AN AIRBOAT-SCOOP TECHNIQUE USED TO CAPTURE BIRDS ROOSTING IN A CATTAIL MARSH

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Starlings (Sturnus vulgaris) and three blackbird species, the Red-winged Blackbird (Agelaius phoeniceus), Common Grackle (Quiscalus quiscula), and Brown-headed Cowbird (Molothrus ater), roosted in about 15 acres of cattail (Typha spp.) on the Montezuma National Wildlife Refuge, Seneca County, New York. A method was needed to capture these birds in substantial numbers for banding and color marking.

Blackbirds have been captured in marsh roosts with lights and dip nets (Spencer and DeGrazio, 1962; West and Besser, 1967), but the deep muck soil in the refuge marsh did not provide either firm or safe footing. Neff and Meanley (1952) described a method of removing blackbirds by hand in a tree-brush roost, and later, Meanley (1956) used a rowboat to gain access to roosting blackbirds. Low water and dense vegetation prevented conventional boat movement within the roosting area on the refuge. Cummings and Hewitt (1964) successfully employed a shallow-draft, air-thrust boat and dip-netted 27 species of waterfowl and marsh birds. Dip nets are used from a moving airboat in may wetland areas to capture flightless waterfowl.

It was thought that an airboat equipped with lights and a catching device might be a feasible means of securing blackbirds. A funnel-shaped scoop that could be fastened to the front of an airboat was designed in 1970 (Fig. 1).

Materials and Methods

The airboat model used in this operation was a 12-foot Airgator powered by a 150-hp, 4-cylinder Lycoming aircraft engine. A generator bolted into place under the driver's seat powered two, 110-volt, 500-watt, Stonco, quartz-iodine lights.

Sides and floor of the scoop were 1/4-inch exterior plywood, To maximize visibility for the driver, 1/8-inch plexiglass was used for most of the back or top side (Fig. 2). Plywood also was used for the last 2L inches at the bottom of the back side. The four sides were fastened together with nails and screws. Wooden

strips (1 in, sq.) served as braces in the four inside corners. The front of the scoop was situated behind the two running lights, 13 inches from the airboat's front. A 5-foot-wide x 6-foot-high front opening allowed 30 square feet of bird-scooping area. Inside plywood surfaces of the scoop were painted a dull black to reduce glare and render the approaching scoop less visible to roosting birds.

The funnel-scoop tapered to a small opening at the rear, only 3 feet from the scoop's front. Birds passed through this opening into a holding box fitted snugly between the floor of the airboat and rear floor of the scoop. The box was constructed of 1/4-inch hardware cloth and 1/2-inch plywood and measured 24 x 30 x 20 inches. A sliding door was used to close the box when desired. A piece of plexiglass, 10 x 12 inches, continued at the same angle down and back from the plywood end of the sloping scoop top to the rear edge of the holding box.

When disturbed at night, roosting birds often are attracted to a light source. A flashlight was fastened to the driver's foot rest behind the scoop and its strong beam directed through the small piece of plexiglass towards the front of the scoop. An additional light source situated in a bottom corner of the box helped prevent birds from escaping.

The scoop was bolted to the airboat at both front corners. Braces of 3/4-inch aluminum conduit tubing stabilized each side of the scoop top. The attached scoop was very stable, and the maneuverability of the airboat was not hindered drastically by the scoop. The apparatus was lightweight and could be removed or attached in about 10 minutes.

After darkness the airboat was operated at or near full throttle through the blackbird roosting area at speeds up to 35 MPH. At speeds over 20 MPH, perched birds as well as flying birds were captured, and more birds were caught as airboat speeds increased. Birds that landed inside the airboat were captured by hand and deposited in cloth holding-bags. The airboat returned to shore when the holding box filled to capacity, 100-125 individuals.

Results and Discussion

The airboat-scoop method proved to be an effective means of capturing large numbers of birds in a short amount of time. A total of 2,697 individuals of 6 species was taken during 12 nights of operation - only 2 hours of actual scooping. Preparation for airboat operation and processing captured birds required a much greater amount of time than the actual airboat operation and bird capture.

Four of the 6 species encountered were caught in all 12 attempts. At least one Common Gallinule (Gallinula chloropus) was taken 11 of the 12 nights. Barn Swallows (Hirundo rustica) occurred in the catch of 4 nights and were found to roost in small, more or less isolated clumps of cattail, peripheral to the major roosting area.

Maximum number of birds scooped on one date was 293 on 1 September 1970. On three different nights 290 birds were caught. Rain, wind, and mechanical problems were responsible for the low count of 102 on 19 August. Starlings accounted for over 50 percent of the total; Redwings and cowbirds were captured in about equal numbers, each accounting for about 20 percent of the total.

