



# SKY ISLAND ALLIANCE

Protecting our Mountain Islands  
and Desert Seas

August 22, 2012

Adrian Garcia, Project Manager  
Bureau of Land Management  
SunZia Southwest Transmission Project  
P.O. Box 27115  
Santa Fe, NM 87502-0115  
Email: [NMSunZiaProject@blm.gov](mailto:NMSunZiaProject@blm.gov)

Re: Draft Environmental Impact Statement (DEIS) for the proposed SunZia Southwest Transmission Project

Dear Mr. Garcia:

These comments are being submitted in response to the Draft Environmental Impact Statement (DEIS) for the proposed SunZia Southwest Transmission Project ("Project"). Sky Island Alliance (SIA) is a non-profit conservation organization dedicated to the protection and restoration of the rich natural heritage of native species and habitats in the Sky Island region of southeastern Arizona, southwestern New Mexico, and portions of Sonora and Chihuahua in northwestern Mexico. SIA works with volunteers, scientists, land owners, public officials, and government agencies to establish protected areas, restore healthy landscapes, and promote public appreciation of the region's unique biological diversity.

SIA is a membership-based, volunteer organization, with over 1,600 members and 250-300 active volunteers across the region. To date we have logged over 100,000 volunteer hours on conservation projects in the region, including monitoring regional wildlife and the movement corridors they use, restoring healthy landscapes, participating in agency planning processes, and working with many different stakeholders to protect the unique biodiversity of this region.

We appreciate the opportunity to comment on this proposed Project. We incorporate by reference those comments SIA submitted jointly with Defenders of Wildlife, as well as those comments submitted by the Cascabel Working Group, the Tucson Audubon Society, the Sierra Club – Grand Canyon Chapter, and the Coalition for Sonoran Desert Protection, which we strongly support. We offer the following additional comments for the agency's consideration, focusing specifically on the potential impacts of this Project on the connectivity and overall resiliency of the Sky Island region.

The "No Action" alternative is the only appropriate choice for this Project. The only action alternatives considered in the DEIS are likely to have extremely significant and unacceptable adverse impacts on either the lower San Pedro Valley or the Aravaipa watershed, both of which are widely recognized for their rich biological diversity and provide critically important habitat for dozens of sensitive species. This project will also likely have significant impacts on the connectivity between that habitat, potentially impacting the long-term resiliency of the Sky Island region; however, this DEIS does not adequately assess those potential impacts. The DEIS also fails to sufficiently analyze impacts to sensitive and special status species native to the Sky Island region that may be affected by the Project.

In addition to these deficiencies, the DEIS is also fundamentally flawed because it fails to consider a scope of reasonable alternatives that meets the stated purpose and need for this Project, in violation of the National Environmental Policy Act (NEPA) and its implementing regulations. Finally, the cumulative impacts analysis included in the DEIS is inadequate, particularly as it relates to the growing effects of climate change in this region.

## **1. The Only Action Alternatives Presented For This Project Are Likely To Have Significant And Unacceptable Adverse Impacts On Key Wildlife Habitat.**

The only action alternatives presented for this project are likely to have extremely significant and unacceptable adverse impacts on either the Lower San Pedro Valley or the Aravaipa watershed, both of which are widely recognized for their ecological value, providing key habitat for many species native to the Sky Island region, including numerous special status species. A map of sensitive areas and adjoining linkages is attached as Figure 1.

### ***A. Proposed routes through the lower San Pedro 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,<sup>1</sup> 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. 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 (CCI).<sup>2</sup>

The Bureau of Land Management's (BLM) "Preferred Alternative" bisects the lower San Pedro River Valley, compromises numerous lands that were acquired specifically for conservation purposes such as the 7B Ranch, and degrades lands identified as part of USFWS's proposed CCI, undermining past, present and reasonably foreseeable future investment in the long-term conservation of this area. This Project would have far-reaching, permanent impacts on the integrity of this currently intact landscape, and cannot be sufficiently mitigated as proposed.

### ***B. Proposed routes through the Aravaipa watershed***

Aravaipa Canyon is nationally recognized as one of Arizona's most valuable biological areas.<sup>3</sup> It is known for its scenic towering cliffs, lush riparian vegetation, multiple species of native fish and wildlife, and its astounding beauty. The perennial flow of Aravaipa Creek links three mountain ranges, three Wilderness areas, and maintains migratory corridors for both large mammals and birds, making it a crucial component to maintaining biodiversity and ecological integrity in southeastern Arizona. The Nature Conservancy recently conducted a detailed cumulative effects analysis for this Project that focused on the Galiuro-Aravaipa-Santa Teresa wildland complex and found that, in the

<sup>1</sup> 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.

<sup>2</sup> U.S. Fish and Wildlife Service Lower San Pedro River Collaborative Conservation Initiative Planning Update #1: <http://www.fws.gov/southwest/docs/LSPRCIPlanningUpdate1.pdf>

<sup>3</sup> Brown, D.E. 1989. Ecological values of Bureau of Land Management wilderness study areas in Arizona. The Wilderness Society. Washington, D.C.

southwest, this area is second only to the Grand Canyon region with regards to size and relative intactness.<sup>4</sup>

In 2005, SIA submitted detailed recommendations to the BLM regarding the Aravaipa Ecosystem Management Plan, proposing that the agency manage almost 35,000 acres of surrounding uplands and tributary drainages on the north and south rim of Aravaipa Canyon primarily to maintain or enhance wilderness characteristics, and to close existing roads and limit motorized uses in this area. We are submitting this report, attached as Appendix A, for the agency's consideration.

Both Subroute 4A (north of Mt. Graham) and Subroute 4B (Sulphur Springs Valley) would bisect this area, which is one of the largest unfragmented landscapes in Arizona, and would significantly compromise connectivity between the Galiuro Wilderness and the Aravaipa Canyon Wilderness. In addition to the permanent fragmentation resulting from the transmission line itself, a primary issue of concern in the Aravaipa watershed – and across the Sky Island region generally – is the impact that roads have on the area's hydrology, vegetation and wildlife, as well as on connectivity. The significance of the direct, indirect, and cumulative impacts that result from road construction, which are discussed in further detail below, cannot be overstated. In the Aravaipa Watershed this Project would have far-reaching, permanent impacts on the integrity of this currently intact landscape, and cannot be sufficiently mitigated as proposed.

