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AESO/SE  
02-21-03-F- 0406

November 5, 2003

Ms. Cindy Lester  
Chief, Arizona Section, Regulatory Branch  
U.S. Army Corps of Engineers  
Arizona-Nevada Field Office  
3636 North Central Avenue, Suite 760  
Phoenix, Arizona 85012-1936

Reference File: 2000-00730-SDM

Dear Ms. Lester:

This biological opinion (BO) responds to the U.S. Army Corps of Engineers' (COE) request for consultation pursuant to section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. *et. seq.*, ESA). Your request for formal consultation was dated June 10, 2003 and received by us on June 21, 2003. At issue are impacts that may result to the endangered Pima pineapple cactus (*Coryphantha scheeri* var. *robustispina*) (PPC) from the proposed issuance of a Section 404 permit under the Clean Water Act to construct crossings and utility lines in unnamed washes on the 1,597-acre Santa Rita Mountain Ranch master planned community located in Pima County, Arizona (Sections 15, 21, 22, 26, 27, and 28, T17S, R15E). You have determined that the project may adversely affect PPC.

We concurred with your determination that the project may affect, but is not likely to adversely affect the endangered cactus ferruginous pygmy-owl (CFPO) (*Glaucidium brasilianum cactorum*) in our September 3, 2003 letter to you.

This BO is based on information provided in the April 2003 biological assessment (BA), supplements to the BA dated July 31 and October 10, 2003 (all prepared by WestLand Resources, Inc.), meetings, and other sources of information. Literature cited in this BO is not a complete bibliography of all literature available on the species of concern, the effects from residential development, the project area, or other subjects considered in this opinion. A complete administrative record of this consultation is on file at the Arizona Ecological Services Field Office.

### **Consultation History**

June 4, 2003: We met with WestLand Resources staff, COE, and the applicant to discuss the project and issues related to the consultation.

June 21, 2003: We received your request for formal consultation.

July 31, 2003: We received additional written details on the proposed conservation measures.

August 6, 2003: We met with staff from WestLand Resources and the applicant to discuss additional conservation measures for the project.

September 23, 2003: We met with the applicant and WestLand Resources staff to finalize details of the proposed action and conservation measures.

October 10, 2003: We received the supplement to the BA with remaining details of the proposed conservation measures.

## **BIOLOGICAL OPINION**

### **DESCRIPTION OF THE PROPOSED ACTION**

The applicant proposes to construct a planned residential development on 1,597.5 acres of vacant land located in Pima County, Arizona known as Santa Rita Mountain Ranch. The project is located southeast of the City of Tucson. It is approximately 26 miles from downtown Tucson, 10 miles east of Sahuarita, and 9 miles south of Interstate 10. The project is located in the NW<sup>1</sup>/<sub>4</sub> of the NW<sup>1</sup>/<sub>4</sub> of Section 28, E<sup>1</sup>/<sub>2</sub> of the E<sup>1</sup>/<sub>2</sub> of Section 21, Sections 22 and 27, W<sup>1</sup>/<sub>2</sub> of the SW<sup>1</sup>/<sub>4</sub> of Section 26, and Section 15.

Approximately 784 acres of the project (49%) will be designated as natural open space (NOS). No development will occur in these areas, and these lands will be protected in perpetuity through a conservation easement (CE). Approximately 321 additional acres will be left undisturbed within the development areas. These 321 acres will also be protected by CEs in perpetuity and will provide for some PPC conservation, but not to the extent of the NOS lands. The NOS lands plus the 321 acres of additional lands in conservation status are collectively referred to as the Conservation Lands. The CEs will be held by the Conservation Foundation, an Arizona non-profit corporation. The remaining acres (492) will be developed. Building densities will range from 0.33 residents per acre (RAC) to total use of areas.

There are a total of 260 PPC on the project site. The lands within the designated NOS will protect approximately 119 PPC (46%). Additional information, maps, and other details are provided in the April 2003 BA, supplements to the BA, and are incorporated here by reference.

All of the property is held by Fidelity National Title Trust Nos. 60,070 and 60,071 (Trusts). The Conservation Lands will continue to be held by the Trusts or its successors in interest and will not be transferred to the Conservation Foundation. The CEs granted the Conservation Foundation will be tied to the land and not affected by the underlying ownership.

