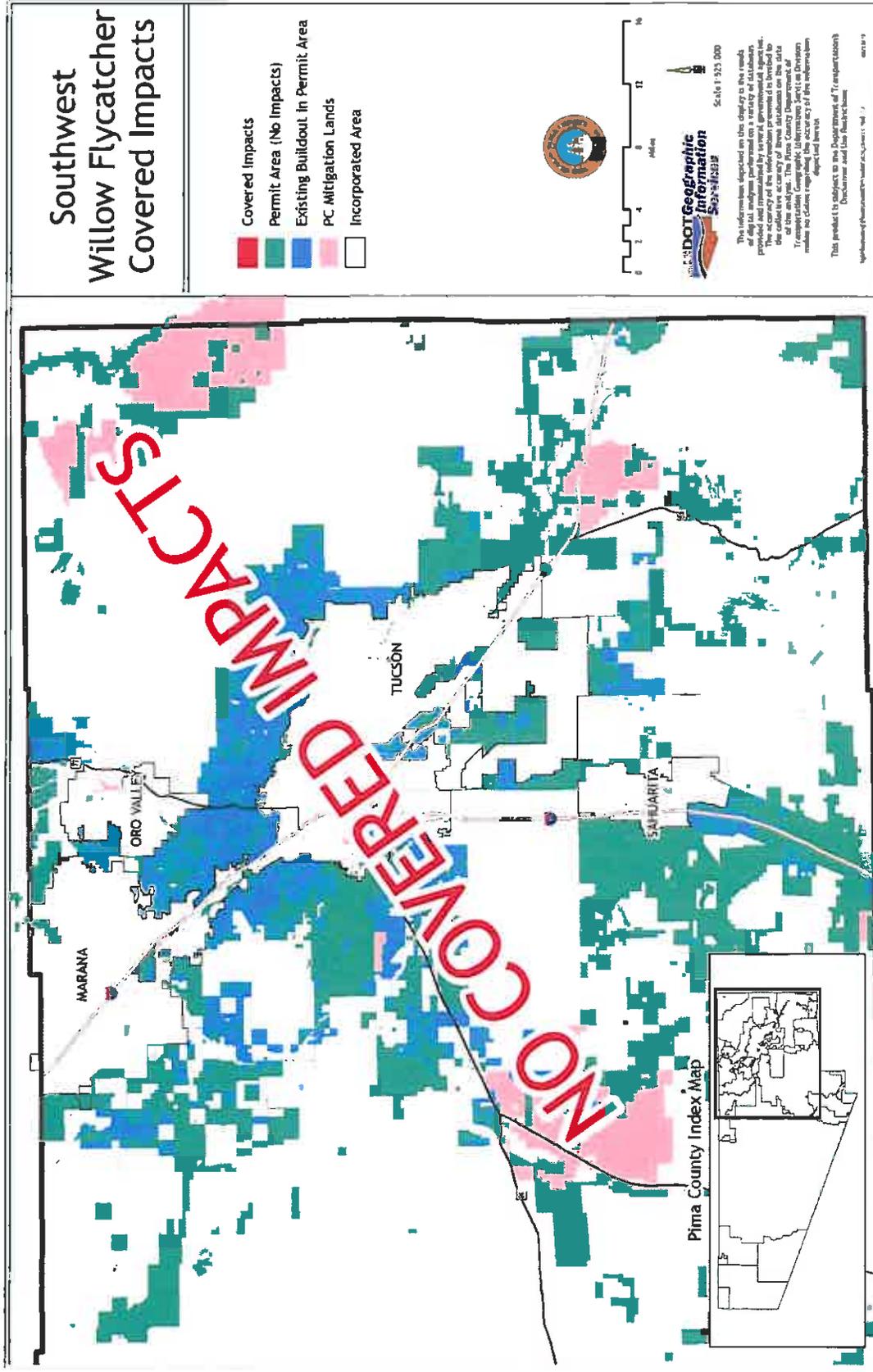


Figure A-20. Map of projected impacts for the southwestern willow flycatcher.

- Protect all known and potentially suitable habitats for this species on County-controlled Mitigation Lands.
- Acquire and protect water rights to maintain and restore habitat, where appropriate.

Monitoring

Species Monitoring. Pima County will monitor abundance of this species at Cienega Creek Preserve and at the A7 Ranch along the San Pedro River. Pima County will use the survey method in Sogge et al. (2010), which calls for three surveys per year during the nesting season. The survey uses broadcast calls of the species to elicit a response.

Habitat. Habitat features that are important for this species are primarily mesic and hydro-riparian shrubs and trees. Because of the importance of these resources for this and many other species, Pima County will place particular emphasis on monitoring these key vegetation resources at long-term monitoring sites, some of which will be the species' PCA and within the County's preserve system. Pima County is also investigating the use of LiDAR to monitor vegetation structure, which is very important for this species.

Threats. Pima County will periodically quantify loss and fragmentation of habitat in the species' PCA. Pima County may also monitor groundwater levels in select sites in eastern Pima County (e.g., Cienega Creek Preserve and the San Pedro River at A7 ranch) using the protocol recommendations of Fonseca (2008); groundwater levels too low will threaten the riparian vegetation that is so important to this species.

Fishes

Longfin Dace (*Agosia chrysogaster*)

Conservation Status

Endangered Species Act Status: None. Former candidate for Category 2 listing.

State: None.

Other: USFWS Species of Concern; U.S. Forest Service Sensitive Species. Special protection in Mexico.

Rankings: G4 S3S4.

Current Occurrence in Pima County

Known populations of the longfin dace in Pima County occur in: (1) Cienega Creek Preserve and further upstream in Las Cienegas National Conservation Area (Rosen and Schwalbe 1988, Simms et. al. 2006, Bodner et. al. 2007, Arizona Game and Fish Department 2009b); (2) Buehman Canyon south-southeast of Cocklebur Tank; (3) upper reaches of the Canada del Oro; and in Arivaca Creek (Arizona Game and Fish Department 2009b). There are populations upstream of Pima County in the Santa Cruz River (Voeltz and Bettaso 2003, Powell et. al. 2005) and following significant floods, individuals may establish in Pima County.

Anticipated Lethal Take, Habitat Loss, and Current Mitigation

Anticipated lethal take: 100

Anticipated acres of habitat lost to Covered Activities (Figure A-21): 1.

Current mitigation (includes 25% credit for State Trust Lands): 3,074.

Management and Conservation Commitments

Pima County will seek to pursue the following management actions and conservation commitments for the longfin dace:

- Implement the Pima County Riparian Protection Ordinance to minimize loss of habitat for this species:
- Attempt to purchase lands adjacent to Buehman Canyon identified as habitat protection priorities. If purchased, AGFD will be provided access for fish management activities.

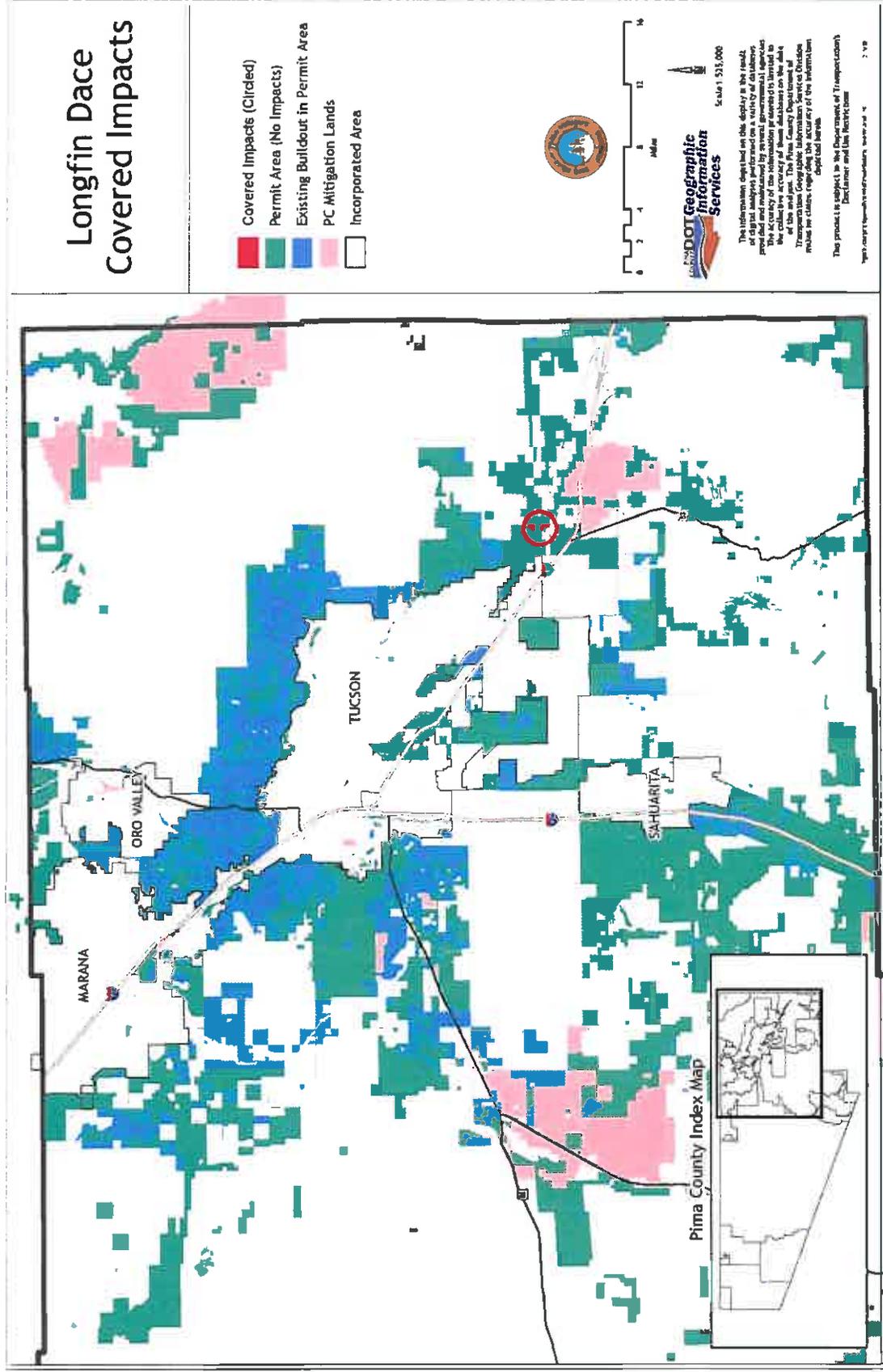


Figure A-21. Map of projected impacts for the longfin dace.

Monitoring

Species Monitoring. Pima County will monitor abundance and/or relative abundance of this species using seine nets and employing depletion sampling at the same sites and using the same methods as for Gila topminnow at the Cienega Creek Preserve.

Monitoring will occur every two years.

Habitat. Presence of water will continue to be monitored at the Cienega Creek Preserve as part of the wet/dry mapping by Pima Association of Governments (Pima Association of Governments 1998). Water availability will also be monitored during fish sampling. Water quality (especially dissolved oxygen and water temperature) are regulated, in part, by vegetation, both hydro-riparian emergent vegetation and trees, sometimes to the detriment of the species (Bodner et al. 2007). Trees adjacent to the creek will be monitored at long-term monitoring plots (or by using LiDAR), which will be located within the habitat of this species.

Threats. Pima County has been—and will continue to—monitor groundwater levels at the Cienega Creek Preserve (Pima Association of Governments 1998) according to the recommendations by Fonseca (2008); groundwater levels too low will threaten the presence of water and associated vegetation. In addition, fish surveys will also target invasive species such as fish and crayfish. Finally, Pima County will monitor land-use change and development within the Cienega Creek watershed.

Desert pupfish (*Cyprinodon macularius macularius*)

Conservation Status

Endangered Species Act Status: Listed as Endangered in 1986.

State: Wildlife of Special Concern in Arizona.

Other: U.S. Forest Service Sensitive Species.

Rankings: G1, T1, S1.

Current Occurrence in Pima County

There are no natural populations of this subspecies in Pima County. The Quitobaquito subspecies (*C. m. eremus*) is found at Organ Pipe Cactus National Monument (Kynard 1976, Pearson and Conner 2000, Organ Pipe Cactus National Monument 2006). Other populations of desert pupfish occur throughout the County in constructed ponds.

Anticipated Lethal Take, Habitat Loss, and Current Mitigation

Anticipated lethal take: 25

Anticipated acres of habitat lost to Covered Activities: 0.

Current mitigation (includes 25% credit for State Trust Lands): NA.

Management and Conservation Commitments

Pima County will seek to pursue the following management actions and conservation commitments for the desert pupfish if established in Pima County:

- 1) Implement the Pima County Riparian Protection Ordinance to minimize loss of potential habitat for this species.
- 2) Use this species for mosquito control if suitable agreements can be made with AGFD and USFWS.
- 3) Prohibit the use *Gambusia* for mosquito control in pupfish reintroduction sites.

Monitoring

No monitoring is planned for this species unless it is reintroduced into the County's preserve system. If that occurs, Pima County will work with the USFWS to develop an appropriate protocol.

Gila chub (*Gila intermedia*)

Conservation Status

Endangered Species Act Status: Listed as Endangered in 2002. Critical habitat designated in 2005 (U. S. Fish and Wildlife Service 2005).

State: Wildlife of Special Concern in Arizona.

Other: State Endangered in New Mexico; U.S. Forest Service Sensitive Species; Listed Endangered in Mexico.

Rankings: G2, S2.

Current Occurrence in Pima County

Present: The Gila chub is currently known to occupy a small number stream segments in Arizona and New Mexico (Weedman et. al. 1996), including Sabino Creek (Dudley and Matter 2000), and Cienega Creek in Pima County (Jeff Simms, unpublished data).

Anticipated Lethal Take, Habitat Loss, and Current Mitigation

Anticipated lethal take: 100

Anticipated acres of habitat lost to Covered Activities (Figure A-22): 1.

Current mitigation (includes 25% credit for State Trust Lands): 3,465.

Management and Conservation Commitments

Pima County will seek to pursue the following management actions and conservation commitments for the Gila chub:

- Implement the Pima County Riparian Protection Ordinance to minimize loss of habitat for this species.
- Prohibit the use *Gambusia* for mosquito control in reintroduction sites.

Monitoring

Species Monitoring. Pima County will monitor abundance and/or relative abundance of this species using backpack shocker and pass sampling (without block nets) at the

Cienega Creek Preserve. Monitoring will take place within pools and runs, and multiple passes will be used for deeper pools. Monitoring will take place every other year, as recommended by Bodner et al. (2007) when monitored in combination with other species for which different methods are used (e.g., seine netting; Gila topminnow). By alternating seining and electroshocking (for Gila chub), Pima County minimizes sampling impacts to the species and maximizes opportunities for finding non-native species. The location of monitoring sites will be chosen using simple random sampling.

Habitat. Presence of water will continue to be monitored at Cienega Creek preserve as part of the wet/dry mapping by Pima Association of Governments (Pima Association of Governments 1998). Water availability will also be monitored during fish sampling. Water quality (especially dissolved oxygen and water temperature) are regulated, in part, by vegetation, both hydro-riparian emergent vegetation and trees, sometimes to the detriment of the species (Bodner et al. 2007). Trees adjacent to the creek will be monitored at long-term monitoring plots (or using LiDAR), which will be located along Cienega Creek.

Threats. Pima County has been (and will continue to) monitor groundwater levels at the Cienega Creek Preserve (Pima Association of Governments 1998) according to the recommendations by (Fonseca 2008); groundwater levels too low will threaten the presence of water and associated vegetation. In addition, annual fish surveys will also target invasive species such as fish and crayfish. Finally, Pima County will monitor land-use change and development within the Cienega Creek watershed.

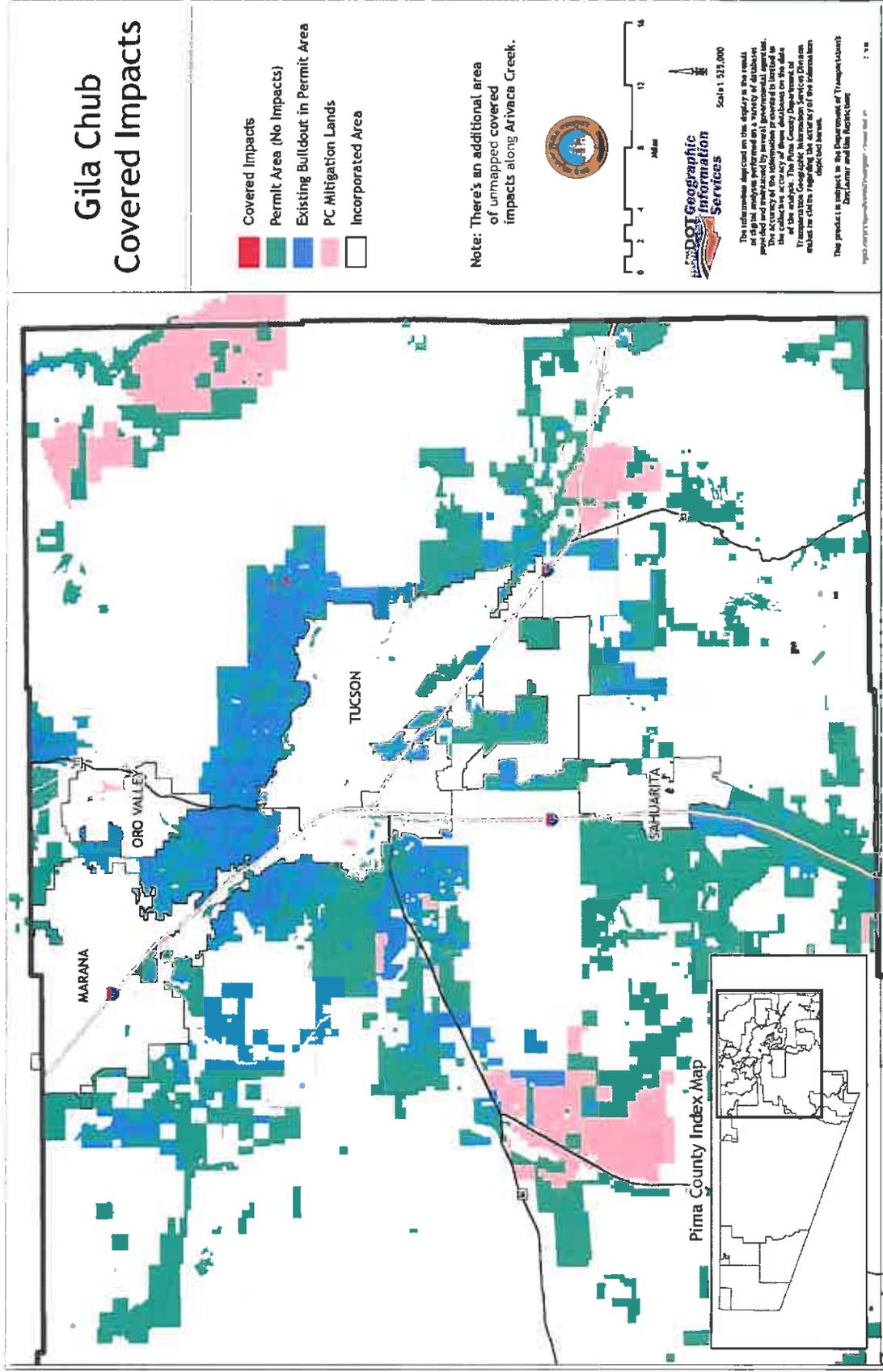


Figure A-22. Map of projected impacts for the Gila chub.

Gila topminnow (Poeciliopsis occidentalis occidentalis)

Conservation Status

Endangered Species Act Status: Listed as Endangered in 1967.

State: Wildlife of Special Concern in Arizona.

Other: U.S. Forest Service Sensitive Species; Threatened in Mexico.

Rankings: G3T3, S2

Current Occurrence in Pima County

The only stable populations of the Gila topminnow in Pima County are along stretches of Cienega Creek including the Cienega Creek Preserve (Weedman and Young 1997, Voeltz and Bettaso 2003, Simms et al. 2006, Bodner et al. 2007). Numerous reintroductions have occurred for this species in Pima County, but these efforts have had limited success (Constantz 1979, Weedman and Young 1997). There are populations upstream of Pima County in the Santa Cruz River (Voeltz and Bettaso 2003, Powell et al. 2005) and following floods, individuals may establish in Pima County's portion of the river. Captive-bred populations can be found throughout the County.

Anticipated Lethal Take, Habitat Loss, and Current Mitigation

Anticipated lethal take: 100

Anticipated acres of habitat lost to Covered Activities (Figure A-23): 1.

Current mitigation (includes 25% credit for State Trust Lands): 4,480.

Management and Conservation Commitments

Pima County will seek to pursue the following management actions and conservation commitments for the Gila topminnow:

- Implement the Pima County Riparian Protection Ordinance to minimize loss of habitat for this species.

- Use as mosquito control if suitable agreements can be reached with AGFD and USFWS.
- Prohibit the use *Gambusia* for mosquito control in reintroduction sites.

Monitoring

Species Monitoring. Pima County will monitor abundance of this species at Cienega Creek Preserve using seine nets and employing depletion sampling. Monitoring will take place every other year, as recommended by Bodner et al. (2007) when monitored in combination with other species for which different methods are used (e.g., electroshocking; Gila chub). By alternating seining and electroshocking (for Gila chub), Pima County minimizes sampling impacts to the species and maximizes opportunities for finding non-native species. Monitoring will take place at ≥ 10 pools that are randomly chosen from the all potential pools.

Habitat. Presence of water will continue to be monitored at Cienega Creek Preserve as part of the wet/dry mapping by Pima Association of Governments (Pima Association of Governments 1998). Water availability will also be monitored during sampling for fish. Water quality (especially dissolved oxygen and water temperature) are regulated, in part, by vegetation, both hydro-riparian emergent vegetation and trees, sometimes to the detriment of the species (Bodner et al. 2007). Trees adjacent to the creek will be monitored at long-term monitoring plots (or using LiDAR), which will be located along Cienega Creek.

Threats. Pima County has been—and will continue to—monitor groundwater levels at the Cienega Creek Preserve (Pima Association of Governments 1998) according to the recommendations by (Fonseca 2008); groundwater levels too low will threaten the presence of water and associated vegetation. In addition, annual fish surveys will also target invasive species such as fish and crayfish. Finally, Pima County will monitor land-use change and development within the Cienega Creek watershed.

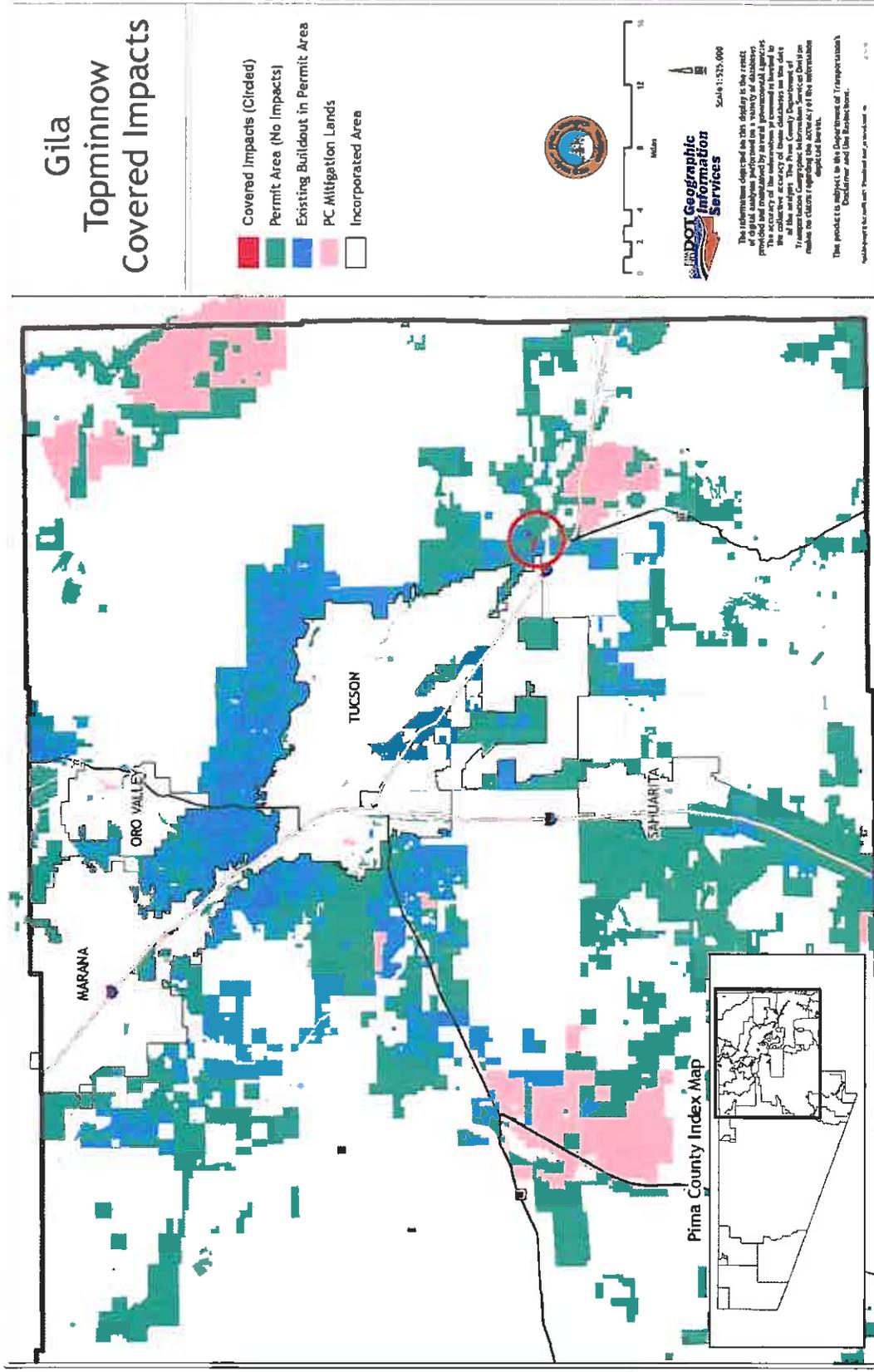


Figure A-23. Map of projected impacts for the Gila topminnow.

