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Grand Canyon Chapter • 202 E. McDowell Rd, Ste 277 • Phoenix, AZ 85004
Phone: (602) 253-8633 Fax: (602) 258-6533 Email: grand.canyon.chapter@sierraclub.org

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Adrian Garcia, Project Manager
Bureau of Land Management
SunZia Southwest Transmission Line Project
P.O Box 27115
Santa Fe, NM 87502-0115
Submitted via electronic mail to NMSunZiaProject@blm.gov

Re: Comments on the Draft Environmental Impact Statement and Resource Management Plan Amendments for the SunZia Southwest Transmission Project

Dear Mr. Garcia:

Thank you for the opportunity to comment on the Draft Environmental Impact Statement (DEIS) and Resource Management Plan (RMP) Amendments for the SunZia Southwest Transmission Project. Please accept these comments on behalf of the Sierra Club's Grand Canyon Chapter and our 12,000 members in Arizona and the Center for Biological Diversity and its members.

The Sierra Club's mission is "to explore, enjoy, and protect the wild places of the earth; to practice and promote the responsible use of the earth's ecosystems and resources; and to educate and enlist humanity to protect and restore the quality of the natural and human environments." Our members have a significant interest in the proposed SunZia Project and its impacts on natural resources. Many of our members enjoy watching wildlife, hiking, backpacking, and other outdoor and educational activities on the lands affected by this proposed project.

The Sierra Club is committed to helping reduce greenhouse gas emissions and limiting global climate change/disruption. Transforming the nation's electricity sources from polluting fossil fuels to clean renewable energy and reducing energy use through efficiency and conservation are all essential to meeting our carbon reduction goals. We are working to rapidly increase our nation's energy efficiency and use of renewable energy resources by advocating for improved appliance and building efficiency and standards to promote them, as well as a rapid ramp-up of distributed generation (mainly rooftop solar), community scale, and large-scale renewable energy, including solar, wind, and geothermal generating plants. We believe all of these will be necessary to meet our greenhouse gas reductions goal. In the short term, some proposals for large-scale renewable and associated transmission lines will be needed. We seek to minimize any impacts of that proposed transmission on wildlife, air and water quality, and other important environmental values and believe it is incumbent upon the Bureau of Land Management (BLM) to strive for this as well.

The Center for Biological Diversity is a national non-profit conservation organization headquartered in Tucson, Arizona, with more than 375,000 members and supporters, more than 10,000 of whom reside in Arizona and New Mexico. The Center is dedicated to the protection of threatened and endangered species

and their habitats. Our members have a keen interest in the SunZia project and its impacts on the species and places we work to protect.

The BLM is required to consider existing RMPs when deciding whether or not to grant a right-of-way (43 CFR Part 1610.0-5(b)). Several of the alternatives and/or aspects of them are not in conference with the RMPs for the area. The BLM had determined that transmission lines such as the proposed SunZia Southwest Transmission Project were not suitable on various lands involved in this proposal, so no transmission right-of-way corridors were included in the RMPs for these areas. The Safford RMP includes several avoidance areas affected by the proposed project, including Swamp Springs and Hot Springs Areas of Critical Environmental Concern within the Muleshoe Ranch Cooperative Management Area (CMA). As stated in Section 2.6 of the DEIS, “the construction and operation of the proposed SunZia transmission line alternatives would not conform to the RMP due to either one of the following conditions: the right-of-way would cross an area designated in the RMP as right-of-way avoidance, or the proposed Project would not comply with VRM objectives” (pg. 2-104). Transmission rights-of-way were purposefully excluded from these areas because of impacts to valuable natural resources. The DEIS discusses some of the impacts this project would have on the resources and values in these lands, many of which would be long-term and/or irreparable. Because of these effects and because such projects were previously determined to be inappropriate for these lands, the BLM’s preferred alternative should be the No Action alternative, and this project should not move forward.

If one of the action alternatives is selected, the BLM must maximize the percentage of the route that occurs along previously disturbed areas, including paralleling existing transmission lines and roads. As stated in Section ES.3.4 (pg. ES-4), only 56 percent of the BLM’s Preferred Alternative would parallel existing or designated utility corridors. This means that a significant portion of the route would result in new development on public lands and the associated impacts to resources. BLM must avoid the Lower San Pedro River Valley and the Aravaipa Watershed, at a minimum.

While there are issues with the proposed SunZia Southwest Transmission Project through New Mexico, most of our comments focus on the Arizona portion. We also support and incorporate by reference the comments submitted by Defenders of Wildlife, Cascabel Working Group, Sky Island Alliance, Tucson Audubon Society, and Friends of the Aravaipa Region.

I. PURPOSE AND NEED

As environmental advocates, we seek to ensure that the need for new transmission and related facilities is not eclipsed by irreparable harm to unique and important ecosystems. We also want to confirm that new transmission will fulfill its primary objective of carrying renewable energy instead of becoming a major conduit for fossil fuel power. To this end, BLM has not adequately justified the purpose and need for the SunZia Transmission Project.

a. BLM has not supported its assertion that constructing the SunZia line will “encourage the development of additional renewable energy.”

The Federal Energy Regulatory Commission (FERC)’s open access laws prohibit limiting a transmission system to any particular type of generation.¹ Approximately 50 percent of SunZia’s capacity will be reserved for qualified anchor tenants, and the remaining 50 percent will be auctioned

¹ FERC Order No. 888. Available online at <http://www.ferc.gov/legal/maj-ord-reg/land-docs/rm95-8-00w.txt>.

off through an open season process.² With this system, established electricity generators will be heavily advantaged.

While the Southwestern Power Group (SWPG) has repeatedly characterized the SunZia project as intended to deliver primarily renewable energy, various factors conflict this point.

Although the DEIS frequently mentions them, major wind projects in New Mexico have stalled. In the years that it would take for these projects to come online, more accessible sources of electricity generation are likely to step in and utilize SunZia first. The DEIS leaves a strong impression that the SunZia proposal will also encourage the development of additional renewable sources. Such an impression is misleading. Any “encouragement” would apply equally to renewables, coal, nuclear, natural gas – to any energy source. Under federal policies, transmission lines must be neutral. Transmission operations cannot discriminate between different sources of energy.

While some of the most blatant references to renewable energy included in BLM’s 2009–2010 scoping documents have been modified, inappropriate and inaccurate references remain. For example, BLM, describing the applicant’s purpose, states that the “Project would assist load-serving utilities in meeting the requirements to address energy delivery obligations to meet state renewable portfolio standards (RPS).”

Additionally, in citing the Renewable Energy Order, which makes the production and delivery of renewable energy a top priority, BLM reinforces the erroneous impression that the SunZia project would in any way be dedicated to renewable energy. Ignored entirely is the possibility that energy generated from renewable sources could be as easily delivered through more localized transmission systems or distributed energy programs. A 500-mile, multi-state transmission line would not necessarily be the best (or the only good) option for delivering energy safely and effectively.

The proposed routes for SunZia, including BLM’s Preferred Alternative, closely parallel existing natural gas pipelines.³ The Bowie Power Station, a 1000-Megawatt (MW) natural gas plant already planned and permitted for Cochise County, Arizona, is located along the proposed SunZia route.⁴ SWPG is the developer for both SunZia and Bowie.

In fact, the SunZia project’s initial purpose was to provide transmission capacity for the Bowie power plant.⁵ The proposed Willow substation, a central component of SunZia, is also a permitted part of the Bowie plant.⁶ When SunZia was recast as a renewable energy project in 2008, references to Bowie disappeared, although the siting and interconnection plans remain closely linked.

SWPG has stated that SunZia is no longer needed for the Bowie plant, but data from Tucson Electric Power (TEP) indicates that, as of 2007, the two existing transmission lines permitted for Bowie were

² FERC Order on Sunzia’s Petition, Docket No. EL11-24-000, May 20, 2011. Available online at http://www.sunzia.net/documents_pdfs/ferc_order_on_sz_petition_5_20_2011.pdf.

³ U.S. Energy Information Administration. Natural Gas Pipelines in the Western Region. Available online at http://205.254.135.7/pub/oil_gas/natural_gas/analysis_publications/ngpipeline/western.html.

⁴ See Bowie Power Station website at <http://www.bowiepower.com/index.htm>.

⁵ Meader, N. 2011. SWAT Background on the Origin of the SunZia Project and Constraints on the Project’s Capacity to Carry Renewable Energy. Cascabel Working Group. Available online at http://cascabelworkinggroup.org/downloads/SWAT-SunZia_Early_History-07-17-11.pdf.

⁶ *Id.*

already at capacity.⁷ Therefore, the Bowie plant cannot be fully utilized unless TEP substantially limits its own power transmission. The most financially prudent solution would be to build more transmission capacity – which SunZia would readily provide.

In addition to the vague separation from the Bowie natural gas plant, BLM is touting SunZia as a “primarily renewable” project without supplying a critical analysis of New Mexico’s potential for wind generation. Wind-generated electricity is variable, undergoing daily and seasonal fluctuations and currently requires some fossil fuel generation to stabilize power delivery. The BLM’s statement of purpose does not mention this, nor does it specify exactly how much non-renewable energy would be used to offset the fluctuations.

The BLM has not guaranteed that any of SunZia’s transmission capacity would be reserved for future renewable sources, nor have they demonstrated that SWPG would not simply use the SunZia line for Bowie and other fossil fuel projects, as was originally intended. In addition, BLM has not provided data to illustrate the technical and economic feasibility of using SunZia to carry large quantities of New Mexico wind power.

These omissions are incredibly concerning. Because BLM has provided no evidence to the contrary, we are troubled by the possibility that SWPG is deliberately misrepresenting SunZia in order to expedite construction. If SunZia will be technically or financially unable to deliver on its promise of “encouraging the development of renewable energy,” the public deserves to know, the project needs to be re-characterized, and a revised DEIS with the appropriate information should be issued.

In view of public comments received on BLM’s scoping documents, which consistently demonstrate a widespread [mistaken] belief that the SunZia transmission lines are necessary to support renewable energy, a clear and unambiguous correction is necessary to set the record straight.

b. BLM has not confirmed California’s willingness to purchase renewable energy.

If the purpose of the SunZia project is to transmit wind power from New Mexico to meet demand in California, BLM first must confirm California’s plan to purchase additional out-of-state power to satisfy its Renewable Portfolio Standard (RPS).

While California’s RPS mandates that 33 percent of its electricity generation must come from renewable energy by 2020, the allowed contribution of out-of-state sources is limited.⁸ By 2017, California utilities must procure at least 75 percent of their renewable energy from California sources, leaving only 25 percent available to out-of-state sources.⁹ Unbundled renewable energy credits are further restricted to 10 percent.¹⁰

Reflecting these limitations, California has expressed a strong intent to focus on developing in-state resources rather than relying on imports from the western grid. In a 2011 letter to the Western Energy Coordinating Council (WECC), Governor Jerry Brown’s office indicated that California has

⁷ Meader, N. Transmission Needs for the Bowie, Arizona, Power Plant. 2010. Cascabel Working Group. Available online at <http://cascabelworkinggroup.org/Rjobs11.html>.

⁸ Cal. Pub. Util. Code §399.15(b)

⁹ Cal. Pub. Util. Code §399.16

¹⁰ *Id.*

sufficient in-state renewable resources to meet all of its electricity needs.¹¹ Under these circumstances, California is unlikely to import large quantities of renewable power from other states.

Without a firm purchasing commitment from California, constructing and operating such an extensive and costly transmission system is a poor and shortsighted investment.

c. California does not have the infrastructure necessary to connect with the SunZia line.

The proposed SunZia line terminates in Eloy, Arizona, meaning that additional transmission is needed to connect with California markets. Currently, California's transmission infrastructure is woefully inadequate to meet the state's desire for rapid renewable energy development.

The California Public Utilities Commission (CPUC) has estimated that 11 new transmission lines are needed in California in order to meet their renewable energy goals.¹² Three of these lines are currently underway, but CPUC predicts that even if implementation of all the other lines began today, it would take another 14 years to achieve California's 33 percent RPS.¹³

The BLM states that new transmission projects are needed to "enhance the capability of the national grid to deliver electricity." Without additional transmission lines to allow interconnection with California – which are likely to be delayed by more than a decade - the SunZia project does not meet its stated objective.

d. The SunZia line is redundant with other transmission projects proposed by BLM.

The BLM is also involved with two other interstate transmission projects, Southline and Centennial West. Both the Southline Transmission Project and Centennial West Clean Line project are in the scoping phase but have extremely similar objectives to SunZia – bringing New Mexico wind energy across southern Arizona to the California market.¹⁴

Building all three lines is redundant and makes each one less economically viable as a result of increased competition for power generation, as well as competition for California's limited desire and purchasing power.

e. Multiple Use Mandate

The BLM misrepresents the Federal Land Policy and Management Act (FLPMA) in asserting that the need for SunZia's proposed transmission line "arises from the FLPMA, which establishes a multiple use mandate for management of federal lands, including energy generation and transmission facilities . . ." (emphasis added). The FLPMA (section 202(c)), however, calls for a qualified requirement to "use and observe the principles of multiple use and sustained yield set forth in this and other applicable law." Moreover, Section 202(c) enumerates nine specific requirements, not only the so-

¹¹ Letter from Governor Brown's office to the Western Electricity Coordinating Council. August 3, 2011. Available online at <http://www.wecc.biz/committees/BOD/TEPPC/20110809/Lists/Minutes/1/Letter%20to%20TEPPC%20from%20California.pdf>.

¹² California Public Utilities Commission. June 2009. 33% Renewables Portfolio Standard: Implementation Analysis Preliminary Results. Available online at <http://www.cpuc.ca.gov/NR/rdoonlyres/1865C207-FEB5-43CF-99EB-A212B78467F6/0/33PercentRPSImplementationAnalysisInterimReport.pdf>.

¹³ *Id.*

¹⁴ See Southline Transmission Project webpage at <http://southlinetransmissionproject.com> and Centennial West Clean Line webpage at <http://www.centennialwestcleanline.com/site/home>.

called multiple use mandate. The BLM ignores entirely these other requirements of section 202(c), notably subsection 3, which requires that agencies give priority to the designation and protection of areas of critical environmental concern.

By singling out one subsection of FLPMA, section 202(c), and characterizing it as a “mandate,” the BLM fails to fully and fairly inform the public about FLPMA’s role in the SunZia project.

f. Energy Policy Act of 2005 (EPA) requirements

In another example of BLM’s linking the SunZia Project to renewable energy, BLM states the SunZia project is needed to satisfy EPA’s requirement to establish additional energy corridors.

At the present time, EPA’s authority over BLM and its decision on the SunZia project is highly problematic. In 2009, a lawsuit¹⁵ was filed challenging agencies' decisions under EPA, alleging that they “created a sprawling, hopscotch network of 6,000 miles of rights-of-way” without considering environmental impacts, properly analyzing alternative actions, and more. In June 2012, a settlement agreement was reached in this litigation.¹⁶ Under this settlement, environmentally sensitive areas should be protected and proliferation of dispersed right-of-ways should be diminished.

II. PROPOSED ACTION AND ALTERNATIVES

The National Environmental Policy Act (NEPA) requires the BLM to consider and evaluate the full range of reasonable alternatives, alternatives that are “practicable and feasible.” As we indicated in our scoping comments¹⁷, proposed routes through either the Lower San Pedro River Valley or the Aravaipa Canyon Watershed are completely unacceptable and should be removed from further consideration. We asked that they be removed from further consideration due to the significant environmental harms each would promote and, as such, do not consider them to be either practicable or feasible. However, rather than remove these unreasonable alternatives, the BLM added yet another unacceptable alternative along the western side of the San Pedro and through the Lower San Pedro River Valley.

a. No Action Alternative

The Council on Environmental Quality (CEQ) regulations direct that the DEIS include a description of the No Action alternative (40 CFR 1502.14[d]). In its brief description of NEPA’s No Action alternative requirement, BLM fails to actually set forth any analysis of the consequences – both good and bad – of not allowing the SunZia project. Instead, BLM only states that it is required to demonstrate the consequence of failure to meet the purpose and needs of the proposed action and its alternatives. The BLM reveals that it has decided without analysis that the No Action alternative constitutes failure to meet a need.

The BLM indicates that there is “potential for additional actions” if the SunZia project is denied. No specific information is provided to explain such potential. A full and accurate depiction of the status quo (without a SunZia transmission project) is essential to any analysis of the No Action alternative.

¹⁵ See *The Wilderness Society et al. v. United States Department of Interior, et al.* Case3:09-cv-03048-JW. Document 77-1. Filed 3 July 2012.

¹⁶ Ibid.

¹⁷ See *Sierra Club et al.*, June 10, 2010.

Such status quo should include pending additional actions, such as the proposed Southline and Centennial West transmission lines. Similarly, any evidence of transmission shortages within a state should be clearly identified, if such shortages in fact exist.

The BLM acknowledges that existing transmission service would be continued, including “proposed generation projects with existing, documented interconnection requests” (Section 2.3.1, pg. 2-10). A citation to Chapter 1, Table 1-2, is the only “analysis” of the existing interconnection requests and proposed generation projects alluded to in the no-action paragraph. Even from the sparse information set forth in Table 1-2, these interconnection requests are promising, suggesting that the SunZia project may not be needed and may, in fact, be superfluous. But why was there no BLM description or analysis of these requests?

