

The Hidden Nightlife of Wintering Dunlin within an Agriculture-Wetland Mosaic

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The Sacramento Valley – which is the northernmost portion of California’s Central Valley – contains an extensive complex of freshwater wetlands and flooded agriculture from December to March.

Understanding what time of day these habitats are used by shorebirds allows conservation planners and land managers to realize their relative importance, as well as how that changes from winter to spring.

Darkness comprises up to two-thirds of each day during winter. However, the nighttime locations of shorebirds remained a mystery until Point Blue researchers attached small radio-tags to wintering Dunlin (*Calidris alpina*) and tracked their locations during day and night within Colusa National Wildlife Refuge and nearby rice fields in the Sacramento Valley.

At night, radio-tagged Dunlin used rice fields exclusively until March, when they shifted to spending nights only in wetlands within the refuge. Overall, the use of rice fields

declined during both day and night and fewer radio-tagged Dunlin used the study area after rice fields had dried in March and April.

Our results suggest that rice fields, when flooded, provide more suitable nocturnal habitat for Dunlin than wetlands.

Dunlin may avoid using wetlands at night because they are exposed to less predation danger and disturbance when roosting in rice fields. More research is needed to understand how to better manage wetlands to support Dunlin at night.

With increasing human demands for water and more extreme drought projected due to climate change, our research demonstrates the importance of maintaining a mosaic of flooded habitats for migratory shorebirds in the Sacramento Valley. We also identified a potential habitat deficit in March and April that will help ensure water for wildlife is used wisely during spring migration.

Main Points

Rice fields, when flooded, provide more suitable nocturnal habitat than wetlands.

Dunlin use of rice fields declined during the day and at night from winter to spring.

The removal of water from rice fields in preparation for planting causes Dunlin to either use wetlands during the day and at night or leave the Sacramento Valley.

Securing water to maintain a mosaic of flooded agriculture and wetlands is important for wintering Dunlin, particularly during spring when they must build energy reserves for migration and nesting.

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