Ornithological Monographs
Volume (2014), No. 80, 1–62

Printed in USA.

SEX AND AGE DIFFERENCES IN SITE FIDELITY, FOOD RESOURCE TRACKING, AND BODY CONDITION OF WINTERING KIRTLAND'S WARBLERS (*SETOPHAGA KIRTLANDII*) IN THE BAHAMAS

Joseph M. Wunderle, Jr.,[1,5] Patricia K. Lebow,[2] Jennifer D. White,[1,3] Dave Currie,[1,3] and David N. Ewert[4]

[1]*International Institute of Tropical Forestry, U.S. Department of Agriculture, Forest Service, Sabana Field Research Station, HC 02 Box 6205, Luquillo, Puerto Rico 00773, USA;*
[2]*Forest Products Laboratory, U.S. Department of Agriculture, Forest Service, One Gifford Pinchot Drive, Madison, Wisconsin 53726, USA;*
[3]*Puerto Rican Conservation Foundation, P.O. Box 362495, San Juan, Puerto Rico 00936, USA; and*
[4]*The Nature Conservancy, 101 East Grand River, Lansing, Michigan 48906, USA*

Abstract.—Distribution of nonbreeding migrant birds in relation to variation in food availability has been hypothesized to result from the interaction of dominance hierarchies and variable movement responses, which together may have sex- and age-specific consequences. We predicted that site fidelity, movements, and abundance of Kirtland's Warblers (*Setophaga kirtlandii*) wintering on the island of Eleuthera in the Commonwealth of the Bahamas (hereafter "The Bahamas") would be correlated with food abundance but vary by sex and age. We found that the species' food resources (fruits and arthropods) typically declined during a winter but varied between winters (years) and study sites. Rainfall is a driver of variation in fruit abundance, as indicated by an information-theoretic evaluation of abiotic factors that influence fruit abundance. Despite variation in food availability, the proportions of fruits and arthropods in the diet of Kirtland's Warblers (88% of 90 fecal samples with both) varied little within or between winters or with sex or age class. Overwinter site persistence was low and variable among study sites (average = 43%, range: 11–67%); as predicted, site fidelity within and between winters differed by sex (males > females) and age class (adults > juveniles). However, knowledge of only sex and age was insufficient to predict site persistence in a model-selection framework in the absence of other contributing variables from the confidence set of models (i.e., food resources and/or habitat structure) for two model sets. These analyses further indicated that measures of food resources, either foliage arthropods or fruits, were reliable positive predictors of site fidelity, given the respective confidence set of models. Birds that shifted between study sites within a winter moved to sites with higher biomass of ripe fruit and ground arthropods, such that late-winter densities of Kirtland's Warblers were positively related to the biomass of fruits and ground arthropods. Sex and age differences in corrected body mass and fat were significant from midwinter through late winter, consistent with expected outcomes of dominance and experience. Differences in corrected body mass were evident by 16 April, when males had greater corrected mass than females, and by 26 April, when corrected mass of males was greater for adults than for juveniles. Late-winter rain had a positive effect on corrected body mass, corraborating previous Kirtland's Warbler studies that showed carryover effects on the breeding grounds and that survival in the following year was positively correlated with March rainfall in The Bahamas. Given that drought reduces the food resources and body condition of Kirtland's Warblers in The Bahamas, which negatively affects survival and breeding of Kirtland's Warblers in North America, conservation efforts in the Bahamas archipelago should focus on protecting the least-drought-prone early-successional habitats and sites with favored fruit species. *Received 23 September 2012, accepted 8 October 2013.*

[5]E-mail: jmwunderle@gmail.com

Ornithological Monographs, Number 80, pages 1–62. ISBN: 978-0-943610-99-3.