The public cannot be expected to effectively evaluate the impacts of various options available to BLM with such a conclusory, non-substantive No Action alternative.

b. Aravaipa Canyon Watershed

Both Subroute 4A (North of Mt. Graham) and Subroute 4B (Sulphur Springs Valley) would bisect one of the largest unfragmented landscapes in Arizona, the Galiuro-Aravaipa-Santa Teresa wildland complex. Subroute 4A runs 132.9 miles from the proposed Willow-500kV Substation northwest along US Route 191 and generally tracks along the boundary of the Coronado National Forest (Pinaleño Mountains), heads west, and cuts between the Galiuro and Aravaipa Wilderness Areas. Subroute 4B runs for 133.0 miles and proceeds southwest from the proposed Willow-500 kV Substation, parallels two 345-kV transmission lines, and crosses two pipelines and US Route 191 before turning north through the Sulphur Springs Valley. It then moves west and follows the same path as Subroute 4A. This route has even more environmental impacts than Subroute 4A, but both bisect this important wilderness complex.

In our scoping comments, we expressed strong opposition to routes that would impact the Aravaipa Canyon watershed by cutting through it for more than 20 miles, crossing Aravaipa Creek, and fragmenting connectivity between two wilderness areas – Aravaipa Canyon Wilderness and Galiuro Wilderness. As we noted, this area is one of the largest unfragmented wildland blocks in southern Arizona. A new transmission corridor would impair wilderness characteristics and values and would likely lead to unintended and undesirable impacts to this intact wildland complex. As we expressed previously, this is unacceptable and unreasonable and should be removed from further consideration. Currently, the applicant, SunZia, is pushing for this extremely ecologically damaging siting.

These sub-routes pass within two miles of the Aravaipa Wilderness boundary. The intervening two miles contain roads that are recommended for closure and lands that are recommended as an "Area to be Managed for Wilderness Characteristics" in a Sky Island Alliance report.¹⁸ This same report contains a citizens' proposal for wilderness additions to the existing Galiuro Wilderness Area managed by the Coronado National Forest, which, together with the sensitive BLM lands to the north, constitute a priority area for wildlands protection and maintenance of north-south ecological connectivity.

Aravaipa Creek supports a lush riparian community and provides important habitat for numerous species of wildlife, including various species of bats, coatimundi, leopard frogs, and mountain lions,

¹⁸ Sky Island Alliance. 2005. Aravaipa Ecosystem Management Plan: Management Recommendations. Tucson, Arizona. Available online at <http://www.skyislandalliance.org/media/aravaipa.pdf>.

among many others. A 17-mile stretch of Aravaipa Creek is perennial and provides some of the best native fish habitat in Arizona, supporting seven species of native fish, including the federally-listed endangered spikedace and loach minnow. Although the upper and lower portions of the creek are intermittent and ephemeral, they continue to support important riparian vegetation and provide habitat for many wildlife species. The importance of ephemeral and intermittent waters is discussed in further detail below.

According to the BLM, more than 150 species of birds have been documented in the Aravaipa Wilderness, including the peregrine falcon, common black-hawk, bald eagle, cactus ferruginous pygmy-owl, and southwestern willow flycatcher.¹⁹ Because of this, the area is very popular for birding. Aravaipa also supports recreational opportunities for hikers, backpackers, and wildlife watchers, among others. All of these are an important component of the economy and of resource values, which are not discussed in the DEIS.

The proposed route bisects one of only two priority cultural resource areas in the Upper Aravaipa Valley and would fragment an important connection between the Galiuro Wilderness located in the Coronado National Forest and the Aravaipa Canyon Wilderness located on BLM lands.

Construction of a large transmission line involves developing temporary construction roads as well as a permanent road under the line. This causes significant habitat fragmentation and invites off-road vehicles. Roads and motorized uses can have serious detrimental effects on habitats and wildlife.^{20,21,22} These effects include direct, indirect, and cumulative impacts, ranging from mortality from collisions with vehicles, modification of animal behaviors, altered use of habitats, facilitation of the spread of exotic, invasive, and parasitic species, adverse genetic effects, and fragmentation of connected habitats.

Further road-building, construction, and improved off-road vehicle access in this area will also contribute to erosion and sedimentation that could travel downstream through tributaries and impact threatened native fish populations and other species^{23,24} in Aravaipa Canyon, over 20 of which are designated with some sort of special status.

The Nature Conservancy recently conducted a detailed cumulative effects analysis regarding the Galiuro-Aravaipa-Santa Teresa wildland complex and found that, in the Southwest, it is second only to the Grand Canyon region with regards to size and relative intactness.²⁵ The Nature Conservancy found that the proposed SunZia transmission project through this area

¹⁹ Bureau of Land Management. Wildlife: Aravaipa Canyon Wilderness Area Permit System. Safford Field Office. Available online at <http://www.blm.gov/az/st/en/aro/ro/main/aravaipa/wildlife.html>.

²⁰ Trombulak, S.C., and C.A. Frissell. 2000. Review of ecological effects of roads on terrestrial and aquatic communities. *Conservation Biology* 14: 18-30.

²¹ Wisdom, M.J., A.A. Ager, H.K. Preisler, N.J. Cimon, and B.K. Johnson. 2004. Effects of off-road recreation on mule deer and elk. *Transactions of the North American Wildlife and Natural Resources Conference* 69: 531-550.

²² van Riper, C. III., and R. Ockenfels. 1998. The influence of transportation corridors on the movement of pronghorn antelope over a fragmented landscape in northern Arizona. *Proceedings International Conference on Wildlife Ecology and Transportation (ICOWET)*.

²³ Environmental Protection Agency. 1995. *Erosion, Sediment and Runoff Control for Roads and Highways*. EPA-840-F-95-008d.

²⁴ Grace, J. M. III. 2002. *Sediment Movement from Forest Road Systems: Roads: a Major Contributor to Erosion and Stream Sedimentation*. The Free Library. Available online at

<http://www.thefreelibrary.com/Sediment+movement+from+forest+road+systems%3A+Roads53A+a+major...-a095443346>.

²⁵ Marshall, R., D. Turner, and D. Majka. 2012. *Cumulative Effects Analysis for Proposed SunZia Transmission Line*. The Nature Conservancy.

... would split in half the second largest unfragmented landscape remaining in the southwestern U.S. and introduce habitat disturbance into an area where, for example, there are no paved roads and no roads that cross over the axis of the Galiuros from Aravaipa Valley to the San Pedro River Valley, or from Aravaipa Valley over the Santa Teresas into the Gila River Valley. With the Southwest's largest remaining intact area, the Grand Canyon, already in protected status, **it raises the question of whether mitigation measures are even possible for disturbances to the region's second largest intact landscape.**²⁶ (emphasis added)

c. Lower San Pedro River Valley

Subroute 4C2c (BLM Preferred Alternative), Subroute 4C1 (East of San Pedro River), and Subroute 4C2 (including 4C2a, 4C2b; West of San Pedro River) would all bisect the Lower San Pedro River Valley and have an unacceptable and unmitigable impact on this ecologically significant area.

Subroute 4C2c, the BLM Preferred Alternative, runs 161.2 miles, follows existing 345-kV transmission lines from the Willow-500 kV Substation across the San Pedro River, and cuts northward through the river valley. Subroute 4C1 (139.0 miles) proceeds southwest from the proposed Willow-500 kV Substation. The subroute proceeds west/southwest, parallel to two 345-kV transmission lines for a distance, then enters the Muleshoe Ranch CMA, runs along the southern boundary of the CMA, heads northwest and parallel to the San Pedro River, and then crosses the San Pedro four miles north of San Manuel. Subroute 4C2 runs 151.8 miles and proceeds southwest from the proposed Willow-500 kV Substation and parallels two 345-kV transmission lines for a short distance. The subroute crosses the San Pedro and turns northwest through the Lower San Pedro River Valley.

The Lower San Pedro River Valley supports one of the last major free-flowing rivers in the desert southwest and, as such, is important habitat for many species and a key migratory corridor for neotropical birds. It is a world-renowned birding area and an important tourist destination. The San Pedro also supports the greatest diversity of mammal species in North America,²⁷ including mountain lion, black bear, coatimundi, javelina, fox, coyote, badger, three skunk species, mule and white-tail deer, ringtail, raccoon, bobcat, beaver, porcupine, black-tailed prairie dog, and 24 species of bats, as well as many other smaller or lesser known mammal species. In addition, the San Pedro River Valley provides habitat for a great diversity of avifauna and is an important migratory flyway.

During the last 20 years, the high quality riparian habitat coupled with the unfragmented nature of the lower valley has resulted in many lands being acquired for biological mitigation purposes. Most notable is the 7B Ranch owned by Resolution Copper Company, which has been identified for conservation purposes. The Preferred Alternative will go through the ranch lands.

Recently, the Lower San Pedro River Valley has been proposed by the U.S. Fish and Wildlife Service (USFWS) for the establishment of a new National Wildlife Refuge and Collaborative Conservation Initiative.²⁸ This is a proposal “involving interested landowners, land managing agencies, local communities, nonprofit organizations, businesses and the public who share a vision of a healthy river system contributing to people’s livelihoods and a functioning, hydrologically healthy riparian corridor that supports a diverse and rich nature flora and fauna.” The BLM Preferred Alternative would

²⁶ Ibid

²⁷ Bureau of Land Management. 1989. Mammal Inventory of the San Pedro Riparian National Conservation Area, Cochise County, Arizona: Final Report. San Pedro Project Office, Safford District.

²⁸ U.S. Fish and Wildlife Service Lower San Pedro River Collaborative Conservation Initiative Planning Update #1. Available at <http://www.fws.gov/southwest/docs/LSPRCIPlanningUpdate1.pdf>.

negatively affect the lands involved in this proposed new wildlife refuge and would also be in close proximity to Saguaro National Park (east unit).

In addition to the outstanding ecological values of the San Pedro River Valley, the lower valley represents one of the most intact prehistoric, cultural landscapes in southern Arizona, if not the whole Southwest.²⁹ A full range of cultural sites can be found in the area, providing a record of human history that spans 2,000 years. This rich cultural landscape remains under constant threat of residential and commercial development, as well as looting and vandalism. The latter is exacerbated by increased vehicular access, as demonstrated by impacts to sites located in close proximity to the 138-kV line operated by Sulphur Springs Valley Electric Cooperative; the numerous access routes associated with this line have become a magnet for off-road vehicle travel. A transmission project of the size proposed by SunZia and its related construction and maintenance access routes will greatly increase unauthorized traffic in the area, which will also increase the risk of looting and vandalism to these prehistoric sites. This threat is not adequately discussed in the DEIS, and suitable mitigation measures are not provided.

III. CLIMATE AND AIR QUALITY

a. Climate

The DEIS asserts that *not* building this project will lead to a net increase in greenhouse gas emissions because “the No Action alternative would also not facilitate transport of power from renewable energy projects to markets,” and “a larger portion of future power demand would be met with higher GHG-emitting fossil fuel power plants” (Section 4.2.3.1, pg. 4-18).

However, as discussed above, construction of the SunZia project does *not* guarantee construction of additional renewable energy projects, does *not* guarantee that this power would be accepted by markets, such as California, and does *not* guarantee that power demand will not be met with additional fossil fuel power plants. In fact, construction of this project may be used to facilitate construction or expansion of fossil-fuel plants, such as the Bowie plant. The information provided by the BLM in this section is misleading and inaccurate. A more thorough analysis should be completed in order to determine more-informed possible outcomes from construction of this project versus adopting the No Action alternative, including the potential for this project to actually increase greenhouse gas emissions.

b. Air Quality

The DEIS asserts that there would be “no significant impacts to air quality” (4.2.3.2 , pg. 4-18) resulting from construction and operation of the transmission line and concrete batch plants. There will obviously be increased dust associated with the construction activities and removal of vegetation and mitigation measures for those are needed, but a bigger issue is that it assumes again that there will not be an increase in fossil-fuel generated electricity associated with this project. We question that assumption. If this line spurs development of the Bowie Generating Station and other power plants, it will increase nitrogen oxide emissions, toxic air emissions, and other pollutants. This should be considered in the FEIS.

²⁹ Anyon, R., T.J. Ferguson, and C. Colwell-Chanthaphonh. 2005. Natural Setting as Cultural Landscapes: The Power of Place and Tradition. USDA Forest Service Proceedings RMRS-P-36. Pp. 273-276.

IV. WATER RESOURCES

The SunZia corridor would cross some of the most important waterways in the Southwest. Our comments focus on the San Pedro River.

The San Pedro River is one of only two major rivers that flow north out of Mexico into the United States, and it is one of the last undammed rivers in the entire Southwest. The San Pedro is also globally Important Bird Area. The riparian forest and adjacent Sacaton grasslands provide critical stopover habitat for millions of migrating birds each year. The San Pedro River Valley contains one of the planet's most significant Fremont cottonwood/willow gallery forests on the planet. Because of the hemispheric significance and importance of the riparian areas, the upper San Pedro River watershed was designated as the first Riparian National Conservation Area in the United States in 1988.³⁰

As noted above, the San Pedro River basin is home to at least 84 species of mammals, including the Mexican gray wolf, jaguar, black bear, coatimundi, bats, and beaver. Fourteen species of fish, including imperiled native species such as Gila chub, longfin dace, desert sucker, roundtail chub, Sonora sucker, and speckled dace, may be found here. The diverse habitats are also home to 41 species of reptiles and amphibians, including the Sonoran tiger salamander and lowland leopard frog. There are more than 100 species of breeding birds, including the imperiled yellow-billed cuckoo, and, seasonally, more than 250 species of migratory birds moving through the San Pedro River valley.

As noted in our scoping comments, we find it incomprehensible that BLM would select a route that poses the greatest risk to the lower San Pedro River Valley as its preferred alternative, especially when recognizing that this route poses the highest risk to water resources (pp. 4-56-4-58).

a. The Route Group 4 transmission corridors

The BLM preferred alternative route begins in the State of New Mexico and crosses into Arizona north of I-10 freeway near Lordsburg, New Mexico. The BLM-preferred alternative route heads northwest within the San Simon Valley, and then turns west to a proposed Willow-500 kV Substation site. From the Willow-500 kV Substation, BLM has identified several alternative routes in Route Group 4. All of the Group 4 subroutes cross the San Pedro River and some routes cross other environmentally sensitive water resources such as Aravaipa Creek and Buehman Canyon. All of the Group 4 subroutes will have significant impacts on environmentally sensitive water resources and, for this reason, Sierra Club supports the no action alternative.

i. Subroute 4A –North of Mt. Graham

Subroute 4A proceeds north from the Willow Substation along east of the Pinaleno Mountains. At a point north of the Pinaleno Mountains, Subroute 4A heads west crossing the headwaters of Aravaipa Creek, an Outstanding Arizona Water, and the lower San Pedro River. Subroute 4A continues to the west and eventually reaches the Pinal Central Substation near Eloy, Arizona.

ii. Subroute 4B-Sulphur Springs Valley

³⁰ Makings, E. 2005. Flora of the San Pedro Riparian National Conservation Area, Cochise County, Arizona. USDA Forest Service Proceedings RMRS-P-36. , Pp. 92-99.

