National Headquarters
1130 17th Street, N.W. | Washington, D.C. 20036-4604 | tel 202.682.9400 | fax 202.682.1331
www.defenders.org

October 11, 2016

Coronado National Forest
ATTN: Minerals & Geology Staff
Re: Hermosa-Taylor
300 W. Congress St. 6th Floor
Tucson, AZ 85701

Re: Scoping Comments on Hermosa-Taylor Deposit Drilling Project

From: Defenders of Wildlife, Patagonia Area Resource Alliance, Arizona Mining Reform Coalition, and Save the Scenic Santa Ritas.

Dear Coronado National Forest Minerals and Geology Staff:

This letter contains our scoping comments on the proposed Hermosa-Taylor Drilling Project Environmental Assessment and the request by Arizona Minerals, Inc. ("AMI") for approval of a Plan of Operations ("PoO") for the Hermosa-Taylor Drilling Project (hereinafter "Project"). The Project area is located less than one-quarter mile from Harshaw Creek on the Coronado National Forest in the Patagonia Mountains near the historic Harshaw town site.

We are responding to the U.S. Forest Service's ("Forest Service") September 7, 2016 letter to "Friends and Neighbors of the Coronado National Forest" asking for such comments. These comments are submitted on behalf of Defenders of Wildlife, Arizona Mining Reform Coalition, Patagonia Area Resource Alliance, and Save the Scenic Santa Ritas.

Defenders of Wildlife ("Defenders") is a national, nonprofit membership organization dedicated to the protection of all native animals and plants in their natural communities. Defenders currently has 1,187,560 members and supporters nationwide, including 27,559 in Arizona. Defenders is committed to protecting wild lands and wildlife in Arizona, and its Southwest office is located in Tucson, Arizona.

Arizona Mining Reform Coalition ("AMRC") works in Arizona to improve state and federal laws, rules, and regulations governing hard rock mining to protect communities and the environment. AMRC works to hold mining operations to the highest environmental and social standards to provide for the long term environmental, cultural, and economic health of Arizona. Members of the Coalition include: Apache – Stronghold, Center for Biological Diversity, Concerned Citizens and Retired Miners Coalition, Concerned Climbers of Arizona, Dragoon Conservation Alliance, EARTHWORKS, Empire Fagan Coalition, Environment Arizona, Groundwater Awareness League, Maricopa Audubon Society, Save the Scenic Santa Ritas, Grand Canyon Chapter of the Sierra Club, Sky Island Alliance, Spirit of the Mountain Runners, Tucson Audubon Society, and the Valley Unitarian Universalist Congregation.

The Patagonia Area Resource Alliance ("PARA") is a grassroots, non-profit organization of volunteer community members committed to protecting and preserving the Patagonia, Arizona area. PARA is a watchdog organization that monitors the activities of industrial developers such as mining corporations, as well as government agencies, to make sure their actions have long-term, sustainable benefits to our public lands, our watershed, and the town of Patagonia.

Save the Scenic Santa Ritas ("SSSR) is a non-profit organization working to protect the Santa Rita and Patagonia Mountains from environmental degradation caused by mining and mineral exploration activities. Current activities focus on the proposed Rosemont Copper mine in the Santa Rita Mountains.

In 2015 the Forest Service released the Revised Biological Assessment/Evaluation: Sunnyside Exploratory Drilling Project (Sunnyside BA). Because this biological assessment contained substantial information on the species and other resources that would be affected by the current Project addressed in these scoping comments, and because the Humboldt project was near the current Project discussed herein, this letter refers frequently to findings of the Sunnyside BA. We note that the name of the Sunnyside project has been changed to the Humboldt Exploratory Drilling Project.

Full environmental assessment with baseline data

There is no question that the noise and visual impacts associated with the round-the-clock drilling, excavation, and road reconstruction will adversely affect wildlife, recreation and other Forest uses.

Before granting approval, analysis of environmental factors likely to be affected must be assessed, including a full baseline analysis of groundwater and wildlife. The Forest Service must ensure that its process to evaluate and/or approve the PoO complies with the National Environmental Policy Act (NEPA), the Endangered Species Act (ESA), the Forest Service Organic Act of 1897, the National Forest Management Act (NFMA), Forest Service mining regulations at 36 C.F.R. Part 228, and other legal requirements.

