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## **REVIEW OF ELECTRONIC- MOTORIZED DECOYS FOR TAKING MIGRATORY GAME BIRDS**

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### **INTRODUCTION**

Use of electronic-motorized decoys has become widespread throughout North America since the invention and initial use of spinning-wing decoys (SWD) by duck hunters in California during the 1998-99 waterfowl hunting season. Although designs and configurations of these devices are evolving rapidly, to date only the SWD design has been assessed in field studies.

Several types of electronic decoying devices are being marketed. They can be separated into two main categories: (1) spinning-wing decoys and (2) swimming or shaking decoys. Some of these devices operate using remote controls. Although all these devices are intended to attract wild ducks within gun range by wing-flashing or flapping, or by swimming or churning the water, many different specialized modifications have quickly evolved since the introduction of SWDs in 1998. Some versions incorporate multiple decoys connected by a spreader to simulate a circulating vortex of ducks landing, or a flock swimming.

Many questions and concerns have arisen among hunters and wildlife-management agencies regarding both their effectiveness and the ethics of their use for waterfowl hunting. Three States (OR, WA, AR) have prohibited the use of these devices for waterfowl hunting. The AR prohibition begins with the 2005-06 hunting season. Two other States (CA, MN) have partial bans, and one State (PA) had an existing prohibition on the use of electronic decoy devices for all game prior to the invention of SWDs for waterfowl hunting. Several investigations have been conducted to determine whether these newly-developed SWDs have increased the vulnerability of ducks to harvest. However, only a few limited attempts have been made to determine public opinion regarding the use of these devices. The purpose of this report is to summarize some of the results of these studies to date and to discuss potential management implications of widespread use of these devices.

## BACKGROUND

Hunting methods for taking migratory game birds during open seasons are prescribed in Title 50 of the Code of Federal Regulations, Part 20, Section 21 (50 CFR 20.21). Specific methods that are prohibited are specified in this section and have been amended numerous times since the Migratory Bird Treaty Act (MBTA) went into effect on July 31, 1918. Starting with passage of the MBTA, basic regulations prohibited the use of guns larger than 10 gauge and taking waterfowl from boats under power or sail or from aircraft. Sink-boxes and batteries were first restricted to coastal areas at least 700 yards from shore in 1927, and totally banned in 1935. Regulations in 1927 also prohibited using planes, boats or other devices to concentrate, rally, or drive waterfowl. The use of live decoys was first restricted in 1931 and completely prohibited in 1935. Baiting regulations first went into effect in 1931, but have been expanded and clarified with modifications made in 1934, 1935, 1939, 1951, and 2002. Limiting shotgun capacity to no more than 3 shells began in 1935. In 1946, bows and arrows were first allowed to take migratory game birds, and in 1956 traps, snares, nets, etc., were prohibited. Taking waterfowl with the aid or use of livestock as means of concealment was prohibited in 1941. Electronic calling devices were made illegal in 1957. More recently, non-toxic shot regulations were phased-in between 1986 and 1991.

The primary motivation for most of the regulatory changes during the 1930s was to safeguard the depleted populations of migratory game birds, mainly waterfowl, during the drought years. However, many of the prohibitions in the basic regulations were in some measure to ensure that hunting privileges could be maintained. Excessive take meant shorter seasons, smaller bag limits, and more restrictions for everyone (Day 1949). But clearly, some methods of take (e.g., electronic calls, sink-boxes, baiting, trapping) were viewed as “too effective” and not consistent with good sportsmanship or ethical standards. Thus, these restrictions were aimed at preventing unfair advantage or preserving fair-chase values. Although electronic calling devices have been prohibited for several decades, the use and effectiveness of electronic decoys is a recent issue that has quickly become controversial.

## SUMMARY OF SPECIFIC STUDIES

**Site-Specific Studies of Differential Vulnerability:** Recently Ackerman et al. (in review) reviewed six site-specific studies in the United States and Canada that evaluated the effectiveness of SWDs for waterfowl hunting. These studies were conducted in California, Minnesota, Manitoba, Nebraska, Missouri, and Arkansas. Several of these studies have been reported previously (e.g. Eadie et al. 2001, Szymanski 2004, Caswell and Caswell in press). However, because of the recent development of this technology, only the study by Caswell and Caswell has been accepted for publication in the peer-reviewed literature. Regardless, the results of the six studies have shown remarkable consistency in that, in all cases, use of SWDs dramatically increased the harvest of ducks when compared to periods when SWDs were not used. Overall, about 70% of all ducks harvested in these studies were taken while using SWDs, while approximately 30% were harvested when the SWDs were not

in use (Ackerman et al. in review). Thus, there is little doubt that these devices increase site-specific hunter success.