Subroute 4B proceeds west from Willow Substation along links C71, C72, and C90. It continues north to the west of the Pinaleno Mountains. Beginning at Link C173, Subroute 4B is common to Subroute 4A. For this reason, Subroute 4B also crosses the headwaters of Aravaipa Creek and the lower San Pedro River north of San Manuel, Arizona and poses the same risks to environmentally sensitive water resources.

iii. Subroute 4C2c – BLM Preferred Alternative

The BLM-preferred alternative, Route 4C2c, heads west from the proposed Willow 500-kV Substation site. The route crosses the Sulphur Springs Valley approximately 7 miles north of Willcox, Arizona and continues west along a 345-kV transmission line corridor, generally parallel to and north of the Interstate 10 freeway. The route crosses the San Pedro River approximately 11 miles north of Benson, Arizona and approximately 0.5 mile downstream from “The Narrows.” Subroute 4C2c then proceeds northwest along the west side of the San Pedro River Valley and east of the Santa Catalina Mountains. The BLM preferred alternative will cross many intermittent and ephemeral stream channels draining the eastern flanks of the Santa Catalina Mountains, including Buehman Canyon, a designated Outstanding Arizona Water. Route 4C2c exits the San Pedro River Valley approximately 5 miles north of San Manuel, Arizona. The route eventually terminates at the Pinal Central Substation eight miles north of Eloy, Arizona.

iv. Subroute 4C1–East of San Pedro River

Subroute 4C1 is similar to the BLM preferred alternative 4C2c at the beginning and the end of the subroute, except that 4C1 proceeds north and east of the San Pedro River (i.e., along the east side of the San Pedro River Valley and west of the Pinaleno Mountains). Subroute 4C1 also turns west and crosses the lower San Pedro River south of Subroutes 4A and 4B, and north of Subroute 4C2c. Subroute 4C1 would have essentially the same negative impacts on the environmentally sensitive San Pedro River and its tributaries draining the western flanks of the Pinaleno Mountains as the BLM preferred alternative.

v. Subroute 4C2–West of San Pedro River

Subroute 4C2 is similar to 4C2c, except between links C212 and C441 where 4C2 varies slightly along a more northern segment. Again, Subroute 4C2 is essentially the same as the BLM preferred alternative and it shares the same risks of environmental harm to water sensitive water resources.

vi. Subroute 4C3–Tucson

Subroute 4C3 is similar to 4C2c from the Willow Substation through Link C261. From the Willow Substation, Subroute 4C3 continues southwesterly along links F40a, F600, F60b, F82, F80, and F11 as it approaches the Tucson area. Here it continues northwesterly along links F112, F510, and F540 before reaching the Tortolita Substation. From there it proceeds north along links C816, C817, and C820 before turning west and reaching the Pinal Central Substation near Eloy, Arizona. While the Tucson Subroute 4C3 crosses the San Pedro River, the Tucson Subroute has the relative advantage of avoiding construction of a new utility corridor with its associated access roads through the San Pedro River

Valley. It also avoids the potential risks of environmental damage to Outstanding Arizona Waters such as Buehman Canyon or Aravaipa Creek that are posed by other Group 4 alternatives. Finally, the Tucson Subroute maximizes the use of existing utility and transportation corridors since the Tucson Subroute generally parallels Interstate 10 and passes through relatively more developed areas of southeastern Arizona.

b. The BLM Preferred Alternative route in Arizona

The DEIS indicates that the BLM preferred alternative route through the lower San Pedro Valley has 36 percent of the route sensitive to water resources, **which is the highest sensitivity of all of the alternatives considered by BLM.** This route has the greatest potential impact on environmentally sensitive water resources of all of the alternatives considered. For reasons that are not explained in the DEIS, the BLM selected the route with the greatest potential to adversely affect one of the most significant and environmentally sensitive riparian areas in the nation. It makes no sense for BLM to select an alternative route that will enable the construction of a new utility corridor through the lower San Pedro River Valley, especially when other, less damaging alternative routes are available with less potential to cause environmental harm to such an important area.

c. Impacts on the San Pedro River and tributaries

The DEIS states that impacts to surface water resources, including the San Pedro River and its tributaries, could result from the placement of structures and the construction of access roads and temporary work areas. Direct impacts to the San Pedro River and its tributaries include sedimentation from project-related disturbances, fugitive dust deposition, temporary and permanent fill associated with the construction of roads and access routes, removal of riparian vegetation, bank alteration, accidental contamination associated with spills of environmentally harmful material, damage to wetlands, and introduction of non-native species of plants and animals.

The BLM acknowledges that the construction of access roads would likely require crossing many intermittent and ephemeral stream channels. These crossings could require the placement of temporary or permanent fill into stream channels, as well as structures that support the crossing and protect water resources (e.g., bridge pilings, culverts, wing walls, etc.). Temporary impacts would result from temporary crossings or fill used to cross intermittent or ephemeral tributaries with little to no stream flow or on temporary access roads.

The BLM acknowledges that modification of stream banks could result in the removal of vegetation that could take many years to recover. Sedimentation potential would increase, depending upon the extent of disturbance and the amount of recontouring needed. Permanent impacts would result from stream channel crossings, into which structures would be placed in the streambed, potentially causing an irreversible loss of riparian vegetation on either side of the crossing. The removal of unique riparian habitat, increased sedimentation, and reduced water quality are among the primary adverse environmental effects on surface water resources that are associated with the Sunzia project.

Direct impacts to intermittent surface water features are similar to those for perennial waters, although intermittent streams typically have less associated riparian vegetation and, subsequently, are more prone to erosion. Indirect impacts include increased soil erosion due to removal of vegetation. The construction of access roads would likely require stream channel crossings. These crossings could require the placement of temporary or permanent fill into stream channels, as well as structures that support the crossing and protect water resources (e.g., bridge pilings, culverts, wing walls, etc.).

Temporary impacts would result from the construction of temporary crossings or the placement of fill used to cross intermittent or ephemeral tributaries with little to no stream flow or the construction of temporary access roads. BLM acknowledges that, while temporary, these crossings would have the potential to impact stream morphology and ecological function. The modification of stream banks could result in removal of vegetation that could take many years to recover. Sedimentation potential would increase, depending upon the extent of disturbance and the amount of contouring needed. Storm water discharge and quantity of sedimentation to the San Pedro River and its tributaries are correlated to project-related disturbances. Permanent impacts would result from permanent stream channel crossings, into which structures are placed in the streambed, potentially causing an irreversible loss of riparian vegetation on either side of the crossing.

The BLM acknowledges in the DEIS that transmission line access roads typically cross, or are close to, perennial and intermittent streams. It has been well documented that construction of new access roads increases erosion and sedimentation of water resources.^{31,32} All construction activities within the lower San Pedro River watershed could result in increased sedimentation to the San Pedro River or its tributaries. Periodic vegetation removal or repair to access roads could have indirect effects because of soil erosion, further increasing sedimentation.

BLM acknowledges that implementation of the Sunzia Project will impact water resources within the study area. The construction of access roads, staging areas, work areas, and stream crossings will affect perennial and intermittent streams, water bodies, wetlands, wells, and springs. While impacts to water resources vary between alternative routes, BLM also acknowledges that the preferred alternative route within Route Group 4, Subroute 4C2c, would have the greatest impact on environmentally sensitive water resources. These adverse environmental impacts are both unnecessary and are completely avoidable.

We urge BLM to preserve the riparian habitats of the lower San Pedro River Valley. Any alternatives through the valley pose unnecessary and completely avoidable environmental risks to globally significant riparian areas. BLM should choose the No Action Alternative and evaluate upgrades to existing lines and other measures to meet the needs of the proposal. We strongly urge BLM to reject any alternatives that enable the construction of a utility corridor through one of the most ecologically important riparian areas in North America and to select the No Action alternative. If the BLM determines that an action alternative is necessary, adverse environmental impacts can be avoided by selecting or creating a different alternative route that does not traverse the lower San Pedro River Valley. BLM should select a route for the SunZia project that avoids the lower San Pedro River valley entirely and that utilizes existing utility corridors in developed areas along or near the Interstate 10 freeway.

V. BIOLOGICAL RESOURCES

This project has the potential to affect at least 269 special status species (Section 3.6.1.2, pg. 3-70). This level of impact is unacceptable, especially considering that this high number does not include species that

³¹ Bagley, S. 1997. Roads and erosion. Road RIPorter 2(5). Available online at <http://www.wildlandscpr.org/biblio-notes/roads-and-erosion>.

³² Forman, R.T.T., and L.E. Alexander. 1998. Roads and their major ecological effects. *Annual Review of Ecology and Systematics* 29: 207-231, C2.

do not have a special designation. Additionally, the number of special status species could be higher as thorough surveys have not been conducted throughout the project area, and the sources the BLM used for data may be outdated or incomplete.

The DEIS does not acknowledge that the sources used to determine presence of a species in the project corridor do not provide a complete representation. For example, the Arizona Game and Fish Department's Heritage Data Management System (HDMS) relies on incidental observations and data from surveys that have been conducted in an area. Many observations and survey results are not reported and, therefore, are not included in the HDMS.

In order to gain a better understanding of what species may be affected by this project, thorough surveys need to be conducted within the project corridor and in the surrounding areas. These surveys should occur at different times of the day, in various seasons, and repeatedly through multiple years as some species may only be present or active during certain times of the day or year or may not be observed in a given year. Without this information, potential impacts from this project cannot be adequately represented.

We also question the Impact Assessment Methods. When determining what species may be affected by this project, the BLM used an eight-mile wide study corridor. However, when determining impacts to these species, the BLM used the centerline of the project, assuming that species would only be affected if the centerline crossed their range (Section 4.6.3, pg. 4-62). The BLM must recognize that effects of this project will extend far beyond the centerline of the project. As noted in the DEIS, erosion, increased recreational use, and other effects can be expected as a result of this project and can extend beyond the immediate project area, but these effects are glossed over in Chapter 4.

The BLM must also account for changing habitat and range of species. Many species alter their habitat or disperse to new areas, either naturally or as the result of stressors.^{33,34} In addition, as climate change, drought, human development, and other factors alter habitat availability, quality, and range, species occurrence, range, and movement will shift. Most of the impact assessments in the DEIS only account for the current range or known locations of the affected species. This is an inadequate assessment.

Related to this, the BLM must also recognize the importance of maintaining habitat resiliency. For example, the DEIS states that "vegetation management needs may reduce the potential for future recovery of riparian woodland" (pg. 4-92). This is a significant impact as it represents a long-term degradation of habitat important for a variety of species. However, the BLM does not address the effects of such an impact, nor does it provide suitable mitigation measures.

We have included some specific concerns about DEIS and certain species, but it is not a comprehensive list.

a. Wildlife

i. Mammals

³³ Kirkpatrick, M., and N.H. Barton. 1997. Evolution of a species' range. *The American Naturalist* 150(1): 1-23.

³⁴ Davis, A.J., L.S. Jenkinson, J.H. Lawton, B. Shorrocks, and S. Wood. 1998. Making mistakes when predicting shifts in species range in response to global warming. *Nature* 391: 783-786.

American pronghorn (*Antilocapra americana*)

The management of pronghorn and their habitat represent an important conservation issue for North American grasslands, as pronghorn are an indicator of grassland ecosystem health and are valued as a wide-ranging, native game animal. Because pronghorn range widely to access the most succulent forage available at different locations at various times of the year and often return to specific fawning grounds, they are a landscape-connectivity dependent species.^{35,36} This means that their life history requirements necessitate an ability to move freely between resource patches, which are often spread out across large landscapes.

Pronghorn have declined in Arizona over the past two decades. In 1987, the statewide population of pronghorn was estimated at nearly 12,000, but by the year 2000 the population estimate had declined to less than 8,000.³⁷ Grassland habitats in Arizona and New Mexico continue to be subjected to extended drought, habitat conversion and fragmentation from urban and agricultural development, and woodland encroachment. Therefore, the conservation and restoration of remaining viable pronghorn summer and winter ranges, as well as seasonal migration corridors, is even more important if pronghorn populations are to recover.

Pronghorn are especially sensitive to development and habitat fragmentation. This project has the potential to impact the Sulphur Springs Valley population. The DEIS discusses some of the potential impacts but does not thoroughly analyze these. For example, on pg. 4-85, the DEIS notes that potential impacts include creation of new access within previously undisturbed areas of the valley and could encourage development or support increased recreation. This is a long-term and significant impact. The DEIS then contradicts the above statement by saying that impacts during the operations phase would be minimal. The BLM needs to more thoroughly assess potential impacts to species such as this.

The clearance of shrubs in shrub-invaded grasslands associated with this project could actually benefit pronghorn in some areas. The Final EIS should also more comprehensively assess the potential impacts of road construction (i.e. habitat fragmentation), vehicular traffic, and associated disturbance upon pronghorn and pronghorn habitat quality.

Bats

As part of the preconstruction surveys, the DEIS says that surveys for bat roosts would be conducted within 0.25 mile of the project right-of-way and that occupied roosts will be avoided. Who will conduct these surveys? Many bat species are highly specialized and can be difficult to locate within their roosts, even by highly trained and qualified biologists. Also, what is the likelihood that roosts will be destroyed, whether occupied

³⁵ Friederici, P. editor. 2003. Ecological Restoration of Southwestern Ponderosa pine Forests. Island Press, Washington, D.C., USA, 651 pp.

³⁶ van Riper and Ockenfels 1998 Yoakum, J.D. 2002. An Assessment of Pronghorn Populations and Habitat Status for Anderson Mesa, Arizona: 2001-2002. Prepared for the Arizona Wildlife Federation. 130 pp.

³⁷ Arizona Game and Fish Department. 2001. Wildlife 2006: The Arizona Game and Fish Department's Wildlife Management Program Strategic Plan for the Years 2001-2006.

or not? Bats use different roost sites during different times of the night and in different seasons.³⁸ Just because a roost is not occupied at the time of the preconstruction survey does not mean that it is not utilized or of importance.

Impacts to tree-roosting bat species, such as the western red bat (*Lasiurus blossevillii*) or western yellow bat (*Lasiurus xanthinus*), are not discussed. Note that both of these species are special status and have a high likelihood of being present or are present (respectively) in the project area. They are mentioned in Appendix B1, but no impacts as a result of this project are discussed. How will this project affect tree-roosting bats? As noted in Appendix B1, vegetation removal is a primary threat to these species. Will preconstruction surveys be conducted to identify presence of these species in the project corridor? When roosting, these species can be very difficult to locate.

White-sided jackrabbit (*Lepus callotis*)

This state-listed endangered species is endemic in the United States to a very small range of high-quality grasslands in southwestern New Mexico's Hidalgo County. Due to its habitat requirements for intact grasslands, it is an important indicator species for the health of southwestern desert grasslands. While it was found not warranted for Endangered Species Act (ESA) listing in 2010, it is nonetheless a very rare species and is heavily dependent upon grassland conservation and restoration measures for its population survival. The DEIS does not analyze impacts to this species. Links B150a, B140, and B112 are located within the historic range of this species.

BLM should consult with the New Mexico Department of Game and Fish (NMDGF) to determine what conservation measures may be appropriate for this species.

ii. Birds

This project poses a significant threat to many avian species. Habitat loss, degradation, and fragmentation; direct mortality from construction, operation, increased recreation use, and collision with transmission line structures; disturbance resulting in altered behaviors, reduced nest success, etc.; reduced water quality due to erosion and sedimentation; and much more all have the potential for significant impacts to these species. The mitigation measures discussed in the DEIS have the potential to reduce some of these impacts, but many avian species will still be negatively affected by this project. The DEIS admits that potentially significant impacts could occur but then downplays the significance of those impacts when discussing individual species.

Appendix B2 provides information from avian surveys that were conducted at the San Antonio crossing of the Rio Grande River alternatives. While these surveys provide some information about avian use of the Rio Grande at these locations, they are far from complete. Surveys did not occur year-round and, in fact, missed a key time when some bird species are present or most active (April–August). The surveys were also only conducted during one year, which does not account for the occurrence of different species and varying species abundance in different years. Because of this, it is unknown

³⁸ Tyburec, J. Bats. Arizona Sonora Desert Museum. Available online at http://www.desertmuseum.org/books/nhsd_bats.php. Accessed on 21 August 2012.

how many species that utilize this area would be affected by the transmission lines or the rate of collisions. Similarly, this information cannot be extrapolated to other sites, including to the north crossing alternatives. Bird presence and flight patterns could differ significantly between these areas. Also, collisions observed at the proposed Armendaris Ranch crossing alternative (which has since been dropped from consideration) cannot be extrapolated to estimate collisions from this project as the existing transmission line at this location is much smaller than the proposed project.

Raptors

With regards to raptors, the DEIS states that “disturbance of nesting raptors *may* be avoided by constructing outside of nesting season” (pg. 4-68, emphasis added). When would such disturbance not be avoided? Also, many raptors use the same nest each year. Will existing nests be avoided? Further analysis is needed in order to adequately understand these impacts.

The DEIS states that “SE 4 and 6 *may be* employed to minimize public access to areas occupied by nesting golden eagles” (pg.4-72, emphasis added). What is meant by “may be”? When would these mitigation efforts not be employed? Why is this not further analyzed in the DEIS?

Snow geese (*Chen caerulescens*)

At various times of the year, the snow goose can be found in almost every state or province of North America. Migrating snow geese concentrate in large numbers at many sites along traditional flyways across the continent. Always near water, snow geese breed on open, coastal tundra dominated by grasses and sedges. During migration they use both fresh and saltwater marshes, ponds, lakes, streams, meadows, and agricultural lands. Wintering snow geese inhabit a variety of marine and freshwater wetlands, including grassy marshes, wet fields, rice plantations, farm fields with waste grain, and open pastures.³⁹

The DEIS should analyze and avoid migratory flyways and important habitats for this species in order to prevent collisions and population-level impacts. We recommend avoiding spanning bodies of water or placing lines between heavily-used bodies of water and landscape contexts in which the overhead static wire is obscured or hard to see. BLM should confer with the USFWS to determine and implement best practices for reducing transmission line and guy wire collisions with snow geese and all bird species.

iii. Amphibians

The DEIS greatly downplays potential impacts to amphibian species. Typically, it is assumed that such species will only be affected in areas where perennial water occurs. However, as discussed below, intermittent and ephemeral waters can be very important to a variety of species, including various amphibians.

Chiricahua leopard frog (*Lithobates chiricahuensis*)

³⁹ See Audubon species account at <http://www.audubon.org/species/snogoo>.