The Forest Service is required to "describe the environment of the areas to be affected or created by the alternatives under consideration." 40 C.F.R. § 1502.15. The establishment of the baseline conditions of the affected environment is a fundamental requirement of the NEPA process:

"NEPA clearly requires that consideration of environmental impacts of proposed projects take place before [a final decision] is made." LaFlamme v. FERC, 842 F.2d 1063, 1071 (9th Cir.1988) (emphasis in original). Once a project begins, the "pre-project environment" becomes a thing of the past, thereby making evaluation of the project's effect on pre-project resources impossible. Id. Without establishing the baseline conditions which exist in the vicinity … before [the project] begins, there is simply no way to determine what effect the proposed [project] will have on the environment and, consequently, no way to comply with NEPA.

For the Mexican spotted owl (spotted owl), western yellow-billed cuckoo (cuckoo), jaguar, ocelot, and lesser long-nosed bat, and other important species and resources, the Forest Service must gather baseline information on their current status on and near the Project area, not relying on generalizations about species drawn from other areas. For example, see the discussion under the

heading "Mexican spotted owl," below, where we point out that it would be unacceptable to simply rely on the mapped Protected Activity Center (PAC) to make assumptions as to whether or not the Project will adversely affect the owl.

In addition to fully analyzing the baseline conditions of all wildlife species and habitat in the area, the EA must fully review the baseline conditions of all potentially affected resources. These include, at a minimum: ground and surface water quality and quantity, recreation, air quality, cultural/historical, and other uses and resources of the forest. "Ninth Circuit cases acknowledge the importance of obtaining baseline condition information before assessing the environmental impacts of a proposed project." Gifford Pinchot Task Force v. Perez, 2014 WL 3019165, *28 (D. Or. 2014)(BLM EA failed to obtain and analyze baseline water quality data in violation of NEPA); Idaho Conservation League v. Forest Serv., 2012 WL 3758161, *17 (D. Idaho 2012)(EA violated NEPA by failing to obtain baseline groundwater information); Shoshone-Bannock Tribes v. Dep't of Interior, 2011 WL 1743656, at *10 (D. Idaho 2011)(Absence of baseline data about groundwater conditions rendered impacts of the project highly uncertain and required preparation of EIS). Without an adequate baseline analysis, as well as full compliance with all other NEPA requirements as noted herein, any FONSI cannot stand. "[I]f the EA is deficient under NEPA in one of the ways Plaintiff has previously argued, then the [agency's] DN/FONSI is necessarily arbitrary and capricious because it relied on the 2012 EA." Gifford Pinchot, 2014 WL 3019165, *40.

The Forest Service must do a quantitative assessment of all direct, indirect, and cumulative impacts, including impacts from operations on private land, notably the Trench Mine property where drilling is ongoing as detailed under the heading "Cumulative impacts," below.

Consultation with U.S. Fish and Wildlife

The U.S. Fish and Wildlife Service (FWS) has an obligation under the ESA to prohibit activities that "take" endangered or threatened animals without a permit (16 U.S.C. § 1538(a)(1)(B)). Specifically, no legal entity subject to the jurisdiction of the United States, such as Arizona Mining, may "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect" any endangered species (16 U.S.C. § 1532(19)). FWS has extended this statutory prohibition applicable to endangered species to threatened species via regulation (50 C.F.R. § 17.31). The regulatory definition of "harass" means "an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to breeding, feeding, or sheltering" (50 C.F.R. § 17.3). Accordingly, activities, like the exploratory drilling at issue, that create extensive noise and involve artificial lighting at night and prevent or decrease the success of the breeding, feeding, or sheltering of listed species constitute legally prohibited harassment to the extent that they affect threatened and endangered species.

Because of possible negative effects on several endangered and threatened species and their critical habitat, the Forest Service must consult with FWS, as it did for the proposed Regal Resources Humboldt (Sunnyside) exploratory drilling project. Endangered species that could be adversely affected include the jaguar, ocelot, and lesser long-nosed bat. Threatened species include the Mexican spotted owl and western yellow-billed cuckoo.

The Project lies within designated critical habitat for the spotted owl and jaguar. This requires that the Forest Service consult with the U.S. Fish and Wildlife Service to determine whether this Project would adversely modify critical habitat to the point that it will no longer aid in the species' recovery.

This analysis needs to include assessment of adverse modification of critical habitat regardless of its duration – note that cleared drill pads and roads will be adversely modified until their vegetation recovers its original composition, including mature trees, which could take decades.