### **Proposed Conservation Measures**

The applicant and COE propose the following conservation measures to minimize the effects to PPC and its habitat:

1. An initial Conservation Easement (CE) will be recorded on 510.06 acres within 30 days of the issuance of the COE Section 404 permit. The CE and legal description of the lands included in the initial CE are provided in the October 10 supplement to the BA and have been approved by us. The CE will be granted to the Santa Rita Mountain Ranch Conservation Foundation (Conservation Foundation), an Arizona non-profit corporation, that will be responsible for the management of the Conservation Lands. We have been identified as the Third Party Beneficiary in the CE.
2. The remaining Conservation Lands (approximately 595 acres), will be protected by CEs that will be recorded to protect these parcels of land as development progresses and legal boundaries can be defined using the Declaration of Conservation Easement that we have approved (October BA supplement). To ensure recordation of appropriate CEs within the Village Estate lots, an executed CE for each lot shall be provided to the Santa Rita Mountain Homeowners Association (HOA) as a condition of the HOA architectural Review Committee (ARC) approval. The executed CE will be provided to the Conservation Foundation within 60 days of the initiation of lot construction.
3. The Trusts will record protective Covenants, Conditions, and Restrictions (CC&Rs) that will encumber the entire proposed development and will be recorded with Pima County. CC&R Conservation Elements cannot be changed or amended without our prior written approval. There are eight Conservation Elements, and the specific language for each element can be found in the October BA supplement.
4. There are no plans to fence the conservation lands so as to avoid further fragmentation and adverse effects to wildlife. The following activities are specifically excluded from the conservation lands: motorized vehicle use, application of pesticides and rodenticides, artificial lighting, organized events that consist of more than 20 people, any vegetation salvage or disturbance of natural vegetation (except as necessary to maintain the value of the Conservation Lands), use of fire or outdoor cooking equipment, and the staging of equestrian events. Designated trails will be signed. It is anticipated that an insignificant amount of vegetation will be removed, and no PPC will be disturbed for the placement of the trails.

5. The conservation lands and lands within the Village Estate lots will be inspected every six months, at a minimum. Particular attention will be devoted to the designated trail system within the conservation lands. Monitoring responsibility rests with the Conservation Foundation. An annual monitoring report, due in February, will be submitted to us. The first monitoring report will provide a map of the proposed trail system through the conservation lands.
6. If the Conservation Foundation finds that any of the CEs have been violated, the responsible party shall receive written notification to correct the problem. If the responsible party fails to take corrective action, the Conservation Foundation is ultimately responsible for remedying the situation. We have third party rights of enforcement on the CEs.
7. A \$2,500 refundable restoration deposit will be required by the Conservation Foundation for the Village Estate lots. This money will be used to restore any damage to the open space caused by construction activities within the Village Estate lots subject to the CE.
8. Removal of non-hazardous trash and debris, along with minor restoration of the conservation lands shall take place, at a minimum, once each year. These tasks are the responsibility of the Conservation Foundation.
9. The Conservation Foundation will establish the initial endowment for the conservation lands with \$41,000. The remainder of funding for the endowment will be generated by HOA fees. A schedule of monitoring costs and a funding schedule can be found in attachment 4 of the October 2003 BA supplement.
10. PPC that cannot be avoided in the development areas will be transplanted to suitable areas within the conservation lands.
11. A subset of PPC in the conservation lands (40%) and approximately 30 transplanted PPC will be monitored every four years in perpetuity. The monitoring will be conducted in such a manner that all the PPC are visited by year 12, year 24, etc.

## **STATUS OF THE SPECIES**

### **Pima Pineapple Cactus**

#### Life History

The final rule listing Pima pineapple cactus as endangered was published on September 23, 1993 (58 FR 49875). The rule became effective on October 25, 1993; critical habitat was not designated at that time. Factors that contributed to the listing include habitat loss and degradation, habitat modification and fragmentation, limited geographic distribution and plant

species rareness, illegal collection, and difficulties in protecting areas large enough to maintain functioning populations. The biological information below is summarized from the proposed and final rules, and other sources.