As the DEIS acknowledges, Ladder Ranch supports some of the last remaining populations of Chiricahua leopard frogs in New Mexico. The project crosses Ladder Ranch and has the potential to affect the streams in which this species occurs. However, the DEIS states that no effects to the species are anticipated because the project would cross downstream from any perennial flow. The BLM must consider ephemeral and intermittent waters, not just perennial streams. Ephemeral and intermittent drainages can be of great importance to this species.⁴⁰ With regards to this species, with reference to both perennial and ephemeral waters, the USFWS states that, “for Chiricahua leopard frogs, defining the action area of a proposed project must consider the reasonable dispersal capabilities of the species, and the likelihood/extent of any downstream or upstream effects that might arise from the proposed action.”⁴¹

Other amphibian species are likely to be similarly affected. The BLM needs to reconsider impacts to amphibian species, providing consideration to all areas that could be utilized by the species, not just perennial waterways.

iv. Reptiles

The DEIS also downplays potential impacts to reptiles. While the DEIS identifies the potential for construction related activity to cause direct mortality, there is no discussion of impacts related to fragmentation caused by road construction. The DEIS also recognizes that people’s attitudes toward snakes is a primary threat, as many are purposefully killed. We appreciate that the BLM has acknowledged this and seeks to reduce this risk through resource awareness training. However, will killing of snakes be prohibited or just dissuaded? How will such actions be monitored?

v. Fish

Again, the DEIS only considers impacts to areas where perennial water occurs. However, many fish species utilize ephemeral waters for dispersal, etc. The BLM must consider how the various fish species found in or near the study corridor may be affected for all water sources.

vi. Invertebrates

Information regarding invertebrate species is, unfortunately, lacking, as is acknowledged in the DEIS (Section 3.6.5.6, pg. 3-83). As noted above, without an understanding of what species occur in the project area, it is impossible to know the full extent of impacts caused by this project. As the DEIS notes, many invertebrate species are highly endemic and may only occur in relatively small areas. If such species occur within the project area, this project has the potential to disrupt the required habitat and have significant negative impacts on the species, including impacts at both the population or species level.

⁴⁰ Southwest Endangered Species Act Team. 2008. Chiricahua leopard frog (*Lithobates [Rana] chiricahuensis*): Considerations for making effects determinations and recommendations for reducing and avoiding adverse effects. U.S. Fish and Wildlife Service, New Mexico Ecological Services Field Office, Albuquerque, New Mexico. 75 pp.

⁴¹ *Ibid.*

Snails

Appendix B1 states that talussnails are present in the project area and acknowledges that habitat degradation and loss are the primary threats to these species. However, the DEIS does not discuss any impacts related to this project nor any mitigation efforts.

The Rosemont talussnail (*Sonorella rosemontensis*) is a candidate species under the ESA. In March 2012, the USFWS issued a pre-proposal notification regarding this species,⁴² stating that information indicates that the species may need protection afforded under the ESA as threatened or endangered.

The Sonoran talussnail (*Sonorella magdalenensis*) is similarly being considered for listing as threatened or endangered under the ESA. A notice published in the Federal Register in July 2012 states that listing of this species may be warranted, and the USFWS is in the process of reviewing the status of the species.⁴³

Provided this information, the BLM must analyze potential impacts to these species. Many snail species are highly specialized and are often found in very small areas. This project could have very significant impacts on these populations and could jeopardize the species.

vii. Special-status wildlife species

The various alternatives in the DEIS would affect hundreds of special status species and would traverse and potentially negatively affect designated critical habitat for the southwestern willow flycatcher, Mexican spotted owl, Gila chub, and Rio Grande silvery minnow. The No Action alternative is the only alternative that will completely avoid negative impacts to these species and their critical habitat.

For special status species, the BLM must adhere to its special status species policy: “Objectives of the BLM special status species policy are to 1) conserve and/or recover ESA-listed species and the ecosystems on which they depend so that ESA protections are no longer needed for these species; and 2) initiate proactive conservation measures that reduce or eliminate threats to BLM sensitive species to minimize the likelihood of and need for listing of these species under the ESA.”

The most prudent and cost effective way to achieve these objectives is close consultation with the U.S. Fish and Wildlife Service (USFWS) and the Arizona Game and Fish Department (AZGFD), avoidance through robust screening, monitoring, effective mitigation, and application of the precautionary principle.⁴⁴

⁴² U.S. Fish and Wildlife Service. Pre-proposal notification and information request for the Rosemont Talussnail. Memo. 12 March 2012. Available online at <http://www.fws.gov/southwest/es/arizona/Documents/SpeciesDocs/RosemontTalussnail/Rosemont%20talussnail%20Preproposal%20notification.PDF>.

⁴³ Endangered and Threatened Wildlife and Plants; 90-Day Finding on a Petition to List the Sonoran Talussnail as Endangered or Threatened. Federal Register, Vol. 77, No. 142. 24 July 2012. Pp. 43218–43222.

⁴⁴ The most broadly accepted definition of the Precautionary Principle is Principle #15 of the June 1992, Declaration of the Rio Conference on Environment and Development, which reads: “In order to protect the environment, the precautionary approach shall be

In section 4.6.3.1, the DEIS states that “significant impact on biological resources could result if any of the following were to occur from construction or operation of the proposed action.” One of the impacts listed is “[f]ragmentation resulting from the addition of new infrastructure to large, currently intact blocks of habitat.” As such, we anticipate that habitat fragmentation associated with the construction and/or improvement of roads, as well as disturbance from maintenance activities associated with SunZia and subsequent disturbance associated with increased public access, would have a significant impact on the following terrestrial special status wildlife species with relatively large, intact habitat blocks in the affected region: jaguar, ocelot, jaguarundi (if present), Mexican gray wolf, desert bighorn sheep, New Mexico meadow jumping mouse, Arizona striped whiptail, Sonoran desert tortoise, Tucson shovel-nosed snake, northern Mexican garter snake, northern aplomado falcon, cactus ferruginous pygmy owl, and Sprague’s pipit, among others. Most, if not all, of these species have been documented to be sensitive to habitat fragmentation and human disturbance. Should the project move forward to construction, the project proponent should consult with the USFWS and the state wildlife agencies for both Arizona and New Mexico to determine site-specific and/or off-site mitigation measures to avoid, minimize, and offset impacts from fragmentation and disturbance to these species. A crucial mitigation measure that should be implemented globally is to tightly restrict vehicular access to transmission line access roads, so as to avoid an increase in human-related impacts that are facilitated by access, such as direct mortality from vehicle collisions and poaching and disturbances that affect habitat quality such as noise, pollution, accelerated erosion, and the accidental introduction and spread of non-native species. Additional information about some of these species follows.

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

The lesser long-nosed bat is listed as endangered under the ESA. Because it migrates long distances and is one of the nectar-feeding bat species, it must time its travel to coincide with the flowering or fruiting activity of its food plants. The floral resources they depend upon have been threatened by wildland habitat conversion and fragmentation, and maternity roost sites (located in caves and abandoned mines) are sensitive to human disturbance. The SunZia study corridor is located at the northern limits of the range of the lesser long-nosed bat, and, as noted in the DEIS, two known roosts are within four miles of the project centerline. There is also the possibility that additional, undocumented roosts could exist within the study area, as it contains concentrations of agaves that could be used as food sources by this species. The lesser long-nosed bat is known to be capable of traveling long distances, in the range of 30 to 60 miles, in a single night to forage.⁴⁵ The proximity of the study corridor to other known roosts makes it likely that these populations forage within the study corridor occasionally.

widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.”

⁴⁵ U.S. Fish and Wildlife Service. 1994. Lesser long-nosed bat recovery plan. U.S. Fish and Wildlife Service, Albuquerque, New Mexico. 45 pp.

In addition to the above general comments about bats, the DEIS also notes that lesser long-nosed bats are likely to use different roosts in different years to be closer to better foraging areas (Section 3.6.6.1, pg. 3-84). If an important roost site is disrupted or destroyed as part of this project, that could have significant impacts on this species. However, such an impact is not discussed in the DEIS.

The BLM should consult with the USFWS regarding conservation measures for this endangered species. Agave and saguaro that would need to be removed should be transplanted near the removal site, and additional plants should be planted for mitigation (and to account for possible unsuccessful transplants) at a minimum of a 3:1 ratio. In addition, the Final EIS must adequately analyze potential cumulative effects of energy development that would be enabled by the construction of SunZia.

Mexican long-nosed bat (*Leptonycteris nivalis*)

The DEIS cites a study from 1994 that indicates that the species is not anticipated to occur in the study corridor. Does the BLM have any information more recent than 1994 to support this statement? The BLM should not rely on survey records from nearly 20 years ago in order to determine absence of a species. Thorough surveys must be done for species such as this. Without that information, the BLM cannot estimate potential impacts from this project.

New Mexico meadow jumping mouse (*Zapus hudsonius luteus*)

The DEIS says that small mammal surveys will provide information on the local status of the New Mexico meadow jumping mouse (pg. 4-70). Are these surveys planned? What happens if this species is located within the areas to be developed? Will surveys also be conducted just prior to construction to ensure that this species is not present in the construction area, and will construction be halted if the species is located?

Mexican gray wolf (*Canis lupus baileyi*)

The Mexican gray wolf does not currently occur in the project area, but this area does include suitable and historic habitat for this critically endangered species. The Mexican gray wolf is a subspecies of the gray wolf, and is the most endangered type of wolf in the world. After being extirpated in the United States and with only a few animals remaining in Mexico, Mexican wolves were bred in captivity and reintroduced to the wild in Arizona beginning in 1998. The goal of the reintroduction program, which is only a first step toward full recovery, was to restore at least 100 wolves to the wild by 2006; unfortunately, at the end of 2011, there were only 58 wolves in the wild in Arizona and New Mexico. This species remains critically endangered.

A wolf reintroduction effort is also underway in Sonora, Mexico. If a strong population of wolves is established there, it is quite likely they would range northward, including into areas affected by the proposed project. Much of the proposed corridor borders the southern boundary of the 10j reintroduction area for the species and so may particularly affect dispersal and genetic exchange between populations now being established in Mexico and those in the US. The entire SunZia planning area is within the Sky Islands region, which could be identified as a key recovery area in the revised recovery plan that

is now underway. North/south habitat linkages for this species are particularly important to protect. New access roads associated with SunZia could provide new access into wolf habitat. The level of vehicular access is directly related to the relative level of habitat security for this species as these wolves are particularly at risk to illegal killings.

The DEIS fails to adequately evaluate the impact of the proposed SunZia project on the Mexican gray wolf. It states that “the potential for the species occurring at present or in the future within the study corridor or being affected by any phase of Project development or operation is very low” (pg. 4-71). That assumption is not defensible as, even with the current low numbers in the wild, Mexican gray wolves have ranged across various portions of the proposed SunZia project planning area in search of new territory. Such occurrences will likely occur more often as the population grows and disperses. The Five-Year Review of the Mexican gray wolf recovery program found that movement distances for lone wolves averaged 87 ± 10 km (54 ± 6 mi).⁴⁶ In addition, newly introduced Mexican wolves in northern Sonora, Mexico, could also range into the SunZia project planning area.

The BLM must fully analyze the potential effects of creating new roads and public access, including vehicular access, into occupied and potential Mexican gray wolf habitat. SunZia and BLM should consult with the USFWS regarding conservation measures for this species and policy changes anticipated in the new revised recovery plan and associated rulemaking – as the recovery plan will likely be finalized prior to the construction of SunZia.

Jaguar (*Panthera onca*)

The DEIS assumes that no impacts will occur relative to jaguar, provided how little information is known about the occurrence of this species in the U.S. However, jaguars have been positively identified in Arizona and may travel through the study corridor.

“Jaguars in the United States are likely dispersing males from breeding populations in northern Mexico. Movement corridors are important to maintain; however, human developments may block access to corridors or fragment contiguous habitats needed to sustain a home range. Fences and highways may be particularly damaging for movement corridors.”⁴⁷ The United States portion of the jaguar’s range coincides with the proposed transmission route in Cochise, Pima, Santa Cruz, and Hidalgo counties,⁴⁸ making it essential that SunZia planning limit habitat fragmentation and preserve movement corridors for this species. Areas with moderate to high quality jaguar habitat should be given particular consideration, including the area in and surrounding Steins Pass at the Arizona/New Mexico border, the area within approximately 25 miles east of Willcox, Arizona, and between Tucson, Arizona, in the west and State Highway 191 in

⁴⁶Mexican Wolf Interagency Field Team. 2005. Mexican wolf Blue Range reintroduction project 5-year review: technical component. Available online at <http://www.fws.gov/southwest/es/mexicanwolf/pdf/MW5YRTechnicalComponent20051231Final.pdf>.

⁴⁷ U.S. Fish and Wildlife Service. 2012. ECOS Species Profile for jaguar (*Panthera onca*). Available online at <http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=A040>. Accessed 29 May 2012.

⁴⁸ Hatten, J.R., A. Averill-Murray, and W.E. Van Pelt. 2003. Characterizing and Mapping Potential Jaguar Habitat in Arizona. Arizona Game and Fish Department Technical Report 203, Nongame and Endangered Wildlife Program. Available online at http://www.azgfd.gov/pdfs/w_c/jaguar/characterizing_mapping.pdf.

the east. North/south habitat linkages for this species are particularly important to protect, and tend to coincide with areas with riparian corridors, lands with moderate to high vegetation cover, and rough terrain.

The DEIS assumes that the potential for jaguars occurring within the project area is very low. This is not a defensible assumption, however. Comprehensive field surveys to detect and monitor this elusive cat species have not been conducted to date, and their habitat selection in the northern portion of their range is poorly understood. Therefore, instead of dismissing potential effects, the DEIS should analyze the impacts SunZia could have upon vegetation associations jaguars have been known to utilize, habitat connectivity for this species, and increased human presence and disturbance in areas containing what is thought to be suitable habitat.

The USFWS recently proposed critical habitat for the jaguar, including in areas to be affected by the SunZia project.⁴⁹ The DEIS neither mentioned nor analyzed the impacts this project would have if critical habitat for this species is approved, which could occur as early as next year.

The BLM must analyze the impacts the proposed SunZia project would have on vegetation associations, habitat connectivity, and habitat suitability for the jaguar. Many mitigation measures that would apply to ocelot apply to the jaguar as well. The BLM should consult with the USFWS and state wildlife agencies regarding conservation measures for this species and mitigate consistent with the current draft recovery plan, as the recovery plan will likely be finalized prior to the construction of SunZia.

Ocelot (*Leopardus pardalis*)

The DEIS assumes that no impacts will occur relative to ocelot, provided how little information is known about the occurrence of these species in the U.S. However, ocelots have been positively identified in Arizona and may travel through the study corridor.

A new recovery plan is being developed by the USFWS for this species. According to the draft recovery plan for the ocelot:

[the species] is listed as endangered throughout its range in the western hemisphere where it is distributed from southern Texas through Central and South America into northern Argentina and Uruguay. No critical habitat has been designated for the ocelot. Currently the U.S. population has fewer than 100 ocelots, found in 2 separated populations in southern Texas, at the northern limit of the species' distribution. A third and much larger population of the Texas ocelot occurs in Tamaulipas, Mexico, but is geographically isolated from ocelots in Texas. The Sonoran ocelot was last documented in southern Arizona in 1964, and presently

⁴⁹ Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Jaguar; Proposed Rule. Federal Register, Vol. 77, No. 161. 20 August 2012. Pp. 50214–50242.

occurs in northwestern Mexico but little is known about its abundance and distribution.⁵⁰

The DEIS (pg. 4-71) states, “The recent sightings could indicate an expansion of the species’ range northward, but more likely represent vagrant animals from northern Mexico. Movements of ocelots in southern Arizona are likely to occur primarily along riparian corridors where elongated ribbons of dense vegetation provide cover for the animals’ movements.” Given that “little is known about its abundance and distribution,” these statements regarding the ocelot are not grounded in science or fact, although riparian areas and those with dense shrub cover are, indeed, likely to be among habitat types preferred by ocelot in their northern range.⁵¹ Until more field research is conducted to study and determine ocelot habitat selection in this northern portion of its range, all vegetation types with dense cover and an adequate prey base should be considered potential ocelot habitat.

The BLM must also consider that changing habitat – due to drought, climate change, and other factors – will shift the range and movement patterns for a variety of species, including the ocelot. The fact that two ocelot have been identified in Arizona in the last two years may indicate that such incidences may be increasing. The BLM must take these factors into account when determining possible impacts to species.

The BLM should consult with the USFWS and state wildlife agencies regarding conservation measures for this species and mitigate consistent with the current draft recovery plan, as the recovery plan will likely be finalized prior to the construction of SunZia. All of this should be considered in the Final EIS.

Jaguarundi (*Herpailurus yagouaroundi tolteca*)

The DEIS assumes that no impacts will occur relative to jaguarundi, provided how little information is known about the occurrence of this species in the U.S. Anecdotal reports of jaguarundi have occurred in areas near the study area, however; while these reports have not been confirmed, the BLM should recognize the potential for this species to occur in the project area and, therefore, analyze potential impacts. Without more definitive studies, the BLM cannot assume that this project will not have any impacts.

The BLM must also consider that changing habitat – due to drought, climate change, and other factors – will shift the range and movement patterns for a variety of species, including these cats.

Golden eagle (*Aquila chrysaetos*)

This wide-ranging and broadly-distributed species, protected by the Bald and Golden Eagle Protection Act (BGEPA), is likely to be impacted by transmission development to some degree, but because knowledge of their distribution and habitat use is so vague, the

⁵⁰ U.S. Fish and Wildlife Service. 2010. Draft ocelot (*Leopardus pardalis*) recovery plan, first revision. U.S. Fish and Wildlife Service, Southwest Region, Albuquerque, New Mexico.

⁵¹ Lopez Gonzalez, C., D.E. Brown, and J.P. Gallo-Reynoso. 2003. The ocelot *Leopardus pardalis* in north-western Mexico: ecology, distribution and conservation status. *Oryx* 37(3): 358-364.

impacts of potential development in any particular area cannot be quantified with any accuracy and precision. This does not mean that population-level impacts do not need to be examined, but it does make filling information gaps for this species crucial, both at the local scale through sufficient study of the proposed project area as well as the landscape scale through population level surveys and monitoring.

