

**SUMMARY OF ISSUES RELATED TO THE PROPOSED ROSEMONT COPPER MINE AND
PROPOSED CRITICAL HABITAT FOR THE JAGUAR
FRDAY, MARCH 8, 2013**

Background and Initial Effects Analysis

The proposed Rosemont open-pit copper mine is situated in the northern Santa Rita Mountains. The mine will be actively mined for approximately 20 years.

The action area is large (see red line on color map) due to effects to groundwater and streams, but the project area relevant to jaguar pCH (see black line on color map) are the pit, facilities, tailings, outer perimeter and inner security fences, the haul road, a portion of State Route (SR) 83, and the utility ROW.

The mine is situated in portions of Unit 3 (Patagonia) and Subunit 4b (Whetstone-Santa Rita) of Proposed Critical Habitat (pCH) for the jaguar (see pCH map). Unit 3 is Prong A of proposed critical habitat, which exhibits all of the PCEs and was occupied by jaguars at the time of listing. The PCEs of jaguar pCH are: (1) connectivity to Mexico; (2) adequate levels of prey species; (3) surface water sources within 12.4 mi (20 km) of one another; (4) Madrean evergreen woodland or semidesert grassland; (5) moderate to highly rugged terrain; and (6) minimal human influence or disturbance. Subunit 4b is Prong B, which lacks the full suite of PCEs but which is essential to providing connectivity to areas occupied by jaguars in Mexico.

The project area will be encircled by a wildlife-friendly perimeter fence (black line on color map) that will be patrolled by vehicles at unknown intervals. Portions of the perimeter fence will be removed at mine closure (approximately 20 years). Within the perimeter fence will be a security fence (light green shaded area on color map). The security fence will not be removed upon closure and will thus be permanently impassable to wildlife. This security fence will encircle and directly affect 3,102 acres of pCH Unit 3. This is a permanent loss of all 5 PCEs in 1% of Unit 3 and 0.4% of all pCH rangewide.

The proposed action includes a primary access/haul road connected to SR83 in the northeast portion of the site and a secondary access road to access the utility line that enters the mine site from the west/northwest. The ROW and road will involve major disturbance during construction but will be used less frequently during operations. The haul road exists but will require upgrades, as it will be travelled by vehicles approximately 69 times per day and 470 times per week.

The haul road and ROW access road (see black and white project map) will occupy 478 acres (0.1%) of Unit 3, 50 acres (0.05%) of Unit 4B, and 0.06% of all pCH rangewide. Roads and the use thereof will primarily affect PCE 6 (minimal human disturbance) and, possibly PCE 2 (adequate prey base), both within and outside of the perimeter fence, due to lighting, vehicle strike mortality, and/or avoidance. The frequent use of the haul road, in particular, also represents an increased risk of vehicle strikes to jaguar within pCH. It should also be noted that SR83 bisects Subunit 4B. Increased traffic from the mine (hauling and staff entry and egress) further increases vehicle strike risk, especially as corridor studies (Beier *et al.* 2007) have identified wildlife movement in this area as constrained under present conditions. The consultation does not include future upgrades SR83; we are told the highway requires upgrading regardless of the additional mine traffic.

Aside from the percentage-based effects to critical habitat is the specific positioning of the project area within the jaguar pCH. The mine's project area will occupy and affect all PCEs in an appreciable portion of the northeastern edge of Unit 3 for 20 years. The mine will constrict the connection within pCH between Unit 3 and Subunit 4b to a strip approximately 2.5 km in width from its present minimum width of 3.6 km. The direct effects of light and noise emanating from 24-hour operations at the mine will affect (and functionally, further narrow) some portion of this strip of land and therefore affect PCE 1 (connectivity to Mexico), PCE 6 (minimal human disturbance) and possibly PCE 2 (adequate prey base, presuming prey species are also subject to disturbance) within it. Lighting will be employed during all dark hours during 20 years of operations. Blasting will only occur during daylight hours.

We note that there is an area in the Canelo Hills in Unit 3 where the pCH is already as narrow as 1.5 km in width, but this other site is also unaffected by high-speed traffic and the light and noise of an industrial project.

