Where the Wild Things Sleep

an adventure in misusing models

Contents

1 Introduction

Habitat models are important tools in wildlife management. In coastal B.C., provincial management of the northern goshawk is assissted by a habitat suitability index (HSI) built around nesting habitat characteristics (Mahon, McClaren, and Doyle 2008). Of course, goshawks need more than just a place to build their nest in order to raise their young–they also need places to hunt and places to sleep.

Nocturnal roosting is small but important part of a goshawk's daily activities. Sheltered nighttime roost sites are crucial for safety and thermoregulation, yet only two studies have investigated roost site selection in northern goshawks (Blakey et al. 2020, Rickman et al. (2005)).

Goshawks might select roost sites similar to nest sites, or they might select sites based on very different criteria. I wanted to know whether the nesting HSI could be extended to predict roost sites as well, and, if not, what habitat characteristics might be better predictors.

2 Methods

2.1 Roost site selection

During 2018-2019 we captured and tagged 7 adult goshawks (4 female and 3 male) at 5 active nest sites located on the south coast of B.C. Goshawk nests were located by provincial survey crews or reported by timber industry professionals. Trapping took place during the mid-breeding season (May-June) using a dho-gaza trap with a live great-horned owl (*Bubo virginianus*) as a lure [bloom_2007]. We fit goshawks with a solar-powered GPS-UHF transmitter with an additional attached VHF transmitter (Harrier model, Ecotone Telemetry, Sopot, Poland). Transmitters weighed approximately 14 g and were attached with a backpack-style Teflon ribbon harness. Transmitters were programmed to record a location every 15 minutes

Table 1: Number of roosts calculated per site in 2019

Site abbr.	N. roosts
MTC	21
RLK	16
SKA	65

during the breeding season (approximately May-August) and every 4 hours during the nonbreeding season to conserve energy. Location data were retrieved from the tag via either a base station placed near the nest or a hand-held UHF receiver.

Due to insufficient location or habitat data, three individuals were not included in this analysis. An additional female showed strong fidelity to the nest site and rarely roosted off the nest, so was also excluded from the analysis. From the remaining three individuals, 102 nighttime roost locations were obtained between 11 June and 3 September 2019. See Table 1. Roosts were calculated from the location taken closest to midnight within four hours prior to midnight. Locations recorded more than four hours before midnight were discarded.

2.2 Habitat data

Habitat

References

Blakey, Rachel V., Rodney B. Siegel, Elisabeth B. Webb, Colin P. Dillingham, Matthew Johnson, and Dylan C. Kesler. 2020. "Multi-Scale Habitat Selection by Northern Goshawks (Accipiter Gentilis) in a Fire-Prone Forest." *Biological Conservation* 241 (January): 108348. doi:10.1016/j.biocon.2019.108348.

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