Final eagle management guidance from USFWS is expected later this summer or fall. This guidance is intended to set fee structure, permit period duration, and preservation and compensatory mitigation standards for programmatic incidental take permits, providing a mechanism to modify them if necessary to safeguard eagle populations. This effort will require the rapid development of a detailed understanding of eagle regional populations, which will inform the implementation of many development planning efforts across the range of the species.

The BLM should consult with USFWS regarding what surveys should be conducted to predict potential eagle mortality and, if warranted, consider applying for an eagle incidental take permit. Although fatalities most often occur at smaller (≤ 69 kV) distribution lines, electrocution and collision are known causes of mortality for the golden eagle.⁵² The design and layout of SunZia's towers, transmission lines and guy wires should minimize risk to eagles. We recommend SunZia develop an Avian Protection Plan (APP) and follow best practices laid out by USFWS,⁵³ NMDGF,⁵⁴ and the Avian Power Line Interaction Committee (APLIC).⁵⁵

Bald eagle (*Haliaeetus leucocephalus*)

Much of the information regarding the golden eagle provided above also applies to the bald eagle. In addition, the DEIS downplays potential impacts to this species by assuming that this species does not occur in areas where permanent water is lacking (Section 3.6.6.1, pg. 3-91). However, no citation is provided to justify this statement. While it is true that bald eagles are most often found in areas with open water, they can be seen in areas without these permanent sources, especially during non-nesting or migration periods. In fact, some bald eagles spend a significant amount of time in areas far from water.⁵⁶ The BLM must take this into account and not assume that the only impacts to this species will occur along waterways within the study area.

Mexican spotted owl (*Strix occidentalis lucida*)

⁵² Bevanger, K. 1998. Biological and conservation aspects of bird mortality caused by electricity power lines: a review. *Biological Conservation* 86(1): 67-76.

⁵³ Avian Power Line Interaction Committee and U.S. Fish and Wildlife Service. 2005. Avian Protection Plan (APP) Guidelines. Available online at <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/APP/AVIAN%20PROTECTION%20PLAN%20FINAL%204%2019%202005.pdf>.

⁵⁴ New Mexico Department of Game and Fish. 2003, Power line Project Guidelines. Available online at http://wildlife.state.nm.us/conservation/habitat_handbook/documents/PowerlineProjectGuidelines.pdf.

⁵⁵ Avian Power Line Interaction Committee. 2006. Suggested practices for avian protection on power lines: the state of the art in 2006. Edison Electric Institute, APLIC, and the California Energy Commission, and Sacramento, Washington, DCCA, U.S.A.

⁵⁶ U.S. Fish and Wildlife Service. 2010. Bald eagle conservation. Available online at http://www.fws.gov/midwest/eagle/conservation/baea_nhstry_snstvtv.html. Accessed 20 August 2012.

The DEIS states that no impacts are anticipated for the Mexican spotted owl (pg. 4-74), a threatened species under the ESA, and, therefore, no mitigation measures are proposed. However, the project would cross through critical habitat for this species. Critical habitat is essential for the conservation of species such as these. The DEIS notes that no habitat suitable for this species occurs within approximately 0.5 mile of the reference centerline of the project. The final alignment/placement of the line has not yet been determined, though, so how can this determination be made?

Threats to this species include loss of habitat, particularly old growth forests, disturbance, and impacts from climate change. Locating the transmission corridor away from forested areas and consulting with USFWS to ensure consistency with the species' recovery plan will be essential in corridor planning.

The DEIS acknowledges that this species may occur in the project study area, in the Galiuro Mountains/Aravaipa Canyon, Rincon Mountains, and in the southeastern portion of the Magdalena Mountains. We question if 0.5 miles is an appropriate distance for determining impacts to this species, as the project area may contain foraging habitat. Avoidance, minimization, and mitigation measures consistent with the recovery plan (and implemented in consultation with USFWS) may be warranted for any instances in which the transmission corridor crosses constituent elements of designated critical habitat. The DEIS indicates no mitigation measures for this species.

The BLM should consult with the USFWS regarding conservation measures for the Mexican spotted owl. If the project is determined to have key constituent elements or foraging habitat for this species, mitigation measures should be identified and implemented.

Northern Aplomado falcon (*Falco femoralis*)

Listed as endangered in southern and western Texas, this species exists as an experimental population in New Mexico. Falcons are threatened by habitat destruction and disturbance at nest sites and may experience direct mortality due to collisions with construction cranes, trucks, or wires and powerlines. Noise and human activity may displace the birds, and removal of nesting sites impacts their reproductive activities.

Both of the primary new build alternative routes in southern New Mexico would cross suitable habitat for this species. Transmission, planning, and construction of the proposed line should be consistent with the species reintroduction plan and its objectives to avoid negative impacts to the falcons. In addition, the Final EIS must adequately analyze potential cumulative effects of energy development that would be enabled by the construction of SunZia. For example, recent wind development (Macho Springs) in the Nutt Grasslands area, the same area where SunZia is proposed to be routed, has led to the decision to not reintroduce these endangered birds into highly suitable habitat in the Nutt Grasslands due to potential conflicts with wind turbines. We anticipate SunZia will enable future wind, solar, and natural gas development to occur that could not only directly impact suitable habitat and the likelihood of successful natural dispersal and establishment of new populations but could also preclude or dissuade reintroduction efforts in suitable habitats. Therefore, the impact to Aplomado falcon recovery and recovery efforts must be better analyzed.

The DEIS (pg. 4-73) states, “Large areas of available but unoccupied habitat, coupled with the naturally low densities of Aplomado Falcons, would preclude significant negative effects of Project construction related to habitat loss.” While it is true there are large areas of unoccupied and suitable habitat for the falcon in the project study area, we do not see any basis for the assumption that naturally low densities of this species would preclude significant negative effects from occurring. Effects to this species will depend largely upon the final route that is selected and that route’s proximity to occupied habitat and nest locations. Modifying or creating hazards in suitable and unoccupied habitat could preclude birds dispersing or being reintroduced there, which could have significant negative impacts on the species’ ability to be recovered.

The BLM should consult with the USFWS regarding conservation measures for this species and conduct mitigation consistent with the current recovery plan. The Final EIS must adequately analyze direct, indirect, and cumulative effects of the selected SunZia route to the Aplomado falcon. Specifically, BLM must analyze the impacts of SunZia, and the foreseeable energy development it would enable, upon Aplomado falcon habitat suitability, recovery, and recovery efforts.

Yuma clapper rail (*Rallus longirostris yumanensis*)

The DEIS assumes that the proposed project would not present a significant risk to Yuma clapper rails because they only infrequently use the project area. However, infrequent use does not automatically signify that impacts will be low. Picacho Reservoir and similar areas may become increasingly important as habitat changes occur in other areas of this species’ range. Such impacts must be recognized and analyzed.

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

The cactus ferruginous pygmy-owl was listed as endangered under the ESA in 1997, but was delisted in 2006 “for reasons unrelated to recovery.”⁵⁷ In 2011, the USFWS determined that listing was not warranted, but clearly the species is in imperiled and as such is listed as sensitive by the BLM. Habitat for the cactus ferruginous pygmy-owl is located throughout the project corridor area.

Threats to pygmy-owls include loss habitat including that in riparian areas and the spread of invasive species such as buffelgrass that cause unnaturally hot fires to burn, destroying saguaros and other native vegetation.

⁵⁷ Flesch, A.D., and R. J. Steidl. 2006. Population trends and implications for monitoring cactus ferruginous pygmy owls in northern Mexico. *Journal of Wildlife Management* 70(3):867-871.



Figure 1. Photo courtesy of Jason Rugolo on Tonto National Forest near Rio Verde, Saguaros removed for transmission lines.

Pygmy-owls are currently found primarily in Sonoran desert scrub vegetation and riparian drainages and woodlands, as well as palo-verde-cacti-mixed scrub

associations.⁵⁸ It primarily nests in saguaro cacti cavities, so additional loss of saguaros associated with this project could negatively impact this imperiled species. To improve habitat for this species, it is important to both maintain and restore “woodland vegetation along drainages and tall upland vegetation with saguaros.”⁵⁹ The BLM should avoid, salvage, and relocate saguaros of transplantable size is important to reduce impacts to pygmy owl habitat. Any activities should also avoid mesquite bosque habitat. The Final EIS must adequately analyze potential cumulative effects upon the owl of energy development that would be enabled by the construction of SunZia.

Because pygmy-owls generally fly short distances a minimal distance above the ground when they seek to cross vegetation openings during natal dispersal and when flying across their home ranges,⁶⁰ so consideration should be given to this and creating much wider opening devoid of perching areas should be avoided.

Sandhill crane (*Grus canadensis*)

Sandhill cranes are primarily birds of open freshwater wetlands, but the different subspecies utilize habitats that range from bogs, sedge meadows, and fens to open grasslands, pine savannas, and cultivated lands. Sandhill cranes occur at their highest breeding density in habitats that contain open sedge meadows in wetlands that are adjacent to short vegetation in uplands.⁶¹ A portion of three distinct populations of sandhill cranes winters in Arizona. Cranes from both the Rocky Mountain (RM) and mid-Continent (M-C) populations winter in the Sulphur Springs and Gila River valleys of southeastern Arizona.⁶²

The BLM must analyze and avoid migratory flyways and important habitats for sandhill cranes to prevent collisions and population-level impacts. Areas of concern for sandhill cranes in the project area include the Rio Grande River corridor, the Willcox Playa, and Crane Lake, located in the northern portion of the Sulphur Springs Valley in southeastern Arizona, which supports the second largest over-wintering concentration of this migratory bird.

The USFWS estimates that 174 million birds die each year as a result of colliding with transmission lines. We recommend avoiding spanning bodies of water or placing lines between heavily-used bodies of water and landscape contexts in which the overhead static wire is obscured or hard to see. Although a limited number of studies have been conducted on the use of markers or “bird diverters” to reduce collisions, BLM should confer with the USFWS to determine and implement best practices for reducing transmission line and guy wire collisions with sandhill cranes and all bird species. We

⁵⁸ See U.S. Fish and Wildlife Service species account at

<http://www.fws.gov/southwest/es/arizona/Documents/Redbook/Cactus%20Ferruginous%20Pygmy%20owl.pdf>.

⁵⁹ Flesch, A. D., and R. J. Steidl. 2006. Population trends and implications for monitoring cactus ferruginous pygmy-owls in northern Mexico. *Journal of Wildlife Management* 70:867-871.

⁶⁰ Flesch, A. D., and R. J. Steidl. 2007. Association between roadways and cactus ferruginous pygmy owls in northern Sonora Mexico. Final Report to Arizona Department of Transportation, Tucson, Arizona. A.G Contract No. KR02-1957TRN JPA 02-156.

⁶¹ See International Crane Foundation species account at <http://www.savingcranes.org/sandhill-crane.html>.

⁶² See Arizona Game and Fish Department species account at http://www.azgfd.gov/h_f/game_crane.shtml.

encourage SunZia to develop an APP and to follow best practices laid out by USFWS,⁶³ NMDGF,⁶⁴ and the APLIC.⁶⁵

Southwestern willow flycatcher (*Empidonax traillii extimus*)

The endangered southwestern willow flycatcher is found at various locations in the project area, with designated critical habitat along numerous riparian corridors (the species' breeding habitat) in the region. They are threatened by habitat loss, particularly in these riparian areas.

The BLM should consult with the USFWS regarding conservation measures for the southwestern willow flycatcher. Avoidance, minimization, and mitigation measures consistent with the recovery plan (and implemented in consultation with USFWS) may be warranted for any instances in which the transmission corridor crosses a floodplain or other riparian habitat area. Engineering of structures to span over flycatcher habitat is the preferred avoidance method, and vegetation preservation and/or restoration actions should be implemented where SunZia interacts with flycatcher habitat.

Sprague's pipit (*Anthus spragueii*)

Sprague's pipits could be significantly affected by this project. This species is very sensitive to habitat fragmentation, and it also avoids areas with structures such as those proposed in this project. As the DEIS notes, "Postconstruction restoration in areas of habitat suitable for Sprague's pipit may not be an effective mitigation, since the birds would likely not occupy areas near tall structures" (pg. 4-75).

No mitigation measures are proposed for this species. This project could significantly alter available habitat for this species and represents an unacceptable impact.

Sonoran desert tortoise (*Gopherus agassizii*)

The Sonoran desert tortoise is a candidate species for listing pursuant to the ESA. The USFWS Federal Register Notice, 12-Month Finding on a Petition To List the Sonoran Population of the Desert Tortoise as Endangered or Threatened, provides a great deal of information on this species. As part of this, USFWS announced a finding for the Sonoran desert tortoise of warranted but precluded by the need to address other higher priorities.⁶⁶

As its common name denotes, it is found in the Sonoran Desert. Sonoran desert tortoises are most closely associated with the Arizona Upland and Lower Colorado River subdivisions of Sonoran desertscrub and Mojave desertscrub vegetation types. They occur most commonly on rocky, steep slopes and bajadas, and in paloverde-mixed

⁶³ APLIC and USFWS, 2005. (Full reference above.)

⁶⁴ NMDGF, 2003. (Full reference above.)

⁶⁵ APLIC, 2006. (Full reference above.)

⁶⁶ Endangered and Threatened Wildlife and Plants; 12-Month Finding on a Petition to List the Sonoran Population of the Desert Tortoise as Endangered or Threatened; Proposed Rule. Federal Register, Vol. 75, No. 239. 14 December 2010. Pp. 78094-78146.

cacti associations.^{67,68} Core, higher density populations of this species tend to be “island like” and associated with steeper terrain and aspects, making the species very vulnerable to connectivity disruptions, especially as associated with the development of roads and other infrastructure. Also, additional perches for ravens can increase the mortality for desert tortoises as ravens use transmission lines as a means to scout out and prey upon young tortoises.^{69,70}

Sonoran desert tortoises are very susceptible to the construction and maintenance activities related to this project. The BLM proposes some mitigation measures to address this problem, but inadequate information is provided to determine if these measures are suitable. For example, preconstruction surveys will only be useful if conducted just prior to construction by a qualified biologist in order to determine if tortoises are in the path of construction. Even then, tortoises can be extremely difficult to locate, and direct mortality will still occur. Indirect effects, including habitat loss and degradation, increased recreation, and road effects, will greatly increase the impacts to this species.

The BLM must more adequately analyze potential impacts to this species and should consult with the USFWS and AZGFD regarding conservation measures.

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

This small, 10–17” shovel-nosed snake is primarily restricted to sand dunes and sandy-silty flats on creosote-mesquite floodplain valley floors, but they can also be found in washes and on rocky hillsides with pockets of sand.⁷¹ The geographic range of this subspecies is currently confined to the most arid areas of Pima and Pinal counties. Tucson shovel-nosed snakes burrow as well as crawl and are adapted for “swimming” rapidly through loose sand. The species is nocturnal/crepuscular, typically staying underground during the heat of the day and foraging for insects above ground at night. Currently an ESA candidate species, Tucson shovel-nosed snakes were found to be “warranted but precluded” in March 2010; the finding states that they are threatened throughout their entire range by habitat loss and fragmentation due to development, roads, potential solar power facilities, agriculture, wildfires, and lack of adequate management and regulation. The USFWS is required to submit a Proposed Rule or a not-warranted finding on this candidate species no later than the end of fiscal year 2014.

The BLM must analyze the impacts of road construction and associated habitat fragmentation resulting from the SunZia project and the possibility of additional

⁶⁷ Burge, B.L. 1979. A survey of the present distribution of the desert tortoise, *Gopherus agassizi*, in Arizona. Proceedings of the Desert Tortoise Council Symposium 1979: 27-74.

⁶⁸ Burge, B.L. 1980. A survey of the present distribution of the desert tortoise, *Gopherus agassizi*, in Arizona: additional data, 1979. Proceedings of the Desert Tortoise Council Symposium 1980: 36-60.

⁶⁹ Boarman, W.I. and W.B. Kristan, 2006. Trends in common raven populations in the Mojave and Sonora deserts: 1968-2004. Draft report to U. S. Fish and Wildlife Service, Ventura CA 93003. Contract No. 814405M055. Sacramento, CA.

⁷⁰ Boarman, W.I. 2002. Reducing Predation by Common Ravens on Desert Tortoises in the Mojave and Colorado Deserts. USGS Western Ecological Research Center. Available online at <http://www.werc.usgs.gov/sandiego/pdfs/RavenMgt.pdf>.

⁷¹ See USFWS species account at <http://www.fws.gov/southwest/es/arizona/Documents/Redbook/Tucson%20Shovel-nosed%20Snake%20RB.pdf>.

collection of Tucson shovel-nosed snakes in the Final EIS. In addition, the Final EIS must adequately analyze potential cumulative effects of energy development that would be enabled by the construction of SunZia. SunZia and BLM should consult with the USFWS regarding conservation measures for this imperiled species.

Gila chub (*Gila intermedia*)

This endangered minnow species is primarily threatened by habitat degradation on the banks of the streams that they inhabit and from upstream runoff in their watersheds. Limiting watershed impacts (erosion, sedimentation, etc.) from construction and preserving riparian corridors will be essential in avoiding impacts upon this species. The mitigation impacts described in the DEIS do little to adequately address threats to this species.

The BLM should consult with the USFWS regarding conservation measures for the Gila chub. It is crucial that measures to avoid, minimize, and control erosion caused by ground disturbance are implemented and monitored for effectiveness.