**Recommendation:** In light of the significant and permanent adverse impacts to these important areas and the adjoining linkages that are likely to result from all the action alternatives presented, we strongly urge the BLM to choose the “No Action” alternative for this Project.

## **2. The DEIS Fails To Adequately Analyze Impacts To Regional Connectivity And Special Status Species.**

This proposal also likely poses a significant threat to the connectivity between areas of core habitat, potentially impacting the long-term resiliency of the Sky Island region. However, these impacts are not adequately assessed in the DEIS. The DEIS also fails to sufficiently analyze impacts to sensitive and special status species native to the Sky Island region that may be affected by the Project.

### ***A. Applicable NEPA regulations***

The purpose of an environmental impact statement is to provide a “detailed statement” of the environmental impacts associated with a proposed federal action.<sup>5</sup> The environmental consequences section “forms the scientific and analytic basis” for the comparison of alternatives.<sup>6</sup> This section discusses the direct and indirect effects of the alternatives, the significance of the environmental effects, and the means to mitigate adverse impacts.<sup>7</sup> Direct effects are caused by the action and occur at the same time and place, and indirect effects are “caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable.”<sup>8</sup> Cumulative impacts also must be considered when analyzing the Project's impacts; these impacts are discussed in a separate section of these comments.

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<sup>4</sup> Cumulative Effects Analysis for Proposed SunZia Transmission Line. Rob Marshall, Dale Turner, and Dan majka, The Nature Conservancy, June 18, 2012.

<sup>5</sup> 42 U.S.C. § 4332(2)(c)(i).

<sup>6</sup> 40 C.F.R. § 1502.16.

<sup>7</sup> Id.

<sup>8</sup> Id., 40 C.F.R. § 1508.8.

Effects to be considered in an environmental impact statement include “ecological (such as effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative.”<sup>9</sup> Indirect effects may include, among other things, “growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems.”<sup>10</sup>

When discussing the significance of a project’s effects, the agency must consider both the context and intensity of the action and its effects.<sup>11</sup> Consideration of the context of a project acknowledges that the significance of an effect “varies with the setting of the proposed action” and thus requires consideration of “several contexts such as society as a whole (human, national), the affected region, the affected interests, and the locality.” When considering context, “both short and long-term effects are relevant.”<sup>12</sup>

When considering the intensity of the effect, some of the factors to consider include: “Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas; The degree to which the effects on the quality of the human environment are likely to be highly controversial; The degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks; ... The degree to which the action may ... cause loss or destruction of significant scientific, cultural, or historical resources; [and] The degree to which the action may adversely affect an endangered or threatened species or habitat that has been determined to be critical under the Endangered Species Act,” among others.<sup>13</sup>

NEPA implementing regulations require agencies to “insure the professional integrity, including scientific integrity, of the discussions and analyses in environmental impact statements.”<sup>14</sup> In order to fulfill the purpose of NEPA, the information used as a basis for the analysis of a project’s effects “must be of high quality. Accurate scientific analysis, expert agency comments, and public scrutiny are essential to implementing NEPA.”<sup>15</sup> Implementing regulations require that an EIS is “supported by evidence that agencies have made the necessary environmental analyses.”<sup>16</sup> While conducting the necessary analyses, “the agency shall make every effort to disclose and discuss at appropriate points in the draft statement all major points of view on the environmental impacts of the alternatives including the proposed action.”<sup>17</sup>

With the effects analysis, NEPA imposes a duty on federal agencies to take a “hard look at environmental consequences” of a proposed action.<sup>18</sup> Under NEPA, “conclusory remarks [and] statements that do not equip a decisionmaker to make an informed decision about alternative courses of action, or a court to review the Secretary’s reasoning” are insufficient.<sup>19</sup> The agency cannot just

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<sup>9</sup> 40 C.F.R. § 1508.8.

<sup>10</sup> *Id.*

<sup>11</sup> 40 C.F.R. § 1508.27

<sup>12</sup> 40 C.F.R. § 1508.27(a).

<sup>13</sup> 40 C.F.R. § 1508.27(b).

<sup>14</sup> 40 C.F.R. § 1502.24.

<sup>15</sup> 40 C.F.R. 1500.1.

<sup>16</sup> 40 C.F.R. §§ 1500.2(b); 1502.24.

<sup>17</sup> 40 C.F.R. § 1502.9.

<sup>18</sup> *Nat. Resources Def. Council v. Morton*, 458 F.2d 827, 838 (D.C. Cir. 1972).

<sup>19</sup> *Nat. Resources Def. Council v. Hodel*, 865 F.2d 288, 298 (D.C. Cir. 1988).

simply state that impacts may occur, they must provide an analysis of the nature and extent of those impacts.<sup>20</sup>

This DEIS as currently drafted is clearly deficient, and does not meet the spirit or the letter of NEPA or its implementing regulations. We incorporate by reference the specific concerns regarding the DEIS effects analysis that are raised in SIA's comments submitted jointly with Defenders of Wildlife as well as the comments submitted by the other interested parties mentioned above, which we support and fully incorporate herein. In addition to those comments, SIA is also extremely concerned by BLM's failure to meaningfully assess the direct, indirect and cumulative impacts resulting from the significant road construction proposed as part of this Project, and the effects of the resulting fragmentation on wildlife corridors and reduction in overall regional resiliency that is likely to result from this project.

***B. The DEIS Fails to Adequately Assess Impacts Resulting from Road Construction***

Roads have significant direct and indirect impacts on the region's hydrology, vegetation and wildlife. Roads are known to have a zone of effect that can extend from 1/4 mile up to two miles from the actual footprint of the road. The amount of habitat that is fragmented and affected by the road is therefore much greater than just the network of roads.<sup>21</sup> Wilcox and Murphey (1983) concluded that habitat fragmentation is the most serious threat to biological diversity and is the main cause of the current extinction crisis. It is estimated that roads have an ecological effect on 94% of the United States.<sup>22</sup>

Roads are known to transform the physical conditions both on and adjacent to them by directly altering the soil density, temperature, soil-water content, light, dust, surface-water flow, pattern of run-off, and sedimentation.<sup>23</sup> Most sediment enters water bodies through overland flow, but dust from roads is a source of fine sediments, nutrients and contaminants to aquatic ecosystems.<sup>24</sup> This dust also settles on plants, with physical and chemical impacts that can disrupt photosynthesis, respiration and transpiration, physically injure plants,<sup>25</sup> and alter plant community structure.<sup>26</sup>

There is a positive feedback loop between primitive roads and habitat destruction. Roads in primitive areas lead to the destruction of habitat through activities such as poaching, grazing, campsite development, off-road vehicle joyriding, and the creation of unauthorized travelways off already established routes.<sup>27</sup> Once these activities are exhausted new roads are then required to reach more remote areas to continue the same activities.<sup>28</sup>

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<sup>20</sup> See *Defenders of Wildlife v. Babbitt*, 130 F.Supp. 121, 138 (D.D.C. 2001) (holding an EIS insufficient because while it stated that noise would increase and pronghorn and their habitat would be disturbed, there was no analysis of the nature and extent of the impacts on the pronghorn) (citing *NRDC v. Hodel*, 865 F.2d at 299).