Another factor in corridor analysis is the relative proportions of length to width. We have not analyzed this in detail, but it does appear that relatively open areas of pCH will be retained in close proximity to each side of the 2.5-km-wide strip (i.e., the narrowed passage will be hourglass-shaped). We are consulting the scientific literature for a method to determine what portion of the corridor (and the PCEs within it) are affected by light and noise, as well as a way to evaluate its the length-to-width ratio.

It must be noted that a male jaguar was detected in the Whetstone Mountains in Subunit 4a (which is Prong A) in November 2011. The same individual was then detected in the Santa Rita Mountains in October 2012, within a few hundred meters of the northwestern portion of the mine site and within Unit 3. Further detections have occurred within the Santa Rita Mountains, all within Unit 3, the most recent occurring in January of this year. This individual is most likely to have used the shortest route – possibly Subunit 4b – to travel from the Whetstones to the Santa Ritas.

Lastly, we conducted an informal GIS analysis whereby the area bounded by the perimeter fence was added to the landscape. We assumed no disturbance from ROW and haul roads and no effects from noise or lighting. The pCH rule set was then applied to determine - if the mine was already in place - if we still would have designated the surrounding area as parts of Unit 3 and Subunit 4b. Based on this analysis, we found that we would indeed have proposed the surrounding area as pCH.

Conclusion of the Effects Analysis

We are aware that *Pinchot*, the section 7 handbook, and regulations all limit our analysis of the effects to critical habitat to the critical habitat itself. In determining if the proposed action will destroy or adversely modify pCH, we can only consider the effects (negative and positive) that occur within it.

We are preparing our Draft Biological Opinion (BO) for the Rosemont Mine with the guidance contained in the December 9, 2004, *Application of the "destruction or Adverse Modification" Standard under Section 7(a)(2) of the Endangered Species Act* memorandum (the so-called "Marshall Memo", attached). The 2004 memo makes recommendations as to the required contents of five sections of a BO. The following is a very brief analysis of how we intend to populate the respective sections of the BO in terms of the effects to jaguar pCH.

1. **Status of the Species/Critical Habitat:** The status of the jaguar and its pCH is current, as recovery planning and rulemaking are underway. We will assume all PCEs are present in all Prong A units, and that all Prong B units provide connectivity to Mexico, as these are components of the decision-making rule set used in the Proposed Rule for the CH.
2. **Environmental Baseline:** As is the case with the species and pCH rangewide status, the Environmental Baseline is current. Unit 3 currently possesses all PCEs and Subunit 4b provides connectivity to Mexico. Again, we note that a jaguar is currently present within the affected unit (Unit 3) and could have utilized Subunit 4b or some parallel route to arrive there.
3. **Effects of the Action:** We are confident that we can effectively analyze the effects of the proposed action to the jaguar as a species; we are seeking guidance regarding the effects to jaguar pCH.

We can quantify many of the effects to the jaguar pCH and its PCEs through GIS analysis, and we must consider the total loss of all 5 PCEs that will occur within and near the security-fenced area. We also believe that the scientific literature will allow us to evaluate the level of direct and indirect adverse effects to the narrowed corridor of pCH that will remain along the northwest edge of the project area.

There are a number of conservation measures included in the project that may benefit jaguars; however, only one that we consider would minimize impacts to pCH. These conservation measures include: There is a conservation measure that includes the acquisition and restoration of the Sonoita Creek Ranch (located south of the mine site along SR83, west on Sonoita), a currently-agricultural parcel south of the mine site, along SR 82 (between Sonoita and Patagonia), that is also within pCH Unit 3. The Sonoita Creek Ranch contains a box culvert undercrossing of SR83 that is currently blocked by range fence. This fence will be removed, which could make a modest improvement to PCE 1 (connectivity to Mexico) and 2 (adequate prey base). We also note that this modest enhancement in jaguar movement does not address the constriction of movement near the mine site. Another conservation measure is the use of low-output and/or directional lighting on mobile equipment in order to minimize horizontal lighting and sky glow (PCE 6; human disturbance). Concurrent and post-closure site reclamation and revegetation will be conducted within the security fenced area (on waste rock piles and on disturbed areas between the security and perimeter fences) and will be designed to meet the canopy cover and vegetation types associated with PCE 4 (Madrean evergreen woodland or semidesert grassland) and PCE 5 (moderate to highly rugged terrain). Restored areas within the permanent security fence will not be accessible to jaguars and cannot serve as CH. Aquatic site restorations for the Chiricahua leopard frog and for lost springs and seeps will be designed to support PCE 3 (surface water sources within 20 km of one another). There are no proposed conservation measures to address the disturbance and vehicle strike risk of the haul road or the section of SR83 that will be subject to increased traffic.