Desert Sucker (*Catostomus clarkii*)

Conservation Status

Endangered Species Act Status: None. Former candidate for Category 2 listing.

State: Wildlife of Special Concern in Arizona.

Other: USFWS Species of Special Concern; U.S. Forest Service Sensitive Species.

Rankings: G3G4, S3S4.

Current Occurrence in Pima County

No known natural populations of this species currently occur in Pima County. There are populations upstream of Pima County in the Santa Cruz (Powell et al. 2005) and San Pedro rivers and following floods, individuals may establish in Pima County.

Anticipated Lethal Take, Habitat Loss, and Current Mitigation

Anticipated lethal take: 10

Anticipated acres of habitat lost to Covered Activities (Figure A-24): 0.

Current mitigation (includes 25% credit for State Trust Lands): 99.

Management and Conservation Commitment

Pima County will implement the Pima County Riparian Protection Ordinance to minimize loss of habitat.

Monitoring

No monitoring is planned for this species unless it is reintroduced or reestablished into the County's preserve system. If this occurs, Pima County will work with the USFWS to develop appropriate protocols.

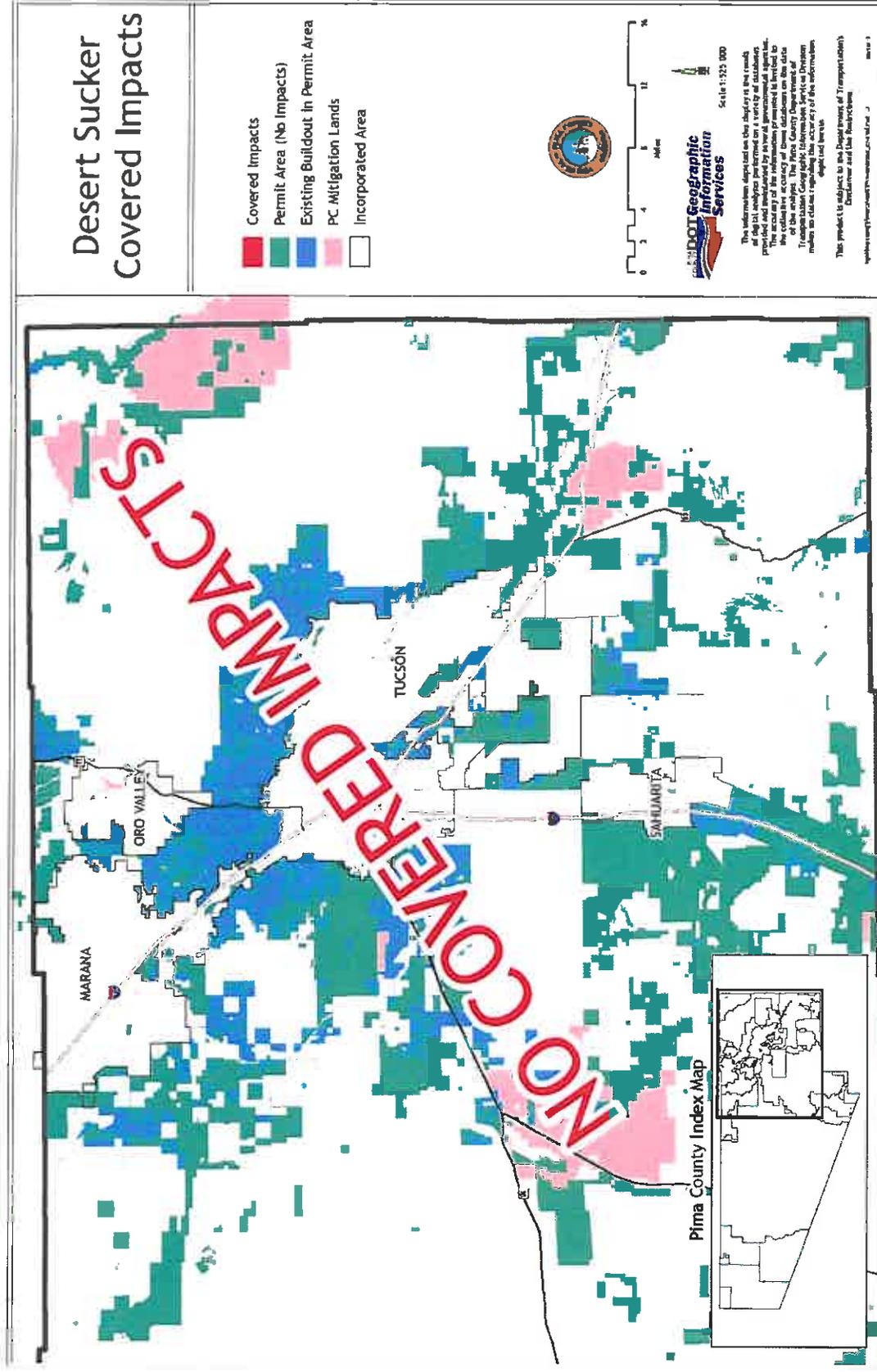


Figure A-24. Map of projected impacts for the desert sucker.

Sonora Sucker (*Catostomus insignis*)

Conservation Status

Endangered Species Act Status: Former candidate for Category 2 listing (1994).

State: Wildlife of Special Concern in Arizona.

Other: USFWS Species of Special Concern; U.S. Forest Service Sensitive Species, Region 3; Endangered in Mexico.

Rankings: G3, S3.

Current Occurrence in Pima County

No known natural populations of this species occur in Pima County. There are populations upstream of Pima County in the Santa Cruz (Powell et al. 2005) and San Pedro rivers and following floods, individuals may establish in Pima County.

Anticipated Lethal Take, Habitat Loss, and Current Mitigation

Anticipated lethal take: 10

Anticipated acres of habitat lost to Covered Activities (Figure A-25): 0.

Current mitigation (includes 25% credit for State Trust Lands): 50.

Management and Conservation Commitment

Pima County will implement the Pima County Riparian Protection Ordinance to minimize loss of habitat for this species.

Monitoring

No monitoring is planned for this species unless it is reintroduced or reestablished into the County's preserve system. If this occurs, Pima County will work with the USFWS to develop appropriate protocols.

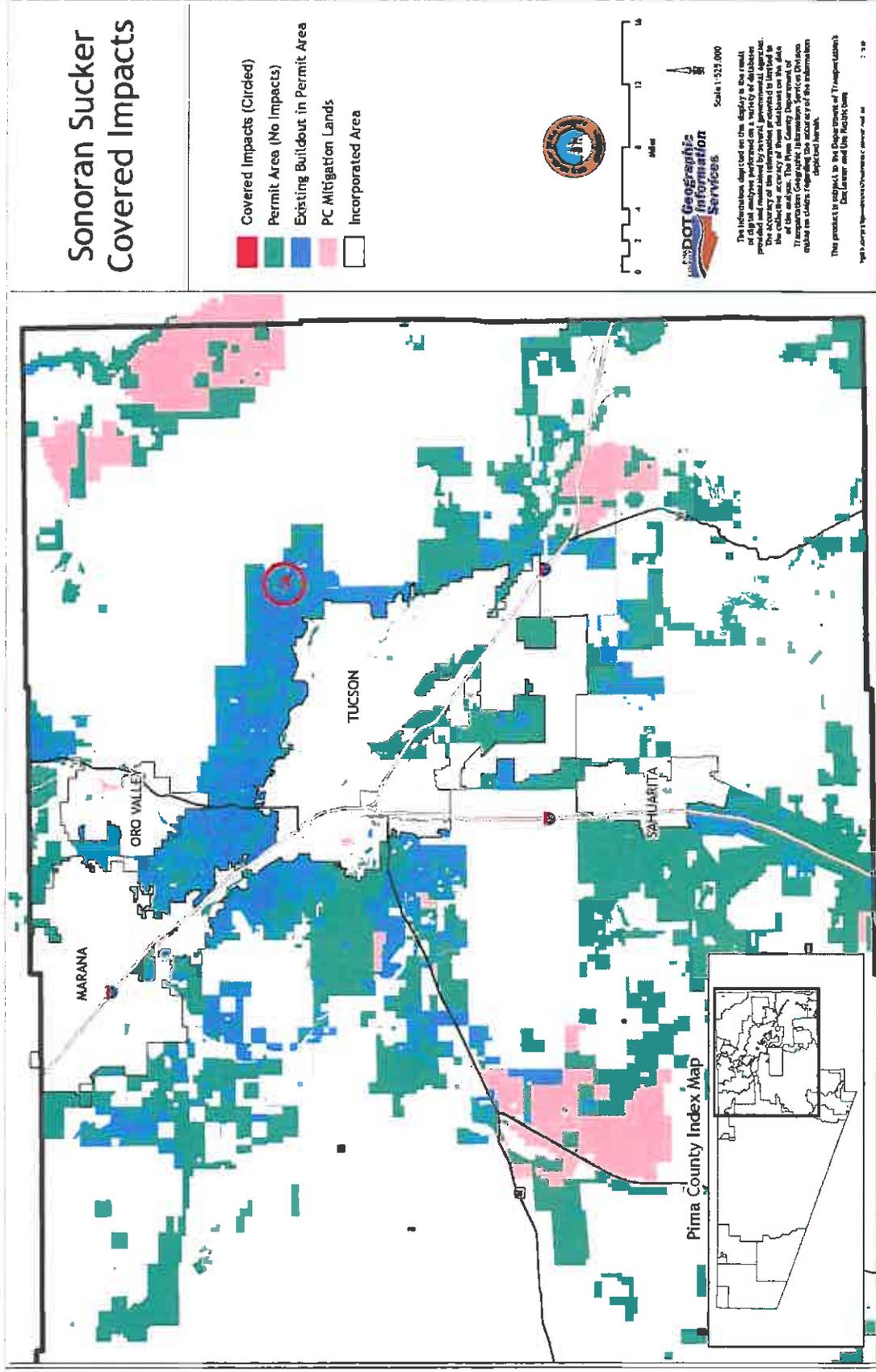


Figure A-25. Map of projected impacts for the Sonoran sucker.

Amphibians

Chiricahua leopard frog (*Rana chiricahuensis*)

Conservation Status

Endangered Species Act Status: Listed Threatened in 2002.

State: Wildlife of Special Concern in Arizona, Endangered in New Mexico.

Other: U.S. Forest Service Sensitive Species, Threatened in Mexico.

Rankings: G3,S3.

Current Occurrence in Pima County and Vicinity

Populations in Pima County occur in stock tanks in the Buenos Aires National Wildlife Refuge, canyons in the Santa Rita and Baboquivari mountains, and in Cienega Creek adjacent to the Empire Ranch and Cinco ponds areas. At Cinco ponds, approximately 100 individuals were documented in 1989. In 1994 this species was found ranging from Empire Gulch to Springwater Canyon, but failed to appear there in 1996 (Rosen and Caldwell 2004). Three individuals were found in Cienega Creek at Cienega Ranch in 1986 (Rosen and Schwalbe 1988). Recent surveys of the north end of the Santa Rita Mountains at the site of the proposed Rosemont Mine revealed individuals in 9 locations in around the proposed project site (WestLand Resources Inc 2009). Sands and Clyne ranches are the most likely locations for this species on a County preserve.

Anticipated Lethal Take, Habitat Loss, and Current Mitigation

Anticipated lethal take: 25

Anticipated acres of habitat lost to Covered Activities (Figure A-26): 2.

Current mitigation (includes 25% credit for State Trust Lands): 13,471.

Management and Conservation Commitments

Pima County will seek to pursue the following management actions and conservation commitments for the Chiricahua leopard frog:

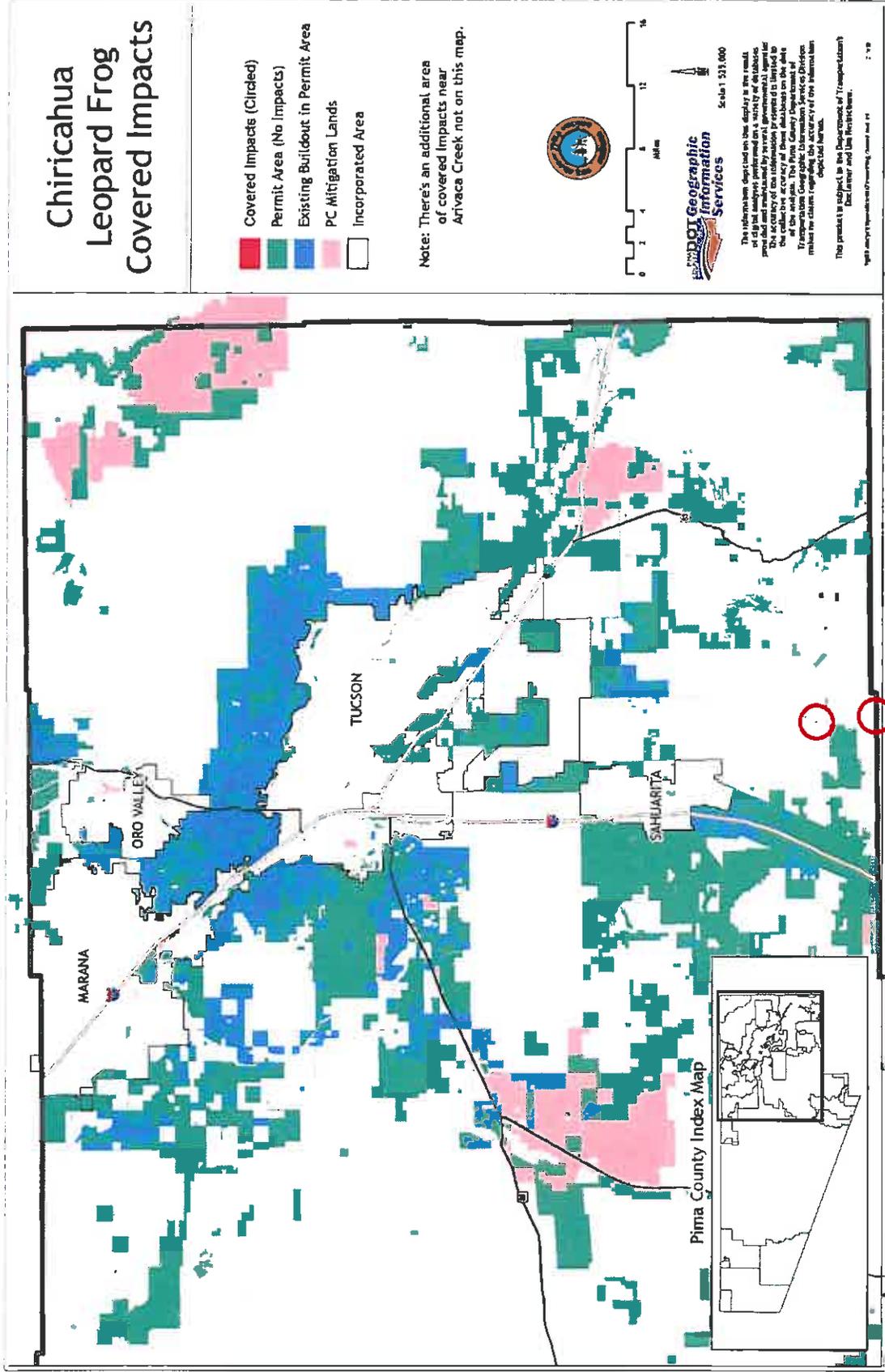


Figure A-26. Map of projected impacts for the Chiricahua leopard frog.

- Implement the Pima County Riparian Protection Ordinance to minimize loss of habitat.
- Actively manage this species on Pima County owned and leased lands; maintain and/or re-establish several viable populations in springs, tinajas, stock ponds and other suitable sites, in consultation with AGFD and USFWS.
- Acquire and protect water rights to maintain and restore habitat for this species.
- County-controlled Mitigation Lands >3,400 feet will be managed for control/removal of invasive exotics to create suitable habitat for this species and protect sites from other stresses such as spread of chytrid fungus and controllable desiccation.
- Support simultaneous removal of bullfrogs and crayfish across whole landscapes, where feasible, such as is being accomplished in the Cienega watershed.
- Support research on causes of declines and management methods.
- Where feasible, incorporate wildlife crossings into transportation project design in appropriate locations.

Monitoring

Species Monitoring. No known populations of this species currently exist within the County's preserve system. However, Pima County will inventory new acquisitions and leased lands (>3,400 feet elevation) for new populations. For populations that are found within the County's preserve system, Pima County will monitor for occupancy at least two times in late spring and early summer (pre-monsoon) at least every other year. Monitoring will be for any stage of the species life cycle (eggs, tadpoles, adults) using a visual encounter survey (Heyer 1994) that has been modified by the Arizona Game and Fish Department for this species (U. S. Fish and Wildlife Service 2007a). Don Swann (Saguaro National Park) has also developed a survey protocol for the lowland leopard frog and Pima County will investigate the use of that protocol, which also includes a rapid assessment of habitat conditions (mostly water availability) at each visit. Pima County will also develop a database for incidental observations of this species while Pima County staff performs other functions.

Habitat. The presence of water is a key habitat feature for this species and therefore the availability of water at monitoring sites will be recorded during surveys for the species. During baseline surveys for this species, Pima County will map potential habitat for this species, with particular emphasis on mapping the location and dimensions of all tinajas within the creek reaches that contain or could contain the species. Water quality (especially dissolved oxygen and water temperature) are regulated, in part, by vegetation, both hydro-riparian emergent vegetation and trees. Trees adjacent to appropriate habitat will be monitored at long-term monitoring plots (or using LiDAR).

Threats. Pima County will participate in monitoring efforts for the chytrid fungus.

Lowland leopard frog (*Rana yavapaiensis*)

Conservation Status

Endangered Species Act Status: None. Former Category 2 candidate for listing.

State: Wildlife of Special Concern in Arizona; Endangered in New Mexico.

Other: USFWS Species of Concern; Sensitive by U.S. Forest Service.

Rankings: G4 S4.

Current Occurrence in Pima County

Populations in Pima County are found at Cienega Creek (Caldwell 2002, Rosen and Caldwell 2004) and nearby Davidson Canyon (WestLand Resources Inc 2008), several canyons in the Rincon Mountain District of Saguaro National Park (Flesch et. al. 2006, Swann and Wallace 2008), and several canyons in the Santa Catalina Mountains including Sabino, Buehman, Romero, Molino (Arizona Game and Fish Department 2009b), and Geesaman (Brian Powell and Julia Fonseca, personal observation) and Agua Caliente Wash (Sartorius and Rosen 2000).

Anticipated Lethal Take, Habitat Loss, and Current Mitigation

Anticipated lethal take: 50

Anticipated acres of habitat lost to Covered Activities (Figure A-27): 7,753.

Current mitigation (includes 25% credit for State Trust Lands): 38,710.

Management and Conservation Commitments

Pima County will seek to pursue the following management actions and conservation commitments for the lowland leopard frog:

- Implement the Pima County Riparian Protection Ordinance to minimize loss of habitat.
- Actively manage this species on County-controlled Mitigation Lands; maintain and/or re-establish several viable populations in springs, tinajas, stock ponds and other sites, where appropriate and in coordination with the USFWS and AGFD.
- Cooperate with AGFD to establish populations with known genetic sources in new urban environments (backyard ponds, golf courses, park ponds) as well as natural environments (including restored stream segments and springs).
- Acquire and protect select water rights to maintain and restore habitat for this species.
- County-controlled Mitigation Lands will be managed for control/removal of invasive exotics to create suitable habitat for this species and protect sites from other stresses such as spread of chytrid fungus and controllable desiccation.
- Support simultaneous removal of bullfrogs and crayfish across whole landscapes, if feasible.
- Support research on causes of declines and management methods.
- Where feasible, incorporate wildlife crossings into transportation project design in appropriate locations.

Monitoring

Species Monitoring. Pima County will inventory new acquisitions and leased lands for new populations. For populations that are found or that currently exist within the County's preserve system, Pima County will monitor for occupancy at least two times in

late spring and early summer (pre-monsoon) every other year. Monitoring will be for any stage of the species' life cycle (eggs, tadpoles, adults) using a visual encounter survey (Heyer 1994) that has been modified by the Arizona Game and Fish Department for the Chiracahua leopard frog (U. S. Fish and Wildlife Service 2007a). Don Swann (Saguaro National Park) has also developed a survey protocol for this species and Pima County will investigate the use of that protocol, which includes a rapid assessment of habitat conditions (mostly water availability) at each visit. Pima County will also develop a database for incidental observations of this species while Pima County staff performs other functions.

Habitat. The presence of water is a key habitat feature for this species and therefore the availability of water at monitoring sites will be recorded during each survey. During baseline surveys for this species, Pima County will map potential habitat for this species, with particular emphasis on mapping the location and dimensions of tinajas within the creek reaches that contain or could contain the species. In the Cienega Creek preserve Presence, Pima County and its partners (Pima Association of Governments) will continue to monitor stream flow (Pima Association of Governments 1998). Water quality (especially dissolved oxygen and water temperature) are regulated, in part, by vegetation, both hydro-riparian emergent vegetation and trees. Trees adjacent to the creek will be monitored at long-term monitoring plots (or using LiDAR), which will be located along Cienega Creek.

Threats. Pima County has been, and will continue to, monitor groundwater levels at the Cienega Creek Preserve (Pima Association of Governments 1998) according to the recommendations by (Fonseca 2008); groundwater levels too low will threaten the presence of water and associated vegetation. In addition, annual fish surveys will also target invasive species such as fish and crayfish that prey on the frog. Finally, Pima County will monitor land-use change and development within the Cienega Creek watershed.

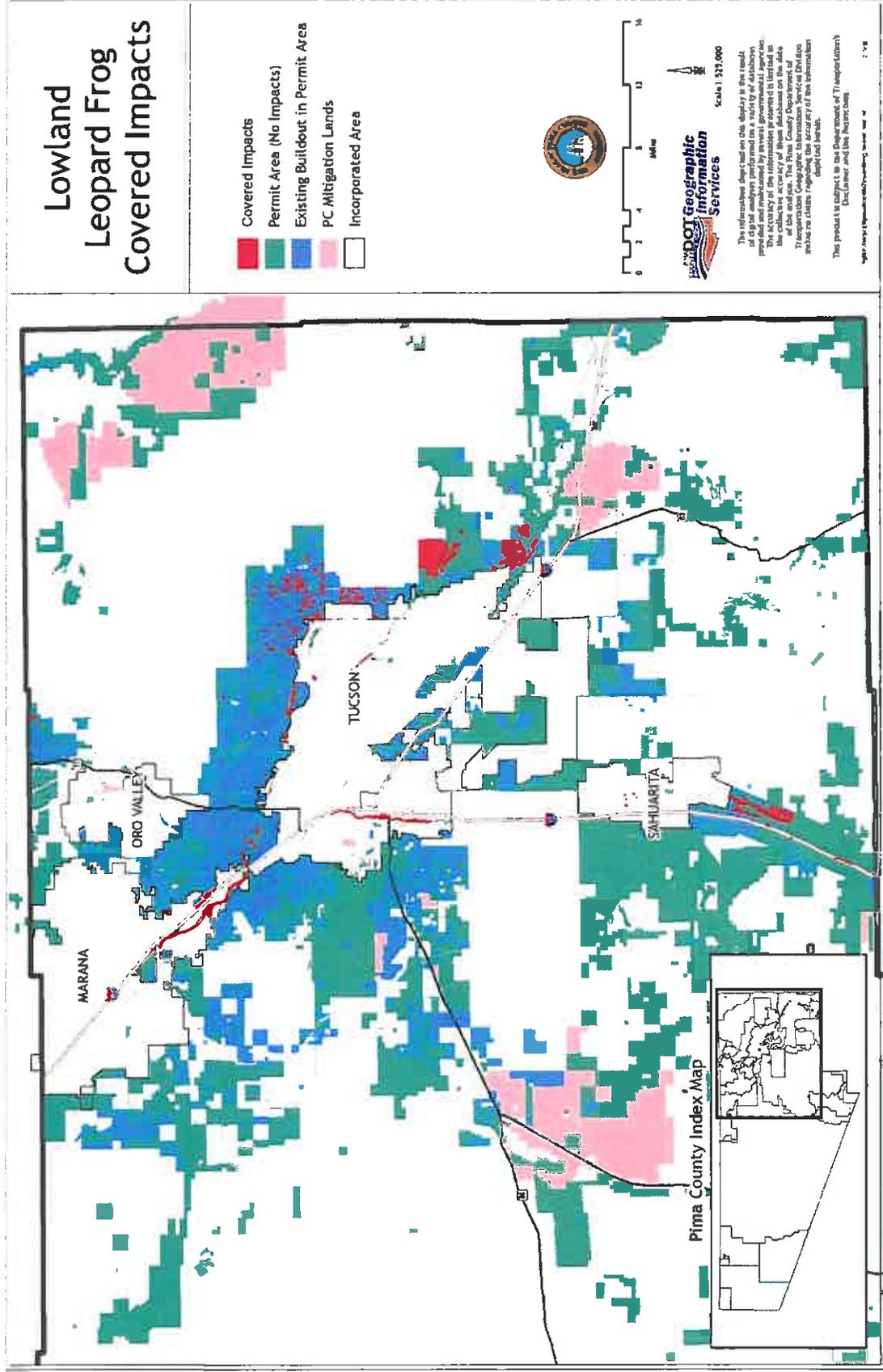


Figure A-27. Map of projected impacts for the lowland leopard frog.

Reptiles

Giant spotted whiptail lizard (*Cnemidophorus burti stictogrammus*)

Conservation Status

Endangered Species Act Status: None.

State: None.

Other: U.S. Forest Service Sensitive Species; Bureau of Land Management Sensitive Species; Threatened in New Mexico.

Rankings: G4, T4, S3.

