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**Contact:**  
Renée Cormier 415-868-0655 ext 316

**E-mail:**  
[rcormier@prbo.org](mailto:rcormier@prbo.org)

## Assessing migratory stopover site quality for birds during fall migration along two California rivers

To be effective, conservation of migratory birds must address their breeding, wintering, and migratory life stages. Identifying high-quality stopover habitat – places where birds stop to refuel during migration – is a key part of this strategy. In the Central Valley of California, where 95% of floodplain forest has been lost, very little information exists on the stopover use and quality of the remaining forests for migrating landbirds. Our goal was to evaluate stopover habitat quality for birds along the San Joaquin and Mokelumne rivers.

To evaluate stopover habitat quality, we used data from mist netting stations to 1) compare change in mass of individuals that were recaptured at least once, 2) assess body condition change within a single day as well as over the course of the migratory season, and 3) calculate the rate of hourly mass change for migrant species, so that our results were comparable to other studies.

For individual birds that were recaptured, all species increased in mass during their stopovers along both rivers. All species in our study (Willow Flycatcher, and Orange-crowned Warbler, Yellow Warbler, and Wilson's Warbler) showed significant increases in body condition over the course of the day, although for most species this was true primarily of adult birds and not of young birds.

When we compared rates of hourly mass change in Wilson's Warblers at our study sites to those in previously published studies from other locations in the United States and Canada, we found the rate to be higher at our sites.

While the loss and degradation of riparian habitat in the Central Valley has been immense, habitat and water flow restoration efforts are occurring that will likely benefit bird populations. The overall positive changes in body mass and the

magnitude of those changes suggest that although highly modified, riparian habitat in the Central Valley remains important to migrating landbirds.

### Main Points

- We evaluated stopover site quality for migrating landbirds by evaluating change in body mass and physical condition using mist-netting
- Birds at our sites increased mass and condition. Wilson's Warblers had greater rates of mass increase at our site than has been reported in other studies.
- Evaluating changes in mass for migratory birds can be a useful tool for identifying high-quality stopover sites.
- The little remaining riparian habitat in the Central Valley is important to migrating landbirds.

Cormier, R. L., T. Gardali, J. K. Wood. 2013. Assessing migratory stopover site quality for birds during fall migration along two California rivers. *Western North American Naturalist* 73(1): 72-79. [http://www.prbo.org/refs/files/12225\\_Cormier2013.pdf](http://www.prbo.org/refs/files/12225_Cormier2013.pdf) PRBO publication # 1904.