COMPARISON OF TRAPPING METHODS FOR AMERICAN COOTS

By Richard D. Crawford

American Coots (*Fulica americana*) have not been widely studied (e.g. Gullion, 1953, 1954; Fredrickson, 1970); they have not been trapped extensively except through routine waterfowl banding operations by state and federal personnel. While conducting age-specific studies of coots in Iowa during the summers of 1972-1974, and a continuation of these studies in North Dakota in 1976, I found it necessary to trap large numbers of coots by several methods. In this paper I will discuss the relative efficiency of traps used, and will make recommendations for the most effective use of each type.

METHODS

Brief comments on trap design and construction will be made under each trap type. Field notes were kept relative to trap placement, time of day or night traps were set, length of time each trap was in operation, number of birds captured, and any bird injuries that occurred.

RESULTS AND DISCUSSION

Nest Traps.

Automatic nest traps similar to those used by Weller (1957) for diving ducks and identical to those used by Fredrickson (1970) for coots were used throughout the study. The traps were constructed of 1 × 2 inch mesh wire (Fig. 1), and are automatic in that a treddle made of coat hanger wire is connected by a string to the release mechanism that supports the trap door. Upon entering the trap to lay or incubate eggs, a coot presses down the treddle and the trap door falls. For coots the trap should be placed on the nest and supported with lathes or similar structures. The trap should be situated so the opening is over the ramp leading up to the nest (Gullion, 1954).

Initially, I operated nest traps during both day and night and at all stages of egg-laying and incubation. Several problems, however, were encountered. In 1972, traps were placed during early morning on four nests, each with 1-2 eggs. No birds were captured by late afternoon, so the traps were removed. These nests were subsequently deserted. Also during 1972, traps were placed on three nests shortly after hatching had begun. Two adults were trapped, but a total of four chicks were trampled to death by the trapped adults. In subsequent years traps were placed on nests only during the later stages of egg-laying or during incubation.

Nest traps were used on 127 nests and 145 breeding adults were captured during 824 trap days (5.7 trap days/capture). A trap day is here defined as any portion of a 24-hr period in which a trap was on the nest. Thirteen nests were deserted, apparently as a result of trapping disturbance. Trapping during the later stages of incubation was most efficient (2.1 trap days/capture, n = 181 trap

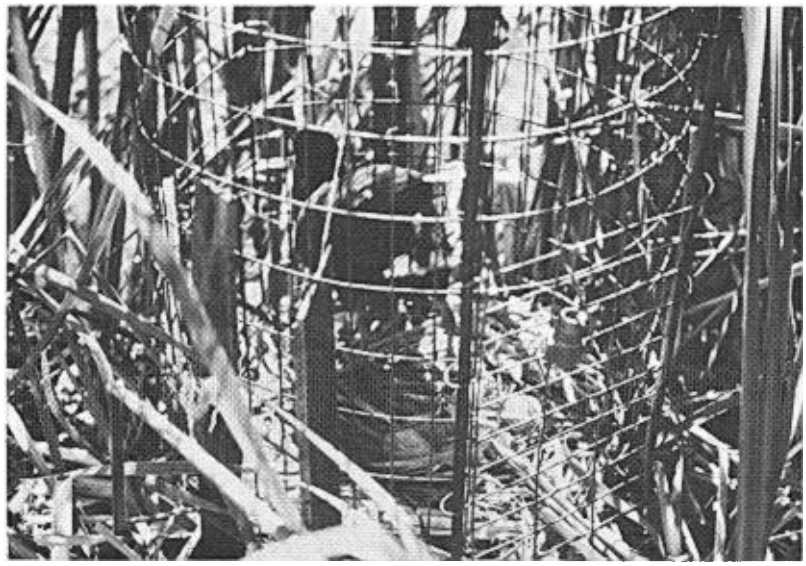

FIGURE 1. Automatic nest trap showing a captured coot and proper trap placement.

days, no nests deserted). Trapping during late incubation was more efficient and caused fewer desertions probably because the adults have a stronger desire to incubate at this time than at other times during the nesting cycle.

One technique learned during 1976 might prove to be the most efficient yet found. Traps usually were placed on nests only during late incubation and at night between the hours of 2300 and 0630. Forty-seven adults were trapped in 71 trap days (1.7 trap days/capture, no nests deserted). Also, traps placed on nests between 2300-2330 and checked between 0230-0330 resulted in the capture of 17 males and 3 females, whereas traps placed on nests between 0330-0430 and checked at dawn resulted in the capture of 10 males and 17 females. Gullion (1954) stated that males normally incubate at night and are relieved during early morning by the females. Apparently, the reduced visibility of traps placed on nests at night contributed to the greater efficiency. On six occasions I captured both members of the pair during the same night.