Current Occurrence in Pima County

In Pima County the giant spotted whiptail currently occurs at the foothills of the Santa Catalina, Rincon, San Luis, Baboquivari and Santa Rita mountains; and along the West Branch of the Santa Cruz River, Arivaca Creek, and Empire Gulch (Edwards and Swann 2003, Flesch et al. 2006, Arizona Game and Fish Department, 2009 #2480, Rosen 2008c).

Anticipated Lethal Take, Habitat Loss, and Current Mitigation

Anticipated lethal take: 5

Anticipated acres of habitat lost to Covered Activities (Figure A-28): 4,586.

Current mitigation (includes 25% credit for State Trust Lands): 7,407.

Management and Conservation Commitments

Pima County will seek to pursue the following management actions and conservation commitments for the giant spotted whiptail:

- Implement the Pima County Riparian Protection Ordinance to minimize loss of habitat.

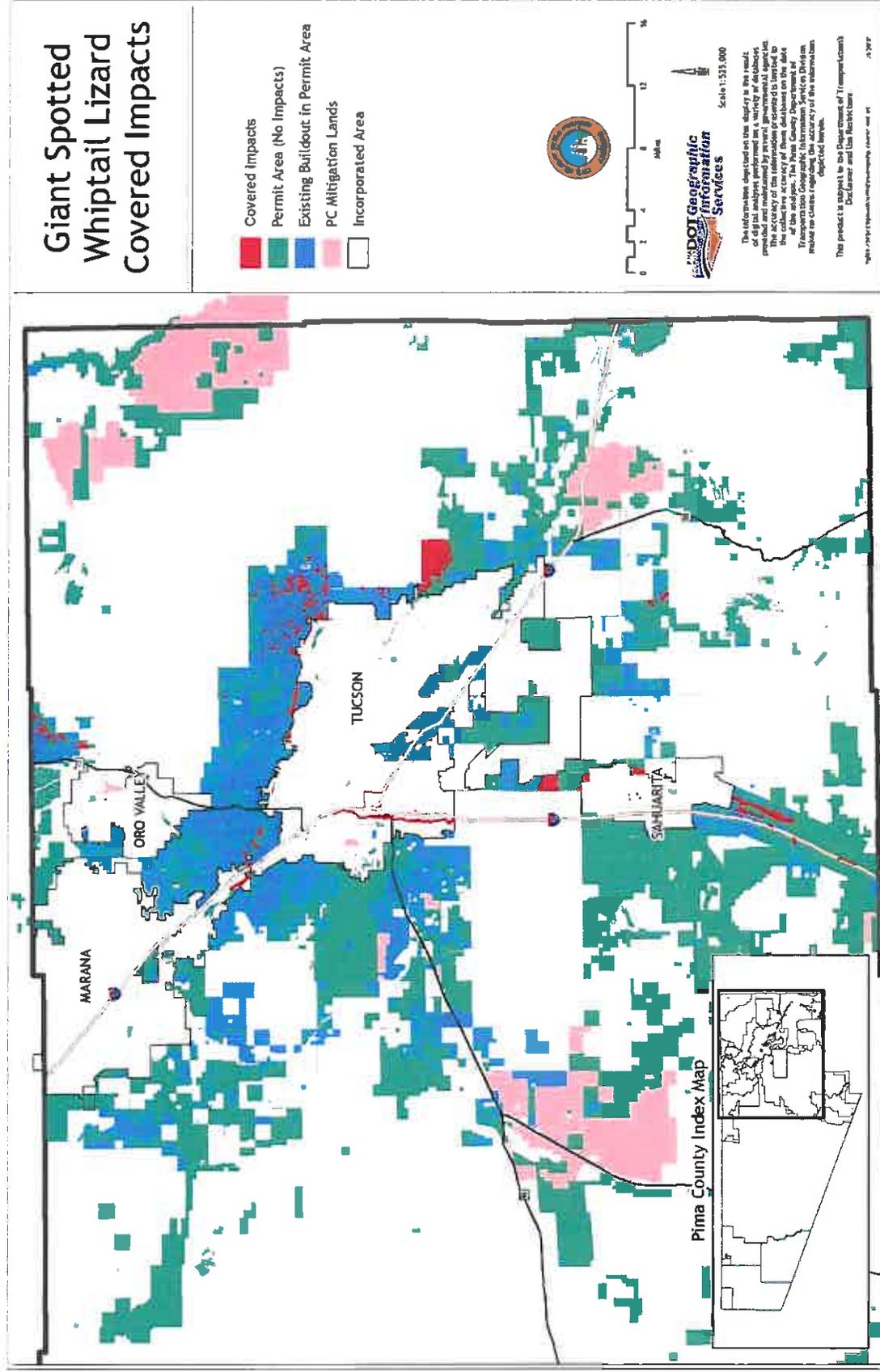


Figure A-28. Map of projected impacts for the giant spotted whiptail lizard.

- Where feasible, incorporate wildlife crossings into transportation project design in appropriate locations.

Monitoring

Habitat. Habitat features that are important for this species are primarily mesic-riparian and xeric-riparian washes with often dense stand of vegetation, small rock outcrops, and coarse woody debris. Pima County will monitor dominant perennial vegetation species, vegetation density and volume, and coarse woody debris at long-term monitoring sites within the County's preserve system. Loss of dense vegetation in key areas along streams and washes and within the species' PCA will be of concern for this species. Because of the importance of riparian systems this and other species, Pima County will ensure that an adequate number of long-term monitoring sites and/or other monitoring (e.g., use of remote sensing tools) are within the riparian stratum.

Threats. Pima County will periodically quantify loss and fragmentation of habitat in the species' PCA. Pima County will also monitor the location and extent of wildland fire within the County's preserve system, which could adversely impact this species. The encroachment of fountain grass is also of concern and this will be monitoring along select stream courses.

Red-backed whiptail lizard (*Cnemidophorus burti xanthonotus*)

Conservation Status

Endangered Species Act Status: None.

State: None.

Other: U. S. Forest Service Sensitive Species, Bureau of Land Management Sensitive Species.

Rankings: G4, T2.

Current Occurrence in Pima County

The red-backed whiptail is known to be present from the Ajo and Puerto Blanco mountains and Dripping Springs at Organ Pipe Cactus National Monument (Organ Pipe Cactus National Monument 1999, Flesch 2008a, Arizona Game and Fish Department 2009a) and Martina Mountain (Phil Rosen, personal communication to David Scalero, 4 March 1999).

Anticipated Lethal Take, Habitat Loss, and Current Mitigation

Anticipated lethal take: 2

Anticipated acres of habitat lost to Covered Activities (Figure A-29): 0.

Current mitigation (includes 25% credit for State Trust Lands): NA.

Management and Conservation Commitments

Pima County will review credible reports of the species entering into the Permit Area.

Monitoring

Habitat. Habitat features that are important for this species are dense vegetation along stream banks, rock outcrops, and coarse woody debris. Pima County will monitor dominant perennial vegetation species and vegetation density and volume as part of the habitat-based monitoring element of the PCEMP. Data on woody debris will also be monitored at long-term monitoring sites, but it is unlikely that any sites will be located within the species' current distribution. Loss of dense vegetation in key areas along streams and washes and within the species' PCA will be of concern for this species.

Threats. Pima County will periodically quantify loss and fragmentation of habitat in the species' PCA.

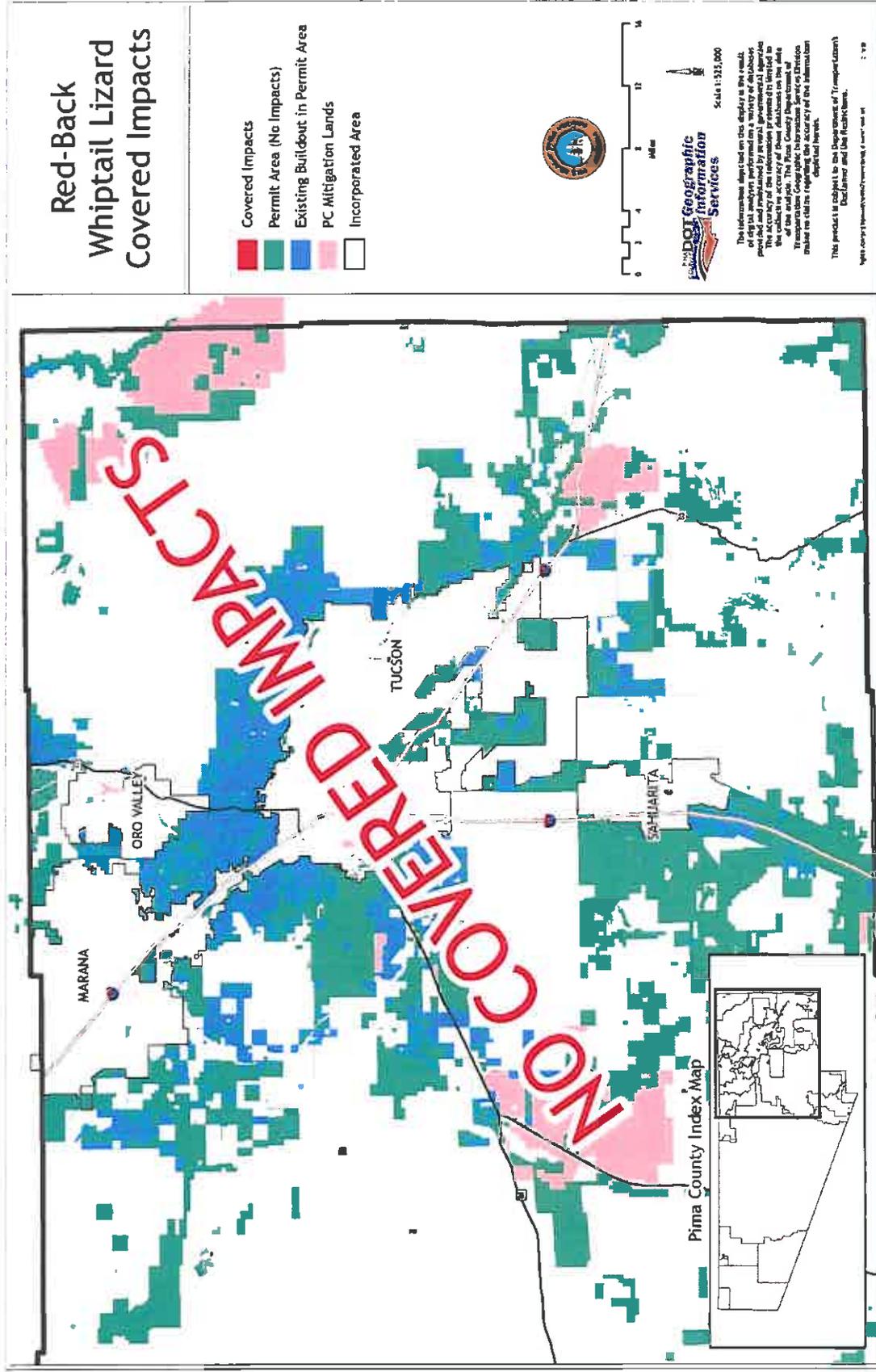


Figure A-29. Map of projected impacts for the red-backed whiptail lizard.

Desert box turtle (*Terrapene ornate luteola*)

Conservation Status

Endangered Species Act Status: None.

State: None.

Other: Special protection in Mexico; protected from international trade by CITES.

Rankings: G5T4 S3S4.

Current Occurrence in Pima County

The distribution of this species in Pima County is not well known, but it has been observed in the Las Cienega Conservation Area, in the Santa Cruz River valley near Sahuarita, and in the Altar Valley (Arizona Game and Fish Department 2009b). A few specimens have been found along the San Pedro River in Pima County (Hall and Steidl 2007). A dead carcass was located on Esperanza Ranch south of Tucson (Llewellyn and Zetlan 2007). Two individuals were found in the Rincon Mountain District of Saguaro National Park in 2005 (Flesch et al. 2006), but it is unclear if these are natural populations or released pets (Phil Rosen, personal communication to Don Swann).

Anticipated Lethal Take, Habitat Loss, and Current Mitigation

Anticipated lethal take: 10

Anticipated acres of habitat lost to Covered Activities (Figure A-30): 909.

Current mitigation (includes 25% credit for State Trust Lands): 5,574.

Management and Conservation Commitments

Pima County will seek to pursue the following management action and conservation commitment for the desert box turtle:

- Protect and enhance habitat conditions for existing natural populations (mainly Cienega Creek and San Pedro River) as indicated by emerging research.
- Track credible sightings of individuals within Pima County.

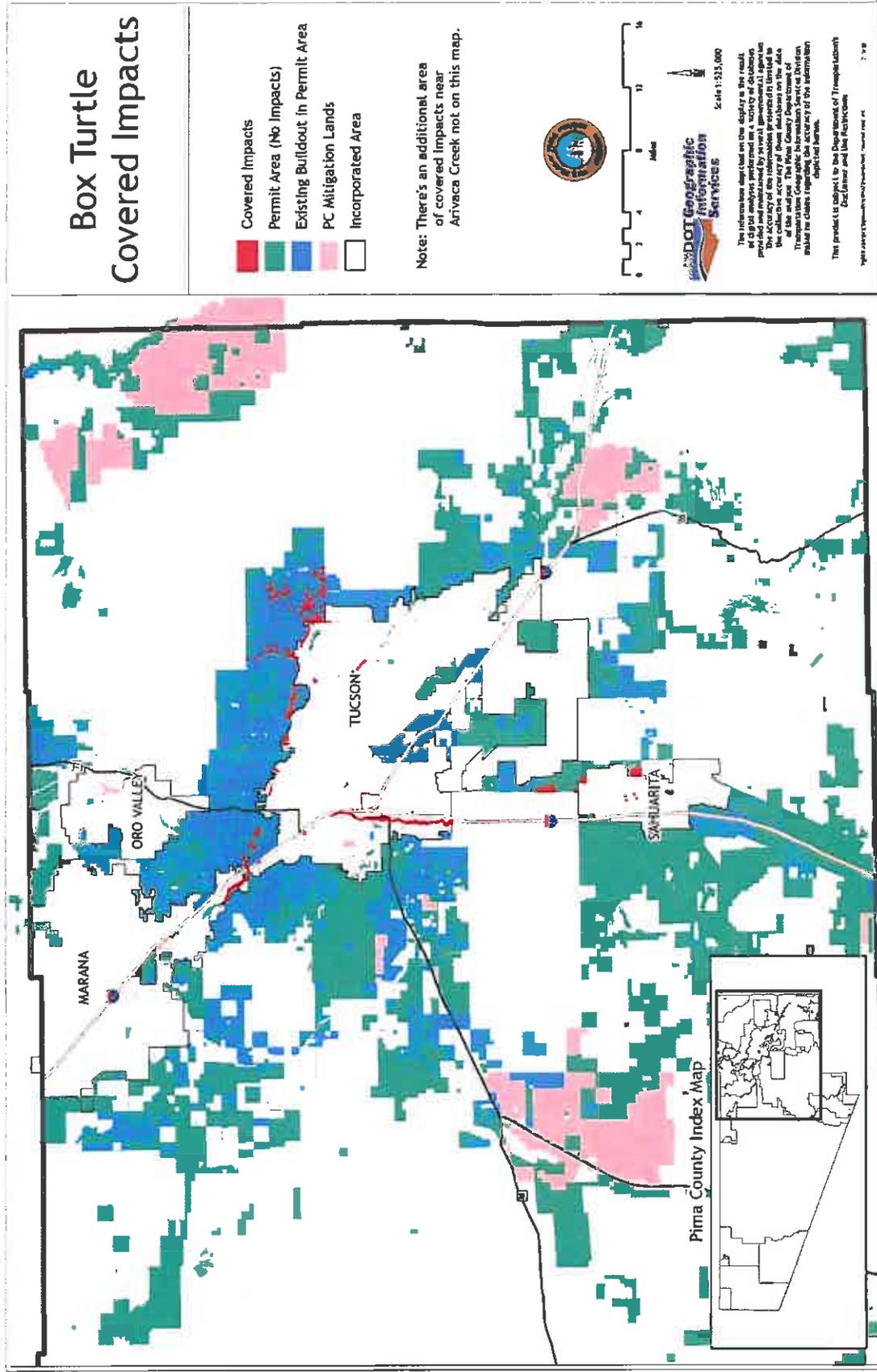


Figure A-30. Map of projected impacts for the box turtle.

- Where feasible, incorporate wildlife crossings into transportation project design in appropriate locations.

Monitoring

Species monitoring. Pima County will develop a database for incidental observations of this conspicuous species while Pima County staff performs other functions.

Habitat. Habitat features that are important for this species are semi-desert grasslands, from shrubless areas to grasslands moderately invaded by shrubs and trees such as mesquite. The desert box turtle is also associated with sparse to moderate densities of perennial grasses. Pima County will monitor dominant perennial woody and grass species and vegetation density and volume at long-term monitoring plots within the County's preserve system. An increase in shrub cover in semi-desert grasslands will be of concern for this species.

Threats. Pima County will periodically quantify loss and fragmentation of habitat in the species' PCA. Pima County will also monitor the location and extent of wildland fire within the County's preserve system, which could adversely cause lethal take of individuals. Ultimately, however, fire is likely a net positive for this species as fire helps to reduce shrub cover.

Sonoran desert tortoise (*Gopherus agassizii*)

Conservation Status

Endangered Species Act Status: Petitioned (in 2008) for protection under the Endangered Species Act.

State: Wildlife of Special Concern in Arizona.

Other: Has special protection in Mexico; protected from international trade by CITES.

Rankings: S4 G4T4.

Current Occurrence in Pima County

The Sonoran desert tortoise is widespread across many low elevation areas of Pima County where rocky outcrops, caliche-incised washes, and bajadas occur. They are found west of Tucson in the Avra Valley and nearby mountains (Rosen 2003, Flesch et al. 2006, Zylstra 2008, Town of Marana 2009), north and east of Tucson in the Santa Catalina and Rincon mountains (Murray 1996, Flesch et. al. 2007, Zylstra 2008), and the far western portion of the County (Rosen and Lowe 1996, Wirt et. al. 1999, Schmidt et al. 2007).

Anticipated Lethal Take, Habitat Loss, and Current Mitigation

Anticipated lethal take: 20

Anticipated acres of habitat lost to Covered Activities (Figure A-31): 9,490.

Current mitigation (includes 25% credit for State Trust Lands): 46,707.

Management and Conservation Commitments

Pima County will seek to pursue the following management action and conservation commitment for the Sonoran desert tortoise:

- Review directives in the forthcoming Management Plan for the Sonoran Desert Population of the Desert Tortoise in Arizona.
- Protect and create linkages and travel corridors to the extent possible.
- Where feasible, incorporate wildlife crossings into transportation project design in appropriate locations.
- Investigate opportunities for minimizing lethal take.

Monitoring

Species monitoring. Pima County will commit to monitoring occupancy for the desert tortoise at approximately 15 sites, which will be surveyed every other year with approximately 4 visits to sites each season. Monitoring this species would best be accomplished at a larger spatial scale than the County's preserve network. To this end,

Pima County awaits the development of a long-term monitoring protocol to be developed by the Arizona Game and Fish Department. Once that plan is released, Pima County will decide if the plan is appropriate for Pima County. Pima County will also develop a database for incidental observations of this conspicuous species while Pima County staff performs other functions.

Habitat. Habitat features that are important for this species include burrows and shrubby desert upland vegetation. Pima County will monitor dominant perennial woody and grass species and vegetation density and volume at long-term monitoring sites within the County's preserve system. Changes in understory species composition, especially the increase in buffelgrass (which causes a reduction in food sources), are likely to impact this species, and therefore is a concern.

Threats. Pima County will periodically quantify loss and fragmentation of habitat in the species' PCA. As noted in the habitat section (above), Pima County will continue to collect information on the spatial distribution and relative abundance of buffelgrass within the County' preserve system and provide this information to the Buffelgrass Coordination Center, which is standardizing the protocol for buffelgrass mapping and abundance estimates (Rogstad 2008).

Northern Mexican garter snake (*Thamnophis eques megalops*)

Conservation Status

Endangered Species Act Status: Petitioned (in 2003) for protection under the Endangered Species Act.

State: Wildlife of Special Concern in Arizona, Endangered in New Mexico.

Other: Determined subject to special protection in Mexico; protected from international trade by CITES.

Rankings: G3, S2S3.

Current Occurrence in Pima County and Vicinity

Once found along the Rillito and Santa Cruz rivers in an around Tucson, the only current locations in Pima County are at Cienega Creek, including the Cienega Creek Preserve (Rosen and Schwalbe 1988, Rosen and Caldwell 2004). It is thought to occur in the Altar Valley and Arivaca Cienega, but this has not been confirmed (Rosen and Schwalbe 1988). No other Pima County locations were found for this snake (Arizona Game and Fish Department 2009a). A 2007 survey of the lower Santa Cruz River found no northern Mexican garter snakes (D. Abbate personal communication, in Town of Marana 2009). The species is found in greater abundance to the southeast of Pima County in the San Raphael Valley, Canelo Hills, and Sonoita grasslands (Rosen et. al. 2001).

Anticipated Lethal Take, Habitat Loss, and Current Mitigation

Anticipated lethal take: 5

Anticipated acres of habitat lost to Covered Activities (Figure A-32): 3,613.

Current mitigation (includes 25% credit for State Trust Lands): 10,564.

Management and Conservation Commitments

Pima County will seek to pursue the following management action and conservation commitment for the northern Mexican garter snake:

- Implement the Pima County Riparian Protection Ordinance to minimize loss of habitat.
- Acquire and protect water rights to maintain and restore habitat.
- Where feasible, incorporate wildlife crossings into transportation project design in appropriate locations.

Monitoring

Species Monitoring. Pima County will monitor occupancy of this species at Cienega Creek Preserve using either visual encounter surveys (Heyer 1994) or minnow traps, which have been successful for capturing this species (Rosen and Caldwell 2004).

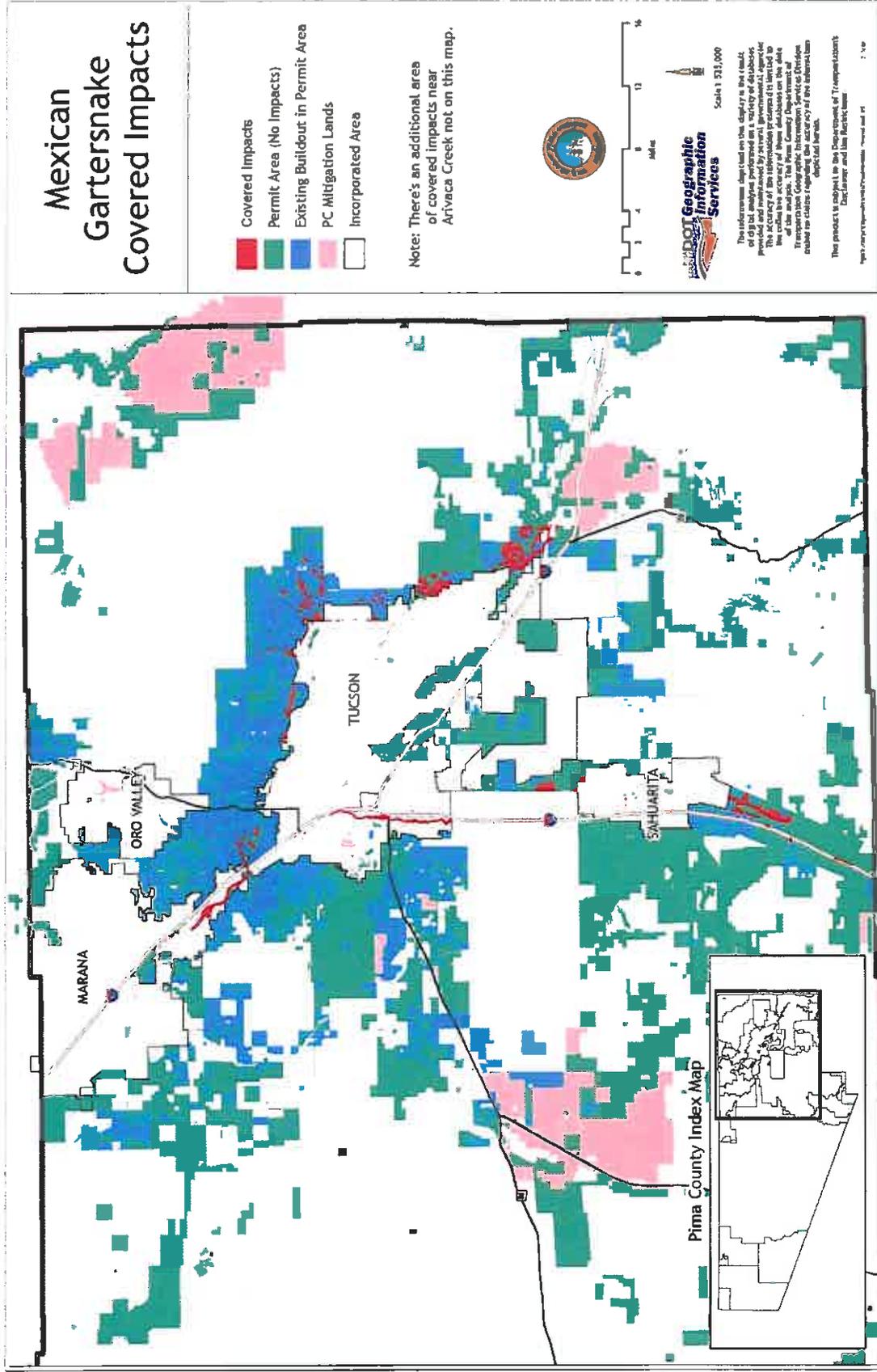


Figure A-32. Map of projected impacts for the northern Mexican gartersnake.

Because of the low detectability of this species, Pima County will survey a select set of sites at least four times within a seasonal period of peak activity for this species (MacKenzie et. al. 2003, MacKenzie et. al. 2006). Pima County will monitor the same sites every three years.