We note that the Project is very similar to the Humboldt (Sunnyside) project evaluated in the Forest Service's Sunnyside BA. The Sunnyside BA concluded that the Humboldt (Sunnyside) drilling project "may affect, but is not likely to adversely affect[i]" all the threatened and endangered species evaluated, including the spotted owl, cuckoo, lesser long-nosed bat, jaguar, and ocelot. We disagree with this conclusion, particularly with respect to the spotted owl and cuckoo. According to the U.S. Fish and Wildlife's Guidance for Preparing a Biological Assessment, ""May affect, and is likely to adversely affect" means that listed resources are likely to be exposed to the action or its environmental consequences and will respond in a negative manner to the exposure[ii]." Given that both the proposed Hermosa and Humboldt projects could prevent owls and cuckoos from using habitat close to known occurrences of these species, which habitat they may indeed be using, this fits the above guidance as to "exposed to the action or its environmental consequences" and "will respond in a negative manner." Accordingly, we believe the proposed Project "may affect" and "is likely to adversely affect" these species.

Cumulative impacts. As confirmed by 2015 federal court decision in which the Forest Service's approval of the similar Humboldt exploratory drilling project was set aside[iii], cumulative impacts must be identified and considered, including past, present, and future impacts that would jointly contribute to effects on water resources, vegetation, wildlife and other natural resources. In particular, the Forest Service should analyze cumulative impacts on water, vegetation, erosion, noise, light, and wildlife in the Harshaw Creek watershed. As discussed below, because the jaguar and ocelot have very large home ranges, cumulative impacts will have to be looked at for more than just this watershed. Resources that would be affected by multiple projects include spotted owls, cuckoos, jaguars, ocelots, lesser long-nosed bat, and water quantity and quality.

Under NEPA, the Forest Service must fully review the impacts from all "past, present, and reasonably foreseeable future actions. "[iv] To comply, the Forest Service must consider all direct, indirect, and cumulative environmental impacts of the proposed action. 40 CFR §§ 1502.16, 1508.8, 1508.25(c). Direct effects are caused by the action and occur at the same time and place as the proposed project. 40 CFR § 1508.8(a). Indirect effects are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. 40 CFR § 1508.8(b). Both types of impacts include "effects on natural resources and on the components, structures, and functioning of affected ecosystems," as well as "aesthetic, historic, cultural, economic, social or health [effects]." Id. Cumulative effects are defined as:

> [T]he impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. 40 CFR § 1508.7.

The Forest Service must also consider the effects of the eventual development of Arizona's Taylor Project mine and Hermosa Central Project mine, which would entail permanent loss of and disturbance to threatened and endangered species on a large scale. The eventual development of the Taylor Project mine is certainly a foreseeable future action, given that the purpose of the exploratory

drilling is to lay the groundwork for developing the mine, as attested to by documents released by the proponents[v]. The mine is more than simply a foreseeable action – it would be a direct consequence of this Project.

The proposed Project area is surrounded on three sides by private land inholdings that have been or are being drilled by Arizona Mining, and by other bore holes recently drilled on Forest Service land. Specifically, the Project is adjacent to the private 300-acre Trench Mine inholding where Arizona Mining is currently conducting exploratory drilling. Arizona Mining has stated that they will "aggressively pursue drilling this project using 5 to 8 drill rigs"[vi] that would drill approximately 30 pads on the Trench Mine property. Thirty drill pads is a high density on this small property. When the impact of the pads themselves, which will require clearing of vegetation, is added to the impact of the roads that must be built or improved to service the pads, it is clear that this Trench Mine project will substantially reduce suitable habitat. The Trench Mine property also abuts part of the 154-acre Hermosa Mine property, which has already been densely drilled.

Arizona Mining had another large exploratory drilling project planned for Coronado National Forest land in the same area as the Trench Mine property, the 154-acre Hermosa Mine property, and the Project. Review of this project got to the draft Environmental Assessment stage when it was put on hold by the proponents and the final Environmental Assessment was cancelled in 2016. This project would have drilled 43 boreholes, plus 15 excavating test pits. The Project EA should include consideration of this on-hold project as a reasonably foreseeable action.

According to the Proposal, "An existing previously disturbed area on land within AMI's Alta Lot No. 38A will be used as a staging area for the Project. Two additional existing previously disturbed areas on land within AMI's Alta Lot No. 38A will be used for the stockpiling of materials (Figure 3). Existing roads on AMI land connect the staging area to the proposed temporary low-standard access roads." This private land is an inholding within the Coronado National Forest within a few hundred feet of the three drill pads, and it abuts Harshaw Creek. The Forest Service must analyze how this enlarged industrial use of the Alta Lot No. 38A property will contribute to overall habitat loss and degradation for the owl and other species of concern.

The proposal also states that water for the drilling will be drawn from a well on AMI's Camden No. 2 claim, approximately 1,000 feet from the drill pads. Cumulative impacts of this withdrawal must be evaluated with reference to its effects on the water table, including related impacts on surface and subsurface water.