The blackbird catch can be related to estimates of the roosting population. For example, the Redwing population was estimated at 139,000 on 18 August, and the catch was 52. For the same date the Starling population was 255,000, and 106 were taken by scooping. The Starling population late in August was over one million birds. This increase is reflected by the high proportion (80%) of Starlings in the catch on 1 September. The proportion of grackles and cowbirds in the total also was reflective of the roosting population. Thus, roost segregation by species as noted by Meanley (1965) and Cutright (1973) did not seriously affect ratios of species caught. Cummings and Hewitt (1964) noted that blackbirds flew up from their roosting perches when their boat was still some distance away, but field observations and data obtained in this study suggest this flight to be a mass movement and not species related.

Several factors contribute to success obtained with this method. Travelling with the wind increased the speed of the airboat plus scoop. Heading directly into a light wind measurably reduced forward movement. By quartering a head wind, better

forward progress was possible.

Fog affected driver visibility and orientation within the roost. Associated with this problem was a heavy dew that often accumulated on the plexiglass portion of the scoop and made visibility difficult.

A very dense growth of cattails completely stopped the airboat in one instance. Purple loosestrife (Lythrum Salicaria) grows along a narrow strip of drier land on one side of the roosting area. On two occasions as the airboat emerged from the cattails after a catching run it was impossible to turn before sliding and becoming stranded in the midst of the purple loosestrife.

Houses of the everpresent muskrat (Ondatra zibethicus) became increasingly dangerous as the season progressed. By the end of August, some houses had become quite large, and with an associated drop in the water level in the roosting area, they presented quite formidable obstacles. Most houses could be avoided, but the airboat became airborne twice when a large muskrat house was run over.

The amount of light present during catching operations seemed to have the greatest influence on a night's success. Optimal conditions were experienced on moonless and cloudy nights when birds were more settled in the roost and slower to fly from their perches as the airboat approached.

Although the front, top, and sides of the propeller were shielded with hardware cloth, an average of about 4 birds was killed during each night's operation. Species composition and the total numbers killed were: Red-winged Blackbird 4, Starling 30, Brown-headed Cowbird 6, Common Grackle 2, and undetermined species 7.

Some habitat alteration resulted from use of the airboat. Paths of mashed cattail vegetation were noticeable for several days or even several weeks in dense stands. It is not known what effect these airboat paths may have had on other wildlife species present in the area. Mashing may reduce the quality of the vegetation and render the area unsuitable for roosting purposes. Vegetation seems to be very important in the selection of a suitable roosting site (Cutright, 1973). In addition, the noise and commotion that an airboat creates as it moves through and around a roosting area

may cause roost disruption and abandonment after several consecutive periods of harrassment. Thus, an airboat may be employed in a management program at discouraging blackbirds from utilizing a particular marsh site as a roost.

Summary

A new technique for capturing roosting birds with an airboat plus scooping device is described. A total of 2,697 birds of 6 species was caught in a cattail marsh using this method.

Three special circumstances are required for successful employment of this technique. The population of roosting birds must be great enough to make the operation feasible. Water is needed over the entire catching area. Thirdly, vegetation in the roosting area must allow airboat operation and the area should be free of obstacles such as trees, stumps, fences, and islands.

Factors influencing catching success in this study were wind, light, and airboat speed. Problems encountered were gusty and strong winds, fog, dense vegetation, bird kill, and obstructions.

Acknowledgments

I am indebted to the Northeast Regional Research Bird Damage Control Project (NE-49) of the Agricultural Experiment Stations for supporting this research. I gratefully acknowledge the personnel of Montezuma National Wildlife Refuge for their gracious cooperation during the two summers of field work on the refuge. Also, I thank Ollie Hewitt, Kate Redmond, John Kelley, Mike Richmond, and Doug Payne for their valuable assistance.

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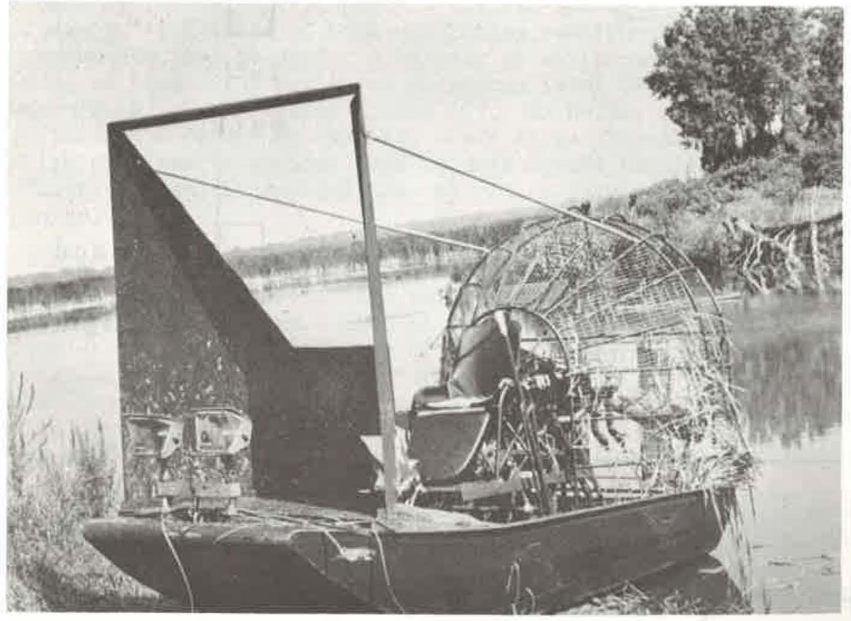

FIGURE ONE: Side view of airboat with plywood and plexiglass funnel-scoop attached.