Pima pineapple cactus is a low-growing hemispherical cactus with adults varying in stem diameter from 5.0 cm (2.0 inches) to 21.0 cm (8.3 inches) and height from 4.5 cm (1.8 inches) to 45.7 cm (18.0 inches). Individuals are considered adults when they reproduce sexually. Plants can be either single or multi-stemmed with yellow flowers blooming with the summer rains. Clusters of Pima pineapple cactus stems are formed primarily from vegetative clones produced at the plant base (Benson 1982, Roller 1996). The diagnostic field character of this taxon is the presence of one stout, straw-colored, hooked central spine. Radial spines extend laterally around the central spine and average 10 to 15 spines on large cacti and 6 on small cacti (Benson 1982).

Pima pineapple cactus occurs south of Tucson, in Pima and Santa Cruz counties, Arizona and adjacent northern Sonora, Mexico. It is distributed at very low densities throughout both the Altar and Santa Cruz Valleys, and in low-lying areas connecting the two valleys.

Groups of flowers begin to bloom for single day periods five to seven days after the first monsoon rains. Flowering is triggered by as little precipitation as 3 mm (0.12 inches). Generally flowers begin opening midmorning and close at dusk (Roller 1996). Adult plants bloom one to three days each year; flowering is usually over by the end of August. Cross-pollination produces significantly more viable seeds than self-pollination. Fruits are mature within two weeks following successful pollination. Germination has been observed in the field during the summer monsoon rainy season (Roller 1996). Anecdotal observations indicate the species' flowers are visited by a variety of native bees and European honey bees, which have been observed to leave the flowers with their forehead and hind legs covered in Pima pineapple cactus pollen.

Habitat fragmentation and isolation may be an important factor limiting future seed set of this cactus. Recent data show that the species cannot successfully self pollinate in situ and is reliant on invertebrate pollinators. One hypothesis is that the spatial distribution pattern of individual Pima pineapple cacti within a given area may regulate pollinator visitations, thus resulting in more successful cross-pollination and subsequent seed set over the population (Roller 1996). If the pollinators are small insects, with limited ability to fly over large distances, habitat fragmentation may contribute to a decrease in pollinator effectiveness with a subsequent decrease in seed set and recruitment.

### Population Stability

Extrapolations from recent (1992-1997) surveys of known Pima pineapple cactus locations suggest that the cactus may be more numerous than previously thought. Projections based only on known individuals may underestimate the total number of individuals. This in no way indicates that the cactus is not rare or endangered. Pima pineapple cactus is widely dispersed in very small clusters across land areas well suited for residential, commercial, or mining

development. Field observations suggest a great deal of land area within the range boundaries would not support Pima pineapple cactus today due to historical human impacts. Thus, populations are already considerably isolated from each other in many portions of the range, and population size and apparent recruitment varies significantly across the range. On a more local scale, population variability may relate to habitat development, modification, and/or other environmental factors such as slope, vegetation, pollinators, dispersal mechanisms, etc.

The transition zone between the two regions of vegetation described by Brown (1982) as semidesert grassland and Sonoran desert-scrub contains denser populations, better recruitment, and individuals exhibiting greater plant vigor. Vegetation within this transition zone is dominated by mid-sized mesquite trees, half shrubs (snakeweed, burroweed, and desert zinnia), and patches of native grass and scattered succulents. Because populations are healthier in this transition zone, conservation within these areas is very important (Roller and Halvorson 1997). However, this important habitat type is not uniformly distributed throughout the plant's range. Populations of Pima pineapple cacti are patchy, widely dispersed, and highly variable in density. The higher population densities have only been documented at three sites. Compared to other surveys, two of these sites are very small in scale and range from 6.3-7.5 plants per ha (1-3 plants per acre). Other densities across the majority of the plant's range vary between one plant per 1.9 ha (4.6 acres) and one plant per 8.5 ha (21 acres) (Mills 1991, Ecosphere 1992, Roller 1996).

Land areas surrounding developed parts of Green Valley and Sahuarita, Arizona, (including adjacent areas of the San Xavier District of the Tohono O'odham Nation) may be important for the conservation of this species within its range. Analysis of surveys conducted from 1992 to 1995 with a multivariate statistical analysis documented a pattern of greater population densities, higher ranks of cactus vigor, and better reproduction occurring within the transition vegetation type found in this area of the northern Santa Cruz Valley (Roller and Halvorson 1997). This area could be defined as an ecotone boundary between semidesert grassland and Sonoran desert scrub.