Habitat. Habitat features that are important for this species are close proximity to standing water, emergent vegetation, hydro-riparian streamside vegetation, and coarse woody debris. To monitor these some of these habitat needs, Pima County and its partner Pima Association of Governments will continue to monitor the distribution of standing water at Cienega Creek Preserve. Pima County will also monitor vegetation at the Preserve and other locations with the species' PCA in the County preserve system, with particular emphasis on mesic riparian areas. Pima County is also investigating the use of LiDAR to monitor, which are important for this species.

Threats. Pima County will periodically quantify loss and fragmentation of habitat in the species' PCA. Pima County may also monitor groundwater levels in select sites in eastern Pima County (e.g., Tanque Verde Creek and Cienega Creek Preserve) using the protocol recommendations of Fonseca (2008); groundwater levels too low will threaten the open water and associated vegetation that is so important to this species.

Ground snake (valley form) (*Sonora semiannulata*)

Conservation Status

Endangered Species Act Status: None.

State: None.

Other: None.

Rankings: G5, S5.

Current Occurrence in Pima County

Found in desert grassland areas around the base of the Tortolita, Santa Catalina, and Rincon mountains. Two individuals were found at the Rincon Mountain District of

Saguaro National Park in 2001-2002 (Flesch et al. 2007), but no individuals were found in the Tucson Mountain District of Saguaro National Park (Flesch et al. 2006). Rosen (2004) reports other credible historical sightings near Oracle and Reddington Pass and throughout the Avra Valley. Four historical records of the ground snake show that it occurs along the Blanco Wash, from the confluence with the Santa Cruz River south to Avra Valley Road (City of Tucson 2008). In June 2003, one ground snake was found at Blanco Wash and Silverbell Road (Rosen 2004). In 2004, ground snakes were confirmed to persist at Red Rock (Pinal County). Surveys in 2004 found no reconfirmation of the species along I-10, near the Marana exit (Rosen 2004), but surveys in 2008 revealed two individuals (Rosen 2008a). A photographic voucher was collected at the base of the Tortolita Mountains in the Town of Marana, near Stone Canyon (Rosen 2004).

Anticipated Lethal Take, Habitat Loss, and Current Mitigation

Anticipated lethal take: 5

Anticipated acres of habitat lost to Covered Activities (Figure A-33): 11.

Current mitigation (includes 25% credit for State Trust Lands): 809.

Management and Conservation Commitments

Pima County will seek to pursue the following management action and conservation commitment for the ground snake:

- Implement the Pima County Riparian Protection Ordinance to minimize loss of habitat.
- Acquire conservation land if known occupied habitat becomes available.
- Conserve County lands along the Santa Cruz River floodplain downstream of the Avra Valley Road.
- Where feasible, incorporate wildlife crossings into transportation project design in appropriate locations.

Monitoring

Species Monitoring. Pima County will develop a database for incidental observations of this species while Pima County staff performs other functions.

Threats. Pima County will periodically quantify loss and fragmentation of habitat in the species' PCA. Buffelgrass is likely a threat to this species and Pima County will continue to collect information on the spatial distribution and relative abundance of buffelgrass within the County' preserve system and provide this information to the Buffelgrass Coordination Center, which is standardizing the protocol for buffelgrass mapping and abundance estimates (Rogstad 2008). Off-road vehicle use in this species' habitat is very likely impacting this species. To monitor this, Pima County staff will note off-road vehicle (ORV) use during site visits to properties. ORV use can also be detected with visual inspection of aerial images, and possibly with the use of LiDAR.

Tucson shovel-nosed snake (*Chionactis occipitalis klauberi*)

Conservation Status

Endangered Species Act Status: Petitioned for listing in 2004.

State: None.

Other: None.

Rankings: G5, S5 for the western shovel-nosed snake. Note: taxonomy of this species is a subject of debate (Wood et. al. 2008).

Current Occurrence in Pima County

The last known records of the Tucson shovel-nosed snake in or near Pima County were: (1) Sanders Road and Avra Valley Road in 1979 (Rosen 2003) (2) and near Picacho Reservoir (Pinal County) in 2006 and 2007 (Rosen 2008b), and (3) north of the West Silverbell Mountains (Pinal County) (Rosen 2008b). One individual was found in the Sonoran Desert National Monument on State Route 238. Despite extensive survey efforts to locate the species in the Avra Valley, particularly in 2007-2008, no individuals

were found (Rosen 2003, 2007, Rosen 2008b). It is unknown if the species currently persists in the Permit Area.

Anticipated Lethal Take, Habitat Loss, and Current Mitigation

Anticipated lethal take: 1

Anticipated acres of habitat lost to Covered Activities (Figure A-34): 81.

Current mitigation (includes 25% credit for State Trust Lands): 1,175.

Management and Conservation Commitments

Pima County will seek to pursue the following management action and conservation commitment for the Tucson shovel nosed snake:

- Acquire conservation land if known occupied habitat becomes available.
- Conserve County lands along the Santa Cruz River floodplain downstream of the Avra Valley Road.
- Where feasible, incorporate wildlife crossings into transportation project design in appropriate locations.

Monitoring

Species Monitoring. Pima County will develop a database for incidental observations of this species while Pima County staff performs other functions. Pima County will also investigate any credible sighting of this species with the County's preserve system.

Habitat. Habitat features that are important for this species are open, undeveloped areas with sandy to loamy soils. Soils type and consistency are part of initial assessments of long-term monitoring plots. Pima County is also investigating the use of LiDAR to monitor and soil impacts from off-road vehicle use.

Threats. Fragmentation and degradation of habitat is key for this species and Pima County will periodically quantify loss and fragmentation of habitat in the species' PCA. As noted in the habitat element, off-road vehicle use in this species' habitat is very likely impacting this species. To monitor this, Pima County staff will note off-road vehicle

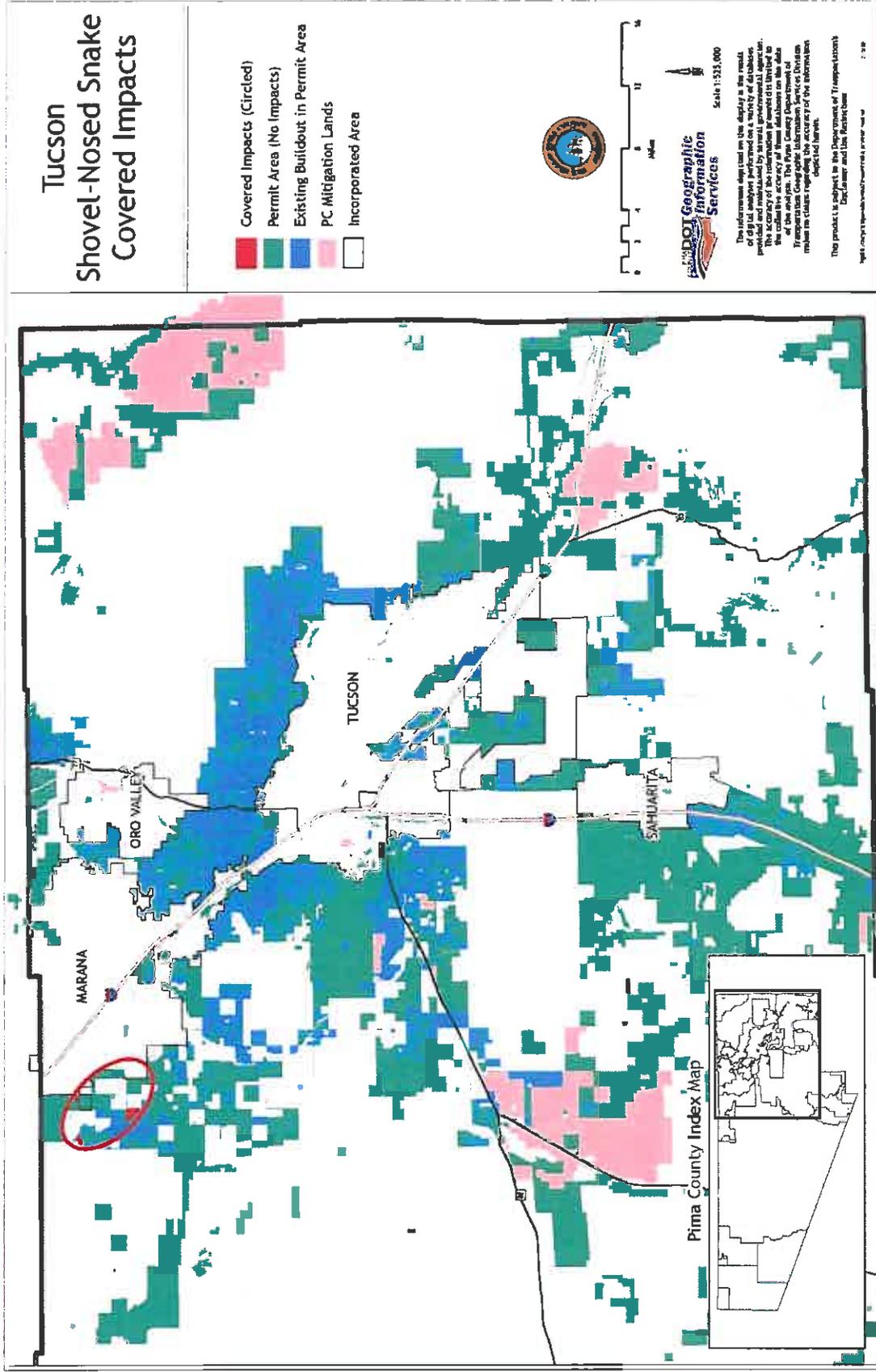


Figure A-34. Map of projected impacts for the Tucson shovel-nosed snake.

(ORV) use during site visits to properties. ORV use can also be detected with visual inspection of aerial images, and possibly with the use of LiDAR. Buffelgrass is likely a significant threat to this species and Pima County will continue to collect information on the spatial distribution and relative abundance of buffelgrass within the County' preserve system and provide this information to the Buffelgrass Coordination Center, which is standardizing the protocol for buffelgrass mapping and abundance estimates (Rogstad 2008).

Invertebrates

Talus snails (*Sonorella* species)

Conservation Status

Endangered Species Act Status: One species (*S. eremite*), was proposed for listing as an Endangered species, but the proposal was withdrawn.

State: None.

Other: None.

Rankings: Most of these species should be G1 or G2 S1 or S2.

Anticipated Lethal Take, Habitat Loss, and Current Mitigation

Anticipated lethal take: 500

Anticipated acres of habitat lost to Covered Activities: 0

Current mitigation (includes 25% credit for State Trust Lands): NA

Current Occurrence in Pima County

This diverse genus of rock snail is usually found in loose masses or "slides" of coarse broken volcanic or limestone rock known as talus. Many different species are known to occur in Pima County, at a variety of elevations:

Species Name	Known Location(s) in Pima County
<i>Sonorella papagorum</i> syn w/ <i>S. ambigua</i> (may also be syn. w/ <i>eremita</i>)	Black Mtn, San Xavier District
<i>S. eremite</i>	Mineral Hill; San Xavier District
<i>S. imperatrix</i>	Total Wreck Mine vicinity
<i>S. imperialis</i>	Empire Mtns
<i>S. insignis</i>	Whelstone
<i>S. magdalenensis</i> syn. <i>S. tumamocensis</i>	Cerro Colorado; Roskruge; S. Tucson Mtns; N. Santa Ritas, Tumamoc Hills
<i>S. odorata odorata</i> ; <i>o. marmoris</i>	Head of Alder Canyon; Old Dan's Gulch below Marble Peak; Soldier Camp; Bear Wallow
<i>S. rosemontensis</i>	Rosemont area
<i>S. sitiens</i>	Las Guijas Mtn
<i>S. sabinoensis</i>	Tucson Mtns Wild Pig Amphitheater; Buehman
<i>S. tortillita</i>	Tortillita Mtns.

Management and Conservation Commitments

Pima County will seek to pursue the following management action and conservation commitment for talus snails:

- Talus deposits should be identified in rapid assessments for preserve management purposes, and prioritized for survey efforts.
- Management plans for County reserves that include talus deposits should recommend specific measures to avoid and minimize disturbances from County activities. Discretionary projects may not be routed across potentially occupied habitat.
- If buffelgrass management is needed on occupied talus deposits in County-controlled Mitigation Lands, best management practices should be developed first, in consultation with mollusc experts.
- Requests from outside agencies for right-of-way and grading permits should be reviewed for potential habitat impacts. Further investigations of potentially suitable habitat should be required, inclusive of focused surveys and support for confirmation of species taxonomy.
- Continued adherence with protected peaks and ridges standards in the County code.

- If state or federal agencies permit an activity on County-controlled Mitigation Lands over which Pima County has no jurisdiction, Pima County will request avoidance, inclusive of donation of property rights on remaining habitat and taxonomic studies.
- Map talus deposits on the urban periphery.
- Develop avoidance and minimization measures that apply to utility construction across such deposits.
- Pima County and BLM will evaluate the potential for talus snail occurrences located on BLM Recreation and Public Purposes Act lands.

Monitoring

Species monitoring. Inventory of talus slopes will be conducted within the County's preserve system. Site visits will include searching for evidence of talus snails (i.e., shells).

Threats. Pima County will visit known locations with talus snails every 3-5 years to note changes or threats. Pima County will periodically quantify loss and fragmentation of habitat in the species' PCA using methods described in the MSCP.

Arkenstone cave pseudoscorpion (*Albiorix anophthalmus*)

Conservation Status

Endangered Species Act Status: None.

State: None.

Other: None.

Rankings: G1, S1.

Current Occurrence in Pima County

This species is only known to occur in Arkenstone cave and (more recently discovered in) Colossal Cave in Colossal Cave Mountain Park.

Anticipated Lethal Take, Habitat Loss, and Current Mitigation

Anticipated lethal take: 10

Anticipated acres of habitat lost to Covered Activities: 0.

Current mitigation (includes 25% credit for State Trust Lands): NA.

Management and Conservation Commitments

Pima County will seek to pursue the following management action and conservation commitment for the Arkenstone cave Pseudoscorpion:

- Gather all information (locations, research, threats) about the Colossal Cave complex.
- Establish electronic and physical repositories for records for the complex.
- Create advisory group to draft inventory, research, and monitoring needs for the cave complex.
- Establish standard operating procedures for permitting research activities and until then restrict access for any purpose.
- Establish standards and guidelines for management of caves by all Pima County departments.

Monitoring

Species. Recent sightings of this species in Colossal Cave may represent an opportunity to monitor presence without entering Arkenstone Cave. Pima County will work with park staff to determine the feasibility of this approach.

Threats. The primary concern for this species is vandalism and loss of food resources. Pima County will periodically check to ensure of no unauthorized entry into Arkenstone Cave is permitted. Also, bats within Colossal Cave will be monitored and any precipitous decline in this group of species may be a precursor to changes the Arkenstone Cave pseudoscorpion. (The Pseudoscorpion feed on insects that—in turn—feed on bat guano). If there is a significant reduction in bat populations at the

caves, Pima County will consult with experts to determine if additional research is needed.

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Appendix B. Capital improvement projects covered under Pima County’s Section 10 Permit. Many impacts projected are in the existing built environment. Impacts to areas of natural cover are approximately 1800 acres; see Appendix C for details. High resolution maps of these project sites will be provided to the USFWS for the Public Draft MSCP.

Map number	Project name	General Location
1	Various Trailhead Parking/Staging	Kennedy Park West End Of W Starr Pass Bl East End Of E Broadway Bl
2	Various Trailhead Parking/Staging	Kennedy Park West End Of W Starr Pass Bl East End Of E Broadway Bl
3	Santa Cruz River Community Park-Menlo Park (COT)	East Bank North Of W Ajo Wy
4	Rillito Park at Columbus Boulevard District Park	3600 N Columbus Bl
5	Yaqui Park Improvements A	39th St To 40th St 10th Av To 12th Av
6	Southeast Regional Park/Shooting Range	305010070 (current) 30501009A0 (future)
7	Mehl Foothills Park	4001 E. River Road
8	Unnamed	
9		Marana Unified School District
10		Oro Valley north of Naranja Road
11	Dan Felix Memorial Park - Pegler Wash	River Road and Camino de la Tierra
12	Pantano River Park. 22nd Street to Michael Perry Park	22nd Street to Michael Perry Park
13	Bicycle Lane on Sahuarita Road	Along both sides of the three-mile stretch of Sahuarita Road from the west Town boundary to the east Town boundary.
14	Arroyo Chico (COT)	Along Arroyo Chico Wash from Country Club to Campbell.
15	Julian Wash Linear Park (COT)	Along Julian Wash from Campbell to Houghton Road.
16	Atturbury Wash Sanctuary (COT)	Southeast Tucson along Atturbury Wash, North of Lincoln Park.
17	Joaquin Murieta Park Improvements (COT)	1400 N Silverbell Rd
18	Catalina Community Park	15300 N. Lago Del Oro Parkway
19	Northside Community Park (COT)	1090 E. River Road
20	Udall Park Sports Field Improvements (COT)	7290 E Tanque Verde
21	Divided Urban Pathway Mountain Ave-First Ave	Rillito South bank between First and Mountain
22	Ted Walker Park	I-10 between Walker Road and Rillito Creek
24	Lincoln Park softball field improvements	East Tucson
25	CATALINA COMMUNITY PARK	Catalina
26	IGA - JUHAN PARK	City of Tucson
27	Udall Park Expansion	City of Tucson
28	Southeast Regional Park (Esmond Station Regional Park)	Fairground Vicinity
29	Southeast Regional Park/Shooting Range	305010070 (current) 30501009A0 (future)
30	Shooting Sports Program Site Improvements	
31	Houghton Greenway (COT)	East side of Houghton Road from Tanque Verde to I-10.
32	Various Trailhead Parking/Staging (Kennedy Park trailhead)	W Ajo HY, west of La Cholla
33	George Mehl Foothills Park	North of Rillito Creek near Alvernon
34	Benson Highway Park Development & Land Acquisition	
35	Robles Community Park	Three Points
36	Hohokam Community Sports Fields and Hohokam Park	Black Wash south of Valencia, next to Pascua Yaqui
37	Marana Rattlesnake Park (Silverbell-Cortaro District Park) - Continental Ranch Marana	Continental Ranch, Marana
38	Picture Rocks BMX/Skate Park	Picture Rocks area
39	Canoa Ranch Historic Rehab and Master Plan	Canoa Ranch
40	SS6.05 Tanque Verde Interceptor: Craycroft to Tucson Country Club (2004 Auth Phase) & (312058 1997 Auth)	Tanque Verde Creek: N Craycroft Rd To Tucson Country Club

Pima County Multiple Species Conservation Plan: Administrative Draft

Map number	Project name	General Location
41	Mission View Wash	Park Avenue at I-10 to 36th Street
42	Ina Rd, WPCF-Road Replacements/Additions	7101 N. Casa Grande Hwy
43	SS6.03 Santa Cruz Interceptor, Phase III	Downtown near Santa Cruz River
44	Plant Interconnection (ROMP)	Between Roger and Ina Road WWTFs
45	Old Nogales Hwy Capacity improvements	Along existing roadway near San Xavier District
46	North Rillito Relief Project 2	South of Rillito near Richey Road
47	North Rillito Relief Project 3	South of Rillito near Richey Road
48	Roger Treatment Plant Demo	Roger Rd. WWTF
49	Water Reclamation Facility Site	Roger Rd. WWTF
50	Water Reclamation Campus	Roger Rd. WWTF
51	Sunrise Lift Station	Catalina Foothills near Sunrise
52	Prudence Lift Station	East Tucson near Broadway and Prudence
53	North Rillito Relief Project	Prince Road area east of Campbell
54	SS-11 Arivaca Junction WWTF Relief Sewer	Arivaca Junction near I-19
55	Capstan Lift Station	15880 North Capstan Ave, Catalina, AZ
56	Prince Rd. & I-10 ADOT Sewer Modifications	Prince Rd at I-10
57	Sabino Creek Pump Station	Sabino Creek near Tanque Verde Road
58	Haystack Mountain	Empirita area south of Interstate 10
59	Tumamoc (FM 2)	Tumamoc Hill top
60	Valencia Standpipe	Roadway near Camino de Oeste, W of I-19
61	Rincon Valley FS 1 (Fire)	Old Spanish Trail
62	Arivaca/Ruby Road	Ruby Road
63	Golder Ranch Fire Station	Golder Ranch Road
64	FM2.13 Arizona Sonora Desert Museum - Gray Water	2021 North Kinney Road
65	FM2.13 Arizona Sonora Desert Museum - Gray Water	2021 North Kinney Road
66	PMP-4 Wheel Drive Obstacle Course	Pima Motor Sports Park, 11700 S. Harrison Road
67	Green Valley Government Center Master Plan Implementation	601 La Canada Dr., Green Valley, AZ
68	New Pima County Nursing Home and add Adult Day Care	Kino Campus Ajo Way/County Club - 10-20 acre
69	Pima County Community College Healthcare Campus	Kino Campus, 2800 E Ajo Way
70	Pima County Animal Care Center (PACC) Improvements	4000 N Silverbell Rd.
71	Fairgrounds Infrastructure Improvements	11500 S Houghton Rd
72	Southern Arizona Cart Club	11700 S Harrison Rd
73	Colossal Cave Mountain Park (Parklands Foundation)	16721 E Old Spanish Trail
74	Primary and Specialty Physician Care Site Expansion (Brain Inst)	2800 E Ajo Way
75	Catholic Comm. Serv - Vail Area Clinic	No Site - Vail Area - 2 acre+
76	Kino Sports Complex Northside Maintenance Facility	No Site - Ajo Way/Country Club - 1acre+/-
77	One Stop Career Center	No Site W/SW Tucson - 2.5 acre+/-
78	North Marana Library & Community Center (Marana request)	No Site - 15acre+/-
79	Sahuarita Branch Library	No Site - Sahuarita AZ - 5 acre+/-
80	Marana Health Center Expansion (Marana request)	No Site - Marana AZ - 5acre+/-
81	Catholic Comm. Serv - Sahuarita-Green Valley Clinic	No Site - Sahuarita / GV AZ - 2 acre+
82	Northwest Regional Justice Center	No Site - NW of La Cholla / Orange Grove - 15-20 acre
83	Catholic Comm. Serv - Quincy Douglas Center	No Site Kino Blvd at 36th - 2 acre+
84	Tucson Children's Museum	Rio Nuevo W of I-10
85	Vail Government/Community Ctr; Library, Pool, Park, Sheriff	No Site - SE Tucson N of I-10 of Houghton - 20 acre+
86	Green Valley Performing Arts/ Learning Center III	W of Continental Rd, Green Valley, AZ
87	Freedom Park Adult Learning Center	No Site - Freedom Park 4800 block of E 29th 2-5 acre
88	ATLANO-Anza Trail	Santa Cruz River in Sahuarita near Sahuarita Road
89	ATLMOR-Anza Trail	Santa Cruz River Los Morteros just S. of ADOT pit
90	ATOITP-Anza Trail	West bank Santa Cruz River:nr Trico Road in Marana
91	DOT-06 Magee Road: La Canada Drive to Oracle Road	Magee Road: La Canada Drive to Oracle Road

Pima County Multiple Species Conservation Plan: Administrative Draft

Map number	Project name	General Location
	(PC-RTA-12)	
92	DOT-23 Thornydale: Cortaro Farms to Linda Vista	Thornydale: Cortaro Farms to Linda Vista
93	DOT-27 River Road at Ventana Canyon Wash	River Road at Ventana Canyon Wash
94	DOT-32 Kolb Road: Sabino Canyon Rd to Sunrise Dr	Kolb Road: Sabino Canyon Rd to Sunrise Dr
95	DOT-44 Orange Grove Road: Thornydale Road to Corona Dr (Phase 2)	Orange Grove Road: Thornydale Road to Corona Dr (Phase 2)
96	DOT-44 Orange Grove Road: Corona Dr to Oracle Rd (Phase 1)	Orange Grove Road: Corona Dr to Oracle Rd (Phase 1)
97	DOT-53 Old Tucson-Nogales Hwy - Summit	South Old Nogales Highway, North of Old Vail Connection Road to East Suncrest Drive
98	Silverbell RD at Blanco/Brawley Washes	Silverbell RD at Blanco/Brawley Washes
99	Wilmot Road: South of I-10 (PC-RTA-33)	Wilmot Road: South of I-10
100	Railroad Overpass: Ruthrauff Road (PC-RTA-09)	Railroad Overpass: Ruthrauff Road
101	Sunset Road: Silverbell Road to I-10 to River Road (PC-RTA-08)	Sunset Road: Silverbell Road to I-10 to River Road
102	First Avenue: Orange Grove Road to Ina Road (PC-RTA-13)	First Avenue: Orange Grove Road to Ina Road
103	Magee Road/Cortaro Farms Road: Mona Lisa to La Canada (Stage I) (PC-RTA-07)	Magee/Cortaro Farms Road: Magee/La Cholla Intersection
104	Madera Canyon at Florida Canyon Wash	Madera Canyon at Florida Canyon Wash
105	Madera Canyon Rd at Medium Wash	Madera Canyon Rd at Medium Wash
106	Twin Peaks: Sidewinder-Marana Town Limits	Twin Peaks: Sidewinder-Marana Town Limits
107	Colossal Cave Rd: Acacia School to Old Vail Road	Colossal Cave Rd: Acacia School to Old Vail Road
108	DOT-18 Cortaro Farms Rd: Camino de Oeste to Thornydale (PC Portion)	Cortaro Farms Rd: Camino de Oeste to Thornydale
109	DOT-29 Houghton Road: Interstate 10 to Tanque Verde Rd (COT-RTA-32)	Houghton Road: I-10 to Tanque Verde Road
110	DOT-31 Tanque Verde Road: Catalina Highway to Houghton Road (PC-RTA-27)	Tanque Verde Road: Catalina Highway to Houghton Road
111	DOT-37 I-19 Frontage Rd: Continental Road to Canoa Road (PC-RTA-35)	I-19 Frontage Rd: Continental Road to Canoa Road
112	DOT-50 Kinney Road: Ajo Way to Bopp Road	Kinney Road: Ajo Way to Bopp Road
113	DOT-56 Broadway Boulevard: Euclid Avenue to Country Club (COT-RTA-17)	Broadway Boulevard: Euclid Avenue to Country Club
114	La Canada Drive: Ina Road to River Road (PC-RTA-11)	La Canada Drive: Ina Road to River Road
115	Magee Road/Cortaro Farms Road: Corridor Study & Thornydale Road to Mona Lisa (Stage III)(PC-RTA-07)	Magee Road/Cortaro Farms Road: La Canada Drive to Thornydale Road
116	DOT-58 Kino Parkway Overpass at 22nd Street	Kino Parkway Overpass at 22nd Street
117	La Cholla Boulevard: Tangerine Road to Magee Road (PC-RTA-04)	La Cholla Blvd. from Tangerine Road to Magee Road
118	La Canada Drive: Ina Road to Calle Concordia (PC-RTA-11)	La Canada Drive: Ina Road to Calle Concordia
119	Valencia Road: Mark Road to Wade Road (PC-RTA-21)	Valencia Road: Ajo Way to Mark Road
120	Valencia Road: Mt. Eagle Road to Ajo Highway (PC-RTA-23)	Valencia Road: Mt. Eagle Road to Ajo Highway
121	Valencia Road: Wade Road to Mt. Eagle Road (PC-RTA-21)	Valencia Road: Wade Road to Mt. Eagle Road
123	DOT-47 Sunrise Drive: Craycroft Road to Kolb Road	Sunrise Drive: Craycroft Road to Kolb Road
124	DOT-20 La Cholla Boulevard: River Road to Ruthrauff Road (PC-RTA-10)	La Cholla Boulevard: River Road to Ruthrauff Road
125	Camino Loma Alta: Old Spanish Trail to Colossal Cave Rd	North Portion: T 15 South, R 16 East and S35; South Portion: T 16 South, R 16 East and S 2
126	Valencia Road, Alvernon to Kolb-RTA #24	Valencia Road, Alvernon to Kolb
127	Mission and Valencia Intersection Improvements	Mission and Valencia
128	Kolb and Valencia Intersection Improvement	T15A, R15E, Sec 07,08
129	Alvernon Way/Valencia Intersection Improvements	T15S R14E
130	Ina Road at Oracle Road Intersection	T13S R13E

