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FIELD TESTING CLASS IIIb HANDHELD LASERS TO DISPERSE ROOSTING BLACKBIRDS

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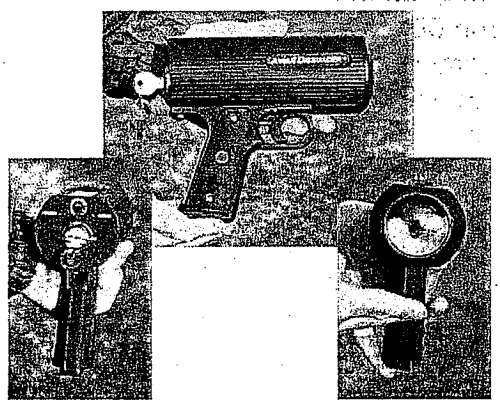
INTRODUCTION

During late summer and fall, a hectare of cattail in a cattail-dominated wetland can hold about 1500 blackbirds. Thus, even small wetlands of 5-10 hectares that become roosts can cause significant problems for sunflower producers. USDA Wildlife Services has a cattail management program in North Dakota and South Dakota that helps sunflower producers eliminate cattail vegetation near susceptible fields. However, cattail-reduction treatments (which typically occur in August or September) do not break the cattail stalks, and the roosting substrate remains in place until the following year. Moreover, the sites selected for treatment are generally signed up at least one-year ahead, which presents problems for sunflower producers that have blackbird roosts developing rapidly in unexpected locations near their ripening fields.

Given the vast number of wetland roosting sites available in areas of major sunflower production, a roost dispersal method is needed that brings immediate effect, has low costs, and is safe and easy to deploy. Laser beams have been used effectively to disperse night roosts of double-crested cormorants. We tested the field effectiveness of moderately-powered lasers for harassing blackbirds attempting to roost in cattail.

METHODS

We used two different laser wavelengths, red (650 nm) and green (532 nm), which were compared against a sham treatment (i.e., control) consisting of no laser. We used Avian Dissuader® (Feather-Light Technologies LLC, Louisville, Kentucky) lasers for the tests. The Avian Dissuader has a power classification that places it in the Class IIIb category of lasers. The red laser has a power output of 50 milliwatts; the green laser is 30 milliwatts.



Each of the treatments was run in series consisting of the control, followed by red and green. Each series was treated as a repetition. A one-minute rest period separated each treatment within a series. The treatments were started about one-half hour before sunset and continued until the birds had settled for the evening or left the test site. The lasers were sighted on perched groups of red-winged blackbirds sitting on the tops of cattails that were approximately 100 meters away from the vehicle blind used for testing the lasers.

The area of treatment was about 20 meters wide, which allowed for a complete ocular monitoring of bird movements in the treated area. Any flight of any distance within the targeted bird group, whether that of a single bird or several members of the group was counted as one movement. The group had to come back to a complete rest before a new movement could be counted. The test was conducted in late October 2009 in a small, privately-owned wetland in south central Burleigh County, North Dakota.

RESULTS

The sample size was too small to make any statistical inferences, but the trend was toward no laser effect (Table 1).

Table 1. Counts of movements of red-winged blackbirds perched in a cattail roost after being targeted with laser beams of different wavelengths (red and green) for one minute periods. The laser tests were conducted in late October 2009 at a small wetland in Burleigh County, North Dakota.

			Movements					
			Laser treatments			Rank by most movements		
Rep	Date	Time	Red	Green	Control	Red	Green	Control
1	10/31	15:57	13	11	10	1	2	3
2	10/31	18:02	15	15	13	1	1	3
3	10/31	18:07	4	6	9	3	2	1
4	10/31	18:11	11	8	12	2	3	1
5	10/31	18:19	4	0	11	2	3	1

This was just an exploratory study, however, that was made in preparation for more thorough tests to be conducted next year. Next year, we will add physical reinforcement (e.g., shooting, pyrotechnics, etc.) to the laser treatments to determine if there is a synergistic effect resulting from combining of these two different types of treatments.

The laser treatments were started in the late-afternoon with the sun about 10° above the west horizon. We noted that the brilliance and daylight penetrability of the green laser treatment (and which qualities the red-wavelength treatment lacked during this time period) should provide a major advantage over the red-wavelength lasers, if we indeed find that lasers are an effective tool for harassing blackbirds.

DISCUSSION

Despite the inconsistent results among the few avian species tested thus far, lasers probably should not be discounted as a potential tool for dispersing blackbird roosts in cattail-dominated wetlands of the northern Great Plains. Lasers have several positive attributes, including selectivity for the species being targeted, accuracy over long distances, ecological and biological benignness, and low cost.

Although prior laboratory research using red lasers on passerine species had showed no treatment effect, we still wished to compare the red versus green wavelengths under field conditions. Low-power (5 mW), red lasers were used effectively on 11 roosts of double-crested cormorants, reducing the roosting populations by an average of 90%. Canada geese also displayed behavior in cage studies that indicated they were highly sensitive to red laser beams.

Avian behavioral responses to lasers appear to be species-specific and perhaps wavelength specific. For example, in cage trials using fixed and moving lasers, brown-headed cowbirds and European starlings showed basically no response to

red laser beams. On the other hand, rock doves and mallards were initially affected by red lasers, but thereafter quickly habituated to the treatments.