

Orchards Form “Bridges” for Bobcats Between Fragmented Habitats

Wide-ranging mammals like bobcats (*Lynx rufus*) have been pushed into closer proximity to people as their habitats have become more fragmented. Researchers are interested in learning how these animals live in human-dominated landscapes, and informing conservation actions to protect habitat critical to their movement.

To accomplish this, researchers sometimes turn to computer models designed to show how animals might move between patches of natural habitat in a fragmented landscape. Scientists often build these models from expert opinions on habitats suitable for a particular species. However, emerging research suggests that using data on animals’ actual, not predicted, locations can change these models’ output and resulting conservation foci.

In a study published in *American Midland Naturalist*, scientists from USGS, UC Santa Barbara, Colorado State University, and The Nature Conservancy looked at the records of four male bobcats tagged with GPS-collars. They tracked the bobcats through a patchwork landscape of agricultural, urban, and natural areas in southern California and collaborated to compare their results to those generated using habitat suitability data from the California Wildlife Habitat Relationships (CWHR) database.

The connectivity map generated using CWHR data suggested that bobcats avoid avocado orchards and are restricted to two “channels” of movement on either side of the orchards. Conversely, the connectivity map created with GPS data suggested that bobcats could travel through broader swaths of territory, including avocado orchards, offering greater connectivity between areas of natural habitat.

In addition, the bobcats’ movement rates slowed to a pace similar to that in their natural habitats when they passed through avocado orchards. When they traveled through fields of row crops, their movement rates increased. This study highlights the importance of differentiating between types of agricultural covers to understand their relative importance to wildlife, rather than labeling them all under one category. The paper also addresses differences in conservation focuses that could arise when informed by empirical data rather than habitat suitability indices.

This Brief Refers To:

Nogeire, TM, FW Davis, KR Crooks, BH McRae, LM Lyren, EE Boydston. 2015. **Can orchards help connect Mediterranean ecosystems? Animal movement data alter conservation priorities.** *The American Midland Naturalist*. 174(1):105-116. <http://www.werc.usgs.gov/ProductDetails.aspx?ID=5327>



Bobcats are vulnerable to habitat fragmentation near heavily developed areas. Photo: Linda Tanner, Los Osos, CA/Wikimedia Commons/CC By 2.0

MANAGEMENT IMPLICATIONS

- Animals like bobcats may move at different rates through different agricultural covers. In this study, bobcats moved slowly through avocado orchards and quickly through row crops.
- Building connectivity models with GPS data on animals’ actual locations in specific landuse categories may provide additional conservation opportunities for animals living in complex, fragmented landscapes.

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