Rio Grande silvery minnow (*Hybognathus amarus*)

Regarding the Rio Grande silvery minnow, the DEIS notes that the project would affect the sole remaining population of this species. No actions should be permitted that could further threaten this last remaining wild population. The DEIS does not suitably discuss potential impacts to this species, nor does it recognize that impacts to this population could jeopardize the species' survival.

Socorro springsnail (*Pyrgulopsis neomexicana*)

The DEIS acknowledges that very little is known about the Socorro springsnail, including its distribution within the study corridor. The only known location of this species is within 500 feet of one of the project links. The only mitigation measure offered is to span the spring outflow and centering the drainage between structures (Section 4.6.4.5, pg. 4-79).

What about the effects of project roads? Erosion and sedimentation? Increased recreational access? Given the lack of knowledge about this species and its potential distribution, as well as the fact that it has been extirpated from other known localities, it is vitally important to eliminate threats at all known or potential sites where it may occur. This project has the potential to cause population-level impacts that may jeopardize the species.

b. Special-status plant species

The DEIS admits that little is known about the distribution of many of the special status plant species that may be affected by this project. For example, the recovery plan for Todsens' pennyroyal (*Hedeoma todsenii*) suggests that populations of the species may occur within the study corridor (pg. 3-101). As another example, the DEIS states that "suitable habitat is **probably** present over a wide area within the study corridors" for the Chihuahua scurfpea (*Pediomelum pentaphyllum*) (pg. 3-101, emphasis added).

In order to better estimate how the project may impact species such as this, thorough studies are needed in order to identify populations. Without this knowledge, impacts cannot be adequately analyzed.

When populations of special status plant species are found, they must also be avoided, which should be made clear in the Final EIS. For example, when discussing the Acuña cactus (*Echinomastus erectocentrus acunensis*), the DEIS states that, “where possible, destruction of plants would be avoided” (pg. 4-80). When and why would this not be possible?

The BLM should consult with the USFWS and state agencies regarding conservation measures for special status plant species found within the study corridor.

c. Appendix B1 – additional special status species

Appendix B1 addresses additional special status species that are not listed under the ESA, including those considered sensitive by land management agencies or by New Mexico or Arizona. This list represents hundreds of sensitive species not discussed within the DEIS. Although the appendix provides information about the species and potential threats to those species, it does not discuss how this proposed project may affect those species. This is a serious oversight. Without this information, the BLM cannot determine the full impacts of this project on the affected environment. The BLM must analyze impacts to these species prior to determining whether this project should move forward.

d. Critical habitat

Depending on which alternative is selected (and which links within that alternative), the proposed project would affect critical habitat for a variety of species, including, but not limited to, Mexican spotted owl, Southwestern willow flycatcher, Gila chub, Rio Grande silvery minnow, spikedace, and loach minnow. The DEIS does not adequately recognize the importance of these areas and the significance of any effects on them. Critical habitat is “essential for the conservation of a threatened or endangered species.”⁷² The project may significantly alter portions of critical habitat, thereby potentially affecting the species at the population level. The Final EIS must address impacts to these critically important areas.

e. Mitigation measures

As the BLM notes, “impacts of linear features on wildlife are mostly negative and may be difficult to mitigate” (Section 4.6.2.2, pg. 4-59). However, the BLM also frequently notes that, with mitigation measures, effects will be minimal on many species. The DEIS does not contain adequate information to justify this statement. In fact, based on the information provided in the DEIS, as well as the information we discuss above, impacts to many species will be quite significant. More information is needed about the various mitigation measures proposed and the estimated effects on the species discussed in the EIS.

The DEIS frequently mentions that a “posted reasonable construction speed limit could minimize potential collision risk” with a variety of species of concern. What would this posted speed limit be,

⁷² U.S. Fish and Wildlife Service. 2002. Critical habitat: what is it? Available online at http://www.fs.fed.us/r9/wildlife/tes/docs/esa_references/critical_habitat.pdf.

and how will it be enforced? Even at low speeds, vehicles and roads have significant impacts on wildlife and can result in high mortality rates due to a variety of factors, including road design, driver awareness, etc.^{73,74} Similarly, without strict enforcement, it is highly unlikely that those traveling on the project area would adhere to the speed limit, especially members of the general public who may access the area for recreation, etc. Is there any funding available to ensure enforcement activities? If a suitable speed limit and enforcement plan are not in place, the posted speed limit should not be included as a mitigation effort as it is unlikely to reduce wildlife mortality or injury.

Similarly, the DEIS notes that debris and trash will be properly contained and removed from the project site. Who will oversee this mitigation measure to ensure that no litter is left on-site?

Table 2-10 states that all supervisory construction personnel would be instructed on the protection of cultural and ecological resources (pg. 2-87). Why is this training not required for all construction personnel, rather than just the supervisors? The supervisors cannot oversee every action taken by their staff and will not be able to ensure that personnel do not take inappropriate actions toward these resources. Also, will the person(s) conducting this training be properly trained themselves? Will they have appropriate knowledge of all resources that may be encountered? Will identification of special status species and proper monitoring techniques be part of this training?

The DEIS states that “fences and gates would be repaired or replaced to their original, predisturbed condition” (Table 2-10, pg. 2-88). We encourage the BLM to use this opportunity to modify any fences that are currently not wildlife compatible, as appropriate.⁷⁵

Table 2-10 says that preconstruction surveys will be conducted for special status species in areas of known occurrence or suitable habitat. Who will conduct these surveys? It is important for a biologist who is familiar with each species conduct the surveys to ensure that all species/individuals that occupy the area are identified. This may require multiple biologists as many species are very specialized and can be difficult to locate without proper training.

When in relation to the start of construction will these surveys be conducted? Ideally, surveys for special status species should be conducted well in advance of construction so that any populations can be avoided. In fact, because so little is known about the occurrence of many of the species discussed in the DEIS, these surveys should have been completed prior to completion of the DEIS. Without a thorough understanding of what species are present in the project corridor and surrounding area – or where they are located within the project area – effects to these species cannot be adequately assessed.

Surveys should also be conducted immediately preceding construction or use of an area to determine what species are present. These surveys should not be limited to only special status species but should include all plants and animals in order to minimize negative impacts. If an animal or plant is found within the construction path, it should either be moved or avoided, as appropriate, or construction should cease until the animal has moved or other appropriate action has been taken.

⁷³ Coffin, A.W. 2007. From roadkill to road ecology: a review of the ecological effects of roads. *Journal of Transport Geology* 15(5): 396-406.

⁷⁴ Gunther, K.A., M.J. Biel, and H.L. Robison. 1998. Factors influencing the frequency of road-killed wildlife in Yellowstone National Park. *International Conference on Wildlife Ecology and Transportation*. Pp. 32-42.

⁷⁵ Arizona Game and Fish Department. Wildlife compatible fence. Available online at http://www.azgfd.gov/w_c/documents/110125_AGFD_fencing_guidelines.pdf. Accessed 13 August 2012.

f. Biological Resource Conservation Areas

The proposed project, including all alternatives except the No Action alternative, would have impacts to wildlands, wildlife, and conservation areas in both Arizona and New Mexico. This project would affect 16 conservation areas that are managed for biological resources, as well as several Important Bird Areas. These lands support a wide variety of plant and animal species, including numerous special status species. Many of them are relatively undeveloped and provide increasingly important refuges for the species they support.

The DEIS identifies many, but not all, of these special areas. However, the DEIS significantly downplays the impacts this project will have on these areas and, thus, on the species they support.

For example, Chupadera Mesa, as noted on pg. 3-110, “contains a large area of high-quality, relatively pristine grassland-piñon juniper ecotone in a mostly undisturbed area with little potential for development.” As the DEIS states in Section 4.6.3.1, “fragmentation resulting from the addition of new infrastructure to large, currently intact blocks of habitat” represents a significant impact on biological resources (pg. 4-62). Yet, on pg. 4-88, the DEIS indicates that the project would have minimal, if any, impacts to this area. All of the action alternatives would cross this area. The DEIS also fails to adequately evaluate the project’s potential impacts on Pima County’s Sonoran Desert Conservation Plan Conservation Lands System.

The DEIS analysis and inventory of wild lands and conservation areas, as well as the huge economic investment in conservation areas is inadequate, inaccurate, and incomplete regarding the impacts to these sensitive and important areas. While we appreciate that the both the project proponent and BLM have stated that they seek to minimize such impacts, we think they have missed the mark on this project and, in fact, question how such a major project can cut through these important conservation areas without devaluing both their ecological and economic values. The mitigation offered is inadequate at best.

The proposed SunZia project and related energy development projects will harm these conservation plans and areas and compromise the integrity of the following areas and the surrounding landscapes, as well as others:

- Pima County’s Sonoran Desert Conservation Plan Conservation Lands System (Pima County)
- San Pedro River Valley and migration corridor (USFWS proposed National Wildlife Refuge and numerous private land conservation easements)
- Aravaipa Canyon/Galiuro Mountains Complex (USFS, BLM, State, Private)
- Saguaro National Park East (NPS)
- Las Cienegas National Conservation Area (BLM)
- Pima County preserves (Pima County, State of Arizona)
- AZGFD-identified wildlife linkages (Arizona)
- Willcox Playa
- Rio Grande River and migration corridor
- Sevilleta National Wildlife Refuge (USFWS)
- Bosque del Apache National Wildlife Refuge (USFWS)
- Ladder Ranch (owned by Ted Turner)
- Lake Valley Ranch (owned by Jim Winder)

- Nutt grasslands complex (BLM, State, Private)
- Peloncillo Mountains Wilderness and wildlife linkage (BLM, State)
- Citizen-proposed wilderness areas (BLM, USFS, State)
 - Padilla Gonzales
 - Stallion Wilderness Study Area and contiguous roadless lands
 - Veranito Wilderness Study Area and contiguous roadless lands
 - Sierra de la Cruz
 - Cibola Canyon
 - Chupadera Wilderness Addition
 - Peñasco Canyon
 - Massacre Peak
 - Magdalena Mountains Units
 - Goodsight Mountains
 - Nutt Mountain
 - Sierra de las Uvas/Robledos
 - Lordsburg Playas
 - Pinaleño Mountains

The above list is not an exhaustive list, but merely highlights some of the areas most affected by the proposed project. As noted elsewhere in our comments, there are also important unfragmented wildland complexes, Outstanding Resource Waters, and other biological resources that are significantly affected and warrant the selection of the No Action alternative.

g. Wildlife linkages and habitat fragmentation

“Habitat fragmentation and loss are currently recognized as the principal threats to biodiversity” (Section 3.6.8.1, pg. 3-108). The BLM further reiterates this point by noting that any actions that result in fragmentation would have a significant impact on biological resources. However, although the BLM acknowledges these facts by incorporating these statements into the DEIS, it does not adequately assess potential impacts caused by habitat fragmentation or impacts to wildlife linkages and movements as a result of this project.

The DEIS states that the Arizona Wildlife Linkages Workgroup resulted in the publication of Arizona’s Wildlife Linkages Assessment. However, what the BLM does not recognize is that this assessment is by no means complete; rather, it is an evolving document that should be used as a guideline. As the linkages webpage states: “The assessment document and map are the initial efforts to identify potential linkage zones that are important to Arizona’s wildlife and natural ecosystems. This is only the first step in a continuing process of defining critical habitat connectivity areas” (emphasis added).⁷⁶

The BLM should more thoroughly discuss effects of this project on wildlife movement in areas both within and outside of the identified linkages. This analysis should cover the effects of the linear fragmentation (from the transmission line and associated roads and other features), the potential effects that may radiate outward (e.g., increased recreation, illegal spur roads, etc.), and the edge effects associated with these. Natural, undeveloped areas are critically important to a variety of species that will be affected by this project; natural, undeveloped corridors between these areas are

⁷⁶ Arizona Department of Transportation. 2010. Arizona’s wildlife linkages assessment document. Available online at http://www2.azdot.gov/Highways/OES/AZ_WildLife_Linkages/assessment.asp. Accessed 14 August 2012.

just as important. For many of these linkages, the DEIS states that development already occurs in the habitat, so this project would not significantly add to fragmentation. However, any source of fragmentation in these areas – whether new development or additive to other development – should be avoided.

h. Perennial versus ephemeral and intermittent waters

The DEIS has greatly underestimated the significance of intermittent and ephemeral sections of waterways. Instead, the DEIS primarily focuses on perennially flowing waters when discussing impacts to wildlife species. For example, the discussion of Muleshoe Ranch CMA assumes minimal impacts to this area because the “links would cross just below the reach of perennial waters in each drainage” (pg. 4-82). However, impacts in this area could be quite significant as ephemeral or intermittent water may exist in these drainages.

Ephemeral and intermittent waters can be just as important as perennial waters. In fact, they can often be more important in some areas of the Southwest. Eighty-one percent of streams in the arid and semi-arid Southwest are ephemeral and intermittent streams.⁷⁷ They provide “these streams provide landscape hydrologic connections; stream energy dissipation during high-water flows to reduce erosion and improve water quality; surface and subsurface water storage and exchange; ground-water recharge and discharge; sediment transport, storage, and deposition to aid in floodplain maintenance and development; nutrient storage and cycling; wildlife habitat and migration corridors; support for vegetation communities to help stabilize stream banks and provide wildlife services; and water supply and water-quality filtering.”⁷⁸ Because of their significance, it is recommended that these streams not be looked at individually, but that “[c]onsideration of the cumulative impacts from anthropogenic uses on these streams is critical in watershed-based assessments and land management decisions to maintain overall watershed health and water quality.”⁷⁹ The Final EIS must address impacts to all water resources, including intermittent and ephemeral streams and the species that rely on them, including fish species such as Apache trout and amphibians such as the Chiricahua leopard frog.

VI. CULTURAL RESOURCES

There are numerous prehistoric and historic cultural resources located along the path of as well as in close proximity to the proposed SunZia Transmission Project. The direct impacts to these resources come primarily from ground disturbance, but there are also many indirect and cumulative impacts as well.

Indirect impacts to cultural resources from the proposed project include erosion and increased sedimentation from construction-related activities.

The fact that this transmission line would open up miles of unfragmented landscape and create a defacto road through many areas will mean increased vandalism and illegal artifact collection resulting from the increased public access to these areas.

⁷⁷ Levick, L., J. Fonseca, D. Goodrich, M. Hernandez, D. Semmens, J. Stromberg, R. Leidy, M. Scianni, D. P. Guertin, M. Tluczek, and W. Kepner. 2008. The Ecological and Hydrological Significance of Ephemeral and Intermittent Streams in the Arid and Semi-arid American Southwest. U.S. Environmental Protection Agency and USDA/ARS Southwest Watershed Research Center, EPA/600/R-08/134, ARS/233046, 116 pp.

⁷⁸ *ibid*

⁷⁹ *ibid*

According to the Center for Desert Archaeology (CDA) and the National Trust for Historic Preservation (National Trust)⁸⁰:

... the most sensitive locations for cultural resources within the proposed project area in Arizona occur in the foothills of the Pinaleño Mountains, upper Aravaipa Creek, the lower San Pedro River valley and the Picacho Mountains, all of which are crossed by proposed or alternate routes.” Clearly, the preferred alternative as well as the alternatives, particularly the Aravaipa and both San Pedro routes will have enormous negative impacts on the significant cultural resources in these areas. It is a further reason for the BLM to select the No Action Alternative and to instead evaluate the use of existing transmission and transportation corridors and seek to meet transmission needs with less harmful projects.

CDA and the National Trust indicate that the “. . . proposed route from the future Willow substation to the existing 500kV line in eastern Pinal County that traverses the Safford Basin, Aravaipa Valley and lower San Pedro Valley is of particular concern.” Preservation of this intact cultural landscape provides for important interpretation of sites as part of a larger context rather than in isolation as this area includes relatively intact records of 12,000 years of human activities, including both Native American and Euro-American. This is unique as it is no longer possible to look at this context in other areas where urban development has destroyed or at least impaired the archaeological records.

CDA and other researchers have identified over 500 archaeological sites in the lower San Pedro Valley alone with approximately one-third of them containing architecture and probable human remains. A minimum of 40 sites include villages that were inhabited for a century or more and include houses, ballcourts, and large burial areas, as well as a multitude of other structures and archaeological deposits.

Another important area that is potentially affected by the route is the foothills of the Pinaleño Mountains. This area contains important Hohokam, Mogollon, and Mimbres prehistoric sites, none of which have been adequately studied or evaluated. These sites are significant to both the Hopi and Zuni people and both have ancestral ties to the area. Some of these sites have been vandalized already, but still have important information to provide and value to native peoples. A transmission line in this area would also likely exacerbate the vandalism.

VII. VISUAL RESOURCES, GEOLOGIC, LAND USE AND RECREATION RESOURCES

Reading the DEIS with respect to visual impacts, one is confronted with tables, classifications, and labels. For example, “Class A scenery typically has a higher degree of landscape relief, diversity of water, and vegetation, which harmoniously combine and result in a high level of aesthetic appeal” (pg 3-176).

The transformation of a living, vibrant landscape into a classification with a possibility (or not) of being subject to mitigation is indeed breathtaking. The descriptions of the different classes, while comprehensible, seem meant to distance the reader rather than engage him or her.