Pima County Multiple Species Conservation Plan: Administrative Draft

Map number	Project name	General Location
131	Tres Rios del Norte (USACOE Study)	SCR W Cortaro Farms Rd To W Sunset Rd
132	TV Creek/Sabino Canyon to Craycroft (USACOE)	Tanque Verde Creek: N Sabino Canyon Rd To N Craycroft Rd
133	Santa Cruz River: Paseo de Las Iglesias Restoration (USACOE Study)	SCR: San Xavier Rd To Downtown Tucson
134	Arroyo Chico Detention Basin (USACOE)	Broadway Bl & Park Av To East Of Plummer Ave
135	FC5.06 Santa Cruz River Flood Control, Erosion Control and Linear Park, Ajo to 29th St	Santa Cruz River: W Silverlake Dr to W Ajo Wy
136	FC5.10 Canada del Oro River Park, Thornydale to Magee	Canada Del Oro: N Thornydale Rd To W Magee Rd
137	Diablo Village Regional Detention Basins	T15S, R12E, west 1/2 Sec 16
138	Santa Cruz River Continental Ranch Remediation	Section 22, T 12S, R 12E - Santa Cruz River
139	Pantano Wash: Pantano Townhomes Bank Protection	Latitude-32.245204, Longitude-110.844553
140	Pantano Wash: Kolb Executive Park Bank Protection	Latitude-32.241923, Longitude-110.842510
141	Pantano Wash: Mullins Landfill Bank Protection	Latitude-32.241042, Longitude-110.841138
142	Pantano Wash:Speedway to Tanque Verde	Lat 32.242118, Lon-110842357
143	Pantano Wash Kenyon to 22nd St	Pantano Wash
144	Pantano Wash Golf Links Extension	Pantano Wash
145	Pantano Wash - Rillito to Tanque Verde	Pantano Wash
146	TRDN/CDO Ecosystem Restoration	Santa Cruz River, Sweetwater to Trico-Marana
147	Sahuarita/Green Valley Grade Controls	Tributaries to the Santa Cruz river
148	Santa Cruz/Rillito/CDO Confluence	Riverbed of the Santa Cruz, CDO, Rillito
149	Santa Cruz - Los Reales to Drexel	Riverbed
150	Green Valley Drainageways 3,6,9,13,17	Drainageway
151	Carmack Wash at Magee Rd	Riverbed, tributary to Canada Del Oro (CDO)
152	Rollercoaster wash at Rudasill	Riverbed, Catalina Foothills
153	South Tucson Drainage	South Tucson
154	High School Wash (COT)	Riverbed in City of Tucson (COT)
155	Nebraska Wash (COT)	Riverbed in Tucson Mountain foothills
156	Columbus Wash (COT)	Street and wash in central Tucson
157	Naylor Wash - Craycroft to Sahuaro Ave (COT)	Street and wash in central Tucson
158	Navajo Wash (COT)	Street and wash in central Tucson
159	Big Wash Flood Water Harvesting and Recharge	Floodplain of Big Wash upstream of CDO
160	Canada del Oro Wash Floodplain and Open Space	Canada del Oro (CDO) Wash
161	Big Wash/CDO Linear Park	Floodplain along Big Wash and CDO
162	Rancho Sahuarita Blvd	Sahuarita
163	Ceinega Creek Pantano Dam Ecosystem Restoration	Inholding in Cienega Creek Natural Preserve
164	Santa Cruz River Continental Grade Control	Green Valley area, riverbed of Santa Cruz
165	Canoa Ranch Restoration	Canoa Ranch south of Green Valley
166	La Villita Road Flood and Erosion Protection	South of Sahuarita Road, east of I-19
167	Avra Valley/Black Wash Ecosystem Restoration	Near Avra Valley Wastewater Treatment Facility
168	Pasqui Yaqui Tribe Black Wash	Black Wash west of Tucson
169	San Xavier Estates	North of San X. District, west of I-19
170	Ventana Sunrise Crossing	Ventana Wash at Sunrise
171	Barnett Linear Park and Flood Control Channel	Marana
172	Twin Peaks Drainage	South of Avra Valley Road in Marana
173	Camino Martin Drainage	Tortolita piedmont
174	Saddle Valley-Logans Crossing	Oro Valley area near Pusch Ridge
175	Shadow Mountain	Oro Valley area
176	Lomas de Oro	Oro Valley Area
177	Oro Valley Drainage Infrastructure	Oro Valley area
178	Chalk Wash	Oro Valley-Tortolita piedmont
179	Fontino Property	Black Wash watershed
180	Floodprone Land Acquisition Program	House demolitions, various locations not yet known

Appendix C. Land absorption, habitat impact, and mitigation analysis. Model developed by Julia Fonseca, Cory Jones, Mike List, Mark Probstfeld, and Sherry Ruther.

Overview: Urban growth projections utilize land absorption modeling to estimate how landscapes will be changed as a result of an increasing human population. The growth projection scenario used for estimating habitat impacts was developed by a public-private team of planners and engineers during the City-County Water Study (Stantec 2009), then modified for this study to assess a shorter and variegated time horizon. Then the impacts within the Permit Area from the growth model were combined with the impacts from future Capital Improvement Program projects for the 30-year term of the Multiple Species Conservation Plan (MSCP). This combined result was then intersected with species habitats to measure habitat impacts. Figures A-35 summarizes the methods used. CLS mitigation was calculated as shown in Figure A-36.

The resulting impacts are a projection of where Covered Activities might occur. Projections are for US Fish and Wildlife's analytical purposes. The projections are not for use in parcel-specific determination of permit coverage, nor do they represent areas of actual habitat take. Actual locations of take by Covered Activities will be tracked and reported to USFWS annually, based on what land is actually developed in the permit area under the County's incidental take permit..

Urban Growth Projection: The projection of urban growth we used for habitat impacts was consistent with what was called the "status quo" growth scenario in the City-County Water Study (Stantec 2009). The defining characteristic of the "status quo" growth scenario is that new growth in the suburbs occurs at 2500 people per square mile, a relatively low metropolitan population density that is consistent with current patterns of growth in the Tucson area. If the region is able to achieve higher urban densities (i.e., requiring higher densities in planned communities and/or implementing transit oriented development), then the predicted habitat impacts would be fewer than represented here. More information is available about the development of the "status quo" growth scenario in Stantec (2009).

We also excluded consideration of future annexation patterns. Annexations could reduce the total long-term impacts of urban development within Pima County's permit area.

We excluded western Pima County from the growth model *a priori* because there is no basis (i.e., specific population projections and refined GIS data) to project future development there. Development opportunities in western Pima County are largely limited to infilling the built environment on private lands in the isolated, low density communities of Ajo, Why, and Lukeville.

For our purposes, assumptions were needed to predict population growth at ten-year increments, and to differentiate Covered Activities from other impacts in the Permit Area. Because of the changes in Covered Activities, we departed from methods described in Fonseca et al. (2009), which were the basis for habitat impacts in the Draft 5 MSCP.

We obtained population projections from the Arizona Department of Economic Security (2008) for the years 2020, 2030, and 2040. These projections were used in conjunction with an urban form classification developed for the City-County Water Study. This GIS layer divides eastern Pima County into four urban form units (urban core, core suburbs, expanding suburbs, and exurbs) and many sub-units (e.g., exurbs - lot split low density). Each urban form unit dictates a unique population density, ranging from 4500 people per square mile in the urban core to 300 people per square mile in portions of the exurbs. The urban form boundaries were drawn using elements of the Pima County Comprehensive Plan and the City of Tucson General Plan in conjunction with data on current population density as well as subdivision and annexation history. The urban form layer was overlain with the past ten years of residential building permits, and the resulting ratios of permits by urban form were applied to the population projections. In this fashion, land absorption was "spread around" at varying population densities based on dynamics particular to eastern Pima County.

A definition of the current built environment per the Pima Association of Government's latest land use model (2008) was used as the starting point for adding new urban growth. This is different than the Draft 5 MSCP calculation for the 2008 built environment, which was based solely on Pima County data. Road rights-of-way (ROW) were not included in the built environment.

Constraints to future land absorption were as chosen by the City-County Water Study Committee. For this model we stipulated that urban growth would not occur:

- in the existing built environment, except non-mapped infill in the urban core/core suburbs,
- in areas of greater than 25% slope,
- in areas of existing mines/quarries,
- in areas of floodways,
- on federal or tribal lands except BLM disposable land outside CLS,
- in existing or proposed preserves of any kind,
- on Tucson Water municipal lands and wellfields,
- on active landfills,
- on golf courses,
- within road rights-of-way,
- in public parks
- in cemeteries
- in DM/TIA approach and departure corridors.

Most land absorption occurred in the suburbs, which were divided into four urban form sub-units. The City-County study recognized both planned and unplanned residential suburban development (Stantec 2009). Planned development was defined using information from Comprehensive Plan Amendments, State Trust discussions, and other GIS data. Planned development included unbuilt *and* partially built communities. At 2020, we assumed that the only State Trust Land available to absorb growth was located within planned communities. In the subsequent timeframes, State Trust Land

was released to development throughout the rest of the suburbs, but not in any of the exurbs.

Suitability for future development was developed in consultation with the City-County Water Study, and in consideration of recent trends in development. Suitability was assumed to improve with proximity to:

- Existing, committed, and planned road and transit infrastructure,
- Existing potable water infrastructure,
- Top single-site employers,
- Existing sewage conveyance and treatment infrastructure,
- Recent (2003-2008) building permits and house sales,
- Current built environment,
- Municipal parks and selected trailheads,
- High-performing school districts
- Areas not deemed “high stress”.

Note, these variables were weighted in terms of influence through a match pairs comparison exercise (i.e., Analytical Hierarchy Process) completed by the team of engineers and planners.

Population is “absorbed” by the most suitable 30-meter cell (equivalent to approximately 1/5 acre). The cell size was determined by the slope grid used for urban growth constraints. The cells with the highest development suitability scores were iteratively chosen until each population projection per urban form unit per timeframe was satisfied. The 2020 land absorption projections were added to the existing built environment to yield a new development constraint, and so on through the next two ten-year increments.

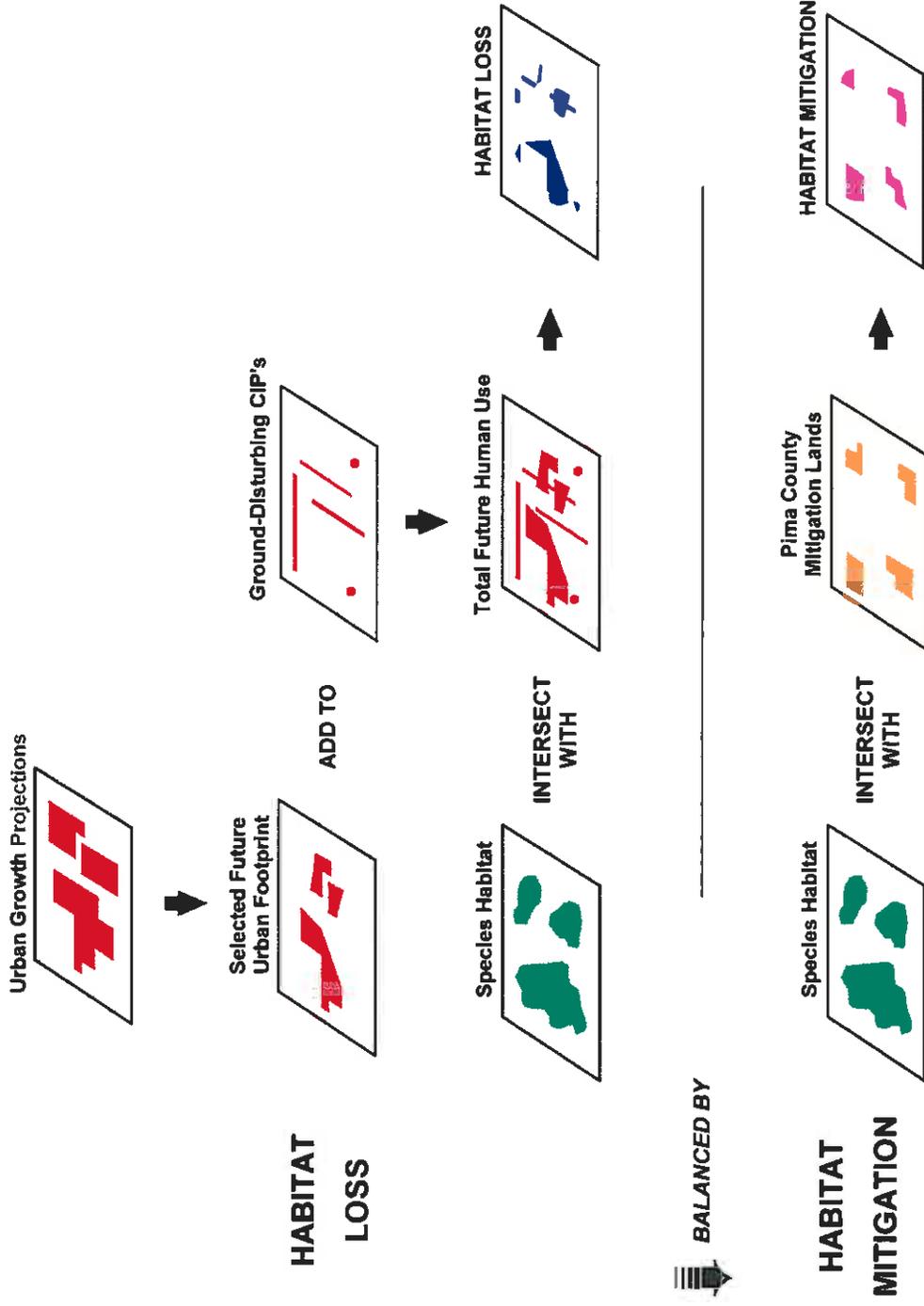


Figure A-35. Schematic representation of the methods used to calculate habitat loss and habitat mitigation (illustration by Mike List).

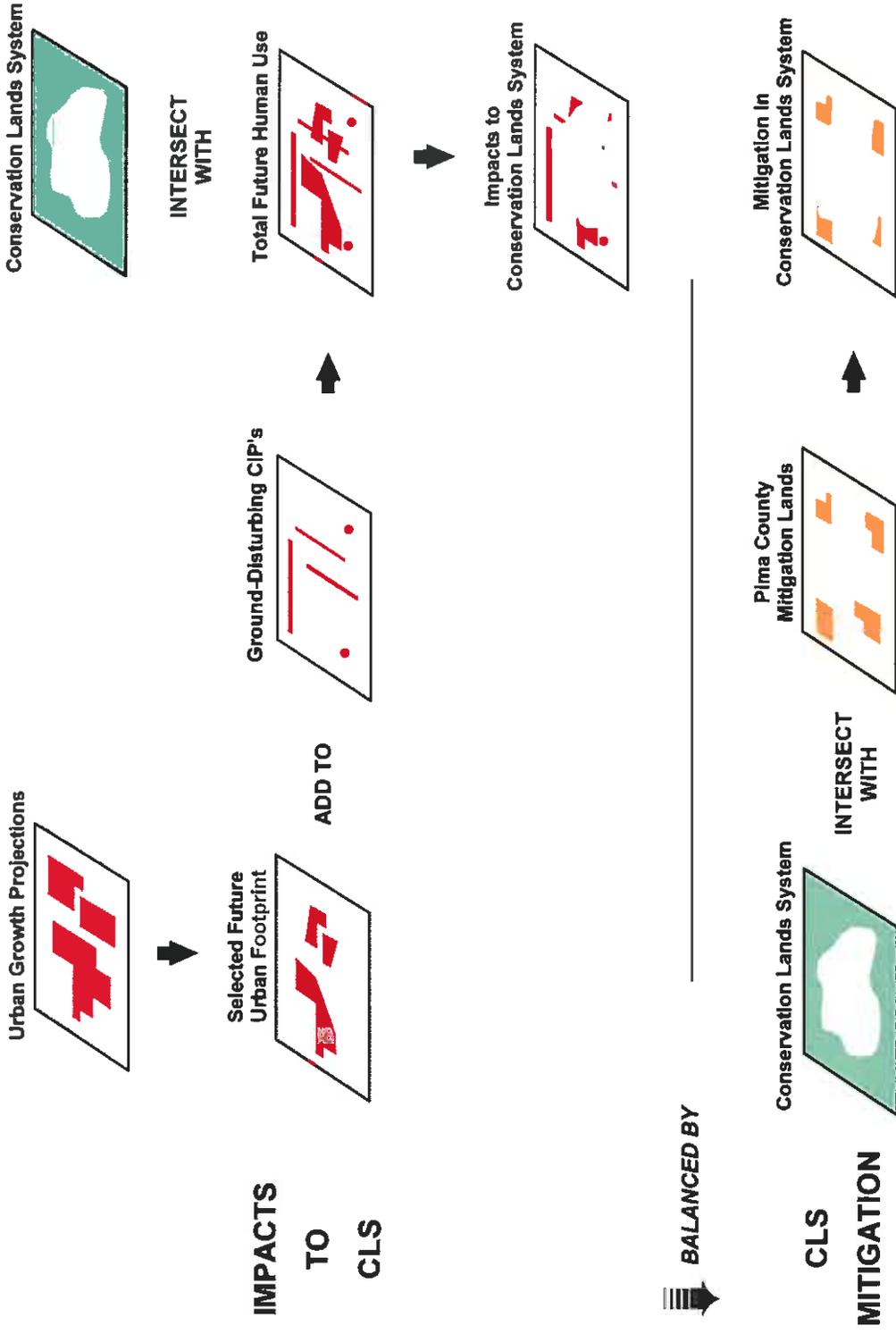


Figure A-36. Schematic representation of the methods used to calculate CLS impacts and mitigation (illustration by Mike List).

Covered Activities

Covered activities modeled included private development and County capital Improvements.. As defined in the MSCP, Covered private development consists of rezonings and other land-use activities that are subjected to discretionary approval by the Pima County Board of Supervisors and parcels that are taking part in the Opt-in Program. For the purpose of analysis, we assumed that ~33,000 acres would be available for private impacts, and ~1800 acres for the County's capital improvements.

Staff reviewed all capital improvements projects identified by contributing departments of Pima County (see Appendix B). Projects which would likely be completed before the MSCP permit is issued were not analyzed, as were projects believed to cause no new ground disturbances. All road projects are considered covered, but only repaving and other projects confined to existing built rights-of-way were not modeled. Only capital improvement projects in the Permit Area and outside the built environment were modeled as potential habitat impacts. An estimated 1,800 acres of potential impacts were identified in the GIS representation for capital improvements projects.

The cells of projected urban growth within planned communities within the City-County model in the Permit Area were selected to represent the potential location of Covered Activities. Selections occurred up to the ceiling of approximately 33,000 acres for covered private activity. Growth that occurred in planned communities represented the bulk of Covered Activities in this model. About 7200 acres of the cells of growth were distributed in areas that were rezoned between 2002 and 2009, representing the opt-in pogram..

Habitat Losses

Habitat losses were modeled using the sum of covered private development activities and capital projects, intersected with each of the species' habitat. We assumed that nearly all of the capital improvement projects would be completed in the first 20 years. For covered private development, the assumptions about the slow release of State

Trust land to the private sector results in most of the pre-permit rezonings and extant planned communities being developed in the first 20 years.

Habitats were defined using all Priority Conservation Areas 1 through 4 defined by experts (EPG 2001). Two species, the desert tortoise and Tumamoc globeberry, do not have PCAs and therefore we used habitat suitability models for these species. The desert tortoise model used was the “bedrock plus” model developed by Julia Fonseca with review by the Marana Technical Biological Team and others. The Tumamoc globeberry model used was the potentially suitable habitat model developed by RECON and others during the Sonoran Desert Conservation Plan.

Occurrences of talus snails and the Arkenstone pseudoscorpion are too localized to model. Desert pupfish is not modeled because it does not occur in Pima County. It may be reintroduced, but no habitat take is possible until that time.

Habitat Mitigation

To analyze how mitigation compensates for species’ habitat loss, we used a projection of Mitigation Lands that Pima County expects to acquire with existing funding plus existing County-controlled Mitigation Lands, previously described in the *Pima County Mitigation Lands* report(Connolly and Fonseca 2009). Lands located outside Pima County were analyzed, but in nearly all cases, PCAs or habitat models do not extend into these areas at the present time. Thus these lands were not analyzed for habitat mitigation.. Outside of the County boundary, Pima County owns approximately 1,700 acres of Mitigation Land, and leases approximately 9,600 acres outside Pima County boundaries.

Uncertainties related to actual future habitat losses and thus habitat mitigation obligations under the Section 10 (a) permit are discussed in *Habitat Mitigation in the Pima County Multiple Sepcies Conservation Plan* (Fonseca 2009).

Literature Cited

Connolly, N. and J. Fonseca 2009. Pima County Mitigation Lands: Commitments for Multi-Species Conservation. County Administrator's Office.

http://www.pima.gov/cmo/sdcp/MSCP/PDF/Mitigation_lands.pdf

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Fonseca, Julia, 2009. Habitat Mitigation in the Pima County Multiple Species Conservation Plan. County Administrator's Office.

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Fonseca, J. M. List, C. Jones, J. Regan, and M. Probstfeld. 2009. [Projected Impacts](#) of Urban Growth for Pima County's Multiple-Species Conservation plan, Draft dated January 2009. Report to the Pima County Board of Supervisors.

<http://www.pima.gov/cmo/sdcp/reports/d51/Urban%20Growth%20Projection.pdf>

Stantec, Pima County, City of Tucson, Curtis Lueck and Associates 2009. Location of Growth, Urban Form, and Cost of Infrastructure. [White Paper](#) supporting Phase 2 of the Water and Wastewater Infrastructure, Supply and Planning Study.

Accessed July 7 at

<http://www.tucsonpimawaterstudy.com/Reports/Phase2/GrowthReport.pdf>.

Appendix D. Maeveen Marie Behan Conservation Lands System conservation guidelines. Mitigation ratios follow the same format: acres conserved:acres developed.

