

A shorebirds guide to management of interior, freshwater wetlands

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Migration and the replacement of flight feathers (molt) are significant aspects of a shorebird's annual cycle.

Replacing feathers is rarely done by shorebirds during migration because it results in reduced flight performance and increased predation risk. Some species pause migration to replace flight feathers, resulting in long stopover periods at sites with plentiful and reliable resources.

Stopover sites can be linked to wintering areas to identify networks of wetlands where conservation activities should be coordinated to have the greatest benefit. Coordination is particularly valuable for interior, freshwater wetlands because their availability is highly variable and often ephemeral because of water policy, management actions, and climatic variation.

In collaboration with The Nature Conservancy and Audubon California, we attached small radio-tags to Long-billed Dowitchers migrating through the Klamath

Basin, situated along the Oregon-California border, to study their molt, how long they stayed at this stopover site, and whether they migrated to California's Central Valley for winter.

We found the Klamath Basin is a molt migration staging area where dowitchers stay for ≥ 32 days on average to undertake at least a portion of their flight feather molt. After leaving the Klamath Basin, about 57% wintered in the Central Valley. Dowitcher locations in the Central Valley demonstrated similar use of the Sacramento Valley and Grasslands Ecological Area in the San Joaquin Basin, while the Sacramento-San Joaquin Delta was less used.

Our study shows that migrating dowitchers rely on Klamath Basin wetlands for plentiful resources over long stays from late-July to October. During this time, it appears that August is the most critical month to manage for molting dowitchers. Once they leave the region, most move on to the Central Valley, suggesting that

coordinated management for shorebirds in the Klamath Basin and Central Valley will benefit both shorebirds and people by allocating freshwater when and where it is needed most.

Main Points

The Klamath Basin is a molt migration staging area where Long-billed Dowitchers stay at least 32 days on average from July-October.

August is a critical month for molting Long-billed Dowitchers, when up to half of their primary flight feathers can be growing at once.

Water management coordination between the Klamath Basin and California's Central Valley will optimize use of limited freshwater supplies.

Barbaree, B.A, M.E. Reiter, C.M. Hickey, and G.W. Page. 2016. [Molt migration and migratory connectivity of the Long-billed Dowitcher](#). Journal of Wildlife Management. 80(2): 256-265.