<sup>21</sup> Hartley D.A., J.L. Thomson, P. Morton, E. Schlenker-Goodrich. 2003. Ecological effects of a transportation network on wildlife: A spatial analysis of the Upper Missouri River Breaks National Monument. The Wilderness Society, Washington D.C.

<sup>22</sup> Soule, Michael. 2000. Forget About Building the Road to Nowhere. *Christian Science Monitor*. October 20, 2000.

<sup>23</sup> Trombulak, Frissell. 2000. Review of the ecological effects of roads on terrestrial and aquatic communities. *Conservation Biology* 14(1): 18-26.

<sup>24</sup> Gjessing, E., E. Lygren, L. Berglund, T. Gulbrandsen, R. Skanne. 1984. Effect of highway runoff on lake water quality. *Science of the Total Environment* 33:247-257.

<sup>25</sup> Farmer, A.M. 1993. The effects of dust on vegetation, a review. *Environmental Pollution* 79: 63-75.

<sup>26</sup> Auerbach, N.A., M.D. Walker, D.A. Walker. 1997. Effects of roadside disturbance on substrate and vegetation properties in arctic tundra. *Ecological Applications* 7:218-235.

<sup>27</sup> Soule 2000.

<sup>28</sup> Crumbo, K. 2002. Review of the Ecological Impacts of Roads. Arizona Wilderness Coalition.



**The Impact of Roads on Hydrology:** Because of the nature of moving water, the physical effects from roads can be seen long distances from the direct incursion of the road.<sup>29</sup> Perennial flows, such as those found in Aravaipa Creek, are threatened by sediment that is washed from roads and enters the watershed, through both erosion and surface run-off. Perennial flows are also threatened by increased sediment entering the creek from road dust. It has been found that high concentrations of suspended sediment may directly kill aquatic organisms and impair aquatic productivity, including reducing the productivity, survival, and growth of fish.<sup>30</sup> This is of particular concern in habitat for special status species, such as the federally endangered loach minnow and spike dace, both of which have designated Critical Habitat that will likely be impacted by this Project.

Arid lands in the southwest are particularly vulnerable to disturbances caused by off-road vehicles which compact soil, change soil porosity, and decrease infiltration capacity. This leads to an increase in runoff during rainfall and a subsequent increase in soil erosion because rainfall cannot filter as readily into the soil.<sup>31</sup> Iverson et al. found that the largest increase in compaction of the soil per pass of vehicle tires occurred in the first few passes. Because such a large proportion of soil compaction damage occurs in initial vehicle passes, even so-called “temporary” road construction is a serious threat to the health of the affected watershed, even when those roads do not become established routes. The continued physical disturbances caused by roads can be reduced by remediation of the roads;<sup>32</sup> however, the consequences of sedimentary delivery are long term and cumulative.<sup>33</sup>

**The Impacts of Roads on Wildlife:** Roads impact animal behavior, energy expenditure and reproductive success.<sup>34</sup> Small rodents and invertebrates will avoid crossing roads even when the roads are narrow and unpaved, meaning even small roads contribute to the fragmentation of populations and create habitat patches that isolate organisms. Roads also have measurable effects on large mammals such as bighorn sheep, bear, deer and mountain lions. Roads were found to increase the heart rate and therefore the metabolic rate and energy expenditure of bighorn sheep in the proximity of the road, regardless of any human use on the road.<sup>35</sup> It has also been found that large mammals such as mountain lions have threshold road densities above which the habitat is no longer able to function naturally and support a sustained population of the large predators.<sup>36</sup>

**The Impact of Roads on Plants:** “Roads provide a major conduit for the spread of exotic plants into natural areas, particularly in arid and semiarid landscapes of the American West, where exotic annual

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<sup>29</sup> Richardson, E. V., B. Simmons, S. Karaki, M. Mahmood, and M. A. Stevens. 1975. Highways in the river environment: hydraulic and environmental design considerations training and design manual. U.S. Department of Transportation, Federal Highway Administration, Washington, D.C.

<sup>30</sup> Newcombe, C.P., and J.O.T. Jensen. 1996. Channel suspended sediment and fisheries: a synthesis for quantitative assessment of risk. *North American Journal of Fisheries Management* 16: 693-727.

<sup>31</sup> Iverson R.M., B.S. Hinckley, R.M. Webb. 1981. Physical effects of vehicular disturbances on arid landscapes. *Science* 212: 915-917.

<sup>32</sup> Weaver, W.E, M.M. Hektner, D.K. Hagans, L.J. Reed, R.A. Sonnevile, and G.J. Bundros. 1987. An evaluation of experimental rehabilitation work, Redwood National Park. Technical Report.

19. Redwood National Park, Arcata California; Harr. R.D., R.A. Nichols. 1993. Stabilizing forest roads to help restore fish habitat: a northwest Washington example. *Fisheries* 18: 18-22.

<sup>33</sup> Hagans, D.K., W.E. Weaver, M.A. Madej. 1986. Long-term on-site and off-site effects of logging and erosion in the Redwood Creek Basin, northern California. Pages 38-65 in Papers present at the American Geophysical Union meeting on cumulative effects. Technical bulletin 490. National Council for Air and Stream Improvement, New York.

<sup>34</sup> Trombulak & Frissel 2000

<sup>35</sup> MacArthur, R.A., R.H. Joshnston, and V. Geist. 1979. Factors influencing heart rate in free ranging bighorn sheep: a physiological approach to the study of wildlife harrassment. *Canadian Journal of Zoology* 57: 2010-2021.