Seedling and sub-adult size classes are uncommon in documented populations across the range. However, this may be a function of the difficulty of finding such small, well-camouflaged plants in a large-scale survey, or because the establishment phase of the seedling may be limited in some unknown way. Research on Pima pineapple cactus reproduction has suggested that the establishment phase of Pima pineapple cactus life history may limit recruitment within populations (Roller 1996). Evidence presented to support this conclusion was the abundance of flowers, fruits, and viable seed, and the rarity of seedling presence at different sites spread throughout the plant's range (Roller 1996). Other research has confirmed that the establishment phase of other Sonoran cacti species may be critical for survival to reproductive maturity (Steenbergh and Lowe 1977).

### Status and Distribution

Generally, the Pima pineapple cactus grows on gentle slopes of less than 10 percent and along the tops (upland areas) of alluvial bajadas nearest to the basins coming down from steep rocky slopes. The plant is found at elevations between 720 m and 1,440 m (Phillips et al. 1981, Benson

1982, Ecosphere 1992), in vegetation characterized as either or as combination of both the Arizona upland of the Sonoran desert scrub and semidesert grasslands (Brown 1982).

The acquisition of baseline information began with surveys documenting the presence of Pima pineapple cactus as early as 1935. More intensive surveys were initiated in 1991 and other research established in 1993 further investigated the reproductive biology, distribution, fire effects, and mortality associated with various threats. Therefore, the best available baseline information is relatively recent and may not represent actual changes in distribution since the decline in the status of the species began.

Widely scattered surveys have been conducted across sites that varied considerably in cacti density. Densities ranged between 0.1-7.5 plants per ha (0.05-3 plants per acre). Pima pineapple cactus occurs in 50 townships within its U.S. range. However, a considerable amount of land area within the range boundaries does not provide habitat for the species due to elevation, topography, hydrology, plant community type, and human degradation. To date, an estimated 22,959 ha (56,730 acres), (10 to 20 percent of the U.S. range) have been surveyed. Not all of this area has been intensively surveyed; some has only been partially surveyed using small land blocks to estimate densities rather than 100 percent ground surveys. A conservative estimate of total cacti located to date would be 3,800 individuals. The majority of those were located after 1991.

It is important to clarify that the above number represents the total number of locations ever found and not the current population size. It would be impossible to estimate densities over the remaining unsurveyed area because of the clumped and widely dispersed pattern of distribution of this species. Of the 3,800 individuals recorded to date, 2,203 (58 percent) of them have been removed. This quantity includes observed and authorized mortalities and individuals transplanted since the species was listed in 1993. A small portion of these mortalities were caused by natural factors (i.e., drought). Moreover, this figure does not take into account those cacti that are removed from private land or lost to other projects that have not undergone section 7 review.

Transplanted individuals are not considered as functioning within the context of a self-sustaining population. Efforts to transplant individual cacti to other locations have only had limited success and the mortality rate has been high, especially after the first year. Furthermore, once individuals are transplanted from a site it is considered to be extirpated as those individuals functioning in that habitat are irretrievably lost. We view transplanting cacti as a measure of last resort for conserving the species. Transplanting will be recommended only when on-site and off-site habitat conservation is not possible and the death of cacti is unavoidable.

The area of habitat reviewed under section 7 between 1987 and 2000 (i.e., habitat developed or significantly modified beyond the point where restoration would be a likely alternative) is approximately 9,886 ha (24,429 acres) which represents 43 percent of the total area surveyed to date. In 1998, more than 445 ha (1,100 acres) of Pima pineapple cactus were lost including 143

ha (353 acres) from the Las Campanas Housing Development project, and 304.6 ha (752 acres) from the ASARCO, Inc. Mission complex project. In 2000, 237.3 ha (586 acres) of habitat were lost with the expansion of a state prison in Tucson. In 2001, 71.7 ha (177 acres) of habitat were lost through development, but 375.8 ha (888 acres) of occupied and suitable habitat were conserved through conservation easements. We are aware of housing developments along Valencia Road, Pima County, Arizona, in the vicinity of T15S, R12E, Section 15 and surrounding areas, that support Pima pineapple cactus. These developments affect several hundred acres of habitat and have not been evaluated through the section 7 process. The number of acres lost through private actions, not subject to Federal jurisdiction, is not known but given the rate of urban development in Pima County, we believe that it is significant.

