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Effects of large scale solar installations on southwestern wildlife

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The need for greater development of clean energies including solar technology has been generally well received by the public and is widely accepted as a necessary shift to reduce dependence on foreign oil and domestic coal while allowing for continued energy consumption rates. However, the placement of large-scale solar installations has proven problematic for wildlife and threatens to degrade and fragment habitat. Currently, many project sites are located in remote areas, great distances from the cities they are intended to serve. This results in considerable energy loss during transmittal from source to sink as well as collateral environmental impacts on sensitive desert environments. Habitat amount is positively correlated with biodiversity across taxa and one of the greatest threats is human land use resulting in loss, fragmentation and degradation of habitat. Many species are impacted by this development. The Mojave Desert tortoise (*Gopherus agassizii*), a federally threatened species is endemic to the Mojave and often found in high densities in solar development areas. This species requires ecological heterogeneity and has a large home range ($\geq 1 \text{ km}^2$). Strategies for recovery include protecting existing tortoise populations while reducing habitat loss which is presently at odds with large-scale solar installation placement in the southwest. Currently, translocation and monitoring are accepted minimization strategies; however, neither addresses habitat loss which is essential for recovering populations. Additionally, many species of birds including songbirds, raptors and waterfowl living in or migrating through the Mojave, fly directly over solar energy development zones. Due to the remote placement of installations in previously undisturbed areas factors such as the appearance of arrays as bodies of water to passing birds has resulted in large losses (3504 bird mortalities from October 2013-October 2014) which are likely to continue and could lead to substantial population declines across avian species. A solution to this issue which allows for continued development of solar energy while maintaining intact wilderness areas for the sustainable existence and support of southwestern biodiversity is siting solar installations closer to the urban centers they feed. Not only would this result in a more efficient transfer of energy, it allows for environmentally responsible solar energy development with a reduced footprint and respect for the unique ecological diversity and sensitivity of the American southwest.

Biography

Marija Minic has a Master of Sciences in Biodiversity and Conservation from the University of Leeds in the U.K. Growing up in Toronto, Canada, she became familiar with the vegetation and birds of the Carolinian forests of southern Ontario, then travelled to Hong Kong for 4.5 years, where she studied the effects of boat traffic on the diving behaviour of the Chinese white dolphin (sub-population of the Indo-Pacific humpback dolphin, *Sousa chinensis*). Also in Asia, she worked in the rainforest of Negros Island in the Philippines, then moved to the Mojave Desert in 2008, where she has worked on desert flora and fauna, with an emphasis on Mojave desert tortoises (*Gopherus agassizii*), to the present. She will speak on the effects of large-scale solar plants on Mojave desert wildlife.

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