<sup>36</sup> Forman, R.T.T. and R.D. Deblinger. 2000. The ecological road-effect zone of a Massachusetts (U.S.A.) Suburban Highway. *Conservation Biology* 14(1): 36-46.

grasses and forbs pose a major conservation challenge.”<sup>37</sup> Roads promote the spread of exotic species through the accidental movement of alien seeds<sup>38</sup> and through the high rates of soil disturbance on and adjacent to the road.<sup>39</sup> Frequently disturbed environments favor the growth of invasive species and some non-native species that are adapted to reproduce effectively in frequently disturbed habitat. Tyser and Worley note “both the construction of new roads and the improvement of existing roads appear to be important factors in the ongoing spread of exotic plants throughout [the] landscape.” Exotic plants provide poor habitat for wildlife that is adapted to utilize native vegetation, and can have serious long-term effects on native biodiversity. Research has shown the importance of maintaining and managing roadless areas and the restoration of areas to a roadless status.<sup>40</sup>

According to the DEIS, BLM estimated the potential impacts of the proposed road construction based on “the estimated ground disturbance associated with using existing access roads, or upgrading or constructing access roads. Estimates were based on assigned access levels that considered slope, miles of new or existing roads required, and potential spur roads required.” DEIS at 4-3. The BLM also assumes in its analysis that the impacts resulting from access roads will be “temporary and short term” because the Applicant promises to reclaim these areas within five years. DEIS at 4-1.

This exceedingly narrow analysis fails to take into account the fact that a road’s impact can extend far beyond its actual footprint. It also fails to take into account the fact that roads in this region, once created, are very likely permanent due to the extreme difficulties in decommissioning roads and revegetating disturbed areas in this arid region. These significant deficiencies call into question the reliability of the BLM’s assessment of impacts stemming from road construction.

In addition, the potential impacts of roads on hydrology, wildlife, vegetation and other resources are only summarily listed in each section, and are merely “conclusory remarks or statements,” without any consideration of the impacts’ context and intensity, in direct violation of NEPA implementing regulations and associated case law. In fact, because site-specific information is not available in the DEIS, the assessment of impacts resulting from the proposed road construction is speculative at best, which is simply not adequate for the purposes of NEPA.

**Recommendation:** We recommend that the BLM choose the “No Action” alternative. However, should the BLM choose one of the action alternatives, the agency must first revise or supplement this DEIS to include a meaningful and robust examination of the direct, indirect and cumulative impacts that are likely to result from road construction, including those impacts that are known to occur some distance from the road’s actual footprint. The revised or supplemental DEIS must also include an assessment of the construction of access roads that remain on the ground permanently, which is far more likely and reasonably foreseeable than successful reclamation of these areas within five years. Finally, the new assessment must provide site specific information and must examine impacts related to road construction in light of their context and intensity.

### ***C. The DEIS Fails To Adequately Consider The Likely Impacts To Wildlife Linkages***

By definition, an intact healthy landscape allows wildlife to move between core areas of protected wildland blocks where species, both plant and animal, have sufficient resources to survive,

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<sup>37</sup> Gelbard, J.L., J. Belnap. 2003. Roads as conduits for exotic plant invasions in a semiarid landscape. *Conservation Biology* 17(2): 420-432.

<sup>38</sup> Schmidt, W. 1989. Plant dispersal by motor cars. *Vegetation* 80: 147-152.

<sup>39</sup> Tyser, R.W. and C. A. Worley. 1992. Alien flora in grasslands adjacent to road and trail corridors in Glacier National Park, Montana (U.S.A.). *Conservation Biology* 6(2): 253-262.

<sup>40</sup> Strittholt, James R., and Dominick A. DellaSala. 2001. Importance of Roadless Areas in Biodiversity Conservation in Forested Ecosystems: Case Study of the Klamath-Siskiyou Ecoregion of the United States. *Conservation Biology* 15(6):1742-1754.

reproduce, and otherwise facilitate ecological processes. Plants and animals move across the landscape in many ways and for many complex reasons, and generally choose the most efficient or permeable movement corridors available on the landscape when connecting areas of suitable habitat. Poor connectivity between core habitats not only impacts large, far-ranging species, it can also significantly impact habitat specialists such as reptiles, rodents, ground birds, and others. When connectivity is reduced, it reduces opportunities for these smaller species to fulfill life-history needs and exposes them to increased risks of predation and mortality. Smaller animals and plants to a certain extent depend on local habitat connectivity to find mates, food and water resources, and refugia, and when they must modify movement patterns to meet those needs they expose themselves to higher mortality.

Animals move both north and south along the mountain ranges of the region and east and west across wide valleys depending on life-history characteristics and needs. Animals such as mountain lions, black bears, spotted owls, and jaguars can have home ranges and/or dispersal distances that cover multiple mountain ranges and intervening valleys. The ability for these and other species to disperse is paramount. “For fragmented populations, dispersal is key to survival...There is also strong theoretical support for the contention that the capacity for animals to move through the landscape is fundamental to conservation of natural ecosystems.”<sup>41,42</sup>

This project will potentially impact at least four important wildlife corridors as identified by the Arizona Wildlife Linkages Workgroup (AWLW), a multidisciplinary collaborative partnership that conducted a comprehensive, statewide assessment of large blocks of protected habitat, the potential wildlife movement corridors between those core blocks of habitat, and the factors threatening to disrupt these linkage zones.<sup>43</sup> According to the DEIS, the potentially impacted wildlife corridors include Galiuro–Pinaleño–Dos Cabezas Linkage, Rincon–Santa Rita–Whetstone Linkage, Tucson–Tortolita–Santa Catalina Mountains Linkage, and the Ironwood–Picacho Linkage. DEIS at 4-86.

For each of these linkages, the DEIS mentions the impacts of the transmission line itself, but it completely ignores the potentially far greater impacts that the associated road construction will have on the functionality of those migration corridors. For example, in the assessment of impacts to the Galiuro–Pinaleño–Dos Cabezas Linkage, the DEIS states that, “The Project would introduce a linear feature in the northern portion of the valley...however, transmission lines are porous to most wildlife movement, and the greatest potential for impacts would be during the development phase of the Project.” DEIS at 4-86. However, the statement that “transmission lines are porous to most wildlife movement” is not supported by any evidence, and in fact is incorrect for many species of sensitive wildlife. In addition, the assertion that “the greatest potential for impacts would be during the development phase of the Project” completely ignores the long term direct, indirect and cumulative impacts of associated road construction on this wildlife corridor.