4. **Cumulative Effects:** The larger action area, again defined by groundwater and stream effects, is likely to experience additional, low-density residential development. This will occur within Subunit 4b, though we note there is already some development in place there.

There are a number of potential mines in the border area of Unit 4. Some of these mines' initial exploratory activities occur on private lands (i.e., patented mine claims) and the effects of that exploration are cumulative. Should the exploratory activities or the subsequent mines expand to Federal lands and/or

require a Federal permit, they would be subject to future section 7 consultation. We are particularly concerned with the potential for a large, open pit silver mine to be constructed in the Patagonia Mountains within pCH and in close proximity to the border.

Another cumulative action is the immigration and smuggling activities that occur along the border region. The primary threat posed by these activities is wildfires and, potentially, harassment or persecution of jaguars and prey species. The law enforcement response to these activities is a Federal action and is not considered cumulative.

5. **Conclusion:** This is the challenge. The proposed conservation measures either minimize (but not avoid) the effects to the PCEs, or they are mitigative actions that occur off-site (some are in pCH, some are not). The use of directional and reduced-lumen lighting is an example of a minimization measure. The Sonoita Creek Ranch is an off-site, within-pCH mitigation measure that makes a modest enhancement, but does not add acreage to pCH). There are no conservation measures, in our opinion that sufficiently offset the proposed action's permanent removal of and 20-year term effects to PCEs in the northeastern portion of Unit 3 and its junction with Subunit 4b. These combined effects appear to be capable of reducing the affected area's ability to contribute to the recovery of jaguar.

Absent the Santa Rita-Whetstone "bridge", inter-mountain, east-west jaguar movement within the United States and to and from Mexico would be reduced. We make this assertion because, again, it is likely that a jaguar used this very corridor to get from the Whetstones to the Santa Ritas.

Our desire is to obtain guidance regarding these effects to determine if they constitute destruction and adverse modification (D/AM) of pCH and if that, in turn, reduces the pCH's ability to contribute to the conservation (=recovery) of the jaguar. Secondly, we wish to establish a framework with which we can analyze the effects of other, large-scale mining projects likely to proceed within pCH or, ultimately the final CH.