Regal Resources' Humboldt project, currently on hold, if re-proposed and carried out, would also contribute to cumulative impacts. The Forest Service must analyze the cumulative effects of habitat loss and disturbance from all these projects of Arizona Mining and Regal Resources.

In addition to drilling projects, the Forest Service should analyze contributions to habitat loss, disturbance of species, and effects on water supplies from abandoned mines, cleanup projects to cope with abandoned mines, such as Arizona Mining's water purification project on the Trench Mine property, roads and associated erosion and sedimentation, and any other projects affecting wildlife habitat.

Mexican spotted owl:

Owls were observed in Humboldt Canyon during a survey in 2013. The Project lies within critical habitat for the owl, for which any project with a federal nexus requires consultation with the U.S. Fish and Wildlife Service. This designation underscores the importance of owl habitat in the Project area and surrounding area to the owl's survival. Moreover, a Mexican spotted owl Protected Activity Center, as defined in the 2012 Mexican Spotted Owl Recovery Plan[vii], north of the Project area. This recovery plan gives PACs the highest level of protection within areas of potential owl habitat, and specifies that "all activities within PACs should be coordinated with the FWS field office" (p. 261). Although the Project area is not within the PAC itself, it is with 0.7 miles of the PAC, which proximity indicates that special care should be taken with this habitat (see discussion of home range, below).

The noise produced by drill rigs and associated equipment has been recognized as a factor that can prevent birds from utilizing territory near the noise source. The Sunnyside BA estimated the following noise levels at 50 feet from the source: rock drill, 98 dBA; grader, 85 dBA; dozer, 85 dBA; water pump, 76 dBA; chainsaw, 76 dBA (p. 17). The assessment noted research showing that chainsaw noise as low as 46 dBA flushed Mexican spotted owls from roost sites. The noise of multiple machines working at once would be additive. The effect on the birds would likely be significant, given that the assessment estimates that noise from drilling activities can cause owls within 345 feet of a drill site to flush (Sunnyside BA p. 17).

The proponent asserts that there will be no effect on threatened spotted owls in part because a) the owls live in an "incised" canyon where the Project's lights will not shine and b) because the Project is at least 0.7 miles from the protected activity center. Underlying the assertions about lighting is the assumption that owls do not use or need habitat outside the small canyon where they were sighted, but the proponent has no evidence that the owls limit their activity to this canyon. Nor is there evidence that the owls do not use or need habitat outside the PAC, possibly including habitat within the Project area.

PACs are areas containing owl territories where a large percentage of owl activities take place. The final Mexican Spotted Owl Recovery Plan defines a PAC as "The activity center is defined here as a nest site or a roost grove or cliff area commonly used during the breeding season in absence of a verified nest site, or as the best potential roosting/nesting habitat if both nesting and roosting information are lacking[viii]."

PACs are not defined so as to contain all the territory used by a pair of owls – they are defined as encompassing 75% of the foraging locations, and the recovery plan states that "PACs protect activity centers used by owls rather than entire home ranges." So it is possible and even likely that the owls use additional habitat outside the PAC close to or within the Project area. PACs are designated for the highest priority protection, but without field research showing otherwise, the boundaries of a pack do not indicate that drilling, vegetation clearing, and other activities associated with mining exploration outside the PAC are harmless to the owls.

The proponent's assertions that owls would remain within the canyon and that .7 mile buffer around the PAC are further undermined by home range studies on Mexican spotted owls that show individuals may have substantially larger ranges than a PAC, particularly during the nonbreeding season when drilling would occur. For example, a 2014 study on pairs of owls in the Rincon

Mountains of Arizona found a mean home range of 1.85 square miles, with ranges as large as 4.5 square miles[ix]. Another study in Utah found home ranges as large as 8.1 square miles[x], which correlates to a radius of 1.6 miles from the center of the home range, i.e. the PAC. This calculation assumes the home range is circular, which may not be the case. An ellipsoid or irregular home range could mean that in some directions owls occupy habitat even further from the center of the PAC. These studies suggest that a buffer of 0.7 miles around a PAC may be not be adequate to prevent disturbance and thus take of the owls. Experts should analyze possible effects on the owls before drilling is commenced, including an analysis of whether the owls do use habitat near to or where drilling would take place.