The DEIS also summarily dismisses the cumulative impacts that this project will have on wildlife linkages, concluding without any evidence that the additive effects of this project on the potentially impacted linkages will be non-significant. For example, the DEIS simply dismisses the potential for any significant impacts in the Rincon–Santa Rita–Whetstone Linkage, stating that “I-10 and the UPRR are significant, pre-existing barriers to wildlife movement south of the Project, such that any

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<sup>41</sup> Opdam, P. 1990. Dispersal of fragmented populations: the key to survival. pp. 3-17 in *Species Dispersal in Agricultural Habitats* (Eds. R.G.H. Bunce and D.C. Howard). (Belhaven Press: London).

<sup>42</sup> Bennet, A.F. 2003. *Linkages in the Landscape: The Role of Corridors and Connectivity in Wildlife Conservation*. IUCN, Gland, Switzerland and Cambridge, UK. Xiv + 254 pp.

<sup>43</sup> Arizona Wildlife Linkages Workgroup. 2006. *Arizona's Wildlife Linkages Assessment*. Accessed at [http://www.azdot.gov/inside\\_adot/OES/AZ\\_WildLife\\_Linkages/assessment.asp](http://www.azdot.gov/inside_adot/OES/AZ_WildLife_Linkages/assessment.asp).



additive effects from Project development would not contribute substantially to a reduction of wildlife movement potential.” DEIS at 4-87.

Impacts to the Tucson–Tortolita–Santa Catalina Mountains Linkage are similarly dismissed because BLM asserts that “function of this linkage is compromised by the presence of existing linear developments, including the UPRR right-of-way and I-10. These features create a substantial barrier to wildlife movements through the area.” DEIS at 4-87. Likewise, impacts to the Ironwood–Picacho Linkage are dismissed for almost identical reasons, with the DEIS stating that “Function of this linkage is reduced by existing linear features that include the CAP, the UPRR, and I-10. ... The proposed Project ... would represent a very small contribution of further fragmentation to the linkage.” DEIS at 4-87.

There is no evidence that the impacts from this project, which includes the permanent placement of a transmission line and construction of numerous, likely permanent, associated access and maintenance roads “represents a very small contribution of further fragmentation to” these linkages. To the contrary, this project will likely significantly contribute to the ongoing fragmentation of these areas in the long-term, particularly considering the permanent right-of-way that will be associated with the transmission line as well as the numerous access and maintenance roads that will very likely remain on the landscape permanently. A map of the affected wildlife linkages that illustrates the severe fragmentation already occurring is attached as Figure 3.

**Recommendation:** We strongly urge the BLM to choose the “No Action” alternative. However, should BLM choose an action alternative, it must, at a minimum, take a hard look at the existing fragmentation in these areas and meaningfully assess this project’s contribution to that fragmentation in light of the significant impacts likely to result from the transmission line and associated roads.

**D. *The DEIS Fails to Adequately Consider the Likely Impacts to Special Status Species***

**Jaguar (*Panthera onca*):** The jaguar is a large and wide-ranging species whose range extends from southern Arizona and New Mexico south throughout North, Central, and South America. The home range for male jaguars is between nineteen and fifty-three square miles, and the home range for female jaguars is between ten and thirty-seven square miles; however, jaguars have also been observed roaming more broadly, with movements of 500 miles having been recorded. Jaguars are habitat generalists that utilize a wide range of habitat types. The past decade has witnessed a remarkable resurgence of the jaguar in its historical range within the United States. In 1997 the USFWS listed the U.S. population as endangered, and in August 2012, the USFWS proposed to designate close to 900,000 acres in the Sky Island region as Critical Habitat for this species.<sup>44</sup>

Jaguar presence in southeastern Arizona during the 20th century is well-documented. Historical records show that at least six jaguars were killed or photographed in the Patagonia Mountains alone between 1904 and 1965. In addition, a jaguar was photographed in the Baboquivari Mountains in 1996, and from 2001 to 2009, biologists monitored at least two jaguars on several mountain ranges, including the Atascosa, Tumacacori, Baboquivari, and Pajarito Mountains, as well as in the Altar Valley. In 2005, SIA documented jaguar presence approximately 15 miles south of the border near the Pajarito Wilderness Area, and in 2010 and 2011, SIA documented two different jaguars thirty miles south of the border in the Sierra Azul Mountains. In June 2011, the Arizona Game and Fish Department (AZGFD) reported a sighting in the Santa Rita Mountains, and most recently, in November 2011, the AZGFD confirmed a hunter’s jaguar sighting within the Sierra Vista District of the Coronado National Forest.

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<sup>44</sup> 77 Fed. Reg. 50214 (August 20, 2012).

This region is considered suitable habitat for the jaguar, and mountain ranges across the Coronado National Forest generally provide important wildlife migration corridors for jaguars moving north through the borderlands from Mexico into Arizona. With its newly proposed Critical Habitat designation, the USFWS officially considers many areas in southeastern Arizona to be “occupied” by the species, and regardless of previous sightings all habitat included in the proposed designation is considered essential to the conservation of the species.<sup>45</sup>

The DEIS fails to provide complete and specific information regarding historic and current jaguar sightings in Arizona and regionally, and the information relied upon in the DEIS is outdated and inaccurate. For example, the DEIS states, “since the northernmost breeding population of the Jaguar is more than 140 miles south of the United States-Mexico border, and farther from the study corridor, the potential for the Jaguar to occur within the Project study area is very low.” DEIS at 3-89. This statement has no basis in fact considering the multiple recent sightings and recently proposed Critical Habitat designation in this region, and it highlights the significant deficiencies of the analysis of potential impacts to this species.

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 BLM must analyze the impacts this Project 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.

**Recommendation:** We strongly urge the BLM to choose the “No Action” alternative. Any increase in linear barriers, road densities or other fragmentation of habitat in this region is likely to negatively impact this species. It is critical that habitat and movement corridors are protected to the greatest extent possible in order to preserve genetic diversity and healthy stable populations of these wide-ranging and critically endangered carnivores. Should the BLM choose an action alternative, the agency must consult with the USFWS and state wildlife agencies regarding conservation measures for this species and mitigate consistent with the proposed Critical Habitat designation and current recovery plan for this species.

**Ocelot (*Leopardus pardalis*):** The ocelot is a primarily nocturnal meso-carnivore whose range extends from southern Arizona and southern Texas through North, Central, and South America into northern Argentina and Uruguay. Ocelot habitat varies greatly throughout its distribution, from tropical rainforest, pine forest, gallery forest, riparian forest, semideciduous forest, and dry tropical forest, to savanna, shrublands, and marshlands. The Sonoran subspecies found in Arizona has been documented repeatedly using madrean oak woodland habitat, which is found throughout the Sky Island region.