Mitigation is discussed only minimally. For example, the DEIS (pg. 4-27) states the following:

⁸⁰ See Center for Desert Archaeology and the National Trust for Historic Preservation’s scoping comments, submitted 27 August 2009.

Based upon site-specific travel planning and NEPA analysis, the respective agency would determine which roads on public lands would remain open, restricted, or closed to the public (SE 4) or gated (SE 6), using the most effective and least environmentally damaging methods appropriate, where feasible. These mutually exclusive measures would minimize traffic across minimally or previously undisturbed landscapes, which would limit the exposure of soils susceptible to water or wind erosion. A detailed Project reclamation plan would be developed to mitigate site-specific resource impacts (SE 5), which would aid in returning the land surface to a state close to its original condition; thereby limiting the exposure of soils susceptible to water or wind erosion, and the irreversible conversion of designated Prime or Unique Farmland soils to nonagricultural uses.”

This does not factor in the unique soils found on the desert. These soils take decades to recover from even the most casual use. Off-road vehicle tracks from recreationists doing figure eights on pristine desert surfaces can be seen decades later. For example, numerous complaints have been filed about Border Patrol’s off-road activity and its impacts to the fragile borderland deserts.⁸¹ Should this project be constructed, the soils near the towers will be significantly and negatively affected, creating a scar on the landscape, independent of the structure itself.

According to the Arizona-Sonora Desert Museum, “Darkly-varnished desert pavements take so long to form and are extremely sensitive to disturbance. The intaglios created by ancient peoples can last for centuries. So will the uninspiring and less aesthetically appealing tracks so thoughtlessly created in our time by drivers of off-road vehicles.”⁸²

It goes on to say, “Like desert pavements, these living crusts can easily be destroyed by human activities. Mechanical disturbance by recreational vehicles poses a significant threat in all desert regions of the American Southwest.... Once destroyed, recovery of some kinds of microphytic crusts can be very slow, taking decades to perhaps a century or more.”⁸³

Towers built near the riparian areas would not have the same problem as they would with the desert soils; however, the towers themselves would have a significant visual impact that could not be mitigated, to say nothing of the anticipated deforestation in the areas to diminish fire risk from arcing. Riparian areas, as noted in the DEIS are particularly sensitive – these areas are rare for the desert dweller and are particularly precious. See for example, page 4-52 where it says, “Removal of unique riparian habitat, increased sedimentation, and reduced water quality are among the primary adverse environmental effects on surface water resources that could be associated with the proposed Project. The primary adverse environmental effect to groundwater resources would be potential degradation caused by construction and operation activities and the presence of permanent facilities.”

There is a huge difference between scenery destruction as seen through the prism of the DEIS and through residents and visitors to the desert. For example, Mr. Peter Edgell wrote, “On a Sunday morning in 1974 my wife and I were awakened by the sound of a helicopter across the San Pedro River from us. We walked outside and saw to our horror this helicopter was raising a behemoth electrical tower and more were lying in wait to be raised. We had bought our ten acres because of the beautiful views of hills and mountains on all sides of us. Now, almost 40 years later those towers are still upsetting. Several

⁸¹ Environmental Assessment for the Proposed Ajo Forward Operating Base, Ajo Station Area of Responsibility, U.S. Border Patrol, Tucson Sector, September 2011, Appendix B Comment Response Matrix.

⁸² McAuliffe, J.R. Desert soils. Arizona-Sonora Desert Museum. Available online at http://www.desertmuseum.org/books/nhsd_desert_soils.php.

⁸³ *Id.*

years ago I found I photo taken in 1973 of those hills. They had been so beautiful before the towers were there.”⁸⁴

Mr. Edgell and his wife will be treated to more towers should the Western San Pedro SunZia route be selected.

The following image shows how easily seen the large towers will be in the San Pedro Valley. The red line depicts the large transmission towers.

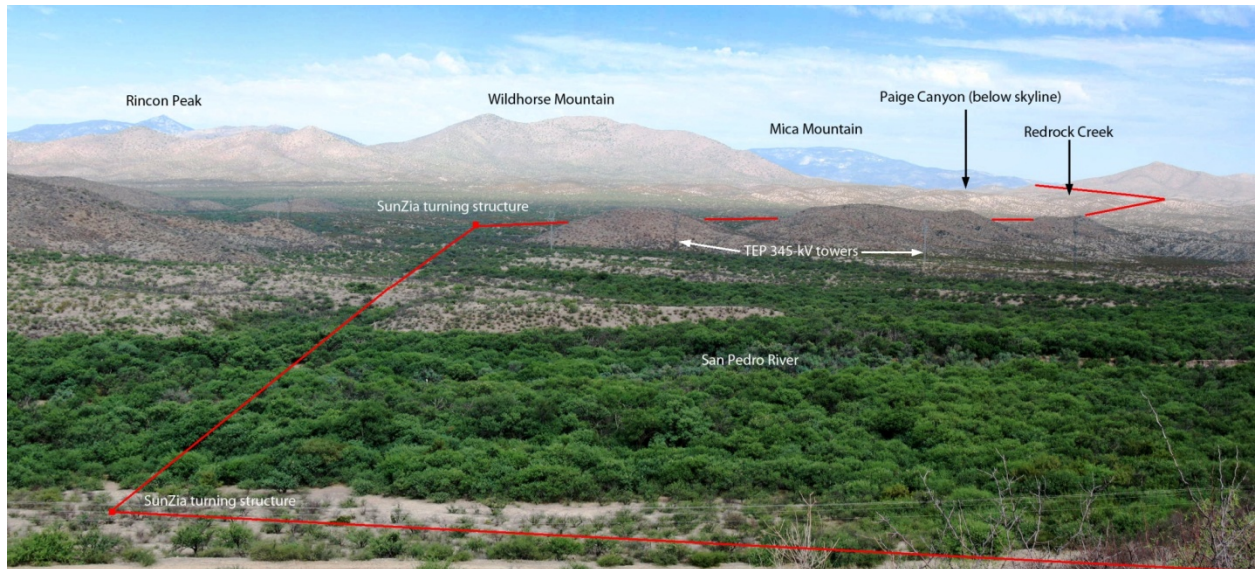


Figure 1. A photograph that has been marked to show the transmission line route, courtesy of Norman Meader.

A movie set company in the valley, which brings in an amount of money in excess of one million dollars into the local economy annually, expects to go out of business if the San Pedro route is chosen due to the visual impacts.⁸⁵ Similarly, visitors to Aravaipa or the nearby mountains will not be pleased with the views to come should that route be selected. It would be fatuous to assume that an equal if not stronger argument could not be made against the destruction for that route.

The ugly scar of erosion is also a serious concern. Desert soils are also particularly prone to erosion. The following image shows erosion caused by the cutting of a road in the San Pedro Valley many years ago. Such conditions continue to get worse.

⁸⁴ Original comments at a public meeting, then by private communication with Elna Otter, August 2012.

⁸⁵ Jack and Joanne Gammons, owners of Gammons Gulch Movie Set and Museum comments at a meeting of the Community Watershed Alliance held in Benson, Arizona on July 24, 2012. A copy of their comments to BLM can be found at <http://www.cascabelworkinggroup.org/RESgammons.html>.



Figure 2. A photograph depicting the visual scar of erosion caused by a road, courtesy of Alex Binford.

While the ecological impacts of these proposed transmission lines are of greatest concern, the visual impacts will be extensive and unmitigable, including the significant degradation in views from designated natural areas, additional light pollution, and the erosion.

Subroute 4C2c would have high to moderate impacts on Class B scenery and moderate to low impacts on Class C scenery. There would be some high impacts to residential, recreational, and travel viewsheds. Mitigation for these effects is not adequately addressed in the DEIS. This subroute also passes through vulnerable soils in the San Pedro River Valley.

VIII. SPECIAL DESIGNATIONS AND WILDERNESS

The BLM has a responsibility under FLPMA to inventory and consider lands with wilderness characteristics during the land use planning process.⁸⁶ Instructional Memorandum (IM) 2011-154 and Manuals 6310 and 6320 contain mandatory guidance on implementing that requirement. The IM directs BLM to “conduct and maintain inventories regarding the presence or absence of wilderness characteristics, and to consider identified lands with wilderness characteristics in land use plans and when analyzing projects under [NEPA].”

⁸⁶ See *Oregon Natural Desert Ass’n v. BLM*, 531 F.3d 1114, 1119 (9th Cir. 2008).

Under NEPA, BLM must update its inventory of lands with wilderness characteristics along the potential SunZia routes and cannot simply rely on the underlying Resource Management Plans (RMPs) along the potential routes. See *N. Plains Res. Council v. Surface Transp. Bd.*, 668 F.3d 1067, 1085-87 (9th Cir., 2011) (rejecting agency’s reliance on “stale” inventory data as violating NEPA’s “hard look” requirement). Manual 6310 identifies situations in which BLM must update its inventory, including when: “BLM has new information concerning resource conditions, including public or citizens’ wilderness proposals” and when a “project that may impact wilderness characteristics is undergoing NEPA analysis.”

Lands with wilderness characteristics, including Citizen Proposed Wilderness areas and Wilderness Study Areas (WSAs) should be protected by the BLM and must be considered when evaluating changes to the RMPs. Citizen Proposed Wilderness lands have been inventoried by various groups and have wilderness qualities including naturalness, solitude, and opportunities for primitive and quiet recreation. The lands provide important wildlife habitat and the sensitive nature of these lands and their resources and values makes transmission development inappropriate there. Habitat fragmentation is now widely accepted as one of the leading causes of species endangerment and extinction. Therefore, maintaining the integrity of roadless areas and roadless area complexes is crucial to preserving the integrity and security of wildlife habitat. For this reason, new transmission corridors and associated access roads should follow existing disturbance corridors and avoid traversing currently roadless areas.

IX. SOCIAL AND ECONOMIC CONDITIONS

The BLM economic analysis in the DEIS is incomplete and inaccurate. It does not consider the impacts on the significant investments in areas that would be affected by the proposed project. Most of the economic benefits would be short-term and associated with construction of the transmission lines, while the negative economic impacts would be long-term and irreversible and unmitigable.

a. Ecotourism

Many of the areas most significantly affected by this proposed project – the San Pedro River and its tributaries, the Aravaipa Creek area, Sulphur Springs Valley and the Willcox Playa – are well-known ecotourism attractions. Birders, hikers, and wildlife watchers come from all over the United States and the world to enjoy this region. Birders are particularly drawn to these areas due to the amazing diversity of birds that inhabit and migrate through these ecologically significant lands. Willcox hosts an annual “Wings Over Willcox” event that focuses on the birding in the area.⁸⁷ In 2013, it will be celebrating the 20th anniversary of this event, an important component of the local economy.

The DEIS fails to analyze the impact of the proposed project on ecotourism including direct, indirect, and cumulative impacts. The DEIS underestimates and fails to adequately analyze the economic role of public lands, river valleys, playas, and natural open space, plus the wildlife these support for the local communities and it ignores existing research documenting the economic importance of protected public land resources. Income from tourism is a sustainable source of income, but requires that the resource is managed and protected. The proposed SunZia transmission line has the potential to forever damage sustainable regional resources for a questionable purpose and need.

⁸⁷ See Wings over Willcox Birding and Nature Festival webpage at <http://www.wingsoverwillcox.com>. Accessed 19 August 2012.

b. Watchable wildlife

Watchable Wildlife programs play an increasing role with state wildlife agencies and land managers. As other forms of wildlife recreation continue to decline, watchable wildlife programs are more popular than ever.⁸⁸ In Arizona, the Arizona Game and Fish Department is seeking to “Identify, assess, develop and promote watchable wildlife recreational opportunities.”⁸⁹ In a 2006 study, the Outdoor Industry Foundation reported that all outdoor wildlife-related recreational activities generated \$730 billion annually for the United States economy and, of that, watchable wildlife generated \$43 billion annually.⁹⁰ They reported 66 million Americans participated in wildlife viewing, which supported 466,000 jobs. Estimated economic returns included retail sales averaging \$8.8 billion, trip related expenditures of \$8.5 billion, and state and federal tax receipts of \$2.7 billion. There are some aspects of outdoor recreation not captured by these numbers as well, including visitors who come for sight-seeing, family gatherings, and for educational benefits.

A 2011 study by the National Fish and Wildlife Foundation estimated the combined value of outdoor recreation, nature conservation and historic preservation at creating more than 9.4 million jobs, generating \$107 billion in local, state, and federal tax revenues resulting in a minimum total economic impact nationally of \$1.6 trillion.⁹¹ The U.S. Fish and Wildlife Service contributed about \$4.2 billion in economic activity and supported over 32,000 jobs through its management of 553 National Wildlife Refuges and thousands of smaller natural areas throughout the country.

According to a 2004 study of National Wildlife Refuges, there were 36.7 million visitors who generated \$1.64 billion of economic activity in regional economies. About two-thirds of the total expenditures were generated by non-consumptive activities, meaning it was neither fishing (27 percent) nor hunting (5 percent). The authors of this study also conducted willingness-to-pay research to determine the value of these refuges beyond what it actually cost to visit. They found that visitors showed a consumer surplus of more than \$1.3 billion, with \$816 million of this amount attributed to non-consumptive visitation.

X. IMPACTS OF ROADS

The DEIS greatly downplays the impacts that access roads can have on resources. Roads pose significant threats to the land and resources, including impacts on wildlife through direct and indirect mortality and habitat fragmentation.^{92,93,94} In addition to creating new roads in already disturbed areas, many of the

⁸⁸ Caudill, J., and E. Henderson. 2005. Banking on nature 2004: the economic benefits to local communities of National Wildlife Refuge visitation. U.S. Fish and Wildlife Service. Available online at https://www.fws.gov/refuges/about/pdfs/BankingOnNature_2004_finalt.pdf.

⁸⁹ Arizona Game and Fish Department. 2007. Wildlife 2012: The Arizona Game and Fish Department’s Strategic Plan for the Years 2007-2012. Available online at http://www.azgfd.gov/inside_azgfd/documents/Wildlife2012forWeb.pdf.

⁹⁰ Outdoor Industry Foundation. The active outdoor recreation economy: a \$730 billion annual contribution to the U.S. economy. Available online at <http://www.outdoorindustryfoundation.org>.

⁹¹ Southwick Associates. 2011. The economics associated with outdoor recreation, natural resources conservation and historic preservation in the United States. Prepared for The National Fish and Wildlife Foundation. Available online at <http://www.nfwf.org/Content/ContentFolders/NationalFishandWildlifeFoundation/HomePage/ConservationSpotlights/TheEconomicValueofOutdoorRecreation.pdf>.

⁹² Forman, R.T.T. 2000. Estimate of the area affected ecologically by the road system in the United States. *Conservation Biology* 14(1): 31-35.

⁹³ Theobald, D.M., J.R. Miller, and N.T. Hobbs. 1997. Estimating the cumulative effects of development on wildlife habitat. *Landscape and Urban Planning* 39(1): 25-36.

subroutes would cross currently roadless areas. We are strongly opposed to construction of roads in these areas.

Roads inflict a horrific toll on wildlife, with an estimated one million vertebrates killed daily on America's highways.⁹⁵ Roads, paved or primitive, facilitate inadvertent or deliberate disruption of wildlife. According to prominent conservation biologists, habitat fragmentation is the most serious threat to biological diversity and is the primary cause of the present extinction crisis.^{96,97}

Roads fragment habitat by carving otherwise large patches into smaller ones resulting in negative impacts to interior habitat.^{98,99} Roads also directly eliminate wildlife habitat by occupying space within the ecosystem and by altering adjacent habitat.^{100,101} Roadside habitats experience increased temperature extremes and solar input and pollution from exhaust, herbicides, garbage, dust, and noise.¹⁰² These conditions increase habitat disturbance by a minimum of 500-600 meters on either side of a small rural road and a much larger distance for highways.¹⁰³

Wildlife is affected directly and indirectly by roads. Mule deer frequently harassed by all-terrain vehicles (ATVs) may alter their feeding and spatial-use patterns, and produce fewer offspring the following year.¹⁰⁴ Mountain lions avoid improved dirt and hard-surfaced roads and select home range areas with lower densities of these road types.¹⁰⁵

In the Southwest, roads and associated activities are the primary cause of extensive arroyo cutting during this century.¹⁰⁶ Severe gully formation negatively affects soils, vegetation, and archaeological resources. Vehicular traffic directly destroys biological resources by crushing vegetation and microbotic crusts. The resulting soil compaction retards the recovery of vegetation. In addition, off-road vehicle (ORV) use can cause unsustainable erosion rates, exacerbate the spread of non-native invasive plants, cause user conflicts, and damage cultural sites.¹⁰⁷

⁹⁴ Trombulak and Frissell, 2000. (Full reference above.)

⁹⁵ Watson, M.L. (compiler). 2005. Habitat Fragmentation and the Effects of Roads on Wildlife Habitat. Updated 3/3/05. New Mexico Department of Game and Fish.

⁹⁶ Wilcox, B. A., and D.D. Murphy. 1985. Conservation Strategy: The Effects of Fragmentation on Extinction. *American Naturalist* 125: 879-887.

⁹⁷ Meffe, G.K., and C.R. Carroll. 1997. *Principles of Conservation Biology*. Sunderland, Massachusetts: Sinauer Associates.

⁹⁸ Trombulak, S.C., and C.A. Frissell. 2000. Review of Ecological Effects of Roads on Terrestrial and Aquatic Communities. *Conservation Biology* 14(1):18-26.