CLS Category	Mitigation ratio	Conservation guideline
Important Riparian Area (IRA)	4:1	At least 95 percent of the total acreage of lands shall be conserved in a natural or undisturbed condition. Every effort should be made to protect, restore, and enhance the structure and functions of IRAs, including their hydrological, geomorphological, and biological functions. Areas within an IRA that have been previously degraded or otherwise compromised may be restored and/or enhanced. Such restored and/or enhanced areas may contribute to achieving the 95 percent conservation guideline for IRAs.
Biological Core Management Areas	4:1	Land-use changes may occur through a combination of on- and/or off-site conservation inside the Biological Core Management Area or Habitat Protection Priority Areas. For purposes of this policy, Habitat Protection Priority Areas are areas referenced and mapped as part of the 2004 Conservation Bond Program. Development shall be configured in the least sensitive portion(s) of the property. Area(s) of undisturbed natural open space will be configured to include on-site conservation values and preserve the movement of native fauna and pollination of native flora across and through the landscape. Natural open space on individual lots is driven by minimum lot size requirements for the pertinent zoning district. Land use and management within these areas shall focus on the preservation, restoration, and enhancement of native biological communities. Land uses appropriate for these areas must retain and improve conditions for on-site conservation values, preserve the movement of native fauna and pollination of native flora across and through the landscape, and preserve landscape integrity. A transfer of development rights may be used in order to secure County-controlled Mitigation Lands.
Multi-use Management Areas	2:1	Land-use changes may occur through a combination of on- and off-site conservation inside the Multiple Use Management Area or any more protective category of the CLS, including Habitat Protection Priority Areas. Development shall be configured in the least sensitive portion(s) of the property. Area(s) of undisturbed natural open space will include on-site conservation values and facilitate the movement of native fauna and pollination of native flora across and through the landscape. Land use and management goals within these areas shall focus on balancing land uses with conservation, restoration, and enhancement of native biological communities. Land uses appropriate for these areas must facilitate the movement of native fauna and pollination of native flora across and through the landscape, maximize retention of on-site conservation values, and promote landscape integrity. Additional conservation exceeding 66⅔ percent will be encouraged through the use of development-related incentives and may utilize undisturbed natural open space on individual lots (driven by minimum lot size requirements for the pertinent zoning district). A transfer of development rights may be used in order to secure lands utilized for mitigation, restoration, and/or enhancement purposes.
Special Species Management Areas	4:1	Acreage of lands within this designation shall be conserved as undisturbed natural open space and will provide for the conservation, restoration, or enhancement of habitat for the affected Special Species (cactus ferruginous pygmy owl, southwestern willow flycatcher, and Mexican spotted owl). As such, land use changes may occur through a combination of on- and off-site conservation inside the Special Species Management Area. Development shall be configured in the least sensitive portion(s) of the property. Area(s) of undisturbed natural open space will be configured to facilitate the movement of the relevant Special Species through the landscape and will include those on-site conservation values essential to survival of the relevant Special Species. A transfer of development rights may be used in order to secure County-controlled Mitigation Lands.
Scientific Research Areas	NA	Scientific Research Areas should continue to be managed for the purpose of scientific research on the environment and natural resources. Scientific research activities should minimize any long-lasting impacts that may affect adjacent or nearby CLS lands. Any land-use changes subject to Pima County jurisdiction should achieve the conservation goals of the underlying CLS category.
Agriculture Inholdings within CLS	0	Intensifying land uses of these areas will emphasize the use of native flora, facilitate the movement of native fauna and pollination of native flora across and through the landscape, and conserve on-site conservation values when they are present. Development within these areas will be configured in a manner that does not compromise the conservation values of adjacent and nearby CLS lands.
Critical Landscape Connections	NA	Land-use changes in these broadly defined areas should protect existing biological linkages. Where they occur, barriers to the movement of native fauna and pollination of native flora through the landscape should be removed and fragmented corridors of native biological communities should be restored. Opportunities to remove barriers and restore corridor connectivity may arise as part of other, non-land use related activities (e.g., new construction for or upgrade of infrastructure services). Such opportunities should be pursued. High priority shall be given to identifying, preserving, and re-establishing the connection between native biological communities.

Appendix E. Mitigation land acquired to date.

Preserve Name	Land Tenure	Acres
A-7 Ranch	Fee Simple	6,748
A-7 Ranch	Grazing lease	34,218
A-7 Ranch	Use agreement with BLM	112
Ajo	Fee Simple	1,397
Amadon	Fee Simple	38
Arivaca open space	Fee Simple	122
Arthur Pack Regional Park	Fee Simple	281
Avra- I-10	Fee Simple	47
Bar V Ranch	Fee Simple	1,766
Bar V Ranch	Grazing lease	12,135
Baxter	Fee Simple	26
Bear Creek Ranch	Fee Simple	18
Bee	Fee Simple	160
Big Wash rehabilitation	Fee Simple	147
Bingham Cienega Natural Preserve	Fee Simple	268
Brawly Wash/Manville Garcia	Fee Simple	396
Buckelew Properties	Fee Simple	1,016
Buckelew Properties	Grazing lease	1,823
Canoa Ranch	Conservation easement	84
Canoa Ranch	Fee Simple	4,697
Chilton Ranch	Fee Simple	163
Cienega corridor	Fee Simple	1,687
Cienega Creek Natural Preserve	Fee Simple	4,267
Clyne Ranch	Fee Simple	957
Cochie Canyon	Fee Simple	286
Colossal Cave Mountain Park	Fee Simple	781
Dakota Wash	Fee Simple	23
Diamond Bell Ranch	Grazing lease	29,856
Dos Picos	Fee Simple	56
Doucette	Fee Simple	22
Drainageway	F Fee Simple	293
Drewes	Fee Simple	10
Elephant Head Sec.15 mitigation lands (Easely)	Fee Simple	44
Elephant Head Sec.15 mitigation lands (Kreutz)	Fee Simple	79
Elephant Head Sec.15 mitigation lands	Fee Simple	40
Empirita	Fee Simple	2,788
Estates at Old Spanish Trail	Conservation easement	98
Floodprone Lands Acquisition Program	Fee Simple	1,615
Hartman and Cortaro	Fee Simple	49
Heather	Fee Simple	0
Hiett	Fee Simple	0
Honey Bee Canyon	Conservation easement	467
Joshua Tree II	Fee Simple	40
King 98 Ranch	Fee Simple	1,039
King 98 Ranch	Grazing lease	3,291
Linda Vista/ Patrick Property	Fee Simple	9
Los Morteros	Fee Simple	107

Pima County Multiple Species Conservation Plan: Administrative Draft

Preserve Name	Land Tenure	Acres
Lower Santa Cruz replenishment	Fee Simple	105
Madera Highlands	Fee Simple	373
Malcolmson Donation	Fee Simple	74
Marana Cottonwoods	Fee Simple	72
Marley Ranch	Fee Simple	6,390
Nunez	Fee Simple	19
Oracle Ridge	Fee Simple	1,173
Park	Fee Simple	40
Poteet	Fee Simple	75
Rancho Seco	Conservation easement	477
Rancho Seco	Fee Simple	9,577
Rancho Seco	Grazing lease	21,659
Reid property	Conservation easement	4
Reid property	Fee Simple	3
Recreation and Public Purposes Act (RPPA)	Fee Simple with reversionary clause to BLM	2,403
Ruddick	Fee Simple	15
San Domingo flood-prone area	Fee Simple	14
Sands Ranch	Fee Simple	5,220
Section 404 Or Pima County riverine	F Fee Simple	729
Six Bar Ranch	Conservation easement	40
Six Bar Ranch	Fee Simple	3,309
Six Bar Ranch	Grazing lease	10,268
Sopori Ranch	Fee Simple	3,982
Sopori Ranch	Grazing lease	9,650
South Wilmot LLC	Fee Simple	36
Southeast Regional Park	Fee Simple	53
Starr Pass Resort easements	Conservation easement	103
Steam Pump Ranch	Conservation easement	15
Tang	Fee Simple	40
Tanque Verde Creek	Fee Simple	217
Tortolita Mountain Park	Fee Simple	796
Trico	Fee Simple	97
Trico Marana	Fee Simple	72
Tucson Mountain Park biological corridor	Fee Simple	10
Tucson Mountain Park	F Fee Simple	2,438
Tucson Mountain Park Mit. Area	Fee Simple	42
Tucson Mountain Park, 36 th St. corridor	Fee Simple	226
Tumamoc	Fee Simple	277
Wal-Mart conservation easement	Conservation easement	1
Walden	Fee Simple	447
Wexler	Fee Simple	15
Total		194,121

Appendix F. Habitat Protection Priorities in eastern Pima County.

The Habitat Protection Priorities (Fig. A-37) were developed for the 2004 Bond election by the Arizona Land and Water Trust and The Nature Conservancy, using data developed by Pima County, STAT, and others. The data were integrated into a computer data set that enabled basic modeling of goals and criteria to identify priorities.

Conservation goals included: 1) to maximize the benefit of existing protected areas by increasing their size; 2) to emphasize protection of the rarest habitat types or “special elements” as per STAT; 3) to maintain a network of connected protected lands where native habitat and natural corridors remain; and 4) to systematically evaluate lands throughout all of eastern Pima County so that priorities are identified in all of the County’s biologically important areas.

Selection criteria included: 1) lands from the most biologically important CLS categories including the Biological Core, Important Riparian and Recovery Management Areas; 2) private lands equal to or greater than 10 acres in size in vacant or agricultural status; 3) State Trust lands within the priority CLS categories, emphasizing lands eligible for conservation under the Arizona Preserve Initiative. Thousands of parcels met the selection criteria, and were evaluated as to how each parcel met the conservation goals. The evaluation resulted in the Figure A-37.

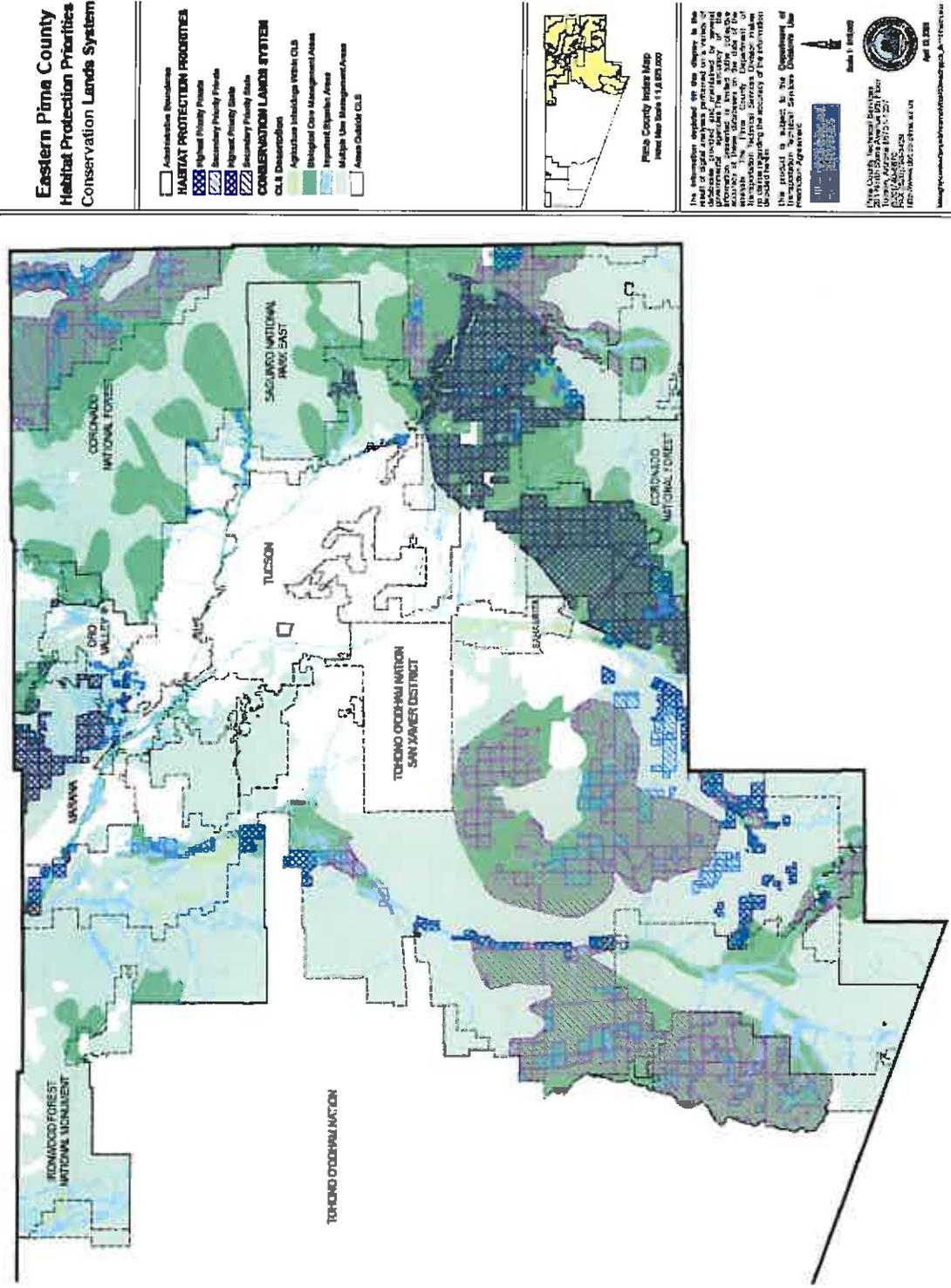


Figure A-37. Map of Habitat Protection Priorities in eastern Pima County.

Appendix G. Draft Conservation Easement for Mitigation Land Owned in Fee Simple by Pima County or Pima County Regional Flood Control District. This particular version is drafted for County-owned land, and would need to be adapted for use on District-owned land.

MITIGATION LAND CONSERVATION EASEMENT

THIS CONSERVATION EASEMENT is made this ____ day of _____, 2011, by Pima County, ("Grantor"), in favor of Pima District Regional Flood Control District, a political subdivision of the State of Arizona, ("District" or "Grantee") (collectively, the "Parties"), pursuant to A.R.S. § 33-271, et. seq.

In consideration of the mutual covenants contained herein, Grantor hereby voluntarily grants and transfers to District a conservation easement (the "Easement"), in perpetuity, over and across the property described in **Exhibit A** (the "Property"), which Easement shall run with the land and shall bind the Grantor and District in perpetuity, subject to the terms and conditions contained herein. Further, as a part of this Easement, Grantor hereby transfers to District all rights (except as specifically reserved herein) that are now or hereafter allocated to, implied, reserved or inherent in the Property, and the Parties agree that such rights are terminated and extinguished, and may not be used on or transferred to any portion of the Property as it is now or hereafter may be bounded or described, or to any other property adjacent or otherwise, nor used for the purpose of calculating permissible residential density or development intensity of the Property or any other property.

1. **PURPOSE.** The Parties agree that it is the purpose of this Easement to: (i) assure that the Property will be preserved forever in its predominantly open, scenic, undeveloped and natural condition; (ii) prevent any uses of the Property that will significantly impair or interfere with the areas of biological, ecological, hydrological or geological importance (the "Conservation Values") of the Property; (iii) conserve habitat for wildlife; (iv) protect rare and unique native plants and animals currently known or later identified; and (v) promote the conservation purposes stated in A.R. S. § 33-271(2).

2. **RIGHTS OF DISTRICT.** Grantor hereby grants the following rights to District:

2.1 To identify, preserve, protect and monitor, in perpetuity, the Conservation Values of the Property;

2.2 To prevent Grantor or third persons from conducting any activity on or use of the Property that is prohibited or inconsistent with this Easement;

2.3 To enter upon the Property for administrative purposes, provided that such entry shall be upon seven (7) days written notice to Grantor, and District shall not in any case unreasonably interfere with Grantor's use and quiet enjoyment of the Property;

2.4 Upon thirty (30) days written notice to Grantor, and subject to Grantor's approval, which shall be in Grantor's sole discretion, District or other educational or research agencies and institutions may enter upon the Property to engage in ecological, geological and/or archeological studies, research and special projects, provided that District shall not unreasonably interfere with Grantor's use and quiet enjoyment of the Property;

To enter upon the Property at any time during the term of this Conservation Easement under emergency circumstances to prevent an imminent breach of the terms of this Easement or, in District's sole discretion, to prevent damage to or destruction of the Conservation Values.

3. [reserved for right to exchange for value upon agreement of the parties and 3rd party beneficiary]

4. PROHIBITED ACTIVITIES. The following activities and uses are expressly prohibited:

4.1 Development of the Property, including subdivision or lot splitting of the Property.

4.2 Constructing or placing of any additional buildings or structures, except construction of additional agricultural outbuildings or recreational development, as might be provided elsewhere in this Easement.

4.3 Surface alteration or natural vegetation alteration other than that necessary to retain, restore or enhance the Property's Conservation Values as defined herein.

- 4.4 Severing of surface or subsurface water rights associated with the Property, including the transfer, encumbrance, lease and sale of water rights, except where severance of such water rights does not diminish the Conservation Values as defined herein.
- 4.5 Manipulating, impounding or altering any natural watercourse, except as may be necessary to retain, restore or enhance the Conservation Values as defined herein.
- 4.6 Development of, or the granting of rights-of-way, access or easements for new roads, except as might be provided elsewhere in this Easement.
- 4.7 Development of, or the granting of rights-of-way, access or easements for new utilities, including telecommunications facilities, except where environmental analysis adequately demonstrates that allowing such activities is not harmful to the Conservation Values of the Property. Review of such environmental analyses and final determination as to the harmful nature of such impacts is granted solely to Grantee.
- 4.8 Filling, excavating, dredging, mining, drilling, exploration, or extraction of minerals, hydrocarbons, soils, sand, gravel, rock or other materials on or below the surface of the Property, except as except as may be necessary to retain, restore or enhance the Conservation Values as defined herein.
- 4.9 The storage, dumping, accumulation or disposal of toxic and/or hazardous materials, trash, garbage, solid waste or other unsightly material on the Property.
- 4.10 The introduction of non-native fish or amphibians or other non-native organisms to or from catchments, tanks, springs or creeks.
- 4.11 The introduction of non-native species of noxious or aggressive character that might adversely affect the Conservation Values of the Property.
- 4.12 Storage and use of biocides and chemical fertilizers except for residential and agricultural purposes that may be provided for herein. Aerial application of biocide or other chemicals is prohibited except where Grantor and Grantee concur that it is an appropriate and necessary management technique to promote the recovery or

reestablishment of native species or to reduce threats to ecosystem structure and function.

4.13 Pumping of surface or subsurface water from existing diversions for other than on-site residential, wildlife, recreational, habitat enhancement and agricultural uses associated with livestock grazing on the Property as provided for herein. Increases in the amount of surface or subsurface water per pump shall not be permitted without joint approval from Grantor and Grantee.

4.14 Construction of new water diversions that divert surface or subsurface water from any spring or watercourse, except as may be necessary to retain, restore or enhance the Conservation Values as defined herein.

4.15 Planting non-native, invasive plant species. Planting of such vegetative species is permissible only for the purposes of supporting existing ranching operations, if any, and will be limited to those areas identified herein that have historically been devoted to the growing of such species.

4.16 Installation of underground storage tanks for petroleum or other polluting substances, except those already existing or permitted septic tanks.

4.17 Confinement of livestock where animals are permanently located in enclosures and the majority of their feed supplied from outside sources. This includes but is not limited to feeder cattle, dairy, pig, poultry and exotic animal farm operations.

4.18 Commercial enterprises inconsistent with protection of the Property's Conservation Values, excluding farming and ranching as provided herein. Commercial enterprises, other than farming or ranching, that provide for ecotourism or wildlife-related recreation may be approved subject to the joint consent of Grantor and Grantee.

4.19 Use of the Property to provide temporary residential space for mobile homes, travel trailers, tent trailers, self-propelled recreational vehicles and like structures or vehicles, except as needed to protect the Conservation Values.

4.20 Any paving of roads using asphalt or concrete except where required by County ordinance.

4.21 Any modification of the topography of the Property through the placement thereon of soil, dredging spoils, or other material, except for those uses permitted under this Easement.

4.22 Off-road vehicular travel except as reasonably necessary to facilitate permitted activities on the Property.

5. DEFAULT AND REMEDIES.

5.1 If District determines that Grantor is in breach of the terms of this Easement, District shall give written notice to Grantor of such breach and demand corrective action sufficient to cure the breach and, where the breach involves injury to the Property resulting from any activity inconsistent with the purpose of this Easement, to restore the portion of the Property so injured. If Grantor fails to cure the breach within thirty (30) days after receipt of such notice, or under circumstances where the breach cannot reasonably be cured within a thirty (30) day period, fails to begin curing such breach within the thirty (30) day period, or fails to continue diligently to cure such breach until finally cured, then the District may bring an action at law or in equity in a court of competent jurisdiction to enforce the terms of this Easement, to enjoin the breach by temporary or permanent injunction, to recover any damages to which it may be entitled for breach of the terms of this Easement or injury to any protected uses or Conservation Values, including damages for any loss thereof, and to require the restoration of the Property to the condition that existed prior to any such injury. If upon receipt of notice from the District the Grantor fails to cease the activity which caused the breach, the District may bring immediate action at law or equity to enjoin the breach by temporary or permanent injunction.

5.2 Nothing contained in this Easement shall be construed to entitle District to bring any action against Grantor for any injury to or change in the Property resulting from causes beyond Grantor's control, including unforeseeable acts of trespassers, fire,

flood, storm, drought, pests, earth movement, and major vegetative disease, or from any prudent action taken by Grantor under emergency conditions to prevent, abate or mitigate significant injury to the Property resulting from such causes.

6. COSTS, TAXES. Grantor retains all responsibilities and shall bear all costs and liabilities of any kind related to the ownership, operation, upkeep, and maintenance of the Property. Grantor remains solely responsible for obtaining any applicable governmental permits and approvals for any activity or use which shall be undertaken in accordance with all applicable federal, state, and local laws, regulations, and requirements. Grantor shall pay before delinquent all taxes, assessments, fees, and charges of whatever description levied on or assessed against the Property by competent authority (collectively "taxes"), and shall furnish Grantee with satisfactory evidence of payment upon request.

7. THIRD PARTY BENEFICIARY. Grantor grants to _____ the right as third party beneficiary to enforce the terms and conditions of this Easement ensuring perpetual preservation of the Conservation Values of the Property.

8. GENERAL PROVISIONS.

8.1 **Severability.** If any provision of this Easement is found to be invalid, the remainder of the provisions of this Easement shall not be affected thereby.

8.2 **Entire Agreement.** This instrument sets forth the entire Agreement of the Parties with respect to this Easement.

8.3 **Public Access.** Nothing contained herein shall be construed as affording the public at large access to any portion of the Property, except that the public shall have ingress and egress over the Property along any and all designated trails constructed pursuant to paragraph 3.12 above, for the purpose of engaging in any properly permitted activity on the Property.

8.4 **Successors.** The covenants, terms, conditions, and restrictions of this Easement shall be binding upon, and inure to the benefit of the Parties hereto and their

respective personal representatives, heirs, successors, and assigns, and shall continue as a servitude running in perpetuity with the Property.

8.5. **Cancellation.** This Easement is subject to cancellation per A.R.S. §38-511.

8.6 **No Subordination.** Upon recordation in the Pima District, Arizona, Recorder's Office, this Easement shall be deemed superior to all after acquired property interests in the Property. District shall have no obligation to subordinate its rights and interests in this Easement to any party.

Grantor:

For: _____

By: _____

Its: _____

STATE OF ARIZONA)

) ss

District of Pima)

This instrument was acknowledged before me the undersigned authority, on this ____ day of _____, 2011, by _____, as _____ of _____.

Notary Public

My Commission Expires:

Grantee:

PIMA DISTRICT:

ATTEST:

Chairman, Pima District Board of Supervisors

Clerk, Pima District Board of Supervisors

STATE OF ARIZONA)

) ss

District of Pima)

This instrument was acknowledged before me, the undersigned authority, on this _____ day of _____ 2006, by the Chairman of the Pima District Board of Supervisors.

Notary Public

My Commission Expires:

APPROVED AS TO FORM:

Deputy Pima District Attorney

Third Party Beneficiary:

(Authorizing Entity)

STATE OF ARIZONA)

) ss

District of Pima)

This instrument was acknowledged before me, the undersigned authority, on this _____ day of _____ 2006, by the _____ of the United States Fish and Wildlife Service.

Notary Public

My Commission Expires:

Appendix H. Conservation Easement template for private lands. This has and will continue to be used for easements held by Pima County on private lands.

GRANT OF CONSERVATION EASEMENT AND TRANSFER OF DEVELOPMENT RIGHTS

THIS CONSERVATION EASEMENT is made this ____ day of _____, 2006, by _____, ("Grantor"), in favor of Pima County, a political subdivision of the State of Arizona, ("County" or "Grantee") (collectively, the "Parties"), pursuant to A.R.S. § 33-271, et. seq.

In consideration of the mutual covenants contained herein, Grantor hereby voluntarily grants and transfers to County a conservation easement (the "Easement"), in perpetuity, over and across the property described in **Exhibit A** (the "Property"), which Easement shall run with the land and shall bind the Grantor and County in perpetuity, subject to the terms and conditions contained herein. Further, as a part of this Easement, Grantor hereby transfers to County all development rights (except as specifically reserved herein) that are now or hereafter allocated to, implied, reserved or inherent in the Property, and the Parties agree that such rights are terminated and extinguished, and may not be used on or transferred to any portion of the Property as it is now or hereafter may be bounded or described, or to any other property adjacent or otherwise, nor used for the purpose of calculating permissible residential density or development intensity of the Property or any other property.

1. **PURPOSE.** The Parties agree that it is the purpose of this Easement to: (i) assure that the Property will be preserved forever in its predominantly open, scenic, undeveloped and natural condition; (ii) prevent any uses of the Property that will significantly impair or interfere with the areas of biological, ecological, or geologic importance (the "Conservation Values") of the Property; (iii) conserve habitat for wildlife; (iv) protect rare and unique native plants and animals currently known or later identified; and (v) promote the conservation purposes stated in A.R. S. § 33-271(2).
2. **RIGHTS OF COUNTY.** Grantor hereby grants the following rights to County:

2.1 To identify, preserve, protect and monitor, in perpetuity, the Conservation Values of the Property;

2.2 To prevent Grantor or third persons from conducting any activity on or use of the Property that is prohibited or inconsistent with this Easement;

2.3 To enter upon the Property for administrative purposes, provided that such entry shall be upon seven (7) days written notice to Grantor, and County shall not in any case unreasonably interfere with Grantor's use and quiet enjoyment of the Property;

2.4 Upon thirty (30) days written notice to Grantor, and subject to Grantor's approval, which shall be in Grantor's sole discretion, County or other educational or research agencies and institutions may enter upon the Property to engage in ecological, geological and/or archeological studies, research and special projects, provided that County shall not unreasonably interfere with Grantor's use and quiet enjoyment of the Property;

2.5 To enter upon the Property at any time during the term of this Conservation Easement under emergency circumstances to prevent an imminent breach of the terms of this Easement or, in County's sole discretion, to prevent damage to or destruction of the Conservation Values.

3. PERMITTED ACTIVITIES. The following activities shall be permitted on the Property as on all lands that County designates as Level II or Level III for purposes of complying with the MSCP:

3.1 Livestock grazing under a current ranch management or grazing plan that is referenced in the Easement and reviewed by Grantee annually. Such grazing may be confined to specific areas of the Property and may be prohibited in certain critical areas, such as springs or riparian areas.

3.2 Farming in existing areas of use, as described herein.

3.3 Vegetation removal as reasonable and necessary for habitat improvements to promote recovery or reestablishment of native species, fencing, maintaining utility

easements, livestock developments and residential needs, except where priority vulnerable species may be negatively impacted.

3.4 The use of existing corrals, barns, outbuildings or ranch dumpsites, as identified herein, that is reasonable and necessary to sustain ranching and farming operations, provided they do not compromise the Conservation Values for which the Property was acquired.

