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Nicolas Jaffe

Oklahoma State University

Timothy O'Connell

Oklahoma State University

James Giocomo

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UTILITY OF FINE RESOLUTION LAND COVER DATA FOR MODELING NORTHERN BOBWHITE ABUNDANCE IN THE OAKS AND PRAIRIES OF OKLAHOMA

Nicolas Jaffe¹

Department of Natural Resource Ecology and Management, Oklahoma State University, Stillwater, OK 74078, USA

Timothy O'Connell

Department of Natural Resource Ecology and Management, Oklahoma State University, Stillwater, OK 74078, USA

James Giocomo

American Bird Conservancy, 725 Royal St., Salado, TX 76571

ABSTRACT

Management of northern bobwhite (*Colinus virginianus*) requires landscape-level planning to promote sustainable populations. Limitations in time and resources necessitate the use of large geographic datasets to efficiently evaluate habitat suitability across landscapes. Many such datasets, however, are limited by a lack of detailed and current information relevant to regional management efforts. To meet this need, regional partners recently released the Oklahoma Ecological Systems Mapping (OESM) product, which offers high spatial and thematic resolution vegetation data, current to 2015. We evaluated the utility of the new OESM product for modelling abundance of northern bobwhite and other grassland birds, relating percent cover types to bird survey data from the Oaks and Prairies Joint Venture. Using an information-theoretic approach (AIC), we compared the performance of OESM to the more widely known National Land Cover Dataset (NLCD). The OESM data provided information on 20 land cover types at 10-m resolution compared 7 types and 30-m resolution for NLCD. We conducted a total of 2,367 individual counts for breeding birds from May–July, 2014–2016, across 10 counties in the Oklahoma Oaks and Prairies ecoregion. We used generalized linear mixed models to control for random effects of year and AICc to evaluate model performance. OESM models vastly outperformed NLCD for 6/7 species (AIC weights >0.99). Northern bobwhite was the only species where NLCD was the highest performing model. These results suggest that, in contrast to other grassland species, added levels of habitat complexity do not inform our ability to model local bobwhite abundance.

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Key words: northern bobwhite, habitat complexity, landcover, vegetation, map resolution, grassland birds, Oaks and Prairies

¹Email: njaffe@okstate.edu