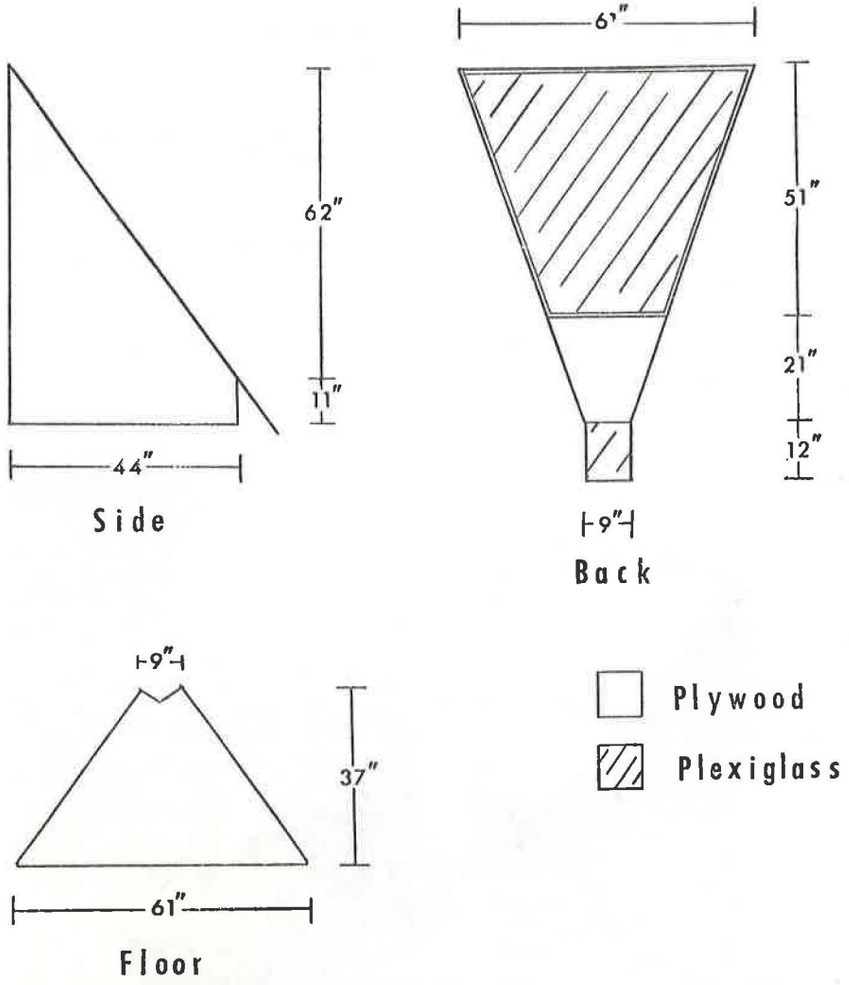

FIGURE TWO: Scale drawings with dimensions of the side, back, and floor of the funnel-scoop.

ENVIRONMENTAL TRAPS

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British and European banders have developed environmental traps to a far greater degree than in North America. These are described in the British publication, Trapping Methods For Bird Ringers. The Heligoland trap has been especially successful.

Our Manual For Bird Banders, of 1929 and 1947, figures a House Trap as a permanent structure, large enough for the bander to enter. This box-shaped object will work well (for its limited purposes) if used as directed. It should be made of 1/2-inch mesh hardware cloth and painted flat black (which goes for wire traps of any description). However, it is not a very imaginative creation. If, instead of a box, one builds a man-sized trap directly into irregularities of the environment, it is possible greatly to extend the uses of this type of device. The trap can include shrubbery, streamlets, slopes. or angular spaces of walls and buildings. All kinds of bait, including continuous water-drip arrangements, may be used. A variety of entrances can be provided, so that birds may enter at ground level (A), through top openings (B) or along tree trunks (C). Gathering cages should be provided at a corner of the trap where birds naturally congregate--a high exit for those that tend to seek upward escape, and an ordinary Government sparrow trap at ground level for terrestrial species.

A. Rectangular ground openings can be fitted with wire-mesh funnels such as those pictured in the Manual for the Modified Government Sparrow Trap. Many birds learn to leave through the ground-level neck of the outer of these funnels; such trap-wise individuals can be captured for occasional checking by temporary substitution of a funnel of the inner type, with raised neck (A'), which prevents their escape and causes them to resort to the regular exit.

B. Square or rectangular openings can be cut into horizontal surfaces of the trap anywhere and fitted with box-shaped devices having counter-balanced false bottoms (as in the Brenckel Water-drip trap). An outwardly-bent collar keeps the device from falling