Despite the fact that ocelots are notoriously difficult to detect, particularly in low densities such as they probably exist in their northern range, there have been multiple sightings in southeastern Arizona in recent years, and there is a known breeding population of ocelots in Sonora, Mexico, thirty miles south of the international border. In November 2009, SIA documented the first live ocelot in approximately forty years in southern Arizona, and in 2011 and 2012 the Arizona Game and Fish Department documented ocelots on several occasions in the Huachuca Mountains, most recently in April 2012.

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<sup>45</sup> *Id.* at 50227.

Road mortality has consistently been documented as the leading cause of ocelot decline,<sup>46</sup> while areas of high road densities are likely to affect habitat preference by the cat.<sup>47</sup> In 2008, SIA documented a road-killed ocelot on Highway 15 in northern Sonora, approximately 25 miles south of the international border. In 2010, the AZGFD reported a road-killed ocelot on highway 60 near Superior, Arizona. This ocelot was confirmed to be of wild origin.<sup>48</sup> In addition to increased road-kill, high road densities contribute to habitat destruction, increased human disturbance, and risks of poaching.

Mountain ranges across the Coronado National Forest generally provide important habitat and migration corridors for ocelots moving north through the borderlands from Mexico into Arizona. The recent ocelot sightings reveal the geographic distribution of an established trans-boundary population and confirm the species' presence in Arizona.

The DEIS fails to provide complete and specific information regarding historic and current ocelot sightings in Arizona and regionally, and the information relied upon in the DEIS is outdated and inaccurate. For example, the DEIS states that, "Recent records of Ocelots in Arizona probably represent transient individuals (AZGFD 2004a). Suitable habitat is likely limited to riparian areas such as remnant segments of gallery forest along the San Pedro River that have connectivity with habitat farther south in Mexico." DEIS at 3-90. There is no evidence to support any part of this statement, and in fact the best available data indicates that suitable habitat is not limited to riparian areas but instead includes madrean oak woodland habitat, which has been repeatedly used by the ocelots recently documented in this region. 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 DEIS also states that "a dead Ocelot was recovered in 2009 from Gila County, Arizona," but also implies that it is unknown whether the cat was of wild origin or not. DEIS at 3-90. In fact, this cat was confirmed to be of wild origin, and very likely traveled through the Project's study corridor. Finally, the DEIS erroneously states that "the potential for the Ocelot occurring within the study corridor is low in Arizona." DEIS at 3-90. However, the best available science indicates that this is incorrect, with at least two recent ocelot sightings occurring near or within the Project study corridor.

**Recommendation:** We strongly urge the BLM to choose the "No Action" alternative. Any increase in linear barriers, road densities or other fragmentation of habitat in this region is likely to negatively impact this species. It is critical that habitat and movement corridors are protected to the greatest extent possible in order to preserve genetic diversity and healthy stable populations of these wide-ranging and critically endangered carnivores. Should the BLM choose an action alternative, the agency must consult with the USFWS and state wildlife agencies regarding conservation measures for this species and mitigate consistent with the current draft recovery plan, which is being developed by the USFWS for this species and will likely be finalized prior to the construction of SunZia.

**Southwest Willow Flycatcher (*Empidonax traillii extimus*):** The endangered southwestern willow flycatcher is found at various locations in the project area, with designated critical habitat along

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<sup>46</sup> Haines et. al., 2005.

<sup>47</sup> 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.

<sup>48</sup> De Young, R. and J. Holbrook. (2010). Analysis and interpretation of ocelot material lineages from road-killed ocelots in Texas and Arizona. A report to the US Fish and Wildlife service and Texas Parks and Wildlife Department. Texas A&M University, Kingsville.

numerous riparian corridors – the species’ breeding habitat – in the region (See Fig. 2). This species is threatened by habitat loss, particularly in these riparian areas.

**Recommendation:** We strongly urge the BLM to choose the “No Action” alternative. Should the BLM should choose an action alternative, it must 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.

**Loach minnow (*Tiaroga cobitis*) and spikedace (*Meda fulgida*):** Aravaipa Canyon contains seven native fish species including the federally listed spikedace and loach minnow. The BLM notes that “no other Arizona stream is known to contain so many native fish in the absence of substantial numbers of introduced species.”<sup>49</sup> The USFWS has designated Critical Habitat for both the loach minnow and spike dace in Aravaipa Canyon (See Fig. 2) and other areas in Arizona and New Mexico. Threats to both species include predation, groundwater pumping, surface water diversions, impoundments, and channelization. These changes to the flow regime may decrease the amount of available habitat.

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.

**Recommendation:** We strongly urge the BLM to choose the “No Action” alternative. Should the BLM should choose an action alternative, it must consult with the USFWS regarding conservation measures for the loach minnow and spoke dace, and in consultation with USFWS implement avoidance, minimization, and mitigation measures consistent with the recovery plans and Critical Habitat designations for each species.

**Sensitive Frog Species:** The Sky Island region is considered a herpetological hotspot, as it contains the highest diversity of whiptail lizards and rattlesnakes in the United States, supports rare and unique animals such as the Chiricahua leopard frog and Sonora tiger salamander, and plays host to amazing ecological phenomena such as the explosive-breeding desert anuran assemblage that emerges from the ground during the monsoon and where up to ten species of toads and an occasional frog try to out- call and out-breed their brethren. Several sensitive frog species are known to occur in the project area (See Fig. 2).

Impacts from roads and road systems are varied<sup>50</sup> but include direct mortality, vectors for invasive species and disease, loss of habitat, barriers to dispersal and other movements, sedimentation in aquatic systems, access to illegal collection areas, and noise and light impacts to behavior and movement.

The DEIS greatly downplays these and other potential impacts to amphibian species. In addition, the DEIS assumes that such species will only be affected in areas where perennial water occurs.

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<sup>49</sup> BLM, 1988.

<sup>50</sup> Kassar, C. 2005. Motorized recreation at a crossroads: lessons from the past converge with management practice of the future. Friends of the Inyo.

However, intermittent and ephemeral waters can be very important to a variety of species, including various amphibians.

The BLM must consider ephemeral and intermittent waters, not just perennial streams. Ephemeral and intermittent drainages can be of great importance to these species.<sup>51</sup> For example, regarding the federally listed Chiricahua leopard frog, the USFWS states that, “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.”<sup>52</sup>

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.

