

**CONSERVATION AND ECOLOGY OF BREEDING LANDBIRDS IN A
RIPARIAN RESTORATION CONTEXT**

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ABSTRACT

While \$14 to \$15 billion have been invested in 37, 000+ river and stream restoration projects in North America since 1990, only 10% are monitored for biological function. My work examines factors that affect landbird demographics in the context of floodplain forest restoration on a large, regulated river in an agricultural valley. I used infrared, time-lapse video to identify agriculture-associated nest predators as a primary source of nest mortality in the Sacramento River Valley, California. Then, using 10 years of empirical nest, vegetation, and hydrology data, combined with GIS land cover data, I compared competing *a priori* hypotheses to explain nest predation on two open-cup nesting species, then predicted nest survival rates under varying conditions, based on the best-supported models.

Nest mortality rates on restoration and mature forest sites were comparable, indicating that restoration sites are functioning as well as forest sites as breeding habitat, in terms of nest predation. Results for the Spotted Towhee (*Pipilo maculatus*) indicate that nest predation, in addition to nest parasitism, by the Brown-headed Cowbird (*Molothrus ater*) may be a critical limiting factor for this population. Results for the Black-headed Grosbeak (*Pheucticus melanocephalus*) indicate that flood timing influences nest predation, as nest predation rates are lower when the median flood date is closer to the onset of nesting, suggesting that spring floods regulate nest predator populations. This study underscores the importance of large-scale horticultural habitat restoration, combined with naturalization of the river flow regime and reconnection of the river and floodplain to songbird populations in California's Central Valley.