Most of the documented habitat loss has occurred south of Tucson down through the Santa Cruz Valley to the town of Amado. This area is critical for the future recovery of the species. The expansion of urban centers, human population, and mining activities will continue to eliminate habitat and individuals, and result in habitat fragmentation.

The protection of habitat and individuals is complicated by the varying land ownership within the range of this species. An estimated 10 percent of the potential habitat for Pima pineapple cactus is held in Federal ownership. The remaining 90 percent is on Tribal, State, and private lands. Most of the federally owned land is either at the edge of the species' range or in scattered parcels. The largest contiguous piece of federally owned land is the Buenos Aires National Wildlife Refuge, located at the southwestern edge of the species' range at higher elevations and lower plant densities.

Based on surveys and habitat analysis, areas south of Tucson through the Santa Cruz Valley to the town of Amado and surrounding developed parts of Green Valley and Sahuarita, and parts of the San Xavier District of the Tohono O'odham Nation, appear to support abundant populations, some recruitment, and units of extensive habitat still remain. However, the primary threat to the status of this species throughout its range is the accelerated rate (i.e., since 1993) at which this prime habitat is being developed, fragmented, or modified.

The Arizona Native Plant Law may delay vegetation clearing on private property for the salvage of specific plant species within a 30-day period. Although the Arizona State Native Plant Law does prohibit the illegal taking of this species on state and private lands without a permit for educational or research purposes, it does not provide for protection of plants in situ through restrictions on development activities.

Based on current knowledge, urbanization, farm and crop development, and exotic species invasion alter the landscape in a manner that would be nearly irreversible in terms of supporting Pima pineapple cactus populations. Prescribed fire can have a negative effect if not planned properly.

Other specific threats which have been previously documented (U.S. Fish and Wildlife Service 1993), such as overgrazing and mining, have not yet been analyzed to determine the extent of effects to this species. However, partial information exists. Mining has resulted in the loss of hundreds, if not thousands, of acres of potential habitat throughout the range of the species.

Much of the mining activity has been occurring in the Green Valley area, which is the center of the species' distribution and the area known to support the highest densities of individuals. Overgrazing by livestock, illegal plant collection, and fire-related interactions involving exotic Lehmann lovegrass (*Eragrostis lehmanniana*) may also negatively affect Pima pineapple cactus populations (U.S. Fish and Wildlife Service 1993).

Even with complete data on historical change related to Pima pineapple cactus distribution and abundance, we cannot reliably predict population status due to compounding factors such as climate change, urbanization, and legal and political complexities (McPherson 1995). We do not know if the majority of populations of Pima pineapple cactus can be sustainable under current reduced and fragmented conditions. Thus, there is a need to gather information on limits to the plant's distribution under current habitat conditions.

In summary, monitoring has shown that the range-wide status of the Pima pineapple cactus appears to have been recently affected by threats that have completely altered or considerably modified more than a third of the species' surveyed habitat, and have caused the elimination of nearly 60 percent of documented locations. Dispersed, patchy clusters of individuals are becoming increasingly isolated as urban development, mining, and other commercial activities continue to detrimentally impact the habitat. The remaining habitat also is subject to degradation or modification from current land- management practices, increased recreational use when adjacent to urban expansion (i.e., off-road vehicle use and illegal collection), and the continuing aggressive spread of nonnative grasses into habitat. Habitat fragmentation and degradation will likely continue into the foreseeable future based on historical data and growth projections produced by the Pima County Association of Governments (1996). There is very little Federal oversight on conservation measures that would protect or recover the majority of the potential habitat. Even some areas legally protected under the ESA have been modified and may not be able to support viable populations of the Pima pineapple cactus over the long-term.

## **ENVIRONMENTAL BASELINE**

The environmental baseline includes past and present impacts of all Federal, State, or private actions in the action area, the anticipated impacts of all proposed Federal actions in the action area that have undergone formal or early section 7 consultation, and the impact of State and private actions which are contemporaneous with the consultation process. The environmental baseline defines the current status of the species and its habitat in the action area to provide a platform from which to assess the effects of the action now under consultation.

Surveys were conducted on the property from April - July 2002. A total of 268 PPC were detected. The BA states that 260 PPC are within the project area; eight individuals are located outside of the project boundaries.

