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## Reduced ecosystem services of desert plants from ground-mounted solar energy development

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Deserts are prioritized as recipient environments for solar energy development; however, the impacts of this development on desert plant communities are unknown. Desert plants represent long-standing ecological, economic and cultural resources for humans, especially indigenous peoples, but their role in supplying ecosystem services (ESs) remains understudied. We measured the effect of solar energy development decisions on desert plants at one of the world's largest concentrating solar power plants (Ivanpah, California; capacity of 392 MW). We documented the negative effects of solar energy development on the desert scrub plant community. Perennial plant cover and structure are lower in bladed treatments than mowed treatments, which are, in turn, lower than the perennial plant cover and structure recorded in undeveloped controls. We determined that cacti species and Mojave yucca (*Yucca schidigera*) are particularly vulnerable to solar development (that is, blading, mowing), whereas *Schismus* spp.—invasive annual grasses—are facilitated by blading. The desert scrub community confers 188 instances of ESs, including cultural services to 18 Native American ethnic groups. Cultural, provisioning and regulating ESs of desert plants are lower in bladed and mowed treatments than in undeveloped controls. Our study demonstrates the potential for solar energy development in deserts to reduce biodiversity and socioecological resources, as well as the role that ESs play in informing energy transitions that are sustainable and just.