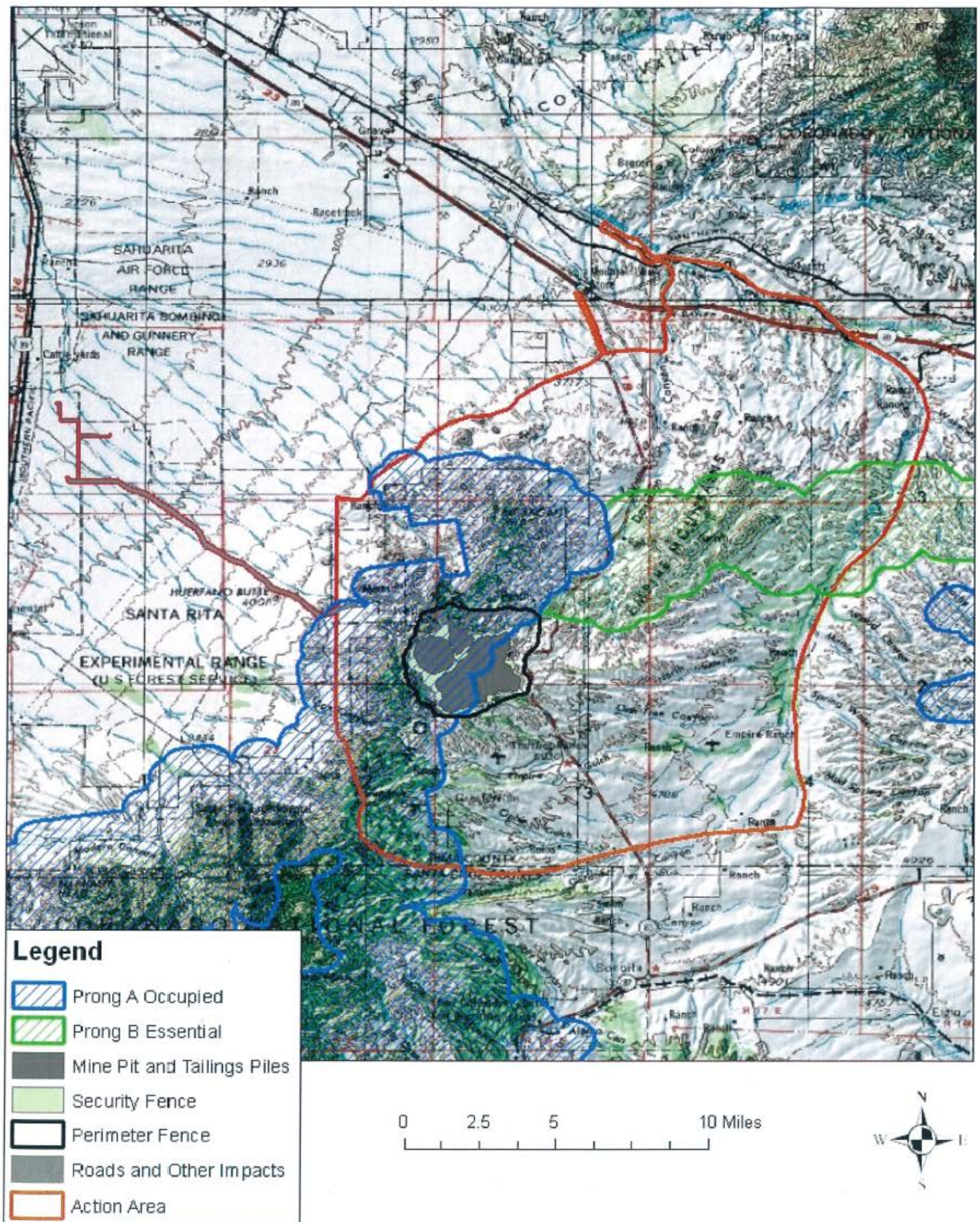
Discussion Items

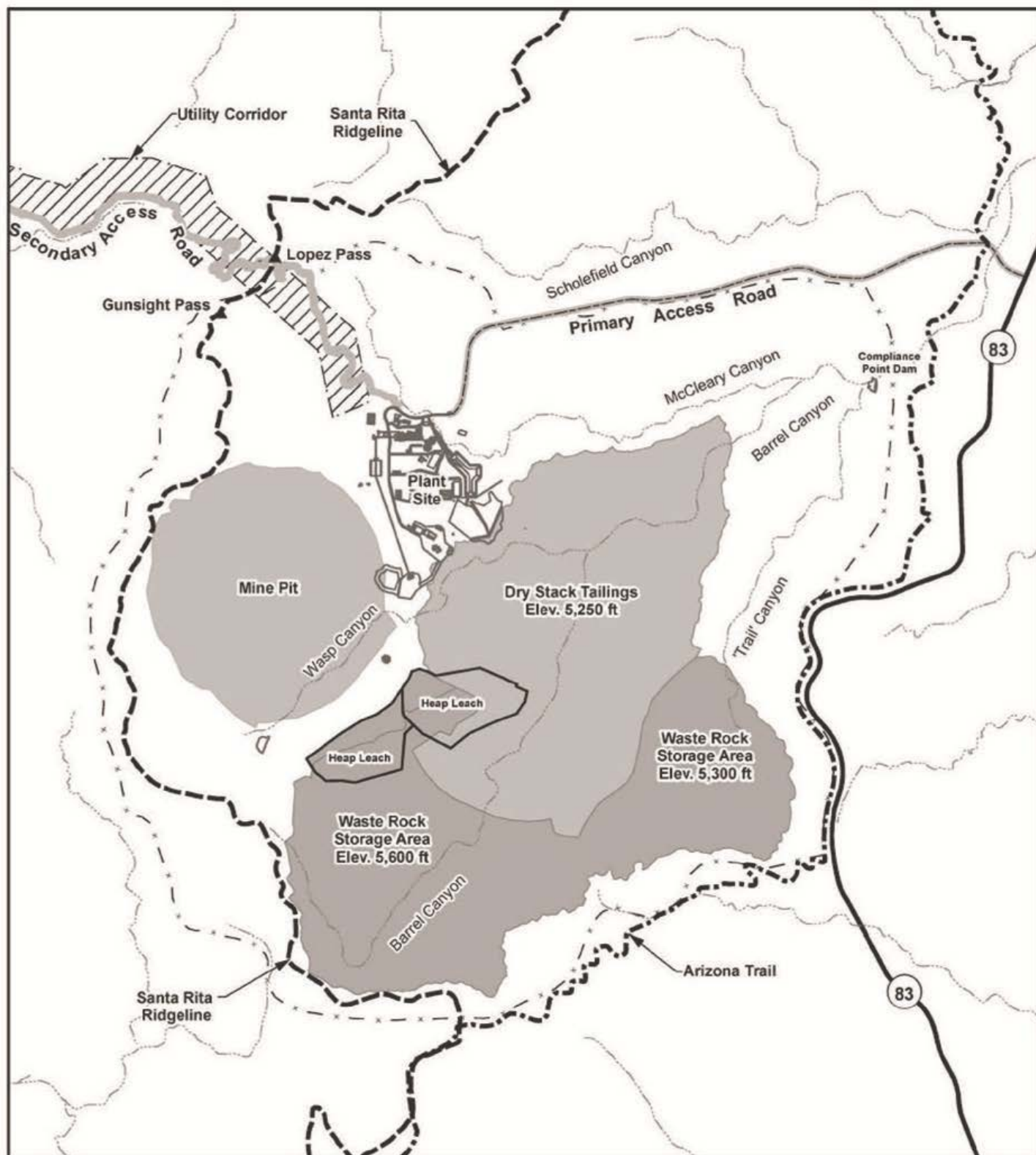
If we find that the proposed action will destroy or adversely modify pCH and thus reduce the ability to recover the jaguar, what are our options?

- Make the D/AM finding in the Draft BO, and prescribe an RPA to remedy the effects. Potential RPAs could include increasing the wildlife permeability of SR83 to the mine's east and SR82 to the south. Beier *et al.* (2006, 2007) have made specific recommendation in this regard. We could request that nighttime operations and travel on the haul road and highways be curtailed to reduce light and noise. It is unlikely the security fence can be relocated due to safety and topographic considerations.
- Make the D/AM finding in the Draft BO without prescribing an RPA; the effects have proven unmitigable. We are unaware of any consultation in which such a finding was made for proposed, rather than final CH. This would halt the project and could trigger either Endangered Species Committee ("God Squad") intervention or, more likely, the next item.
- Exclude Unit 3 and/or Subunit 4b in the Final Rule due to unacceptable economic impacts (Rosemont Copper Company, the applicant, has submitted comments on this subject). This would decouple the Santa Rita and Whetstone mountains and reduce the connectivity to Mexico throughout the northern portions of Units 3 and 4.

- Revisit the rule set used to designate CH so that large projects would tend not to constrain the CH. This is perhaps biologically indefensible given that the Proposed Rule already incorporated what we felt was the best available scientific information. It would be administratively challenging because we would have to revise the total pCH rangewide, reopen the comment period to disclose the new information, revise the NEPA and economic analyses, and seek permission from the Court for the lengthened timeline.

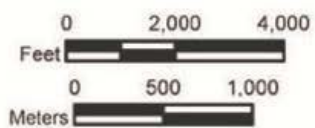
Jaguar Proposed Critical Habitat and Rosemont Mine Action Area





Rosemont Copper Project

- ▲ Gunsight and Lopez Passes (Approx.)
- Ridgeline
- Arizona Trail
- ... Drainage
- - - Perimeter Fence
- ▨ Utility Corridor (Water)



General Location of Critical Habitat For Jaguar Units: 1 - 4