3.5 The construction of replacement corrals, barns, outbuildings, residences or other structures on the existing disturbed sites. New structures may be permitted consistent with the purposes of this Easement.

3.6 Use of surface or subsurface water from water developments or natural sources for on-site domestic use, habitat improvements, livestock watering, wildlife waters, farming, fire-fighting, or dust control that is not inconsistent with the purposes of the Easement.

3.7 Prescribed fire for areas of 10 acres or less. Prescribed fire on areas exceeding 10 acres requires written approval from Grantee.

3.8 Installation of new or replacement of existing wire-strand fencing, built to wildlife-friendly standards as established by the Arizona Game and Fish Department.

3.9 The use of herbicides or pesticides on cultivated lands, as part of habitat improvement projects, in residential areas, barns, corrals, or other livestock confinements.

3.10 Replacement of existing wells, pumps, pipelines, windmills, septic systems and storage tanks as necessary for permitted operations on the Property along with maintenance and repair of existing water developments.

3.11 Construction of new roads, permanent or temporary, where necessary to enhance or protect Conservation Values on the Property or to facilitate farming or livestock-related activities.

3.12 Construction of trails for nonmotorized recreation including hiking, wildlife-watching, mountain biking, hunting access to adjoining public lands, and horseback riding, provided the trails don't compromise the Conservation Values for which the Property was acquired.

3.13 Hunting by licensed and/or permitted hunters consistent with the rules, regulations and seasons established by the Arizona Game and Fish Department.

3.14 Wildlife management activities carried out in cooperation with the Arizona Game and Fish Department.

4. PROHIBITED ACTIVITIES. Any activity or use of the Property inconsistent with the purpose of this Easement or the Conservation Values of the Property is prohibited. Without limiting the generality of the foregoing, the following activities and uses are expressly prohibited:

4.1 Development of the Property, including subdivision or lot splitting of the Property.

4.2 Constructing or placing of any additional buildings or structures, except construction of additional residences, associated outbuildings and agricultural outbuildings or recreational development, as might be provided elsewhere in this Easement.

4.3 Surface alteration or natural vegetation alteration other than that necessary to retain, restore or enhance the Property's Conservation Values as defined herein.

Severing of surface or subsurface water rights associated with the Property, including the transfer, encumbrance, lease and sale of water rights, except where severance of such water rights benefits the Conservation Values as defined herein.

Manipulating, impounding or altering any natural watercourse, except as may be necessary to retain, restore or enhance the Conservation Values as defined herein.

Development of, or the granting of rights-of-way, access or easements for new roads, except as might be provided elsewhere in this Easement.

4.7 Development of, or the granting of rights-of-way, access or easements for new utilities, including telecommunications facilities, except where environmental analysis adequately demonstrates that allowing such activities is not harmful to the Conservation Values of the Property. Review of such environmental analyses and final determination as to the harmful nature of such impacts is granted solely to Grantee.

4.8 Filling, excavating, dredging, mining, drilling, exploration, or extraction of minerals, hydrocarbons, soils, sand, gravel, rock or other materials on or below the surface of the Property, except as minimally necessary in connection with such activities as may be required in performing any activities permitted herein or as allowed under Federal law.

4.9 The storage, dumping, accumulation or disposal of toxic and/or hazardous materials, trash, garbage, solid waste or other unsightly material on the Property.

4.10 The introduction of non-native fish or amphibians or other non-native organisms to or from catchments, tanks, springs or creeks.

4.11 The introduction of non-native species of noxious or aggressive character that might adversely affect the Conservation Values of the Property.

4.12 Storage and use of biocides and chemical fertilizers except for residential and agricultural purposes that may be provided for herein. Aerial application of biocide or other chemicals is prohibited except where Grantor and Grantee concur that it is an appropriate and necessary management technique to promote the recovery or reestablishment of native species or to reduce threats to ecosystem structure and function.

4.13 Pumping of surface or subsurface water from existing diversions for other than on-site residential, wildlife, recreational, habitat enhancement and agricultural uses associated with livestock grazing on the Property as provided for herein. Increases in the amount of surface or subsurface water per pump shall not be permitted without joint approval from Grantor and Grantee.

4.14 Construction of new water diversions that divert surface or subsurface water from any spring or watercourse, except for activities otherwise permitted herein.

4.15 Planting non-native, invasive plant species. Planting of such vegetative species is permissible only for the purposes of supporting existing ranching operations, if any, and will be limited to those areas identified herein that have historically been devoted to the growing of such species.

4.16 Installation of underground storage tanks for petroleum or other polluting substances, except those already existing or permitted septic tanks.

4.17 Confinement of livestock where animals are permanently located in enclosures and the majority of their feed supplied from outside sources. This includes but is not limited to feeder cattle, dairy, pig, poultry and exotic animal farm operations.

4.18 Commercial enterprises inconsistent with protection of the Property's Conservation Values, excluding farming and ranching as provided herein. Commercial enterprises, other than farming or ranching, that provide for ecotourism or wildlife-related recreation may be approved subject to the joint consent of Grantor and Grantee.

4.19 Use of the Property to provide temporary residential space for mobile homes, travel trailers, tent trailers, self-propelled recreational vehicles and like structures or vehicles, except that such vehicular campers owned by the Grantor, guests or other individuals engaging in activities otherwise permitted by this Easement who may be parked on the Property to accommodate reasonable visitation.

4.20 Any paving of roads using asphalt or concrete except where required by County ordinance.

4.21 Any modification of the topography of the Property through the placement thereon of soil, dredging spoils, or other material, except for those uses permitted under this Easement.

4.22 Off-road vehicular travel except as reasonably necessary to facilitate permitted activities on the Property.

5. DEFAULT AND REMEDIES.

5.1 If County determines that Grantor is in breach of the terms of this Easement, County shall give written notice to Grantor of such breach and demand corrective action sufficient to cure the breach and, where the breach involves injury to the Property resulting from any activity inconsistent with the purpose of this Easement, to restore the portion of the Property so injured. If Grantor fails to cure the breach within thirty (30) days after receipt of such notice, or under circumstances where the breach cannot reasonably be cured within a thirty (30) day period, fails to begin curing such breach within the thirty (30) day period, or fails to continue diligently to cure such breach until finally cured, then the County may bring an action at law or in equity in a court of competent jurisdiction to enforce the terms of this Easement, to enjoin the breach by temporary or permanent injunction, to recover any damages to which it may be entitled for breach of the terms of this Easement or injury to any protected uses or Conservation Values, including damages for any loss thereof, and to require the restoration of the Property to the condition that existed prior to any such injury. If upon receipt of notice from the County the Grantor fails to cease the activity which caused the breach, the County may bring immediate action at law or equity to enjoin the breach by temporary or permanent injunction.

5.2 Nothing contained in this Easement shall be construed to entitle County to bring any action against Grantor for any injury to or change in the Property resulting from causes beyond Grantor's control, including unforeseeable acts of trespassers, fire, flood, storm, drought, pests, earth movement, and major vegetative disease, or from any prudent action taken by Grantor under emergency conditions to prevent, abate or mitigate significant injury to the Property resulting from such causes.

6. COSTS, TAXES. Grantor retains all responsibilities and shall bear all costs and liabilities of any kind related to the ownership, operation, upkeep, and maintenance of the Property. Grantor remains solely responsible for obtaining any applicable governmental permits and approvals for any activity or use which shall be undertaken in accordance with all applicable federal, state, and local laws, regulations, and

requirements. Grantor shall pay before delinquent all taxes, assessments, fees, and charges of whatever description levied on or assessed against the Property by competent authority (collectively "taxes"), and shall furnish Grantee with satisfactory evidence of payment upon request.

7. **THIRD PARTY BENEFICIARY.** Grantor grants to _____ the right as third party beneficiary to enforce the terms and conditions of this Easement ensuring perpetual preservation of the Conservation Values of the Property.

8. **GENERAL PROVISIONS.**

8.1 **Severability.** If any provision of this Easement is found to be invalid, the remainder of the provisions of this Easement shall not be affected thereby.

8.2 **Entire Agreement.** This instrument sets forth the entire Agreement of the Parties with respect to this Easement.

8.3 **Public Access.** Nothing contained herein shall be construed as affording the public at large access to any portion of the Property, except that the public shall have ingress and egress over the Property along any and all designated trails constructed pursuant to paragraph 3.12 above, for the purpose of engaging in any properly permitted activity on the Property.

8.4 **Successors.** The covenants, terms, conditions, and restrictions of this Easement shall be binding upon, and inure to the benefit of the Parties hereto and their respective personal representatives, heirs, successors, and assigns, and shall continue as a servitude running in perpetuity with the Property.

8.5 **Cancellation.** This Easement is subject to cancellation per A.R.S. §38-511.

8.6 **No Subordination.** Upon recordation in the Pima County, Arizona, Recorder's Office, this Easement shall be deemed superior to all after acquired property interests in the Property. County shall have no obligation to subordinate its rights and interests in this Easement to any party.

Appendix I. List of prohibited and permitted activities on County-controlled Mitigation Lands.

Section 1: High value Biological resources: Prohibited activities

Purpose. Acquisition of County-controlled Mitigation Lands shall promote the biological goal and objectives of the Sonoran Desert Conservation Plan and associated MSCP and seek to appropriately manage natural land cover and water resources, promote recovery or reintroduction of native species, and to reduce threats to ecosystem structure and functions, including threats to habitat for identified species.

Prohibited Activities:

Any activity or use of the Property inconsistent with the purpose of this easement is prohibited. Without limiting the generality of the foregoing, the following activities and uses are expressly prohibited:

- 1) Development of the Property, including subdivision or lot splitting of the Property.
- 2) Constructing or placing of any additional buildings, permanent camping accommodations, mobile homes or billboards except construction of additional residences, associated outbuildings and agricultural outbuildings as might be provided elsewhere in this easement.
- 3) Surface alteration or natural vegetation alteration other than that necessary to accommodate the uses of the Property authorized herein.
- 4) Severing of surface or subsurface water rights associated with the Property, including the transfer, encumbrance, lease and sale of water rights.
- 5) Development of, or the granting of rights-of-way, access or easements for, new roads or utilities including telecommunications facilities.
- 6) Filling, excavating, dredging, mining, drilling, exploration or extraction of minerals, hydrocarbons, soils, sand, gravel, rock, or other materials on or below the surface of the Property, except as minimally necessary in connection with such activities as may be required in performing any activities permitted herein.

- 7) The dumping, extended storage, accumulation or disposal of toxic and/or hazardous materials, trash, ashes, garbage, waste or other unsightly or offensive material on the Property.
- 8) The introduction of non-native fish or amphibians or other non-native organisms to or from catchments, tanks, springs or creeks.
- 9) The introduction of non-native species of noxious or aggressive character that might adversely affect the natural values of the Property.
- 10) Storage and use of biocides and chemical fertilizers, except for residential and agricultural purposes that may be provided for herein. Aerial application of biocide or other chemicals is prohibited, except where utilized for rehabilitation of native habitats and approved by Grantee.
- 11) Pumping of groundwater for other than on-site residential, ecotourism and agricultural uses associated with livestock grazing on the Property as provided for herein, except that any increases in groundwater pumping shall not be permitted that might adversely affect the natural values of the property.
- 12) Any actual or planned diversion or pumping of water from any perennial spring or watercourse, unless otherwise permitted herein.
- 13) Any actual or planned planting of non-native vegetation or plant species, except for such uses that have historically been part of the ranching operation, if any, on the Property, and such plantings remain confined to the areas where they exist at the time of the grant of this easement.
- 14) Any actual or planned underground storage tanks for petroleum or other polluting substances, except already existing or permitted septic tanks.
- 15) Confinement livestock feeding in which animals are permanently located in enclosures and the majority of their feed supplied from outside sources. This includes but is not limited to cattle feeder, dairy, pig, poultry, ostrich and emu farm operations.
- 16) Commercial enterprises inconsistent with protection of the Property's conservation values, excluding farming, ranching, and ecotourism operations provided for herein.

- 17) Any actual or planned use or location on the Property of mobile homes, travel trailers, tent trailers, self-propelled recreational vehicles and like structures or vehicles, except for vehicular campers owned by Grantor or guests may be parked on the Property to accommodate reasonable visitation and management operations.
- 18) Any actual or planned paving of roads using asphalt or concrete.
- 19) Any actual or planned commercial logging.
- 20) Any actual or planned modification of the topography of the Property through the placement thereon of soil, landfill, dredging spoils, or other material, except for those uses permitted under this easement.
- 21) Any actual or planned surface collection or excavation of archaeological artifacts, fossils, and/or materials other than those approved by Grantor and Arizona State Museum.
- 22) Off road vehicular travel except as reasonably necessary to facilitate permitted activities on the Property, such as ranching operations and site monitoring.

Permitted Activities

These may be modified as appropriate for an individual property.

- 23) Livestock grazing, preferably under a ranch management or grazing plan, identified and referenced in the easement. Such grazing may be confined to specific areas of the Property and may prohibit grazing in certain critical areas, such as springs or riparian zones.
- 24) Farming in existing areas of use.
- 25) Shrub removal as reasonable and necessary for fencing or maintaining utility easements, livestock developments, and residential needs, except of sensitive or T&E species.
- 26) The use of existing corrals, barns, outbuildings, or ranch dumpsites reasonable and necessary for ranching and farming operations, provided they do not compromise the biological values for which the Property is acquired.

- 27) The construction of replacement corrals, barns, outbuildings, residences or other structures on the existing disturbed sites. The easement may provide for building envelopes or identify locations where new structures may be permitted.
- 28) Use of water from designated water developments or natural sources for on-site domestic, livestock watering, farming, fire-fighting, or dust control that is not excessive or inconsistent with the purposes of the easement.
- 29) Prescribed fire, with written approval of Grantee, for areas exceeding 10 or more acres.
- 30) New or replacement fencing, provided the fencing allows safe passage of wildlife.
- 31) Use of herbicides or pesticides on cultivated lands, in the residential area, or in barns, corrals, or other livestock confinements.
- 32) Replacement of existing wells, pumps, pipelines, windmills and storage tanks as necessary for permitted operations on the Property along with repair of existing water developments.
- 33) Construction of new roads where necessary to enhance or protect biological values on the Property or to facilitate farming or livestock-related activities.
- 34) Construction of trails for non-motorized, passive recreation including hiking, horseback riding, swimming, picnicking, and bird watching.
- 35) Grantee shall have the right to enter the Property, upon reasonable notice to Grantor, for monitoring and enforcement of the terms of this easement.

Section 2: High value community resources

PURPOSE: Acquisition of such lands shall protect lands that contribute to the preservation of resources valued by urban and suburban residents including but not limited to open space, signature viewsheds, archaeological and cultural resources, significant natural vegetative features, wildlife habitat, riparian areas, and groundwater recharge areas. (Based on purpose statement for Bond Question #1 and 11/16/03 memo from Bond Advisory Committee to BOS re: Recommendations on Other Jurisdiction's Open Space Bond Proposals.)

Prohibited Activities

Any activity or use of the Property inconsistent with the purpose of this easement is prohibited. Without limiting the generality of the foregoing, the following activities and uses are expressly prohibited:

- 1) Development of the Property, including subdivision or lot splitting of the Property.
- 2) Constructing or placing of any additional buildings, permanent camping accommodations, mobile homes or billboards except construction of additional residences, associated outbuildings and agricultural outbuildings as might be provided elsewhere in this easement.
- 3) Surface alteration or natural vegetation alteration other than that necessary to accommodate the uses of the Property authorized herein.
- 4) Severing of surface or subsurface water rights associated with the Property, including the transfer, encumbrance, lease and sale of water rights.
- 5) Development of, or the granting of rights-of-way, access or easements for, roads or utilities including telecommunications facilities.
- 6) Filling, excavating, dredging, mining, drilling, exploration or extraction of minerals, hydrocarbons, soils, sand, gravel, rock, or other materials on or below the surface of the Property, except as minimally necessary in connection with such activities as may be required in performing any activities permitted herein.
- 7) The storage, dumping, accumulation or disposal of toxic and/or hazardous materials, trash, ashes, garbage, waste or other unsightly or offensive material on the Property.
- 8) Any actual or planned surface collection or excavation of archaeological artifacts, fossils, and/or materials unless authorized by Grantor and Arizona State Museum.
- 9) The introduction of invasive, non-native plant species or exotic animals other than domestic animals.

- 10) Pumping of groundwater for other than currently existing uses on the Property as provided for herein, except that any increases in groundwater pumping shall not be permitted that might adversely affect the natural values of the property.

Permitted Activities

Activities consistent with the purpose of the open space acquisition shall be permitted. This may include, but is not limited to, the following:

- 1) Livestock grazing, preferably under a ranch management or grazing plan, identified and referenced in the easement.
- 2) Farming in existing areas of use.
- 3) Shrub removal as reasonable and necessary for fencing or maintaining utility easements, livestock developments, and residential needs.
- 4) The use of existing corrals, barns, outbuildings, or ranch dumpsites reasonable and necessary for ranching and farming operations, provided they do not compromise the biological values for which the Property is acquired.
- 5) The construction of replacement corrals, barns, outbuildings, residences or other structures on the existing disturbed sites. The easement may provide for building envelopes or identify locations where new structures may be permitted.
- 6) Use of water from designated water developments or natural sources for on-site domestic, livestock watering, farming, fire-fighting, or dust control that is not excessive or inconsistent with historic and traditional uses on the Property.
- 7) Fire protection and prescribed fire activities, with written approval of Grantee, for areas exceeding 10 or more acres.
- 8) New or replacement fencing, provided the fencing allows safe passage of wildlife.
- 9) Use of herbicides or pesticides on cultivated lands, in the residential area, or in barns, corrals, or other livestock confinements.

- 10) Replacement of existing wells, pumps, pipelines, windmills and storage tanks as necessary for permitted operations on the Property along with repair of existing water developments.
- 11) Construction of new roads where necessary to enhance or protect biological values on the Property or to facilitate farming, livestock-related activities, or habitat monitoring efforts.
- 12) Construction of trails for non-motorized, passive recreation including hiking, horseback riding, swimming, picnicking, and birdwatching.
- 13) Grantees shall have the right to enter the Property, upon reasonable notice to Grantor, for monitoring and enforcement of the terms of this easement.

Appendix J. Draft Implementing Agreement. Note: This document is a proposal that will be modified by the USFWS to produce a draft agreement for public review.

**PRELIMINARY DRAFT
IMPLEMENTING AGREEMENT**

**BETWEEN
U. S. FISH AND WILDLIFE SERVICE AND
PIMA COUNTY, ARIZONA AND PIMA COUNTY REGIONAL FLOOD CONTROL
DISTRICT**

**FOR THE
PIMA COUNTY MULTIPLE-SPECIES CONSERVATION PLAN**

**LOCATED IN
PIMA COUNTY, ARIZONA**

DECEMBER 1, 2010

**TO ESTABLISH A PROGRAM OF AVOIDANCE, MINIMIZATION, AND MITIGATION
FOR SPECIES IN PIMA COUNTY, ARIZONA AND SELECT LANDS IN ADJACENT
COUTIES**

1.0 PARTIES

The parties to this implementing Agreement (“Agreement”) are Pima County, Arizona, a political subdivision of the State of Arizona and the Pima County Regional Flood Control District, a political taxing subdivision of the State of Arizona (collectively the “County”) and the United States Fish and Wildlife Service (the “Service”).

2.0 RECITALS AND PURPOSES

2.1 Recitals. The parties entered into this agreement in consideration of the following facts:

2.1.1 Pima County has been determined to provide, or potentially provide, habitat for the following listed species: Pima pineapple cactus (*Coryphantha scheeri* var. *robustispina*), Huachuca water umbel (*Lilaeopsis schaffneriana recurva*), Lesser long-nosed bat (*Leptonycteris curasoae yerbabuena*), Desert pupfish (*Cyprinodon macularius*), Gila topminnow (*Poeciliopsis occidentalis occidentalis*), Gila chub (*Gila intermedia*), Chiricahua leopard frog (*Rana chiricahuensis*), and Southwestern willow flycatcher (*Empidonax traillii extimus*).

2.1.2 The County's Permit Area has been determined to provide, or potentially provide, habitat for the following unlisted species: Birds: Abert's Towhee (*Pipilo aberti*), Western yellow-billed cuckoo (*Coccyzus americanus*), Cactus ferruginous pygmy-owl (*Glaucidium brasilianum cactorum*), Rufous-winged sparrow (*Aimophila carpalis*), Bell's vireo (*Vireo bellii arizonae*), Swainson's hawk (*Buteo swainsoni*), and Burrowing owl (*Athene cunicularia hypugaea*); Plants: Needle-spined pineapple cactus (*Echinomastus erectocentrus* var. *erectocentrus*), and Tumamoc globeberry (*Tumamoca macdougalii*); Mammals: Mexican long-tongued bat (*Choeronycteris mexicana*), Allen's big-eared bat (*Idionycteris phylotis*), Western red bat (*Lasiurus blossevillii*), Southern yellow bat (*Lasiurus ega*), California leaf-nosed bat (*Macrotus californicus*); Pale Townsend's big-eared bat (*Plecotus townsendii pallescens*), and Merriam's mouse (*Peromyscus merriami*); Amphibians: lowland leopard frog (*Rana yavapaiensis*); Reptiles: Tucson shovel-nosed snake (*Chionactis occipitalis klauberi*), Northern Mexican garter snake (*Thamnophis eques megalops*), Ground snake (valley form) (*Sonora semiannulata*), Red-back whiptail lizard (*Aspidoscelis burti xanthonota*), Giant spotted whiptail lizard (*Aspidoscelis burti stictogramma*), and Desert box turtle (*Terrapene ornata luteola*) and Sonoran Desert tortoise (*Gopherus agassizii*); Fishes: Desert sucker (*Catostomus clarki*), Sonoran sucker (*Catostomus insignis*), and Longfin dace (*Agosia chrysogaster*); Invertebrates: Arkenstone pseudoscorpion (*Albiorix anophthalmus*), and various talus snails (*Sonorella eremita*, *S. ambigua ambigua* syn *papagorum*; *S. imperatrix*, *S. imperialis*, *S. magdalensis* syn. *tumamocensis*; *S. odorata odorata* syn *marmoris*; *S. rinconensis*; *S. meadi*; *S. sabinoensis buehmanensis*; *S. sabinoensis tucsonica*, *S. sitiens sitiens*, *S. rosemontensis*, and *S. tortillita*)

2.1.3 The County has developed a Habitat Conservation Plan for the proposed incidental take permit under Section 10 of the Endangered Species Act. That Habitat Conservation Plan is titled the "Pima County Multi-Species Conservation Plan" ("MSCP").

2.1.4 The Service has developed an environmental impact statement to address the effects of issuing an incidental take permit for the County;

2.1.5 The County has worked cooperatively with the Service to develop a series of measures described in the MSCP, to minimize and mitigate to the maximum extent practicable the effects of take on covered species incidental to the County's covered activities.

2.2 Purpose. The purposes of this agreement are to:

- a. Guide implementation of each of the terms of the MSCP;
- b. Describe remedies and recourse should any party fail to perform its obligations under this agreement; and,
- c. Provide assurances to the County and to other landowners participating in the MSCP.

3.0 DEFINITIONS

Terms defined and used in the MSCP and the Endangered Species Act (ESA) have the same meaning when used in this Agreement, except the following terms used in this Agreement have the following meanings:

3.1 "Permit" means the incidental take permit issued by the Service to the County pursuant to Section 10(a)(1)(B) of the ESA.

3.2 "Permit Area" means the Pima County Section 10 Permit Area consisting of approximately 1,400,000 acres in Pima County, Cochise County, and Pinal County, Arizona as described in Chapter 3 of the MSCP.

3.3 "Conservation Plan" means the habitat conservation plan prepared by the County and submitted under the title of Multi-Species Conservation Plan.

3.5 "Covered activities" means those activities described in Chapter 3 of the MSCP, including activities undertaken by the County on Mitigation Land Interests, pre-construction, construction and maintenance activities undertaken by County, and certain discretionary private development approved by the County as described in Chapter 3.

3.6 "Covered Species" means species adequately covered in the MSCP and identified in Section 2.1.1 and 2.1.2 of this Agreement.

3.7 "Listed species" means a species (including a subspecies, or a distinct population segment of a vertebrate species) that is listed as endangered or threatened under the ESA.

3.8 "Maeveen Marie Behan Conservation Lands System (MMB-CLS)" or "CLS" means the biological reserve system design adopted as the Regional Environmental Element of the County's 2001 Comprehensive Plan Update. The MMB-CLS guides the County's discretionary land-use decisions as they relate to Covered Activities and establishes a higher standard for avoidance, minimization and mitigation for projects located therein. The MMB-CLS also provides the underpinnings to the County's selection of lands secured for mitigation under the permit.

3.9 "Mitigation Lands" means those lands, leases, or rights held by the County and committed to the Service as compensation for impacts of covered activities under the Section 10 permit. They consist of either (a) the acres of County land and any appurtenant rights described in a recorded, perpetual conservation easement, and for which The County manages and monitors for the purposes of compensating for the covered activities under the terms of the MSCP, or (b) the State Trust land for which County holds a grazing lease and manages and monitors for the purposes of compensating for the covered activities under the terms of the MSCP, or (c) the acres of private land that are retained as natural open space through development approvals and which have been set aside for the conservation of Covered Species and are managed and monitored pursuant to Chapters 5 and 6 of the MSCP, respectively, or (d)

acres of former federal land conveyed to the County in fee through the Recreation and Public Purposes Act or through exchange which the County manages and monitors for the purposes of compensating for covered activities under the permit, or (e) other rights owned by the County which are used for the purposes of compensating for covered activities, and recorded for that purpose in the County Recorder's Office.

3.10 "Opt-in Participant" means those property owners who voluntarily solicit protections afforded by the Pima County MSCP and who, after fulfillment of certain requirements, are issued a Development or Biological Certificate of Inclusion.

3.11 "Unlisted species" means a species (including a subspecies, or a distinct population segment of a vertebrate species) that is not listed as endangered or threatened under the ESA. The term "unlisted species" includes both candidate species and other species of concern.