Note also that, as described in the section of this letter on noise, sounds from equipment used to fell trees, clear brush, and drill can flush owls, driving them away from the area. Lights will also extend from the drilling area, as described in the section on lighting. These two factors extend the effective area of disturbance beyond the immediate area in which drilling takes place. This extension, considered with the possible size of utilized habitat, as discussed above, increases the probability that the drilling will prevent owls from using all their territory. These potential effects can only be assessed by collecting data on the actual area used by the resident owls, as compared to merely applying a standard PAC radius.

The Project would avoid drilling before October 1, the end of the breeding seasons for Mexican spotted owls and western yellow-billed cuckoos. This may be sufficient for the cuckoos that migrate out of the area in fall. But the owls are not migratory and usually stay on or near their home territories, which may expand during winter beyond the size of breeding territories, possibly because food densities are lower than during the breeding season. The fact that owls may need larger territories in the winter could make them vulnerable to disturbance and displacement by drilling rigs during the drilling period beginning October 1. The Forest Service should require an analysis of likely impacts of the drilling on the Mexican spotted owl during the non-breeding season.

Western yellow-billed cuckoos.

The Project area is less than a quarter mile from Harshaw Creek. A 2012 survey for the yellow-billed cuckoo by WestLand Resources for Arizona Minerals found several cuckoos along Harshaw Creek within less than a mile from the Trench Mine boundary. One cuckoo was located on July 10, 2013 immediately adjacent to the northeast boundary of the Trench Mine property.

An un-surveyed stretch of Harshaw Creek continues southwest through the Trench Mine property from the location at which a cuckoo was located on July 10, 2013, so it is possible that cuckoos use habitat within the Trench Mine boundaries. Where Harshaw Creek bisects the Trench Mine property it is less than one-quarter mile from the project area, so it is entirely possible that cuckoos use habitat on the project area or near enough to the project area to be disturb by lights, noise, and other aspects of drilling activity.

In a letter dated June 12, 2016, we advised the U.S. Fish and Wildlife Service that they had failed in their responsibility to require a survey as to whether cuckoos were present on the Trench Mine property and to analyze whether take was happening on the Trench Mine property as a result of drilling and other industrial development that began in 2015. At this point, in order to analyze cumulative impacts, the Forest Service should evaluate the degree of habitat loss and possible take caused by recent and ongoing industrial development on the Trench Mine property.

We note that drilling will be postponed until after the breeding season when cuckoos will have migrated south. However, this should not lead the Forest Service to conclude without analysis that the project will have no or minimal effects on the cuckoo. If cuckoo habitat were to be destroyed or adversely modified by the project, there could would be less habitat available in the next breeding season when the cuckoos return. Although the overall acreage affected by this project may be small, it must be evaluated in the context of cumulative effects contributed to by other nearby projects.

Jaguar and ocelot

At least one ocelot has been recently identified in the Patagonia Mountains, and a jaguar has been killed there in the past. A jaguar was photographed 20 miles north of the project limits in the Whetstone Mountains in 2011 and several times since September 2012 in the Santa Rita Mountains 15 miles to the northwest.[xi]

The Endangered Species Act (ESA) makes it illegal to 'take', "which includes the killing, harming, harassing, pursuing, or removing the species from the wild"[xii]. Because drilling activities will occur 24 hours a day, lights, noise, and human activity will occur at night when cats are most active. Jaguars and ocelots avoid human activity and will be displaced from the project area while drilling and restoration occurs.

The habitat that would be affected by the project has an additional layer of protection beyond the "take" provision of the ESA: the project area is in critical habitat for the jaguar (and Mexican spotted owl). This means that any project with a federal nexus must be evaluated to see whether the actions will "destroy or adversely modify critical habitat." Such analysis must be completed for both jaguar and spotted owl.

Because the currently designated critical habitat for jaguar is only a fraction of the area that would be needed to maintain a viable population of jaguars[xiii] any degradation of this habitat would be a significant adverse modification.

While it is true the Project's actual "footprint" in terms of acres directly affected by mineral exploration is relatively small, focusing on this footprint is misleading. First, light and noise will extend much farther than the well pads themselves. Second, the project must be considered in context with the much larger area of public and private lands being drilled or likely to be drilled, or that would be affected by other development activities, such as use of AMI's Alta Lot No. 38A for staging. The Forest Service should also consider whether the cumulative actions of these projects will harm recovery for the jaguar and ocelot in the U.S., not only whether it would or could affect individual jaguars or ocelots.

In order to accurately assess how the project would affect the viability of jaguars and ocelots in the U.S., it must look beyond the immediate vicinity of the project to consider cumulative effects on the scale of typical home ranges and minimum viable population sizes for these species. Given the large ranges of both ocelots and jaguars, 50 or more square miles for a jaguar[xiv], it is necessary to consider cumulative impacts from multiple projects occurring beyond the Patagonia Mountains, for example in the Santa Rita Mountains where the Rosemont Mine is planned.

