



## Brood Parasitism and Nest Survival of Brown-headed Cowbird Hosts at High-Elevation Riparian Sites in the Eastern Sierra Nevada, California

Riparian habitat in the western United States supports the most bird species and the highest density of breeding birds than any other habitat type of the region. In the eastern Sierra Nevada, riparian habitat makes up <1% of U.S. Forest Service lands yet experience a disproportionate amount of recreational use and development. Two types of development, pack-station corrals and campgrounds, provide foraging opportunities for the Brown-headed Cowbird- an obligate brood parasite that forages on bare ground and feedlots but commutes to adjacent habitats for breeding.

Brown-headed Cowbirds reduce the number of host-young fledglings, cause host-nest failure or abandonment, and prey on host eggs and nestlings. Habitats that support both high nest-predator and Brown-headed Cowbird densities can create a combination of predation and parasitism that greatly reduce host productivity and lead to population declines or local extirpation of host species. Thus, it is necessary to determine both nest parasitism rates and nest predation rates in order to identify limiting factors to host species.

We assessed potential impacts of nest parasitism and predation on host reproduction for 12 songbird species in high-elevation riparian habitat in the eastern Sierra Nevada in areas embedded in a landscape with multiple cowbird foraging sites. We also noted the relationship between parasitism rates and Brown-headed Cowbird numbers and the arrival of pack animals to the nearest pack-station corral.

We found that for nearly all species, parasitized nests were less successful and produced fewer

young than nonparasitized nests. However, predation was the leading cause of nest failure across all species and contributed to the lowest total nest survival estimates for three of the host species. We note that cowbirds were present at corrals before and after pack-stock arrival, and most host clutches were completed prior to pack-stock arrival, suggesting that the presence of pack-animals did not directly affect cowbird hosts species.

### Main Points

- Nests parasitized by Brown-headed Cowbirds were less successful and produced fewer young than nonparasitized nests.
- The presence of pack animals did not appear to directly affect cowbird host species, however pack animal corrals do provide foraging habitat for Brown-headed Cowbirds.
- Nest predation was the leading cause of nest failure, therefore impacting songbird productivity more than nest parasitism by Brown-headed Cowbirds.

### Paper citation:

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