4.0 OBLIGATIONS OF THE PARTIES

4.1 Obligations of the County. The County will fully and faithfully perform all obligations assigned to it under this agreement, the permit, and the MSCP.

4.1.2. Interim obligations upon a finding of unforeseen circumstances. If the Service makes a finding of unforeseen circumstances, during the period necessary to determine the nature and location of additional or modified mitigation, the County will avoid contributing to appreciably reducing the likelihood of the survival and recovery of the affected species.

4.2 Obligations of the Service. Upon execution of this agreement by all parties, and satisfaction of all other applicable legal requirements, the Service will issue the County a permit under Section 10(a)(1)(B) of the ESA, authorizing incidental take by the County of each listed covered species resulting from covered activities on covered lands.

4.2.1 Permit coverage. The permit will identify all covered species. The permit will take effect for listed covered species at the time the permit is issued. The permit will take effect for an unlisted covered species upon the listing of the species.

4.2.2. Section 7 Considerations. When performing Section 7 consultations under the Clean Water Act or other federal laws, the Service will take into consideration any mitigation land interests under the County's incidental take permit, and make a determination of its sufficiency for the listed species.

4.2.3 Revisions of ordinances and guidelines relating to the MSCP. USFWS will review any modifications of environmental ordinances or guidelines identified as avoidance and minimization measures in Chapter 4 of the MSCP and confer with County to determine if Pima County remains in compliance with the terms of the permit identified under Chapter 7, Changed Circumstances.

5.0 HABITAT CONSERVATION PLAN INCORPORATION

Pursuant to the provisions of Section 10(a)(1)(B) of the ESA, the County has prepared a Habitat Conservation Plan entitled the "Pima County Multi--Species Conservation Plan" ("MSCP") and submitted it to the Service with a request that the Service issue a Permit to allow Covered Species to be incidentally taken within the Permit Area as depicted and described in Chapter 3 of the MSCP. The MSCP proposes a mitigation program for the subject Covered Species and their habitats.

The MSCP and each of its provisions are intended to be, and by this reference are, incorporated in this Agreement. In the event of any direct contradiction between the terms of this Agreement and the MSCP, the terms of the Permit control. In all other cases, the terms of this Agreement and the terms of the MSCP will be interpreted to be supplementary to each other.

6.0 TERM

6.1 Initial Term. This Agreement and the MSCP will become effective on the date that the Service issues the Permit. This agreement, the MSCP and the Permit will remain in effect for a period of 30 years from issuance of the Permit.

6.2 Notwithstanding paragraph 6.1, the Parties agree and recognize that once the Covered Species have been incidentally taken and their habitat modified pursuant to the MSCP, the take and habitat modification will be permanent. It is therefore the intention of the Parties that the provisions of the MSCP and of this Agreement regarding the establishment and maintenance of habitat for the Covered Species will be permanent and extend beyond the term of this Agreement, to the extent permitted by law and recorded in conservation easements.

7.0 FUNDING

7.1 The County will expend funds as may be necessary to carry out its obligations under the MSCP. The County must notify the Service if the County's funding resources have materially changed, including a discussion of the nature of the change, from the information provided in Chapter 8 of the MSCP.

8.0 MONITORING AND REPORTING

8.1 Planned periodic reports. The County will submit an annual report describing its activities and an analysis of whether the terms of the MSCP were met for the reporting period, as specified in Section 9.1.1 of the MSCP. The County will also submit a comprehensive report every 10 years, as specified in Section 9.1.2 of the MSCP.

8.2 Other reports. The County will provide, within 30 days of being requested by the Service, any additional information in its possession or control related to implementation of the MSCP that is requested by the Service for the purpose of assessing whether the

terms and conditions of the permit and the MSCP, including the MSCP's adaptive management plan, are being fully implemented.

8.3 Certification of reports. All reports will include the following certification from a responsible official who supervised or directed preparation of the report:

I certify that, to the best of my knowledge, after appropriate inquiries of all relevant persons involved in the preparation of this report, the information submitted is true, accurate, and complete.

8.4 Monitoring by Service. The Service may conduct inspections and monitoring in connection with the permit in accordance with their regulations. (See 50 C.F.R. §§ 13.47, 220.47.)

9.0 ADAPTIVE MANAGEMENT

9.1 County-initiated adaptive management. The County will implement the adaptive management provisions in Chapter 6 of the MSCP, when changes in management practices are necessary to achieve the MSCP's biological objectives, or to respond to monitoring results or new scientific information. The County will make the changes without awaiting notice from the Service, and will report to the Service on any actions taken pursuant to this section.

9.2 Service-initiated adaptive management. If the Service determines that one or more of the adaptive management provisions in the MSCP have been triggered and that The County has not changed its management practices in accordance with Chapter 6 of the MSCP, the Service will so notify the Parties and will direct The County to make the required changes. Within 30 days after receiving the notice, the responsible Party will make the required changes and report to the Service on its actions. The changes are provided for in the MSCP, and hence do not constitute unforeseen circumstances or require amendment of the permit or MSCP, except as provided in this section.

9.3 Reductions in mitigation. The County will not implement adaptive management changes that may result in less mitigation than provided for covered species under the original terms of the MSCP, unless the Service first provides written approval. The County may propose adaptive management changes by notice to the Service, specifying the adaptive management modifications proposed, the basis for them, including supporting data, and the anticipated effects on covered species, and other environmental impacts. Within 120 days of receiving the notice, the Service will approve the proposed adaptive management changes, approve them as modified by the Service, or notify The County that the proposed changes constitute permit amendments that must be reviewed under Section 12.2 of this agreement.

9.4 No increase in take. This section does not authorize any modifications that would result in an increase in the amount and nature of take, or increase the impacts of take, of covered species beyond that analyzed under the original MSCP and any amendments. Any modification must be reviewed as a permit amendment under Section 12.2 of this agreement.

10.0 LAND TRANSACTIONS

10.1 Acquisition of land by the County. Nothing in this agreement, the MSCP, or the permit limits the County's right to acquire additional lands, including additional mitigation land interests. Any activities on acquired land will be covered by the permit if it meets the requirements of covered activities in the MSCP and is located in the Permit Area.

10.2 Disposal of mitigation land interests by the County. The County's transfer of ownership or control of mitigation land interests will require prior approval by the Service except that transfers of covered lands may be processed as minor modifications in accordance with Chapter 4 of the MSCP if the Service concurs that:

(a) The land will be transferred to an agency of the federal government and, prior to transfer, the Service has determined that transfer will not compromise the effectiveness of the MSCP based on adequate commitments by that agency regarding management of such land; or

(b) The land will be transferred to a non-federal entity that has entered into an agreement acceptable to the Service (e.g., an easement held by the state fish and wildlife agency with the Service as third-party beneficiary) to ensure that the lands will be managed in such a manner and for such duration so as not to compromise the effectiveness of the MSCP; or

(c) The land will be transferred to a non-federal entity that, prior to completion of the land transaction, has agreed to be bound by the MSCP as it applies to the transferred land and has obtained an incidental take permit following normal permit procedures covering all species then covered by the County's permit; or

11.0 MODIFICATIONS AND AMENDMENTS

11.1 No Amendment Needed. The Parties acknowledge that the Covered Lands within the jurisdiction of Pima County will change over the term of the permit. None of the following changes shall require amendment of the permit:

(a) Removal of Covered Land by annexation provided it does not include mitigation lands, or

(b) Addition of Covered Land by acquisition by the County if described in the MSCP and fully analyzed, or such land in the Permit Area as defined in Chapter 3 of the MSCP, or

(c) Removal of Covered Land by disposal by the Party of land, water, or land or water interests, such as abandonment of rights-of-way which are not mitigation land interests.

11.2 Minor modifications.

(a) Any party may propose minor modifications to the MSCP or this agreement by providing notice to all other parties. That notice will include a statement of the reason for the proposed modification and an analysis of its environmental effects, including its effects on operations under the MSCP and on covered species. The parties will use best efforts to respond to proposed modifications within 60 days of receipt of such notice. Proposed modifications will become effective upon all other parties' written approval. If, for any reason, a receiving party objects to a proposed modification, it must be processed as an amendment of the permit in accordance with subsection 12.2 of this section. The Service will not propose or approve minor modifications to the MSCP or this agreement if the Service determines that such modifications would result in operations under the MSCP that are significantly different from those analyzed in connection with the original MSCP, adverse effects on the environment that are new or significantly different from those analyzed in connection with the original MSCP, or additional take not analyzed in connection with the original MSCP.

(b) Minor modifications to the MSCP and IA processed pursuant to this subsection may include but are not limited to the following:

- (1) corrections of typographic, grammatical, and similar editing errors that do not change the intended meaning;
- (2) correction of any maps or exhibits to correct errors in mapping or to reflect previously approved changes in the permit or MSCP;
- (3) minor changes to survey, monitoring, or reporting of parameters or protocols if not already covered in Changed Circumstances; and
- (4) Other types of modifications that are minor in relation to the MSCP, that the Service have analyzed and agreed to, and on which the public has had an opportunity to comment.

(c) Any other modifications to the MSCP or the Agreement will be processed as amendments of the permit in accordance with subsection 12.3 of this section.

11.2 Amendment of the Permit. The permit may be amended in accordance with all applicable legal requirements, including but not limited to the ESA, the National Environmental Policy Act, and the Service' permit regulations. The party proposing the amendment will provide a statement of the reasons for the amendment and an analysis of its environmental effects, including its effects on operations under the MSCP and on covered species.

12.0 REMEDIES, ENFORCEMENT, AND DISPUTE RESOLUTION

12.1 In general. Except as set forth below, each party has all remedies otherwise available to enforce the terms of this agreement, the permit, and the MSCP.

12.2 No monetary damages. No party is liable for damages to any other party or other person for any breach of this agreement, any performance or failure to perform a mandatory or discretionary obligation imposed by this agreement or any other cause of action arising from this agreement.

12.3 Injunctive and temporary relief. The parties acknowledge that the covered species are unique and that their loss as species would result in irreparable damage to the environment, and that therefore injunctive and temporary relief may be appropriate to ensure compliance with the terms of this agreement.

12.4 Enforcement authority of the United States. Nothing contained in this agreement is intended to limit the authority of the United States government to seek civil or criminal penalties or otherwise fulfill its enforcement responsibilities under the ESA or other applicable law.

12.5 Dispute resolution. The parties recognize that disputes concerning implementation of, compliance with, or termination of this agreement, the MSCP, and the permit may arise from time to time. The parties agree to work together in good faith to resolve such disputes, using the informal dispute resolution procedures set forth in this section, or such other procedures upon which the parties may later agree. However, if at any time any party determines that circumstances so warrant, it may seek any available remedy without waiting to complete informal dispute resolution.

12.5.1 Informal dispute resolution process. Unless the parties

agree upon another dispute resolution process, or unless an aggrieved party has initiated administrative proceedings or suit in federal court as provided in this section, the parties may use the following process to attempt to resolve disputes:

(a) The aggrieved party will notify the other parties of the provision that may have been violated, the basis for contending that a violation has occurred, and the remedies it proposes to correct the alleged violation.

(b) The party alleged to be in violation will have 30 days, or such other time as may be agreed, to respond. During this time it may seek clarification of the information provided in the initial notice. The aggrieved party will use its best efforts to provide any information then available to it that may be responsive to the inquiries.

(c) Within 30 days after the response was provided or was due, representatives of the parties having authority to resolve the dispute will meet and negotiate in good faith toward a solution satisfactory to all parties, or will establish a specific process and timetable to seek a solution.

(d) If any issues cannot be resolved through negotiations, the parties will consider non-binding mediation and other alternative dispute resolution processes and, if a dispute resolution process is agreed upon, will make good faith efforts to resolve all remaining issues through that process.

13 MISCELLANEOUS PROVISIONS

13.1 No partnership. Neither this agreement nor the MSCP makes or may be deemed to make any party to this agreement the agent for or the partner of any other party.

13.2 The provisions of A.R.S. §38-511 concerning cancellation of contracts for conflict of interest apply to this Agreement.

14.3 Successors and Assigns. This agreement, and each of its provisions, are binding on and inure to the benefit of the Parties to this Agreement and to their respective successors and assigns.

14.4 Notices. Any notice permitted or required by this agreement must be in writing, delivered personally to the persons listed below, or will be deemed given five (5) days after deposit in the United States mail, certified and postage prepaid, return receipt requested and addressed as follows, or at such other address as any party may from time to time specify to the other parties in writing. Notices may be delivered by facsimile or other electronic means, provided that they are also delivered personally or by certified mail. Notices must be transmitted so that they are received within the specified deadlines.

Assistant Regional Director
United States Fish and Wildlife Service
[Street Address]
[City, State, Zip Code]

County Administrator, Pima County
130 West Congress
Tucson, AZ 85701

Chief Engineer, Pima County Regional Flood Control District
97 E. Scott St.
Tucson, AZ 85701

14.5 Entire Agreement. This Agreement constitutes the entire Agreement among the Parties. It supersedes any and all other Agreements, either oral or in writing among the Parties with respect to the subject matter hereof and contains all of the covenants and Agreements among them with respect to said matters, and each Party acknowledges that no representation, inducement, promise or Agreement, oral or otherwise, has been made by any other Party or anyone acting on behalf of any other Party that is not embodied herein.

14.6 Elected Officials not to Benefit. No member of or delegate to Congress is entitled to any share or part of this Agreement, or to any benefit that may arise from it.

14.7 Availability of funds. Implementation of this Agreement and the MSCP by the

Service is subject to the requirements of the Anti-Deficiency Act and the availability of appropriated funds. Nothing in this Agreement will be construed by the parties to require the obligation, appropriation, or expenditure of any money from the U.S. treasury. The parties acknowledge that the Service will not be required under this Agreement to expend any Federal agency's appropriated funds unless and until an authorized official of that agency affirmatively acts to commit to such expenditures as evidenced in writing. The parties acknowledge that County's obligations under this agreement are limited by A.R.S. §42-17106.

14.8 Duplicate of Originals. This Agreement may be executed in any number of duplicate originals. A complete original of this Agreement will be maintained in the official records of each of the Parties.

14.9 Third Party Beneficiaries. Without limiting the applicability of the rights granted to the public pursuant to the provisions of 16 U.S.C. § 1540(g), this Agreement does not create any right or interest in the public, or any member thereof, as a third party beneficiary, nor does it authorize anyone not a Party to this Agreement to maintain a suit for personal injuries or property damages pursuant to the provisions of this Agreement. The duties, obligations, and responsibilities of the Parties to this Agreement with respect to third parties remain as imposed under existing Federal or State law.

14.10 Relationship to the ESA and Other Authorities. The terms of this Agreement are governed by and construed in accordance with the ESA and other applicable laws. In particular, nothing in this Agreement is intended to limit the authority of the Service to seek penalties or otherwise fulfill its responsibilities under the ESA. Moreover, nothing in this Agreement is intended to limit or diminish the legal obligations and responsibilities of the Service as an agency of the Federal government.

14.11 References to Regulations. Any reference in this Agreement, the MSCP, or the Permit to any regulation or rule of the Service is deemed to be a reference to the regulation or rule in existence at the time an action is taken.

14.12 Applicable Laws. All activities undertaken pursuant to this Agreement, the MSCP, or the Permit must be in compliance with all applicable State and Federal laws and regulations.

IN WITNESS WHEREOF, THE PARTIES HERETO have executed this Implementing Agreement to be in effect as of the date last signed below.

BY Regional Director
United States Fish and Wildlife Service
[City, State]

Date _____

BY Chairperson Date _____
Pima County Board of Directors
Pima County Regional Flood Control District
Tucson, AZ

BY Chairperson Date _____
Pima County Board of Supervisor
Tucson, AZ

Appendix K. Current Pima County Parks Rules, P.C.P.R. § 4-040.

The Pima County Parks Rules are adopted by the Pima County Parks and Recreation Commission as the code of rules and regulations for Pima County parks and recreation areas pursuant to A.R.S. 11-935(B)(2) and 11-936.

The Pima County Parks Rules are organized by subject matter under an expandable two-factor decimal numbering system which is designed to facilitate supplementation without disturbing the numbering of existing provisions. Each section number designates, in sequence, the numbers of the chapter and section. Thus, Section 2.020 is Section 020 located in Chapter 2.

In parentheses following each section, is a legislative history identifying the specific sources for the provisions of that section by stating the adopting or amending resolution number, resolution section, and year the resolution was adopted.

The Pima County Parks Rules are subject to change. The most recent and accurate resolutions of the Pima County Parks and Recreation Commission amending the Pima County Parks Rules may be found in the Pima County Parks and Recreation Department office.

1.010 Fees

It shall be unlawful to enter upon or use for any purpose the land, water or facilities within the boundaries of County parks and recreation areas when a fee, rental, admission or other consideration has been established for such use, unless the person entering or using such land, water or facility has paid said fee, rental, admission or other consideration. (Res. 2000-3, § 2, 2000)

1.020 Commercial activity

It shall be unlawful to use County park or recreation areas for commercial purposes, public meetings or assemblies, erection of signs, fences, barriers or structures, to distribute advertising materials, or to sell any goods or services without first obtaining a

written permit from the Pima County Parks and Recreation Department. (Res. 2000-3, § 2, 2000).

1.030 Motor vehicles

It shall be unlawful:

- A. To operate a motorbike, motorcycle or other motor vehicle on trails, or cross country, or on primitive unsurfaced roadways that have been posted, signed, or barriered to prohibit vehicle use.
- B. To operate a motor vehicle except on roads and parking areas designated for such purposes.
- C. To operate a motor vehicle at a speed greater than that posted or to fail to obey traffic signs.
- D. In all cases, a motor vehicle shall be operated in compliance with the Arizona Motor Vehicle Code as provided under Title 28, Arizona Revised Statutes, while within the boundaries of any Pima County Park or Recreation area. (Res. 2000-3, § 2, 2000).

1.040 Bicycles

Within Tucson Mountain Park, Tortolita Mountain Park, Roy P. Drachman Agua Caliente Regional Park, Cienega Creek Natural Preserve and Colossal Cave Mountain Park, it shall be unlawful to ride a bicycle except on a road or established trail, or in an arroyo, wash or riverbed. It shall further be unlawful to ride a bicycle on a road or established trail posted to prohibit bicycle use. (Res. 2000-3, § 2, 2000).

1.050 Destruction, damage or removal of County property

A. It shall be unlawful to destroy, damage, deface or remove any County regulatory sign, property or facility owned or administered by the Pima County Parks and Recreation Department.

B. It shall be unlawful to collect, remove, destroy, mutilate, damage or deface any natural resource, including, but not limited to, all live and dead vegetation and all parts thereof, wildlife, soil, rocks, and water, except as otherwise provided for by law or without obtaining prior written approval from the Pima County Parks and Recreation Department.

C. Except as otherwise planned for and provided for by the Pima County Parks and Recreation Department, all environmental settings shall be kept in their natural state. (Res. 2000-3, § 2, 2000)

1.060 Litter

It shall be unlawful to litter, deposit, or abandon in or on any County park, parkway or recreational facility any garbage, sewage, refuse, trash, waste, or other obnoxious materials except in receptacles or containers provided for such purposes. These receptacles are not to be used for residential trash disposal. (Res. 2000-3, § 2, 2000).

1.070 Areas posted against entrance, use or occupancy

It shall be unlawful to enter, use or occupy public parks or recreation under the supervision and control of Pima County Parks and Recreation Department for any purpose when said parks or areas are posted against such entrance, use or occupancy. (Res. 2000-3, § 2, 2000).

1.080 Hunting

Hunting is not permitted within the fenced boundaries of Rifle Ranges or Archery Ranges. (Res. 2000-3, § 2, 2000)

1.090 Firearms

It shall be unlawful to discharge firearms or other weapons in Pima County public parks except in designated Rifle Ranges or Pistol Ranges. (Res. 2000-3, § 2, 2000)

1.100 Archery

A. It shall be unlawful to shoot with bow-and-arrow except in designated "Archery Ranges" and subject to the following specific regulations:

1. Tucson Mountain Park. Bow hunting areas are all areas in the Tucson Mountain Park, except that no discharge of archery weapons is permitted within the corridor described by 660 feet on either side of the centerline of Gates Pass Road between Gates Pass Overlook and the intersection of Gates Pass Road and Kinney Road.

2. David Yetman Trail. Discharge of archery weapons is not permitted within 660 feet on either side of the David Yetman Trail from G-3 entry to the 22nd Street entry.

3. Tucson Estates. Discharge of archery weapons is not permitted within 2,640 feet of the park boundary around Tucson Estates including all the Little Cat Mountain range between Starr Pass Trail and the David Yetman Link Trail.

4. Old Tucson; Arizona-Sonora Desert Museum; Sonoran Arthropod Studies area; Gilbert Ray Campground. Discharge of archery weapons is not permitted within 2,640 feet of the boundaries of the Old Tucson premises, the Arizona-Sonora Desert Museum premises, the Sonoran Arthropod Studies premises and the Gilbert Ray Campground.

B. In addition to the foregoing limitations, all bow hunting must comply with all rules, regulations and other requirements of the Arizona Game and Fish Department. (Res. 2000-3, § 2, 2000)

1.110 Fires

It shall be unlawful to build fires, except in designated places, or in fireplaces, stoves or grills either provided or approved by the Pima County Parks and Recreation Department. (Res. 2000-3, § 2, 2000)

1.120 Aircraft, parachutes and hang gliders

It shall be unlawful to operate any aircraft of any nature or parachute or hang glide on County Park property except in areas designated for such use by the Commission, or in an emergency. (Res. 2000-3, § 2, 2000)

2.010 Registration and User fees

- A. Registration is required.
- B. Registration shall include the license number of the vehicle and the state where registered.
- C. The registration fee shall be paid in advance. (Res. 2000-3, § 2, 2000)

2.020 Camping regulations

- A. All registrants must park in the space assigned by the registrar.
- B. One camping unit per site only.
- C. Checkout time is Noon.
- D. A seven day camping limit will be enforced, without exception. After seven days, the campers must leave the park for a minimum of seven days to gain eligibility to re-register.
- E. Open camp fires are not permitted. Fireplaces have been provided for this purpose. Registrar may permit approved portable grills upon inspection.
- F. Under no circumstances may clotheslines, lanterns, wiring, flags, or any other articles whatsoever, be strung across or secured to any vegetation or other County properties.
- G. The County assumes no responsibility for personal belongings or property of any kind. (Res. 2000-3, § 2, 2000)

2.030 Water

- A. The washing of vehicles and any other unnecessary use of water is prohibited.
- B. Hose connections to or from any camper or trailer for any purpose other than filling holding tanks is strictly prohibited by order of the State Health Department.

C. The State Health Department requires that all water-soluble waste be disposed of at the Dumping Station, although dishwater waste and contents of commode bags may be emptied in the restroom toilets. Registrar will direct all non-specified disposals to avoid illegal dumping. (Res. 2000-3, § 2, 2000)

4.010 Domestic animals and other pets at large

No domestic animals or other pets are permitted to be at large in Pima County Parks and Recreation areas. (Res. 2000-3, § 2, 2000)

4.020 Restraint

A. Domestic animals and pets shall be restrained by a cage, or a leash of not more than six (6) feet in length and of sufficient strength to control the animal.

B. Exemptions from restraint requirements:

1) Animals participating in pet shows or classes approved by the Parks and Recreation Department, provided that the animal is accompanied by and under the control of its owner or handler.

2) Dogs confined within a county maintained temporary or permanent dog run located within a county park. (Res. 2000-3, § 2, 2000)

4.030 Saddle, pack and draft animals

It shall be unlawful to bring saddle, pack or draft animals into a County Park and Recreation site unless it has been developed to accommodate them and is posted accordingly. (Res. 2000-3, § 2, 2000)

4.040 Grazing and foraging

It shall be unlawful to allow grazing or allow any forage-consuming domestic livestock to graze or to roam at-large within the fenced or posted boundaries of Pima County Parks. (Res. 2000-3, § 2, 2000)

4.050 Tucson Mountain Park

A. Dogs are not permitted within Tucson Mountain Park, except in the Gilbert Ray Campground. Seeing eye dogs shall be exempt.

(Res. 2000-3, § 2, 2000)

4.060 License

Dogs over four (4) months of age shall wear a valid license on a collar. (Res. 2000-3, § 2, 2000)

4.070 Litter

A. Dog owners or handlers shall clean up all litter created by the animal and place it in trash cans.

B. Exemption. Owners of seeing eye dogs shall be exempt.

(Res. 2000-3, § 2, 2000)

5.010 Intoxicants in Park and Recreation Areas

A. No person shall possess or consume spirituous liquor in Pima County Parks and Recreation areas.

B. Exemption. On premises under lease from Pima County and upon compliance with the terms of the lease and with applicable State liquor licensing laws.

C. "Spirituous liquor" includes alcohol, brandy, whiskey, rum, tequila, mescal, gin, wine, porter, ale, beer, any malt liquor or malt beverage, absinthe, a compound or mixture of any of them or of any of them with any vegetable or other substance, alcohol bitters, bitters containing alcohol, any liquid mixture or preparation, whether patented or otherwise, which produces intoxication, fruits preserved in ardent spirits, and beverages containing more than one-half of one percent of alcohol by volume. (Res. 2000-3, § 2, 2000)

5.020 Disturbing the Peace in Park and Recreation Areas

No person shall maliciously and willfully disturb the peace or quiet of a neighborhood, family or person by: loud or unusual noise; tumultuous or offensive conduct; threatening, traducing, quarreling, challenging to fight or fighting; or applying any violent, abusive or obscene epithets to another. (Res. 2000-3, § 2, 2000)

7.010 Violations and penalties

A person who violates any of the Parks Rules, adopted pursuant to A.R.S. § 11-931, et seq., is guilty of a class 2 misdemeanor pursuant to A.R.S. § 11-940. (Res. 2000-3, § 2, 2000)

7.020 Expulsion of violators

Pima County park police officers and other law enforcement officers shall have authority to order violators of the Park Rules to leave parks and recreation areas. (Res. 2000-3, § 2, 2000).