The majority of the PPC were found on the relatively flat bajadas as is typical for this species. The average density on the site is 0.16 PPC/acre. Based on all the projects reviewed by our

office that have affected PPC, a density of 0.16 would be considered medium density. Anything less than 0.09 PPC/acre is considered low density, and sites with densities above 0.31 PPC/acre are considered high. This would indicate that the proposed development site supports suitable habitat and that conservation in the area is important.

The PPC are not distributed randomly throughout the property, but occur in clusters. The majority of the PPC are found in the southern portion of the property (approximately 40%), with the remainder located in the northwest section and near the northeast boundary. In the southern portion the PPC seem to be associated with reddish, oxidized soil. We have seen this pattern in other projects in the general area.

The action area is defined as the footprint of the development (1597.5 acres) and a 0.25 mile area surrounding the project boundaries which encompasses the area most likely to incur indirect effects from the housing development. PPC are known and suspected to occur on lands surrounding the project. Development may affect the overall population dynamics of PPC in the general area. While an attempt has been made to minimize the effects of the development on PPC there may be additional effects over a larger area that cannot be quantified. Access to the site is on existing roads. The action area is surrounded by private land on the north and east, the Santa Rita Experimental Range on the south, and Arizona State land to the east. We know of no other plans for development near the action area, but there continues to be new residential development in the areas to the east and south on private lands.

## **EFFECTS OF THE ACTION**

Effects of the action refer to the direct and indirect effects of an action on the species or critical habitat, together with the effects of other activities that are interrelated or interdependent with that action, that will be added to the environmental baseline. Interrelated actions are those that are part of a larger action and depend on the larger action for their justification. Interdependent actions are those that have no independent utility apart from the action under consideration. Indirect effects are those that are caused by the proposed action and are later in time, but are still reasonably certain to occur.

The proposed action states that there are a total of approximately 1,105 acres of Conservation Lands. These lands will have varying degrees of protection for PPC. There are approximately 147 PPC (56%) located within the NOS or close enough to the boundary of the NOS to be protected. These PPC will receive the highest level of protection because their habitats are not included within any of the developed lands. There should be no direct impacts from the proposed construction. The habitat set aside (784 acres) in the NOS should continue to support the existing population of PPC because of the unfragmented nature of the parcels, the ecological connections that are maintained between the northeast and southern areas via the washes, and the intact connection between the Santa Rita Experimental Range and the southern open space (Fig. 1). The Santa Rita Experimental Range supports populations of PPC.

The remaining 321 acres of Conservation Lands may have some additional conservation value for the remaining 113 PPC. These 312 acres are within development zones, but will have no surface disturbance, other than the footprint for the houses and associated structures, and CEs will be recorded on the remaining open space. Some of the 133 PPC on these conservation lands are expected to be lost, depending on where the house is situated on the lot. The conservation value will derive from the placement of the structures and whether the open space aligns with the boundaries of the NOS. Since the configuration of the individual lots is not known at this time, it is difficult to determine how meaningful this portion of the Conservation Land will be for PPC. Conservation will also depend on how well the CE restrictions and CC&Rs are implemented. Possible indirect effects to the Conservation Lands would include fragmentation of habitat and unintended uses of the property resulting in long-term degradation of habitat (use of the areas from residents, trash, new paths, non-native plant invasion, etc). The results from the long-term monitoring will be the only real way to determine if open areas within individual lots provide meaningful conservation for PPC.

PPC that cannot be avoided will be transplanted to appropriate habitat within the conservation lands. Past efforts to transplant individual PPC to other locations has had only limited success. On a project in Green Valley, where transplanted PPC were monitored for survival for two years following their transplant, there was a 76% survival rate (SWCA, Inc 2001). On another project in Green Valley, PPC transplanted in 2001 showed a 47% mortality after one year (WestLand Resources, Inc. 2003).

In summary, the proposed project will result in the loss of an unknown amount of suitable habitat, since PPC habitat was not delineated on this project. The proposed action will protect a total of approximately 1,105 acres in CEs; 784 acres in NOS, and 321 acres located within the development areas. A total of 147 PPC (56%) will be protected within and near the NOS. Some PPC will be lost within the 312 acres of conservation lands that are within the development areas. It remains to be seen how effective conservation will be for the remaining PPC on these Conservation Lands.