**Recommendation:** We strongly urge the BLM to choose the “No Action” alternative. Should the BLM should choose an action alternative, it must consult with USFWS regarding federally listed species regarding conservation measures and implement avoidance, minimization, and mitigation measures consistent with the recovery plans and critical habitat designations for each species. The BLM must also consider the importance of ephemeral and intermittent waters, not just perennial streams, for all affected amphibian species.

#### **4. The Stated Purpose And Need For This Project Is Inconsistent With The Scope Of “Reasonable” Alternatives Considered In The DEIS.**

The stated purpose and need for this project is inconsistent with the scope of reasonable alternatives considered in the DEIS, in violation of NEPA. The BLM is required to “specify the underlying purpose and need to which the agency is responding in proposing the alternatives including the proposed action.”<sup>53</sup> The agency must identify the purpose and need to which it is responding before it can determine the scope of reasonable alternatives that should be considered in order to meet that purpose and need. “The stated goal of a project necessarily dictates the range of ‘reasonable’ alternatives.”<sup>54</sup> The Council for Environmental Quality has made it clear that when an agency is determining the scope of alternatives to be considered, the emphasis must be on what is ‘reasonable,’ not on whether a private proponent or applicant prefers. “Reasonable alternatives include those that are practical or feasible from a technical and economic standpoint and using common sense, rather than simply desirable from the standpoint of the applicant.”<sup>55</sup>

The purpose of this project has been repeatedly framed by both the Applicant and the BLM as meeting a need for increased capacity for transmission of electricity generated from “primarily renewable energy sources.” This framing continues, despite the numerous legitimate complaints made by SIA and other interested parties that the true purpose of this project actually seems to be to increase transmission capacity for natural gas generation, which seems particularly evident in light of the fact that the Applicant itself had previously made clear a primary purpose of this project is to provide transmission capacity for its own proposed 1,000-MH natural gas fired power plant located in Bowie AZ, which until very recently was considered an integral part of the SunZia transmission line project.

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<sup>51</sup> 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.

<sup>52</sup> *Id.*

<sup>53</sup> 40 CFR §1502.13.

<sup>54</sup> *City of Carmel-by-the-Sea v. Dept. of Trans.*, 123 F.3d 1142, 1155 (9th Cir. 1997).

<sup>55</sup> Forty Most Asked Questions Concerning CEQ’s NEPA Regulations, 48 Fed. Reg. 18,026 (March 16, 1981).



While it is clear that, in light of these complaints both the agency and Applicant have tried to temper their description of this project's purpose and need, the fact remains that transmission of renewable energy continues to be put forth by both the BLM and the Applicant as the primary goal of this project. In fact, the BLM states that "The Renewable Energy Order (Secretarial Order 3285) —which makes the production, development, and delivery of renewable energy a top priority—as well as the energy goals of the EPOA, supports the need for the Project because implementing it would encourage the development of additional renewable generation sources." DEIS at 1-5 (emphasis added).

The Applicant's also clearly states that transmitting renewable energy is a primary objective, asserting that "the project is needed to increase available transmission capacity in an electrical grid that is currently insufficient to support the development, access, and transport of additional energy generating resources, including renewable energy, in New Mexico and Arizona." DEIS at 1-7. The Applicant also 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)," and that "the Project would be colocated with areas of undeveloped renewable resource potential to provide a path for energy delivery." DEIS at 1-5 and 1-6 (emphasis added).

The issue of whether the stated purpose and need for this project is misleading and incomplete is thoroughly addressed in comments SIA submitted jointly with Defenders of Wildlife, as well as those comments submitted by the Sierra Club, the Cascabel Working Group, the Tucson Audubon Society, and others. We concur with these comments and will not reiterate them here. However, assuming that the purpose and need of this project is in fact to transmit primarily renewable energy, the agency has clearly failed to consider a reasonable range of alternatives that could potentially meet the stated purpose and need, in direct violation of NEPA implementing regulations.

This is evident because, while every single alternative considered intersects with the Applicant's planned Bowie natural gas plant – a non-renewable energy source – the DEIS does not include a single alternative that intersects with the Afton Solar Energy Zone, which was identified through the BLM's own effort to identify areas for future renewable energy development.<sup>56</sup> This blatant omission certainly lends additional credence to the accusation that the agency and the applicant have misled the public as to the true purpose and need of this project, but if this is not the case, the public can then only assume that the BLM has failed to present a reasonable range of alternatives as mandated by NEPA.

**Recommendation:** According to NEPA implementing regulations, the purpose and need for this project must dictate the scope of reasonable alternatives presented in the DEIS. This is not the case with this project. If the purpose and need of this Project is to transmit primarily renewable energy, which seems to be the emphasis of both the agency and the applicant, then the scope of alternatives currently presented is clearly deficient and in violation of NEPA.

However, if the purpose and need is to simply increase transmission capacity for all types of energy, then the repeated statements and references to this project's potential to transmit renewable energy in the analysis must be removed, including the repeated rationale found throughout the DEIS that the negative environmental and economic impacts likely to result from this project will somehow be mitigated by an increase in renewable energy production. Either way, the DEIS does not meet the spirit or letter of NEPA as currently drafted and is inadequate.

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<sup>56</sup> See Bureau of Land Management and U.S. Department of Energy. Final Programmatic Environmental Impact Statement (PEIS) for Solar Energy Development in Six Southwestern States, July 2012.

## 5. The Cumulative Impacts Analysis Is Inadequate

The cumulative impacts analysis included in the DEIS is insufficient, particularly as it relates to the growing effects of climate change in this region. Under NEPA, BLM must take a “hard look” at the effects of proposed actions, including, “ecological, aesthetic, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative.”<sup>57</sup> A “cumulative impact” is one whose impact on the environment “results from the incremental impact of the Project when added to past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions.”<sup>58</sup> Cumulative impacts “can result from individually minor but collectively significant actions taking place over a period of time.”<sup>59</sup> In sum, the EIS must account for the direct, indirect, cumulative, and connected actions associated with the proposed transmission line.

