

## **New Duck Hunting Technologies: Hunter Perceptions Contradict Data on Effectiveness**

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Spinning-wing decoys (i.e., SWDs) originated in California in the 1990s and now are used by duck hunters across North America. Most SWDs are battery-powered and use motors to rotate wings that emulate flashing wings of landing ducks. Hunters generally use SWDs to increase their duck harvest; SWDs clearly are effective in increasing duck kill rates (Ackerman et al., 2006; Caswell & Caswell, 2004; Miller, 2002; Szymanski & Afton, 2005). Some hunters also use SWDs because they believe that these devices reduce crippling loss and improve their ability to select male ducks over female ducks for harvest (Szymanski, 2004).

Following experimental duck hunts to test the effectiveness of SWDs in Minnesota (Szymanski & Afton, 2005), we administered a one-page questionnaire to participating hunters to determine their general opinions and experiences with SWDs (see Szymanski, 2004, for survey instrument). Our objective was to determine whether general perceptions of SWDs by duck hunters participating in experimental hunts accurately reflected the effectiveness of SWDs as quantified in our study. We assumed that participation in our experimental hunts did not greatly influence responses of hunters to our post-hunt questionnaires. Nineteen percent of our hunters were randomly selected from license databases with the remainder either contacting us to participate, or we contacted them at hunting areas. Thus, our sample may represent “avid and influential” duck hunters in Minnesota (Szymanski, 2004; Szymanski & Afton, 2005).

We omitted experimental hunts and their associated questionnaires that did not have (a) some proportion of ducks hit by shot that were not recovered (crippling rates; 21% of questionnaires omitted) or (b) some proportion of ducks shot that were female (sex ratios; 34% of questionnaires omitted) during both SWD treatments. We used a randomized block design to examine how “crippling rates” and “sex ratios” differed by SWD treatments (SWDs turned “on” or “off”) within experimental hunts ( $n = 143$  and  $123$  for crippling rates and sex ratio analyses, respectively) and responses by hunters ( $n = 288$  and  $243$  for crippling rates and sex ratio analyses, respectively) with separate logistic regressions. We examined the SWD  $\times$  hunter response interaction to determine whether effects of SWDs differed by hunter responses regarding perceptions of the effectiveness of SWDs.

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We used all questionnaires ( $n = 366$  hunters) when summarizing hunter opinions of SWDs. Hunters were asked (no, undecided, or yes) whether or not they believed SWDs reduced crippling or allowed them to shoot proportionately more drakes. Numbers of hunters/hunt in our experiment ranged from 1 to 4, and hunters that participated in multiple hunts were asked to fill out questionnaires only on their first hunt.

Totals of 76 (21%), 102 (28%), and 188 (51%) hunters responded “no,” “undecided,” and “yes,” respectively, that SWDs allow them to reduce crippling of ducks. The SWD  $\times$  hunter response interaction indicated that crippling rates with SWDs turned “on” or “off” were similar ( $F_{2, 256} = 2.29, p = 0.103$ ) among hunters, regardless of how effective they believed SWDs were in reducing their crippling rates. Totals of 64 (18%), 149 (41%), and 153 (42%) hunters responded “no,” “undecided,” and “yes,” respectively, that SWDs allow them to shoot more drakes. The SWD  $\times$  hunter response interaction indicated that sex ratios with SWDs turned “on” or “off” were similar ( $F_{2, 222} = 0.09, p = 0.916$ ) among hunters, regardless of how effective they believed SWDs were in allowing them to shoot more drakes.

Hunters completed questionnaires after their experimental hunt; thus, their responses could have been biased toward results of their particular experimental hunt. Relatively few hunters (18% and 21%) had perceptions that accurately reflected our quantitative data showing that SWDs do not improve effectiveness, whereas a relatively large portion of hunters (51% and 42%) had perceptions that contradicted our quantitative data. Many (61%) participating hunters indicated that they owned a SWD, suggesting that they had experience with the decoys, and thus had opportunity to form opinions from prior experiences before our evaluation (Szymanski, 2004; Szymanski & Afton, 2005). Finally, excluding hunts without crippling rate and sex ratio data from our analysis probably did not bias our results because total values for both variables were similar when SWDs were turned “on” or “off” (Szymanski, 2004).

Wildlife managers often place high value on perceptions and opinions of their constituents. Our results suggest that management decisions driven solely by hunter opinion may have different effects on wildlife populations of interest than those based on biological data, with regard to new duck hunting technologies such as SWDs.

## References

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