# Acceptability of lethal control of geese and deer that damage agriculture in the Netherlands

**Mette T. J. Sijtsma[1], Jerry J. Vaske[2], Maarten H. Jacobs[1]**

Keywords: wildlife value orientations, lethal control, human-wildlife conflict

This study examined the acceptability of using lethal control to minimize the impacts of geese and deer on agricultural crops in the Netherlands. Two sets of predictor variables were examined: (a) demographics and (b) wildlife value orientations (WVO). Demographic variables included age, gender, education and current residence. Two wildlife value orientations were examined – domination and mutualism (Manfredo 2008). Individuals with a domination WVO believe that wildlife should be used and managed for human benefit. People with a mutualism wildlife value orientation think that humans and wildlife should co–exist and live in harmony. Based on the specificity principle (Vaske & Manfredo, in press) and prior research (Teel et al. 2007), two hypotheses were advanced. First, the wildlife value orientations will be better predictors of the acceptability of lethal control than the demographic variables. Second, of the two value orientations, the traditional domination WVO will account for more of the variability in the acceptability ratings than mutualism. Data was obtained from a mailed survey (n = 353) sent to randomly selected individuals from the Dutch population. The two dependent variables were the acceptability of using lethal control for either: (a) geese that trample farmers' crops, and (b) deer that damage agriculture. These variables were coded as unacceptable (0) and acceptable (1). Among the independent variables, age was measured on a continuous scale. The other three demographics – gender (male vs. female), current residence (rural vs. urban) and education (high school vs. higher degree) – were dummy variables. The domination value orientation was based on two basic belief dimensions each comprised of multiple items (appropriate use beliefs [6 items] and hunting beliefs [4 items]). The overall Cronbach's alpha for this 10 item scale was.85. The mutualism value orientation contained two multi–item basic beliefs (social affiliation beliefs [4 items] and caring beliefs [5 items]); Cronbach's alpha = .88. The composite indices for each WVO were coded on a 7–point scale ranging from –3 to +3.

Acceptability ratings for lethal control of deer and geese were highly correlated (r = .753). Males and individuals living in rural areas were more likely to agree with lethal control than females and urbanites. Older individuals were statistically more likely to support lethal control than younger respondents. Education was not statistically related to the acceptability ratings for either geese or deer. Respondents who held a domination orientation slightly agreed with using lethal control for both geese and deer. Those with a mutualism orientation believed lethal control was not acceptable.

Six separate logistic regression models (i.e., demographics only, WVO only, both demographics and WVO) were examined (3 for geese and 3 for deer). When only the demographic variables were in the model, < 10% of the variance was explained. The two WVO only logistic models accounted for 38% (geese) and 34% (deer) of the variability. When both the demographics and value orientation predictors were included in the model, only the value orientations were statistically significant predictors, accounting for 40% (geese) and 36% (deer) of the variance. These findings support hypothesis one.

Of the two WVOs, domination (Odds Ratio [OR] = 2.70 for geese, OR = 2.46 for deer) was a better predictor of acceptability ratings than mutualism (OR = 0.69 for geese, OR = 0.76 for deer).

[1] Wageningen University Wageningen, The Netherlands mette.sijtsma@wur.nl, maarten.jacobs@wur.nl
[2] Human Dimensions of Natural Resources Colorado State University Fort Collins, Colorado, USA jerryv@cnr.colostate.edu

These findings support hypothesis two. The final models correctly classified about 75% of the respondents' acceptability ratings for using lethal control for geese and deer.

Consistent with research from the United States (Teel et al. 2007), our results indicate that general demographic variables (i.e., age, gender, place of residence and education) have less predictive potential than the wildlife value orientations. As hypothesized, the traditional domination WVO had more influence on acceptability ratings than mutualism. Although our final models explained a substantial proportion of the variance, lethal control is a complex controversial issue that is likely to be situation specific. Our sample was drawn from the Dutch population in general. Before adopting a lethal control strategy to minimize wildlife impacts, managers are encouraged to consider the severity of the problem within a local context.

**References**

Manfredo, M. J. (2008). *Who cares about wildlife?* New York, NY: Springer. 228 pp.

Teel, T. L., Manfredo, M. J., & Stinchfield, H. M. (2007). The need and theoretical basis for exploring wildlife value orientations cross-culturally. *Human Dimensions of Wildlife, 12*(5), 297-305.

Vaske, J. J., & Manfredo, M. J. (in press). Social science theories in wildlife management. In D. J. Decker, S. Riley, & W. F. Siemer (Eds.), *Human Dimensions of Wildlife Management*. Baltimore, MD: The Johns Hopkins University Press.