Jaguar and ocelot recovery will be dependent on corridors that allow individuals access to habitat and allow the free interchange of individuals among populations. The U.S. Fish and Wildlife Service

has concluded, concerning jaguars, that "connectivity between the United States and Mexico is necessary if viable habitat for the jaguar is to be maintained, and "[j]aguar habitat and the features essential to their conservation are threatened by the direct and indirect effects of increasing human influence into remote, rugged areas, as well as projects and activities that sever connectivity to Mexico."[xv] The Patagonia-San Antonia Mountains complex and the Santa Rita Mountains have been identified as important corridors for jaguars travelling from Mexico to the U.S. Activities that cause individuals to avoid such corridors can adversely affect the recovery and long-term existence of populations. Jaguars, which are very sensitive to human presence and avoid disturbed areas[xvi], will likely avoid the entire Project area during the Project, not just the actual "footprints" of Project activities.

In considering cumulative impacts, the Forest Service must evaluate the net effect of the multiple projects that could collectively prevent jaguars or ocelots from using dispersal corridors. In considering the recovery and persistence of these species in the U.S., the Forest Service should also consider effects of disturbance in other habitat within the possible home ranges of jaguars constituting a future jaguar population in the U.S. This includes effects of the proposed Rosemont Mine in the Santa Rita Mountains.

Lesser long-nosed bats.

Lesser long-nosed bats are endangered, primarily by habitat loss that destroys their food sources. Agaves, a late-season food source, may be present on the project site. Mine adits, rock crevices, and other potential roost sites exist in the project's vicinity.

The PoO states that "Agaves encountered during the construction of roads and drill pads will be relocated above the cut slopes." The Forest Service needs to analyze the likelihood that these relocation efforts will be successful and ensure they are carried out so there is no net loss of food supply. The Forest Service should require that relocation be done by experts, and the success for translocation should be monitored for several years, and plants that die should be replaced to ensure no net loss in food supply.

Migratory birds and Cavity nesters

The Forest Service should evaluate effects on migratory birds (in addition to the cuckoo) and on cavity nesters, that may be affected by the loss of mature trees.

Water

Water is a critical resource in the arid Patagonia Mountains, so existing sources must be protected against excessive withdrawal and/or pollution. The proponents state that some 20,000 gallons per week will be provided from a well on AMI's Camden No. 2 claim, located approximately 1,000 feet from the drill pads. Because it is likely that this water connects below ground with water on the Forest Service land and feeds Harshaw Creek, the ecological effects of this withdrawal must be evaluated in its own right and in terms of cumulative impacts from other projects. Effects must be evaluated on the aquifer, municipal watershed, and on seeps, springs, and creeks.

The Forest Service should also evaluate the effects of the waste water, excess cuttings, and drilling mud (bentonite) produced as a side effect of drilling. The proponent states that after temporarily

storage in a plastic-lined pit, "they will be removed from CNF lands" and "disposed of in accordance with applicable Arizona law." The Forest Service should monitor and ensure that this storage and disposal does not adversely affect any of the threatened or endangered species and critical habitat, or municipal water supplies. It is particularly important to ensure that the temporary storage pits are built and maintained so as to ensure that spills do not happen. There should be a spill contingency plan in place.

As part of evaluating cumulative effects, the Forest Service should ensure that the abandoned Trench Mine workings, now the property of Arizona Mining, do not pollute surface or subsurface water, and that no unpermitted discharges are taking place.

Erosion

The PoO lists erosion control measures. The Forest Service should evaluate whether these are adequate and monitor their use.

Reclamation

The proponent proposes to reclaim pads once drilling is completed by "using a CNF-approved seed mix and by scattering slash from the removal of trees and brush." This does little to restore habitat for birds and other species dependent on trees and shrubs for nesting, roosting, food, and cover. The PoO states that "approximately 220 trees greater than 4 inches and less than 12 inches in diameter at breast height (dbh) will be removed prior to the construction of the temporary low-standard access roads and pads. Approximately 14 trees with 12 inches dbh or greater will also be removed."

Large trees are important to Mexican spotted owls. According to the Sunnyside BA, the primary constituent elements "of designated Mexican spotted owl critical habitat relating to forested areas include 1) a range of tree species composed of varying age classes with 30-45% of trees having dbh of 12 inches or more; 2) shade canopy covering at least 40% of the ground; 3) large snags with a dbh of >12 inches; 4) high volumes of fallen trees and woody debris; and 5) residual plant cover to allow for regeneration of plants… (pp 13-14)." And one conservation measure in the Sunnyside BA was "To prevent negative impacts to Mexican spotted owl habitat, large trees (≥12 inch dbh) will not be removed as part of this project (p. 16)."