When discussing the significance of an effect, the agency must consider both context and intensity, which includes determining “whether the action is related to other actions with individually insignificant but cumulatively significant impacts. Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment. Significance cannot be avoided by terming an action temporary or by breaking it down into small component parts.”<sup>60</sup>

An EIS must “catalogue adequately the relevant past projects in the area.”<sup>61</sup> It must also include a “useful analysis of the cumulative impacts of past, present and future projects,” which requires “discussion of how [future] projects together with the proposed . . . project will affect [the environment].”<sup>62</sup> The EIS must analyze the combined effects of the actions in sufficient detail to be “useful to the decisionmaker in deciding whether, or how, to alter the program to lessen cumulative impacts.”<sup>63</sup> “Detail is therefore required in describing the cumulative effects of a proposed action with other proposed actions.”<sup>64</sup>

**Recommendation:** Cumulative impacts that must be considered as part of this draft EIS include 1) those impacts resulting from the construction of other transmission lines slated for this region, including the proposed Southline transmission line, which is recently released its notice of intent and conducted a public scoping process; 2) impacts resulting from other past, present and reasonably foreseeable linear utilities proposed for this region, including gas pipelines; 3) impacts from the development of wind, solar, natural gas, coal, and possibly geothermal generation plants that would otherwise not be feasible without the transmission access provided by this project; 4) impacts of existing and planned roads on BLM lands, state lands and other lands in the vicinity of this project that are already contributing to habitat fragmentation, regardless of the agency planning those roads; 5) impacts resulting from new infrastructure needed to accommodate construction workers such as roads or housing; and 6) impacts associated with climate change (see below).

### A. Cumulative Impacts of Climate Change

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<sup>57</sup> 40 C.F.R. § 1508.8.

<sup>58</sup> 40 C.F.R. § 1508.7 (emphasis added)

<sup>59</sup> 40 C.F.R. § 1508.7.

<sup>60</sup> 40 C.F.R. § 1508.27(b)(7).

<sup>61</sup> *City of Carmel-by-the-Sea v. U.S. Dep't. of Trans.*, 123 F.3d 1142, 1160 (9th Cir. 1997).

<sup>62</sup> *Id.*

<sup>63</sup> *Id.* at 1160 (internal citations omitted).

<sup>64</sup> *Muckleshoot Indian Tribe v. U.S. Forest Service*, 177 F.3d 800, 810 (9th Cir. 1999). *See Also Neighbors of Cuddy Mountain v. U.S. Forest Service*, 137 F.3d 1372, 1379 (9th Cir. 1998); *Blue Mountains Biodiversity Project v. Blackwood*, 161 F.3d 1208, 1214-15 (9th Cir. 1998).

Department of the Interior Secretarial Order 3226, as amended in 2001, requires BLM to “consider and analyze potential climate change impacts. . . . when making major decisions.” Federal case law also underscores the responsibility of federal agencies to scrutinize reasonably foreseeable cumulative environmental impacts from carbon dioxide emissions involving coal-fired power generation through the NEPA review process.<sup>65</sup>

Recent warming in the southwest is the most rapid in the Nation and significantly more than global averages in some areas, with average temperatures in the region projected to rise by 2.5 to 5.5 degrees Fahrenheit by 2050.<sup>66</sup> In Arizona, winter precipitation is already becoming more variable with a trend toward both more frequent extremely dry and extremely wet winters.<sup>67</sup> On the global and national scale, precipitation patterns are shifting with more rain falling in heavy downpours that increase the risk of flooding.

In addition, decadal-scale Pacific Ocean circulation persistence can result in long-term drought, which can drastically reduce water supplies, as demonstrated in the extremely dry conditions between 1999 and 2005 and during the 1950s. The Southeastern Planning Area and the Active Management Area as defined by the Arizona Water Atlas experienced a total departure from normal of -27.6 inches and -35.1 inches respectively for the time period 1940-1960. While the current drought may reflect precipitation conditions similar to those of the 1950s drought, temperatures during the last decade are almost 2 degrees higher, and this warming trend will affect the severity of drought.<sup>68</sup>

One of the most well documented impacts of climate change on wildlife is a shift in the ranges of species.<sup>69</sup> As animals migrate, landscape connectivity will be increasingly important.<sup>70</sup> Decommissioning roads in key wildlife corridors will improve connectivity and be an important mitigation measure to increase resiliency of wildlife to climate change.

**Recommendation:** The effects of climate change will not play out on pristine systems, but will interact with existing stressors on the landscape and will generally exacerbate impacts to natural resources, and reduce effectiveness of mitigation and reclamation efforts that fail to take climate change impacts into consideration. It will also increase the need for wildlife species to migrate in order to adapt to the changing climate, which highlights the importance of connectivity and maintaining functionality of wildlife corridors.

It is extremely important that the BLM consider the impacts associated with climate change as it conducts its cumulative impacts analysis for this project. Among other things, this includes the

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<sup>65</sup> See *Mid-states Coalition for Progress v. Surface Transportation Board*, 345 F.3d 520 (8th Cir. 2003) (finding NEPA violation by failing to consider emissions from increased coal consumption from new rail lines carrying coal); *Border Power Plant Working Group v. Department of Energy*, 260 F.Supp.2d 997 (S.D. Cal. 2003) (finding NEPA violation for failure to analyze reasonably foreseeable cumulative impacts from carbon dioxide with proposed transmission lines).

<sup>66</sup> Karl, T. R., J. M. Melillo, and T. C. Peterson (eds.). 2009. *Global Climate Change Impacts in the United States*. Cambridge University Press.

<sup>67</sup> *Id.*

<sup>68</sup> Arizona Department of Water Resources. 2009. *Arizona Water Atlas*. Accessed at <http://www.azwater.gov/AzDWR/StatewidePlanning/WaterAtlas/Volume1ExecutiveSummary.htm>

<sup>69</sup> Parmesan, C. 2006. Ecological and evolutionary responses to recent climate change. *Annual Review of Ecology, Evolution, and Systematics* 37: 637-669.

<sup>70</sup> Holman, I.P., R.J. Nicholls, P.M. Berry, P.A. Harrison, E. Audsley, S. Shackley, and M.D.A. Rounsevell. 2005. A regional, multi-sectoral and integrated assessment of the impacts of climate and socio-economic change in the UK. Part II. Results. *Climatic Change*, 71, 43-73.

likelihood that the SunZia Project will carry non-renewable energy sources, such as coal, that produce significant GHG emissions.

Thank you for your consideration of these and all other relevant issues. Please continue to include SIA as an interested party on this matter and direct all future public notices and documents to Jenny Neeley, Conservation Policy Director & Legal Counsel, at the address above.

Sincerely,



Melanie Emerson  
Executive Director  
& Legal Counsel



Jenny Neeley  
Conservation Policy Director