Data from: Co-occurrence dynamics of endangered Lower Keys marsh rabbits and free-ranging domestic cats: prey responses to an exotic predator removal program

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Abstract

The Lower Keys marsh rabbit is one of many endangered endemic species of the Florida Keys. The main threats are habitat loss and fragmentation from sea level rise, development, and habitat succession. Exotic predators such as free-ranging domestic cats pose an additional threat to these endangered small mammals. Management strategies have focused on habitat restoration and exotic predator control. However, the effectiveness of predator removal and the effects of anthropogenic habitat modifications and restoration have not been evaluated. Between 2013-2015, we used camera traps to survey marsh rabbits and free-ranging cats at 84 sites in the National Key Deer Refuge, Florida, USA. We used dynamic occupancy models to determine factors associated with marsh rabbit occurrence, colonization, extinction, and

the co-occurrence of rabbits and cats during a period of predator removal. Rabbit occurrence was positively related to freshwater habitat and patch size, but was negatively related to the number of individual cats detected at each site. Furthermore, marsh rabbit colonization was negatively associated with relative increases in the number of individual cats at each site between survey years. Cat occurrence was negatively associated with increasing distance from human developments. The probability of cat site extinction was positively related to a two year trapping effort, indicating that predator removal reduced the cat population. Dynamic co-occurrence models suggested that cats and rabbits co-occur less frequently than randomly expected, whereas co-detections were site and survey-specific. Rabbit site extinction and colonization were not strongly conditional on cat presence, but corresponded with a negative association. Our results suggest that while rabbits can colonize and persist at sites where cats occur, it is the number of individual cats at a site that more strongly influences rabbit occupancy and colonization. These findings indicate that continued predator management would likely benefit endangered small mammals as they re-colonize restored habitats

Usage Notes

Occupancy data for Lower Keys marsh rabbits and free-ranging domestic cats from the Florida Keys

Detection data for marsh rabbits and domestic cats as well as covariates associated with each camera trap site.
Cove_etal_Ecology_Evolution_2018_data.csv

References

This dataset is supplement to https://doi.org/10.1002/ece3.3954

Location

Florida Keys

Keywords

predator-prey dynamics, exotic predators, Sylvilagus palustris hefneri, Felis catus

Files

2 files for this dataset

Cove_etal_Ecology...on_2018_data.csv	22.56 kB	text/csv
README_for_Cove_e...on_2018_data.txt	2.82 kB	text/plain

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