Ecological impact of solar power generation on land occupation

We conducted a meta-analysis to assess the patterns of ecosystem functions in response to land-based solar power development across various terrestrial ecosystems.

Using the state of California (United States) as a model system, our study shows that the majority of utility-scale solar energy (USSE) installations are sited in natural environments, namely ...

Solar farms, particularly utility-scale projects, require substantial tracts of land to accommodate the solar panels and associated infrastructure. This can lead to habitat loss, ...

By quantifying the impacts of land transformation on an important ecosystem service (soil carbon losses), we seek to improve the methodology for land-related endpoint impacts of ...

This paper systematically examines the potential ecological consequences of photovoltaic power projects throughout their entire lifecycle--construction, operation, and decommissioning--on land ...

In this work, the potential solar land requirements and related land use change emissions are computed for the EU, India, Japan and South Korea. A novel method is developed within an integrated ...

Solar panels can significantly affect ecohydrology by redistributing moisture from precipitation and casting a significant amount of shade. Account for potential threats from noxious and invasive ...

The transition to renewable energy exacerbates direct land occupation by infrastructure, leading to habitat degradation and biodiversity loss. However, biodiversity loss driven by the ...

Published in the Journal of Environmental Management, the research tackles a critical but underexplored issue: how we measure the land footprint of utility-scale solar projects and what ...

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