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Integrating Avian Habitat Distribution Models into a Conservation Planning Framework for the San Joaquin River, California, USA

Given the limitations imposed by logistical and financial constraints, the effectiveness of ecological restoration and land protection may be improved by planning that uses ecologically-based methods for prioritizing actions.

Efforts are currently underway to restore river flows to the San Joaquin River in California's Central Valley. Although fish are the primary restoration target, complementary efforts are being designed to protect and restore riparian and floodplain habitats to benefit the larger ecological community.

To inform these efforts, we integrated bird habitat models into an established conservation planning process designed to identify multiple-benefit restoration opportunities on the San Joaquin River.

We generated bird-habitat indices for emergent marsh, early successional riparian vegetation, and mid- and late successional riparian vegetation. We then averaged these indices on 18 sites under consideration along the San Joaquin River and used the average habitat score to rank the sites based on their existing bird habitat.

Considering these bird-habitat rankings together with expert opinion rankings based on existing habitat quality, restoration potential, and flood management opportunities allowed us to identify sites that ranked high across multiple criteria.

Our results illustrate a relatively simple process by which wildlife habitat models can be integrated into conservation planning.

Main Points

- We used bird distribution models to rank existing habitat value of potential restoration sites along the San Joaquin River.
- Considering information from the habitat models together with information on restoration potential and flood management opportunities allowed us to identify sites that ranked high across multiple criteria.
- These results illustrate a simple process by which wildlife habitat models can be combined with other information to identify and prioritize multi-benefit restoration projects.

Paper citation:

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