⁹⁹ Reed, R.A., J. Johnson-Barnard, and W.L. Baker. 1996. Contribution of Roads to Forest Fragmentation in the Rocky Mountains. *Conservation Biology* 10(4):1098-1106.

¹⁰⁰ Schonewald-Cox, C., and M. Buechner. 1992. Park Protection and Public Roads. In P. L. Fiedler and S. K. Jain, eds., *Conservation Biology: the Theory and Practice of Nature Conservation, Preservation and Management*. New York, NY: Chapman Hall, Pp. 373-395.

¹⁰¹ Soulé, M.E. 2000. Forget About Building the Road to Nowhere. *Christian Science Monitor*. Available online at <http://www.csmonitor.com/2000/1016/p9s2.html>.

¹⁰² Yahner, R. H. 1988. Changes in Wildlife Communities Near Edges. *Conservation Biology* 2(4): 333-339.

¹⁰³ VanDerZande, A. N., W.J. TerKeurs, and W.J. VanDerWeijden. 1980. The Impact of Roads on the Densities of Four Bird Species in an Open Field Habitat- Evidence of a Long-distance Effect." *Biological Conservation* 18: 299-321.

¹⁰⁴ Yarmaloy, C.M. Bayer, and V. Geist. 1988. Behavior Responses and Reproduction of Mule Deer, *Odocoileus hemionus*, Does Following Experimental Harassment with an All-terrain Vehicle. *Canadian Field Naturalist* 102:425-429.

¹⁰⁵ Van Dyke, F.B., R.H. Broke, H.G. Shaw, B.N Ackerman, T.P. Hemker, and F.G. Lindzey. 1986. Reactions of Mountain Lions to Logging and Human Activity. *Journal of Wildlife Management* 50:95-102.

¹⁰⁶ Bahre, C. J. 1991. *A legacy of change: historic human impact on vegetation of the Arizona Borderlands*, University of Arizona Press, Tucson, AZ.

¹⁰⁷ Forest Service. 2000. *Forest Service Roadless Conservation: Final Environmental Impact Statement*. Vol. 1. Washington, D.C.: Government Printing Office. Available online at http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5057895.pdf.

Some measures to mitigate the effects of temporary and permanent roads will be incorporated, but these measures are not adequately discussed, nor are they likely to sufficiently reduce the threats to the resources. Adequate information is not provided in the DEIS to determine if the mitigation efforts that are identified will be suitable. For example, the DEIS states that “upon completion of construction activities, temporary access roads would be reclaimed according to the procedures specified in the Final POD” (Section 2.4.10.1, pg. 2-70). No further indication is provided as to what the reclamation procedures would entail, so we cannot determine if they will adequately address this threat. Similarly, the DEIS mentions that a Project Noxious Weed Management plan will be developed, but no parameters or timetables are specified. This is pertinent information that should be included in the DEIS so that the public can provide substantive comments.

Increased recreation as a result of the new or improved access roads is identified as a potential threat. For example Subroute 3A would be located near the BLM Hot Well Dunes Recreation Area, and “construction access for the transmission lines could increase the potential for *unmanageable* off-road access” (Section 2.5.4.2, pg. 2-103, emphasis added). This represents a very significant threat. However, this threat and potential mitigation efforts are not discussed in detail. Instead, the DEIS focuses primarily on the threat from construction traffic and project vehicles. Similarly, the DEIS identifies that recreationists may create illegal spurs from approved project roads, but the threats that these spurs pose are not analyzed or discussed, nor are suitable mitigation measures provided.

The only mitigation measure that is provided is closing some of the roads once construction is completed and if the roads are no longer needed. However, how will these roads be monitored during the construction phase to ensure that the public is not negatively affecting resources? How long after construction will the roads be closed? The longer these roads remain open, the more potential there is for abuse by recreationists. How will roads that remain open (some of which will be gated) be monitored to ensure that the public is not overusing them, creating illegal spurs, or tampering with the closure? The DEIS also notes that road closure may not be possible in all areas (pg. 4-99). Where would road closure not be feasible?

Section 2.4.10.1 (pg. 2-70) states that overland road construction methods – either overland drive and crush or overland cut and clear – may be implemented where feasible in order to reduce the severity of disturbance. However, the impacts of these methods are not discussed in the DEIS. While such methods may have less of an impact on some resources, they can have significant impact on other resources. Will the areas to be used for overland road construction be thoroughly surveyed for special status species and other important resources? If not, it is highly likely that the potential for direct mortality or injury of these species will increase. Drivers traveling cross-country may not be able to see what lies in their path as easily as they could on a maintained road. It is highly likely that cross-country travel would increase wildlife-vehicle collisions as the animals (and their burrows, if the species resides underground) would not be as noticeable as they would on a cleared road. Related to this, what cross-country speed limit will be imposed, and how will this be enforced? Lower speeds must be required for cross-country travel. Finally, how will areas that are used for overland road construction methods be monitored and reclaimed? These methods are likely to result in more illegal road spurs used by the public as recreationists may see where other vehicles have traveled off-road and will follow suit.

Table 2-10, which identifies standard mitigation measures, states that “all vehicle movement outside the right-of-way would *typically* be restricted to designated access, contractor acquired access, or public

roads” (pg. 2-85, emphasis added). What is meant by “typically”? When and why would vehicle movement not be restricted? What are potential impacts of movement outside of these designated access areas or roads?

XI. CUMULATIVE EFFECTS

The National Environmental Policy Act (NEPA) requires the BLM to consider the impacts, including the cumulative impacts associated with the proposed SunZia project. *See* 40 C.F.R. § 1508.25. A cumulative impact is defined as “the 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.” *Id.* at § 1508.7. “The point [of a cumulative impacts analysis] is that a large overview should be maintained toward the magnitude of environmental effects, both of the immediately contemplated action and of future actions for which the proposed action may serve as a precedent or have a cumulatively significant impact.”¹⁰⁸

A comprehensive cumulative impacts analysis is essential to inform the proper siting, design and operation of transmission projects. The Final EIS for this project should fully evaluate the potential cumulative impacts of all current, proposed, and reasonably foreseeable projects that would affect the lands and resources traversed by and in close proximity to the line. The DEIS is deficient in that it fails to adequately address the cumulative impacts. If the line is built, it is likely to lead to increased development around it. This would be harmful to many of the sensitive ecological and cultural areas in close proximity to the line. Without critical analysis of the need for this project and avoidance of irreversible impacts to unique ecosystems, moving forward with SunZia would set an extremely bad precedent for renewable energy development.

The DEIS fails to adequately address cumulative impacts from wind farms, utility-scale solar, natural gas, and other energy development that SunZia would facilitate. These include cumulative impacts to special status species and their habitats, cultural resources, air quality, water quality, and. Activities and designations include, but are not limited to, the Bowie Power Station, a 1,000 megawatt electric generation facility planned for southeastern Arizona near the community of Bowie in Cochise County; the BLM-proposed Afton Solar Energy Zone (BLM Solar Final PEIS); the National Renewable Energy Laboratory (NREL)-identified Western Renewable Energy Zone Qualified Resource Areas (produced by Black & Veatch under subcontract with NREL for the Western Governors Association)¹⁰⁹; and BLM-proposed Renewable Energy Development Areas (preferred alternative) in the DEIS for the Arizona BLM’s Restoration Design Energy Project (RDEP).

The proposed Southline Transmission Project, a 345-kilovolt (kV) and 230-kV high voltage electric transmission line and substations was not considered in the DEIS cumulative impacts analysis. The proposed routes for Southline are in close proximity to SunZia’s proposed alternatives between Willcox, Arizona and Deming, New Mexico. Therefore, this region in particular deserves detailed cumulative impacts analysis for both of the proposed transmission projects, to include biological (e.g. habitat fragmentation, disturbance, avian impacts, etc.) and cultural resource impacts. The cumulative impacts map in the DEIS (Figure 4-1, 4-249) only delineates the southern proposed route of Southline; however,

¹⁰⁸ *Natural Resources Defense Council v. Callaway*, 524 F.2d 79, 88-89 (2d. Cir 1975).

¹⁰⁹ NREL Western Renewable Energy Zones, Phase 1: QRA Identification Technical Report. Available online at <http://www.nrel.gov/docs/fy10osti/46877.pdf>.

during scoping for this project, a northern route, parallel to I-10 and much closer to SunZia's proposed routes is being evaluated. The Final EIS needs to take this new information into consideration in its cumulative impacts analysis.

As the DEIS notes, a cumulative impact is the impact that results from the incremental impact of an action when added to other past, present, and reasonably foreseeable actions. Such actions can be minor on their own but, when added to the other actions, can be significant. Even though the BLM acknowledges this definition, it does not consider the collective impacts of this project as well as past, present, and future actions in the region, nor does it consider all actions that have or may occur in these areas.

The cumulative impacts analysis only considered a subset of actions that have or may occur in the area. As noted in Section 4.17.2 (pg. 4-244), the analysis only included "linear projects such as roads, transmission lines, and pipelines; and large area developments such as military installations, planned area developments, substations, conventional and fossil-fueled power plants, and renewable energy developments." It also only includes actions that are "similar in kind and effect as the proposed action, or have considerable impact to environmental resources to which the proposed action's effects will cumulatively contribute." (pg. 4-244). Smaller development projects and other actions, such as groundwater pumping, recreational use, etc., were not included. Even though some of these projects and actions may have relatively small effects on their own, collectively, all such actions can have a significant impact, especially in light of the potential effects of this project. The BLM must include a thorough analysis of all proposed projects and actions in this area.

Related to this, the BLM does not provide any consideration to other stressors, such as climate change and drought. As the U.S. Forest Service discusses in detail, "the issues of global climate change and cumulative impacts are closely related."¹¹⁰ Such stressors are reasonably foreseeable and may have very significant impacts on the resources discussed in the DEIS. By not incorporating factors such as climate change into the cumulative impacts analysis, the BLM has significantly underestimated the impacts of this project.

The BLM also significantly underestimates cumulative impacts by not including future projects that are currently speculative or for which details are unknown (pg. 4-246) and by reducing the impact timeframe to 10 years, even though the project duration is expected to be 50 years (pg. 4-246–4-247). This short timeframe may be suitable for updating plans, as the DEIS notes, but it should not be used for determining if a project with such long-reaching effects should move forward. Exclusion of analyses of projects such as the Southline Transmission Project, which is reasonably foreseeable and could have significant impacts on the resources discussed in this DEIS, is unacceptable. In order to adequately assess cumulative impacts, the BLM must incorporate all projects that may occur throughout the duration of this project.

Direct and indirect impacts to lands with wilderness characteristics and values was not adequately evaluated in the DEIS. These include the potential of SunZia foreclosing future wilderness designations. The potential for SunZia to open up currently roadless areas (i.e. areas with wilderness characteristics) to additional road creation (both legal and illegal) and other human developments that are contrary to wilderness designation and management must be considered.

¹¹⁰ Reid, L., and T. Lisle. 2008. Cumulative effects and climate change. U.S. Department of Agriculture, Forest Service. Available online at <http://www.fs.fed.us/ccrc/topics/cumulative-effects.shtml>. Accessed 14 August 2012.

The DEIS also fails to adequately evaluate the cumulative impacts related to the introduction and spread of non-native invasive plants or potential increases in woody vegetation associated with fire suppression. The DEIS fails to evaluate the cumulative impacts and potential changes to fire frequency, fire regimes, and fire management associated with the proposed transmission line. Fire-adapted grasslands may be converted to more woody vegetation with fire exclusion and suppression associated with protecting the transmission line.

The cumulative impacts analysis with regards to biological resources is deficient and does not provide an adequate representation of possible effects. Rather than provide analysis for each species and area affected, it generalizes all effects. Some species may be more heavily affected by projects and actions occurring in the region of the project, but this analysis does not give any indication of those effects. We realize how difficult it would be to assess cumulative impacts for each of these species and the affected habitat, but the BLM must acknowledge that the information provided in its cumulative impacts analysis is of little use to fully understanding the effects to these resources.

This project, when combined with all other projects and actions occurring in the area, results in significant habitat loss, degradation, and fragmentation. As the DEIS notes, “development of the proposed project, in conjunction with other present and future projects, would contribute to the ongoing fragmentation and loss of natural habitats in the Southwest” (pg. 4-298). Direct mortality through crushing, collisions, etc., is also of great concern. The DEIS states that “standard and selective mitigation measures for the proposed project would minimize any contribution to these cumulative effects to the extent feasible” (pg. 4-292). However, this project would still add to the impacts to these resources. Cumulatively, these actions may result in impacts to species at the population level or may jeopardize some species’ survival.

The DEIS provides information about sources of human-caused avian mortality (pg. 4-293), although the information presented is not useful for ascertaining the cumulative impacts from this project. For example, the DEIS references a study that indicates that transmission line collisions are estimated to cause 13–17 percent of all human-caused bird deaths in North America. This statement does not give any indication of what species of birds are affected, nor the degree of impact to each species. The only useful information that can be gleaned from this is that transmission lines present a significant risk to the bird class.

Species that are already at risk from other factors and long-lived species with low reproductive rates may experience population-level threats from collisions.¹¹¹ As noted in the DEIS, the cumulative effect of this project on such species may be quite significant. Although mitigation measures are offered to reduce collisions, bird deaths are still expected to occur from this project. The DEIS does not adequately address such impacts other than to mention that they could occur.

Similarly, the impacts from road construction and access into new areas is not suitably addressed. As noted above, roads have very significant impacts on the environment, including increased erosion, recreation and human presence, habitat fragmentation and destruction, increased vehicle use and associated wildlife-vehicle collisions, and much more. The cumulative impacts analysis glosses over such impacts.

¹¹¹ Drewitt, A.L., and R.W. Langston. 2008. Collision effects of wind-power generators and other obstacles on birds. *Annals of the New York Academy of Science* 1134: 233–266.

The DEIS anticipates that “impacts to species listed under the ESA are unlikely to be cumulatively significant for future renewable energy developments” because each project would implement mitigation measures to reduce such impacts (pg. 4-296). However, as noted above, such actions can be minor on their own but, when added to the other actions, can be significant. Mitigation rarely eliminates effects on any resource. Even if these measures do reduce impacts, some effects, such as habitat loss, result in permanent and significant negative impacts.

In its discussion of wind energy facilities, the BLM erroneously assumes that wind facilities have a minor effect on bat species. One of the justifications provided for this is that “wind energy facilities are generally sited in open habitat lacking bat roosts” (pg. 4-296). This assumption is completely in error. Although many facilities are not located in the immediate vicinity of cave-dwelling bat roosts, they are frequently located in areas utilized by bats for foraging and migration and, therefore, can and do have significant impacts on bat species.

The cumulative impacts analysis also seems to compare potential impacts between different types of projects or other factors, rather than assess the cumulative impacts of all projects. For example, the DEIS states that “other types of future developments...are expected to result in the greatest loss of habitat in the region” (pg. 4-298). As another example, the analysis states that “collision with buildings is the greatest man-made cause of unintentional bird mortality” (pg. 4-293). Such information is not useful unless analysis is provided about how this project adds to those impacts.

XII. CONSULTATION AND COORDINATION

We, like many of our colleagues (See comments from Defenders of Wildlife et al., Cascabel Working Group, Sky Island Alliance, Tucson Audubon Society, and Friends of the Aravaipa Region) are extremely disappointed in the public process for this proposed transmission project. This proposal has the potential to destroy more acres of land than nearly anything else we have seen in recent years, plus the BLM is proposing to build it in some of the most ecologically sensitive and unfragmented areas in southern Arizona. It is extremely controversial and because of that the BLM should have taken care to listen more closely, engage the public, and provided opportunities for the public to comment and ask questions in a more open and transparent manner. It should have also extended the comment period as the DEIS and accompanying materials is lengthy and in places confusing. It is a lot to digest in the time period offered, let alone provide adequate and comprehensive comments.

XIII. SUMMARY

Sierra Club strongly supports a timely transition from fossil fuel based electricity production to an energy system that incorporates much more energy efficiency and conservation and clean renewable energy. Global Climate Change/Disruption is one of the greatest challenges we face as a nation and for the planet overall. That being said we strongly question whether this proposed transmission line will facilitate additional renewable energy resources and whether the dollars being considered for this project could not have a greater impact in a project that focuses on transmission line upgrades, energy efficiency measures, and generating the electricity closer to where it will be consumed, including through both distributed generation and some larger scale projects. Trying to site this proposed transmission project in some of Arizona’s most sensitive and unfragmented areas is totally unacceptable.

We strongly question the purpose and need for this project and see that all of the routes under consideration would have significant and damaging impacts on the lands, wildlife, and other important resources. Based on the information in the DEIS, our own research, and our knowledge of the impacts and the lands involved, we find that the only alternative that is acceptable is the No Action Alternative. We ask that the BLM select this alternative and keep intact these important lands. We further request that the BLM look at other options, including system upgrades, to meeting the purpose of this proposal.

Thank you for considering our comments.

Sincerely,

A handwritten signature in black ink, appearing to read "Sandy Bahr". The signature is fluid and cursive, with a long horizontal stroke at the end.

Sandy Bahr
Chapter Director
Sierra Club – Grand Canyon Chapter

/s/
Randy Serraglio
Southwest Conservation Advocate
Center for Biological Diversity