This project contributes to the recovery of PPC and its habitat because it does provide for contiguous blocks of occupied habitat (784 acres) that will be protected in perpetuity. PPC will not be able to survive in the long-term in small, fragmented areas surrounded by urban development. Large, contiguous blocks of habitat need to be set aside, protected, and managed for their natural values. All of the proposed conservation actions included in the project description are critical to offset impacts to PPC and its habitat.

## CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, Tribal, local, or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act.

Development in this geographic region can be expected to increase. State and private lands not presently developed in the area are quickly becoming urbanized. We know of at least four other residential developments that are being built in the immediate area. Much of this development has no Federal nexus. We know of no planned activities on the Santa Rita Experimental Range, which is directly south of this project. Without any protection under the Act, the only protection available is through the Arizona Native Plant Law, which provides only for salvage for scientific and educational purposes. Regardless of salvaged cacti transplant success, the habitat would be lost.

Much of the habitat and the individuals of the species are at significant risk of destruction or continued degradation. There is little regulatory authority to use in reducing those risks.

## CONCLUSION

After reviewing the current status of PPC, the environmental baseline for the action area, the effects of the proposed action and the cumulative effects, it is our biological opinion that the proposed action is not likely to jeopardize the continued existence of PPC. No critical habitat has been designated, therefore, none will be affected. We base this conclusion on the following:

1. The applicant is setting aside 49% (784 acres) of the property in NOS that will be protected from development in perpetuity through a conservation easement. Approximately 147 PPC (56%) are located within these lands and will be protected in place. An additional 321 acres will also be protected through CEs, but these lands will be located within the development envelope and the amount of actual conservation for the 113 PPC found in these areas cannot be quantified at this time. Many of these PPC will be protected in place, but the long-term indirect effects may reduce the value of the habitat.

## INCIDENTAL TAKE STATEMENT

Sections 7(b)(4) and 7(o)(2) of the ESA do not apply to listed plant species. However, protection of listed plants is provided to the extent that the ESA requires a Federal permit for removal or reduction to possession of endangered plants from areas under Federal jurisdiction, or for any act that would remove, cut, dig up, or damage or destroy any such species on any other area in knowing violation of any regulation of any State or in the course of any violation of a State criminal trespass law. Neither incidental take nor recovery permits are needed from us for implementation of the proposed action.

## CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the ESA directs Federal agencies to utilize their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

1. We recommend that the Corps request that the Conservation Foundation participate on the stakeholder participation team developing the recovery plan for PPC. Monitoring results for the Conservation Lands will be important to the development of meaningful conservation measures for residential development impacts to PPC.

In order that we be kept informed of actions minimizing or avoiding adverse effects or benefitting listed species or their habitats, we request notification of the implementation of any conservation recommendations.

### **REINITIATION NOTICE**

This concludes formal consultation on the Santa Rita Ranch Master Planned Community. As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded (not applicable to this consultation); (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action.

We appreciate your efforts to identify and minimize effects from this project. If we can be of further assistance, please contact Mima Falk (520) 670-4550 or Sherry Barrett (520) 670-4617. Please refer to consultation number 02-21-03-F-0406 in future correspondence regarding this project.

Sincerely,

/s/ Steven L. Spangle  
Field Supervisor

cc: Regional Director, Fish and Wildlife Service, Albuquerque, NM (ARD-ES)  
John Kennedy, Habitat Branch, Arizona Game and Fish Department, Phoenix, AZ  
Director, Arizona Game and Fish Department, Tucson, AZ  
U.S. Army Corps Of Engineers, Phoenix, AZ (Attn: Sally McGuire)  
Arizona Department of Agriculture, Phoenix, AZ (Attn: Jim McGinnis)  
WestLand Resources, Inc., Tucson, AZ (Attn: Jim Tress)  
Assistant Field Supervisor, Fish and Wildlife Service, Tucson, AZ