Ackerman et al. (in review) also concluded that latitude and species influence the degree to which the SWDs increase hunter success. The most pronounced finding was that these decoys are more effective in more northern locations. Ackerman et al. (in review) postulate that experience with being hunted and previous exposure to SWDs act to decrease the effectiveness of the devices. Eadie et al. (2001) found that the effectiveness of the devices declined during the season in California. This result also would seem to support the experience/exposure hypothesis, and was one of the contributing factors that led the California Commission to ban the use of the devices prior to December 1, on the assumption that a delay would help protect local mallards. Ackerman et al. (in review) also found that ducks with higher annual survival rates (the larger dabbling ducks, e.g. mallards, wigeon, pintails) were more vulnerable to SWDs than ducks with lower average annual survival (and smaller body size, e.g. teal).

**Public-Opinion Polls:** In addition to site-specific studies of vulnerability, the Washington Department of Fish and Wildlife (2004) compiled public-opinion poll results for three States (CA, MO, WA). These results suggest most hunters favor the use of SWDs as long as their use does not result in hunting regulations that reduce hunting opportunity (season length/bag limit). These polls suggest that the majority of hunters would oppose the use of SWDs if such use did in fact cause regulation changes that reduce opportunity. How much of a reduction in opportunity that would generate opposition was not quantified in these opinion polls, and the accuracy of the polls is unknown. In general, about 10%-20% of the hunters in the polls indicated they would favor the use of SWDs even if such use did reduce opportunity.

**Banding and Harvest Data:** We are only aware of one State-wide assessment of SWDs that is based on band-recovery and harvest data. This investigation is currently being conducted in California (Dan Yparraguirre, pers. comm.). Preliminary assessments, based on a comparison of direct recovery rates between 1997 (the year immediately preceding the use of the devices) and 1999-2000 (the two years immediately following the introduction of the devices), suggest an increase in direct recovery rates of locally-banded mallards concurrent with the use of SWDs. Harvest regulations remained constant during these years. However, State-wide harvest estimates in California did not increase, nor did estimates of mallards breeding in California change appreciably between these periods. At present, no definitive conclusions have been reached regarding the larger-scale impact of the use of the devices on waterfowl harvest in California (D. Yparraguirre pers. comm.).

## **DISCUSSION**

Two issues are involved in the evaluation of potential effects of these devices: (1) biological effects, and (2) ethical considerations regarding the concept of "fair chase" and concerns about further technological intrusions into traditional waterfowl hunting activities. Only the biological impacts can be addressed by traditional waterfowl research and monitoring activities. Based on several recently concluded studies, there

is evidence that the devices dramatically increase the success of hunters who use them. However, it is less clear whether or not this increase represents a redistribution of harvest among hunters or an actual increase in overall hunter-success rates. This inability to detect changes in hunter success rates on a larger scale may be due to the fact that current monitoring programs were not designed to assess the effects of SWD on waterfowl harvest and survival rates.

At State-wide and larger, regional scales, there are no data that clearly show an effect of SWDs at this time. Determining such large-scale impacts likely will be expensive and difficult, given the large number of other factors that can influence both hunter success and harvest rates. Such investigations would be further complicated by our likely inability to implement controlled experiments at large geographic scales.

We believe the real issue is the ethical question of whether the waterfowl hunting community should embrace harvest under any and all sorts of new technical advances, or should it limit the degree to which these emerging technologies, such as electronic-motorized decoys, can be used? Historically, several methods of taking waterfowl have been prohibited, including electronic calls.

While a total ban on electronic-motorized decoys would prevent further development of electronic devices to attract waterfowl, this action would likely produce some adverse public reaction and have an economic impact upon manufacturers of these decoys. Alternatively, for others, a ban may preserve fair-chase standards and continue the challenge of duck hunting based on knowledge and using traditional methods. Therefore, we believe that before any action is taken, there should be open discussions among all stakeholders, regarding both the biological and ethical considerations.

## **MANAGEMENT IMPLICATIONS**

From a management standpoint, if the use of SWDs do increase harvest rates, the degree to which waterfowl harvests can be managed with regulations to offset such increases in a timely fashion is uncertain. Presently, under the existing Adaptive Harvest Management (AHM) protocol for mallards, unmeasured sources of variation in harvest rates may be problematic as the predictive models are based primarily on historic relationships between regulation and harvest. Changes in these relationships will add variation and may take some time to be properly incorporated into these predictive models. The percentage of hunters using some form of these devices has increased steadily since 1999 (now exceeding 50% in many areas) in all States where studies have been conducted. Expanded uses of these devices may also result in some significant shift in harvest distribution over time. Costs to improve our population and harvest monitoring databases and to more accurately detect harvest rate changes resulting from wide-spread usage of these devices would likely be prohibitive for management agencies, given current budgetary constraints.

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