The Forest Service should work with the proponent to evaluate whether there are alternative locations for the well pads and roads that would lessen removal of trees in the 4 inches and up classes, with particular attention paid to the 12 inch and up class. As part of the reclamation process, the Forest Service should require the proponent to plant native trees of at least sapling size to jump start natural recovery. Until the pads and roads have regrown trees of appropriate sizes, they will not be good habitat for owls, cuckoos, or other animals dependent on tree cover. If trees of similar genetic makeup are not available from commercial sources, the proponent could develop a nursery on their private land to grow native trees for this and subsequent projects.

The Forest Service should monitor and assess the progress of reclamation activities, including revegetation, invasive species treatments, and erosion control, for up to three years. Dependent on

the success of the reclamation, additional seeding, weed treatment, or installation of erosion control structures may be necessary.

Sound

Noise and the human activity that causes it can displace species from habitat. It might be expected that jaguars and ocelots would avoid areas with loud noise and human activity. Likewise there is abundant evidence that birds are disturbed and displaced by nearby loud noise.

According to the Sunnyside BA "Elevated noise levels may affect Mexican spotted owls in the vicinity of the sound. Sporadic noise events such as chainsaw operation during brush clearing and roadway grading may affect Mexican spotted owls by causing them to change behaviors and/or flush from perches while consistent noise such as that associated with drilling operations may negatively impact their ability to forage and communicate in the vicinity of the sound (USFWS 2012c)." A study by Delaney et al (1999) found that birds flushed in response to chainsaw noise up to 345 feet away from the source; …. Owls may experience a decreased ability to forage within 315 feet of drill sites due to increased noise (Delaney et al. 1999). This, combined with an increased potential for flushing, suggests that owls may avoid roosting and foraging within 345 feet of the drill sites;"

The Forest Service must evaluate the effects of noise, including the cumulative effects from multiple projects, on the threatened and endangered species in or near the project area. The Forest Service should require that baseline measurements of "natural" noise be taken.

Lighting.

Artificial light at night can cause problems for wildlife that include displacement and changes in behavior. According to the Sunnyside BA, "Nighttime lighting has been shown to negatively affect breeding songbirds by changing their daily and annual cycles, altering reproductive behavior, and hormone levels. We are unaware of any data on the effects of artificial nighttime lighting on any raptorial species." The precautionary principle would mandate that in absence of evidence showing otherwise, the Forest Service should err on the side of caution in minimizing project lighting.

Lights with significant blue and UV wavelength are particularly problematic for insects[xvii]. The effects of lights would extend the Project's immediate footprint and act as giant moth collecting lights. Such lights can interfere with moth migration and foraging, mating, and other necessary biological activities.

The proposal states that "Lights used for night work and safety will be directed or shielded to minimize nightlight effects to surrounding areas. All lighting will comply with Article 28 of the Santa Cruz County Zoning and Development Code (Santa Cruz Code), which limits the total light output requirements for outdoor lighting and sets shielding standards for such lighting (Ordinance No. 2008-04)." It is good that all lights used for night work and safety will be directed or shielded to minimize effects to surrounding areas. However, the Forest Service should require more than minimal "business as usual" shielding to protect wildlife from light effects.

We are concerned that the reference to the Santa Cruz Code is meaningless. The code has no specifications for designated natural lands, such as the National Forest land, and only has specifications for residential and commercial properties. Possibly AM proposes to follow the

commercial lighting standards, which allow 75,000 lumens of mostly low pressure sodium lights (LPS) or 60,000 lumens of non-LPS lighting. The latter is equivalent to roughly 40 100-watt bulbs. In either case 3,000 lumens can be unshielded. The Forest Service should require specification of how many lumens will be shielded and unshielded. Because of the harm to insects from lights on the blue end of the spectrum, the Forest Service should require lights that are "insect friendly," i.e. that produce light primarily at the yellow end of the spectrum.

The glaring lights used for current drilling on the Trench Mine property (see attached photo) are inadequately shielded and/or have too much output. The Forest Service should work with Arizona Mining to ensure that lighting is the minimum necessary, adequately shielded, and not at the blue end of the spectrum.