**LITERATURE CITED**

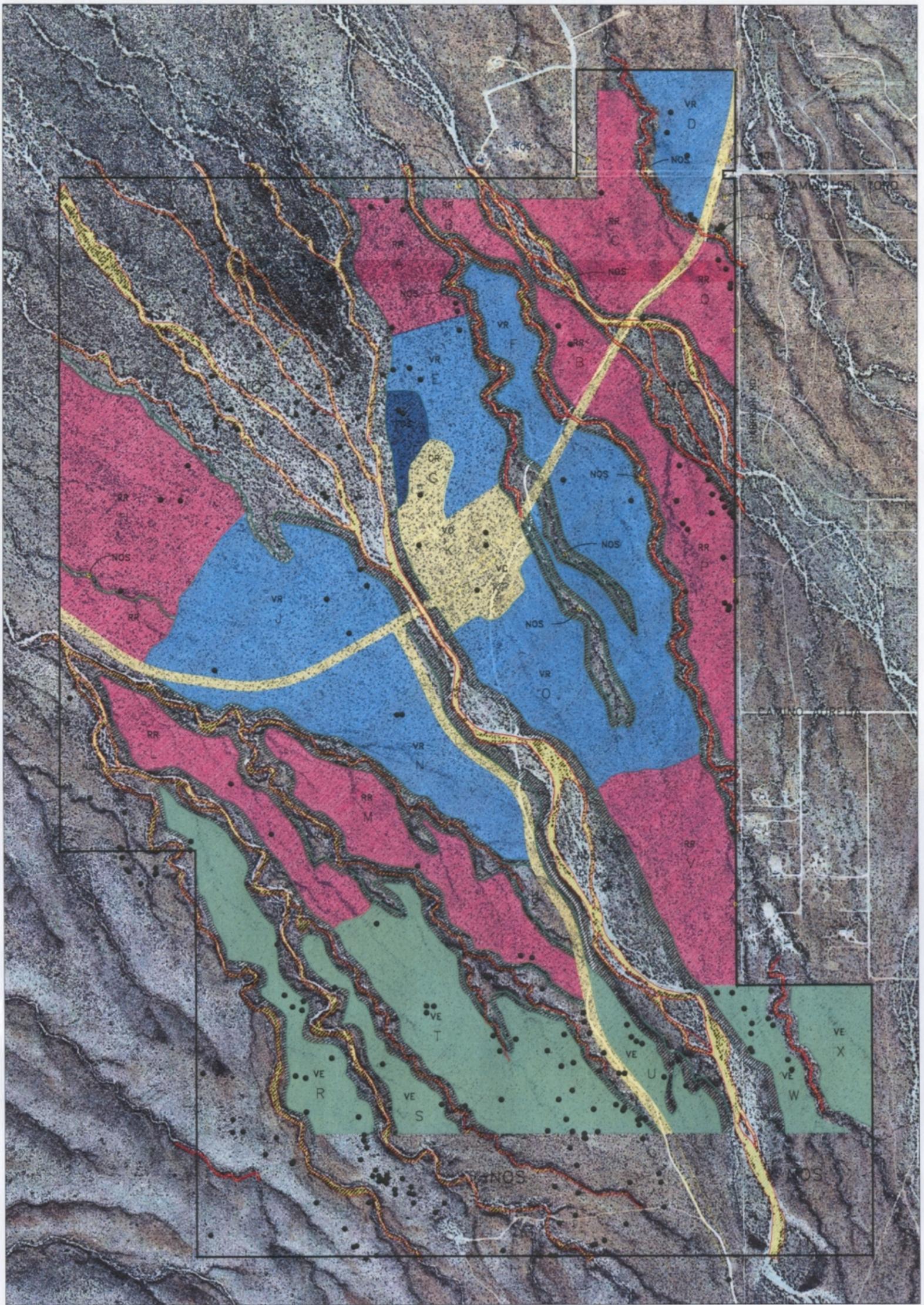
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Source - Rick Engineering Company

T.17S., R.15 E., Sections 22 & 27, and Portions of T.17S., R.15 E., Sections 15, 21 & 28 Pima County, Arizona

**LEGEND**

- Pima Pineapple Cactus
- Project Boundary
- Community Recreation, Village Center, Right-Of-Way (CR, VC)
- Village Residential (VR)
- Rural Residential (RR)
- Village Estate (VE)
- Functional Open Space (FOS)
- Natural Open Space (NOS)



0 500' 1000'  
Scale 1" = 1000'

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Figure 2

SYCAMORE SPRINGS, L.L.C.  
Santa Rita Mountain Ranch

PROJECT PLAN