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Title: **Biological Assessment for 3700 Old Spanish Trail**

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Objectives:

- **Describe the biological resources of this site**
- **Identify the primary wildlife conservation issues related to the development of this property**
- **Describe the regional biological context and existing zoning and development requirements that pertain to protecting biological values**
- **Develop recommendations for integrating wildlife conservation elements into plans for development of this site**

BIOLOGICAL RESOURCES OF THE SITE

The proposed development site consist of approximately 45 acres classified as Arizona Upland Division of Sonoran Desert Scrub Vegetative Communities. Most of the area is characterized as mixed cactus – creosote -- palo verde – mesquite vegetative community but there is also an important xero-riparian vegetative community associated with the drainage along Escalante Rd. The site also includes a few widely scattered saguaros and a diversity of other plants typical of upland communities in this region. These native plant community types provide habitat for many species of animals that are characteristic of the Upper Sonoran Desert region. Furthermore, the fact that this largely undeveloped parcel of land is adjacent to the protected lands in Saguaro National Park (East Unit) ensures that most of the wildlife species found in the lower parts of the National Park probably traverse or utilize this property.

Much of the site is relatively undisturbed although there is a cluster of 8 rental homes with associated driveways and historic disturbances. This heavily degraded portion of the site is concentrated along the Eastern part of the property.

Most of the site is sparsely vegetated upland vegetation characteristic of this region. However there is one major drainage that roughly parallels E. Escalante Rd. This wash drains towards the West from Saguaro National Park through two culverts under Old Spanish Trail and ultimately into Pantano Wash. One culvert is located just south of Escalante Road and the other is just north of the Saguaro Corners property. These two drainages join together just west of the Saguaro Corners property and they support a healthy xero-riparian community that at is markedly richer in vegetative cover and vegetative structural diversity than other areas of the site. This riparian corridor is a minor tributary to the Pantano Wash which is designated as “Important Riparian Area” in the county’s Conservation Lands System. Although minor in terms of the amount of water it carries, the Escalante Wash is one of the important biological linkages that reach from the protected habitats of Saguaro National Park into the adjacent low density neighborhoods and it provides an important ecological connection from the Park to the county-wide network of “Important Riparian Areas” including Pantano Wash, Rincon Creek, etc.

In addition, several minor washes transect the property in an East to West direction. While these drainages support far less vegetation and hence less cover habitat for wildlife, they, along with the undisturbed upland vegetation on this site complement the Escalante drainage in providing biological connectivity reaching from the National Park into adjacent neighborhoods and beyond.

PRIMARY ECOLOGICAL VALUES OF THE SITE

The single most important ecological attribute of this site is its value in providing living and movement spaces for wildlife. The low density development of the private lands West of Saguaro National Park including this property provide an effective buffer for the fragile protected habitats in the adjacent National Park. Most if not all of the species found in the western parts of the park are also found in these low density neighborhoods adjacent to the park. The human residents of these neighborhoods benefit from living in close association with nature and the wildlife benefit from access to habitats beyond the park boundaries. Furthermore, by expanding the habitats available to animal species that reside in and near the National Park, these neighborhoods provide genetic connectivity, not just between the National Park and adjacent neighborhoods, but also connectivity to the county-wide network of wildlife envisioned in Pima County's Conservation Lands System (CLS)

DEVELOPMENT IMPLICATIONS FOR ECOLOGICAL VALUES OF THE SITE

There are several existing zoning and development restrictions which limit development in this area and are designed to protect the open space characteristics of the neighborhoods and provide biological connectivity between the National Park and adjacent low density residential areas.