Effects on recreation and other human use. Impacts on recreation and other human use should be evaluated, particularly cumulative impacts that take into such things as the closing of Forest Service Road 812 to facilitate drilling on Arizona Mining's Trench Mine property. Noise, light, and traffic are harming the quality of life for other users of the forests and nearby residents. See the attached photo showing light pollution from ongoing drilling on the Trench Mine property.

Bonding

The Forest Service should ensure that bonds posted by the proponent are adequate for properly closing the drill holes and reclaiming all disturbed land.

Thank you for considering our comments.

(Signature page following)

Robert Peters, Ph.D.
Senior Representative
Defenders of Wildlife, Southwest Office.
100 North Stone Ave., Suite 807
Tucson, AZ 85701
Tel: 520 623-9653 x2
rpeters@defenders.org

Wendy Russell
Coordinator
Patagonia Area Resource Alliance
www.PatagoniaAlliance.org
Wendy@PatagoniaAlliance.org

Roger Featherstone
Arizona Mining Reform Coalition
PO Box 43565
Tucson, AZ 85733-3565
(520) 777-9500
roger@AZminingreform.org

Save the Scenic Santa Ritas
Gayle Hartmann, President
8987 E. Tanque Verde #309-157
Tucson, AZ 85749
520-445-6615
lisa@scenicsantaritas.org

[i] Revised Biological Assessment/Evaluation. Sunnyside Exploratory Drilling Permit Sierra Vista Ranger District, Coronado National Forest. 2/26/2015.

[ii] Section 7 Consultation: Guidance for Preparing a Biological Assessment. Updated February 25, 2016. https://www.fws.gov/MIDWEST/endangered/section7/ba_guide.html

[iii] United States District Court for the District of Arizona. Case number CV-14-02446-TUC-RM.

[iv] 40 CFR 1508.7 - Cumulative impact

[v] Arizona Mining Investor Fact Sheet. https://www.arizonamining.com/assets/pdf/az-fact-sheet-march-2016.pdf

[vi] Arizona Mining Continues Expansion of Taylor Deposit- Intersects 85 Feet of 9.4% Zinc, 12.8% Lead and 3.92 Opt Silver- More Drill Rigs Added. Arizona Mining news release, June 8, 2016. http://www.newswire.ca/news-

releases/arizona-mining-continues-expansion-of-taylor-deposit--intersects-85-feet-of-94-zinc-128-lead-and-392-opt-silver--more-drill-rigs-added-582234551.html

[vii] Mexican Spotted Owl Recovery Plan, First Revision (Strix occidentalis lucida). Southwest Region U.S. Fish and Wildlife Service, Albuquerque, New Mexico. Sept. 2012. https://www.biologicaldiversity.org/species/birds/Mexican_spotted_owl/pdfs/MSO_Recovery_Plan_First_Revision.pdf

[viii] Mexican Spotted Owl Recovery Plan, First Revison. 2012. Mexican Spotted Owl Recovery Team, U.S. Fish and Wildlife Service, Albuquerque, NM. p. http://www.biologicaldiversity.org/species/birds/Mexican_spotted_owl/pdfs/MSO_Recovery_Plan_First_Revision.pdf.

[ix] http://www.bioone.org/doi/abs/10.1676/13-029.1

[x] http://digitalcommons.usu.edu/cgi/viewcontent.cgi?article=1071&context=crc_research

[xi] Revised Biological Assessment/Evaluation: Sunnyside Exploratory Drilling Permit. U.S. Forest Service, Coronado National Forest. 2/6/2015.

[xii] https://www.fws.gov/midwest/Endangered/saving/CriticalHabitatFactSheet.html

[xiii] Phillip S. Miller in consultation with Technical Subgroup U.S. Fish and Wildlife Service Jaguar Recovery Team. Population Viability Analysis for the Jaguar (Panthera onca) in the Northwestern Range. 2013, p. 2.

[xiv] Amended Final Reinitiated Biological and Conference Opinion for the Rosemont Copper Mine, Pima County, Arizona. April, 28, 2016.

[xv] Cited in Amended Final Reinitiated Biological and Conference Opinion for the Rosemont Copper Mine, Pima County, Arizona. April, 28, 2016.

[xvi] Designation of Critical Habitat for Jaguar. 79 Fed. Reg. 12572.

[xvii]Visibility, Environmental, and Astronomical Issues Associated with Blue-Rich White Outdoor Lighting. International Dark-Sky Association. 2010. http://darksky.org/wp-content/uploads/bsk-pdf-manager/8_IDA-BLUE-RICH-LIGHT-WHITE-PAPER.PDF

Drilling on Trench Mine property at night. Photo courtesy of Gooch Goodwin.