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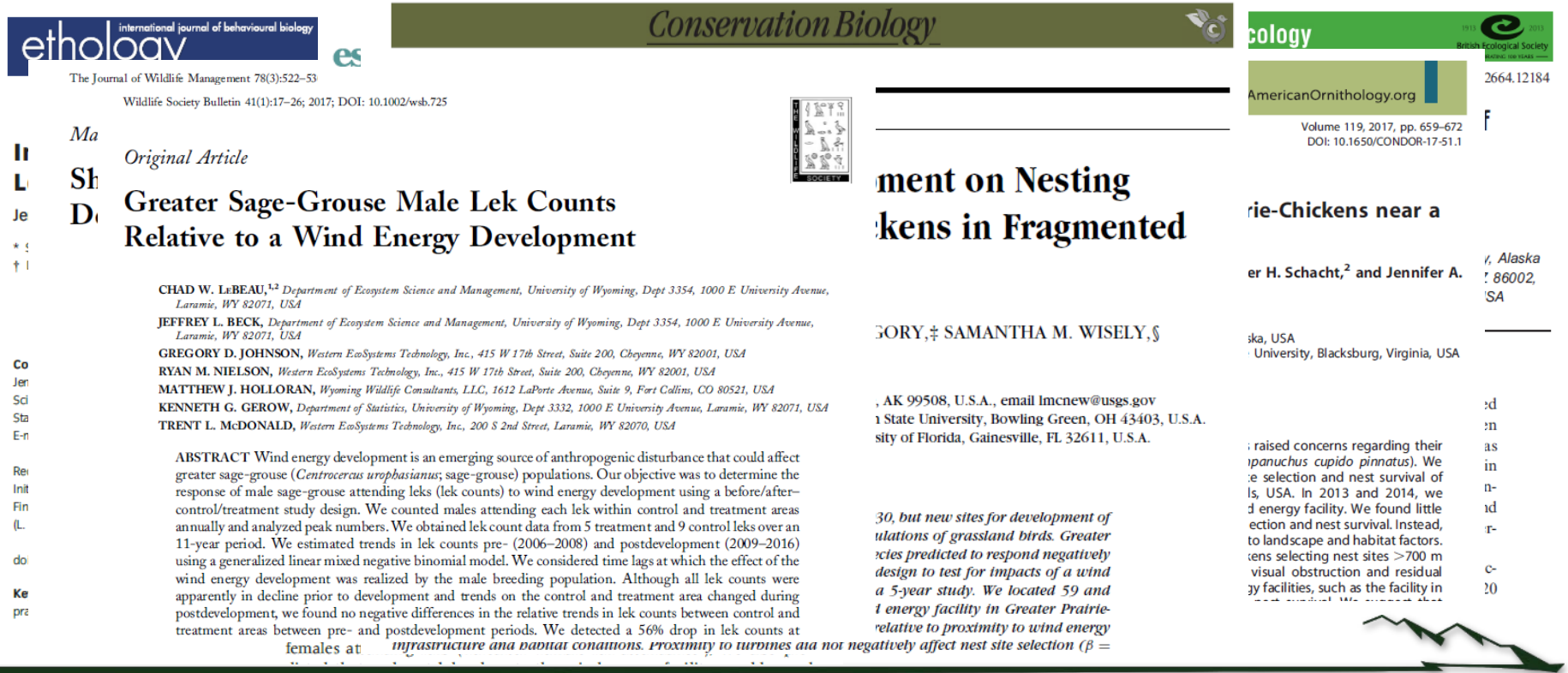

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Original Article

Greater Sage-Grouse Male Lek Counts Relative to a Wind Energy Development

CHAD W. LeBEAU,[1,2] *Department of Ecosystem Science and Management, University of Wyoming, Dept 3354, 1000 E University Avenue, Laramie, WY 82071, USA*

JEFFREY L. BECK, *Department of Ecosystem Science and Management, University of Wyoming, Dept 3354, 1000 E University Avenue, Laramie, WY 82071, USA*

GREGORY D. JOHNSON, *Western EcoSystems Technology, Inc., 415 W 17th Street, Suite 200, Cheyenne, WY 82001, USA*

RYAN M. NIELSON, *Western EcoSystems Technology, Inc., 415 W 17th Street, Suite 200, Cheyenne, WY 82001, USA*

MATTHEW J. HOLLORAN, *Wyoming Wildlife Consultants, LLC, 1612 LaPorte Avenue, Suite 9, Fort Collins, CO 80521, USA*

KENNETH G. GEROW, *Department of Statistics, University of Wyoming, Dept 3332, 1000 E University Avenue, Laramie, WY 82071, USA*

TRENT L. McDONALD, *Western EcoSystems Technology, Inc., 200 S 2nd Street, Laramie, WY 82070, USA*

ABSTRACT Wind energy development is an emerging source of anthropogenic disturbance that could affect greater sage-grouse (*Centrocercus urophasianus*; sage-grouse) populations. Our objective was to determine the response of male sage-grouse attending leks (lek counts) to wind energy development using a before/after–control/treatment study design. We counted males attending each lek within control and treatment areas annually and analyzed peak numbers. We obtained lek count data from 5 treatment and 9 control leks over an 11-year period. We estimated trends in lek counts pre- (2006–2008) and postdevelopment (2009–2016) using a generalized linear mixed negative binomial model. We considered time lags at which the effect of the wind energy development was realized by the male breeding population. Although all lek counts were apparently in decline prior to development and trends on the control and treatment area changed during postdevelopment, we found no negative differences in the relative trends in lek counts between control and treatment areas between pre- and postdevelopment periods. We detected a 56% drop in lek counts at females at

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GORY,‡ SAMANTHA M. WISELY,§

, AK 99508, U.S.A., email lmcnew@usgs.gov
State University, Bowling Green, OH 43403, U.S.A.
sity of Florida, Gainesville, FL 32611, U.S.A.

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relative to proximity to wind energy
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er H. Schacht,[2] and Jennifer A.

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University, Blacksburg, Virginia, USA

raised concerns regarding their
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