- The existing SR zoning would allow subdivision of the property into as many as 13, 3.3 acre home sites with removal of the existing rentals. While consistent with the surrounding residential areas, this scenario would inevitably result in some degradation of the current biological values of the property through the clearing of home sites and placement of utilities and driveways. Furthermore, the only restrictions on placement of these home sites would be the requirement of 50 foot setbacks from surrounding properties and 150 foot setbacks from Old Spanish Trail and Saguaro National Park. While these large lots ensure lots of open space, there are no requirements to explore potentials for placing these lots, driveways and utilities in a manner that maximizes open space protection by clustering impacted areas.
- The property also lies within the County's Buffer Overlay Zoning Ordinance (BOZO). The purpose of BOZO is to "Preserve and protect the open space characteristics of those lands in the vicinity of the public preserves while at the same time permitting the economically reasonable use of the lands". Compliance with BOZO requires that 30% of the land be preserved as open space unless the land is rezoned in which case the open space requires 50 % of any rezoned lands be preserved as natural open space.

From a biological perspective, any development plan should meet or exceed these existing conservation standards for the property as a whole. Any changes in the existing land uses are likely to

have impacts on these important biological values. However conservation biology must take the long term perspective and assume that over time it is likely that these lands will be fully developed under the existing zoning constraints. Therefore, the appropriate question is whether alternative development plans could improve upon the conservation guarantees provided by existing zoning and thereby benefit both the National Park and the adjacent residents who benefit from living in close association with nature.

RECOMMENDATIONS

As stated previously, the most important ecological attributes of this property are its functionality as a buffer for the natural resources of the National Park and the biological connectivity it provides between the national park and the adjacent low density residential areas. Beyond meeting or exceeding the existing zoning restrictions designed to address these issues, there are several ways in which any development plan could address this need to preserve both open space and ecological connectivity.

1. Focus on Escalante Wash as a major ecological corridor and provide protections for this habitat that exceed required setbacks. This is an important biological linkage between Saguaro National Park, adjacent low density neighborhoods, and Pima County's Conservation Lands System. The xero-riparian vegetation of this corridor should be protected by minimizing crossings by roads and driveways and by buffering the protected riparian vegetation with as much protected native upland vegetation as feasible.
2. Focus development on areas that are already degraded by the existing rental housing and by historical uses of the property. Interconnected undisturbed native vegetation, whether it is upland or riparian, is essential to maintaining biological connectivity. Careful placement of structures, driveways, utilities, and other developments should be focused on maximizing interconnected undisturbed native vegetation.
3. In addition to Escalante Wash as the major habitat connector, identify two or three of the minor drainages that also traverse the property and look for opportunities to protect and enhance the vegetation in these minor linkages.
4. Exceed the requirement that 30% of the undisturbed natural upland vegetation (50% if land is rezoned) is permanently protected from disturbance and ensure that this undisturbed open space is interconnected (as opposed to islands of habitat that are isolated by roads and building sites).
5. Exceed the existing setback requirements along Old Spanish Trail (150 feet) in order to enhance protection for the National Park's resources.
6. Exceed the setback requirements for adjacent private properties (50 feet) in order to protect the open space and view sheds enjoyed by adjacent residents.
7. Identify opportunities to restore existing disturbed areas using native vegetation.
8. Look for opportunities to enhance the ecological importance of the minor drainages by directing runoff from roads and roof tops to these washes.
9. Design lighting to protect dark skies and limit hours for outside lighting.

10. Prior to construction, rope off nearby undisturbed vegetation to avoid accidental destruction by construction crews.

11. Avoid that use of walls or fences away from buildings which would fragment wildlife habitats and constrain wildlife movements.

*William W. Shaw is Professor of Wildlife Conservation Sciences in the University of Arizona's School of Natural Resources and the Environment. Since joining the University of Arizona in 1974, he has been actively involved in wildlife conservation in the Tucson region including directing studies of wildlife in Saguaro Park, serving on advisory teams for expansion of Saguaro National Park, and serving as Chair of the Science and Technical Advisory Team for Pima County's Sonoran Desert Conservation Plan. He has been Chairman of the Arizona Sonora Desert Museum's Board of Trustees, Santa Lucia Conservancy, and Comunidades y Biodiversity COBI (a Mexican conservation organization dedicated to promoting sustainable fisheries). He also currently serves on the Boards of the Arizona Land and Water Trust and the Western National Parks Association.