

Factors affecting breeding success in the common sandpiper and the potential impact of disturbance

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Abstract

Disturbance by humans and climatic change are thought to be two important factors contributing to ongoing declines in migratory bird species, especially during the breeding season when they may impact productivity. Ground-nesting species with precocial offspring are likely to be susceptible to both disturbance and extreme weather events, but more work is needed to understand these processes. Here, we investigate the factors affecting reproductive success in the common sandpiper (*Actitis hypoleucos*), a declining, ground-nesting migratory wader. We colour-ringed individuals and monitored nests over three years to study the impact of disturbance, habitat and rainfall on hatching success and fledging success. First, we investigated whether the distance of nests from footpaths and rivers, and the amount of vegetation cover, predicted hatching success. We also recorded the distance at which incubating adults flushed from the nest in response to an approaching observer. Second, we investigated whether fledging success was associated with rainfall in the period following hatching. We found that hatching success was higher when nests were further away from footpaths, but only when nests were also far from rivers. Also, individuals on nests that were far from footpaths left their nests more readily when approached by observers, particularly when their nests had less vegetation cover. Further, our data showed that adults sitting tightly on nests, and having large amounts of vegetation cover around them, had higher hatching success. Finally, our results showed that fledging success was correlated with heavy rainfall in the week after hatching. This suggests that extreme rainfall events are likely to have important consequences for chick survival. Further work is needed to determine the interacting effects of human disturbance and predation events on both hatching and fledging success, particularly in the face of the increasing frequency of extreme weather events.

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