Nest traps then appear to be most effective and cause fewer desertions during late incubation and possibly when trapping efforts are concentrated toward the nighttime hours. These traps were the most useful of any trap I employed for capturing nesting adults.

I encountered only two problems with nest traps: one adult broke its leg after getting its foot caught in the trap, and about 5% of the trapped birds damaged the upper portion of their bills while trying to escape. This injury to the bills apparently did not harm the birds permanently.

Night-lighting.

A night-lighting apparatus similar to that described by Cummings and Hewitt (1964) was used during 1972 and 1973. A small aluminum boat, 3 hp motor, and two bright lights powered by a portable generator were used in this study. Two people were required, one to manuever the boat and one to capture the birds. Birds were captured with a large dip net and placed in holding boxes for later examination and banding.

During seven nights in August, 208 birds (147 juveniles and 61 adults, most of which were flightless because of molt) were captured during approximately 27 hours of search (7.7 birds/hour). Unlike Fredrickson (1970) I had difficulty capturing adults on specific nests. I also had difficulty capturing entire broods. Nonetheless, night-lighting proved to be an effective means of capturing large numbers of both juveniles and adults.

No birds captured by night-lighting were injured in the process. One caution that should be taken, however, is to avoid running over nests or chicks while in pursuit of other birds.

Bait Traps.

A floating bait trap similar to that described by Hollom and Brownlow (1955) was used to capture nonbreeding adults. Several baits were tried, the most effective of which was the lower portion of cattail (*Typha* sp.) stalks. Coots were not attracted to corn or wheat baits.

One floating bait trap was used in this study for 21 days during June and July 1973, during which 17 individuals were captured (0.8 birds/day). The trap was placed in a large open-water area where nonbreeding individuals were congregated. Although several attempts were made to capture territorial adults, these proved futile. No injury problems were encountered.

Drive Traps.

A small drive trap similar to that described by Cowan and Hatter (1952) was used during 1976 for the capture of juvenile coots. A small holding chamber with leads constructed of 1-inch mesh chicken wire and about 7-8 m in length was placed approximately 5 m from an active brood ramp. By quietly approaching the brood ramp at night from the open side of the trap, I found that most or all of the juveniles could be driven into the holding chamber. The attending adult was often trapped too.

During 15 nights of intensive trapping efforts, a total of 337 juveniles were captured. This figure includes many juveniles that were retrapped several times. Again, no birds were injured during these operations.

Car-pull Trap.

During 1976, a unique opportunity existed for capture of nonbreeding adult coots feeding on the shoreline of a large marsh near a gravel road. I can find no precedent for this type of trap in the literature, but it essentially operates in reverse fashion of the cannon net (Dill and Thornsberry, 1950) commonly used to capture

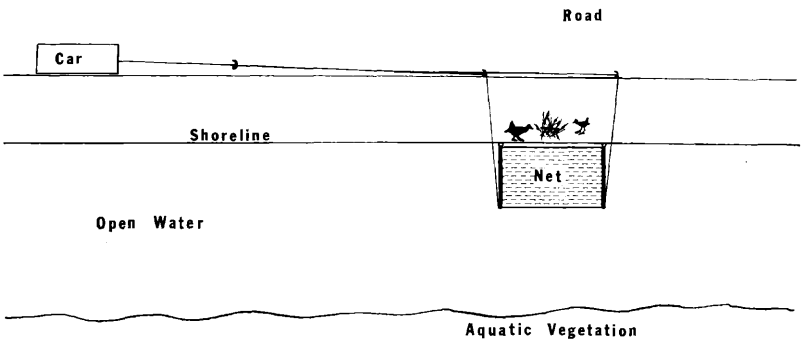

FIGURE 2. Schematic representation of the car-pull trap. Objects are not meant to be to scale.

feeding waterfowl. Figure 2 illustrates the design I used. A 12-m ATX mist net was tied to two 3 m, 5/8-inch diameter electrical conduit pipes. Cords were attached to the top of the net and the bottom was anchored with stakes. The cords were run around stakes anchored on the shoreline and finally attached to the bumper of a car. The net was submerged and cattail root stalks were scattered on the shoreline in the trap area. When the nonbreeding coots came to the shoreline to feed or preen, the car was started and backed up until the top of the net was drawn out of the water and over the birds.

Surprisingly, this method was quite effective. In four attempts 23 individuals were captured. The car, or at least some form of blind, is necessary because any human movement outside the car frightened the birds away. Also, starting the car after the coots were on the shoreline did not frighten them into the water. I found that the conduit pipes should be painted black because the silver color evidently could be seen through the water and would frighten the coots away.

This trap proved useful for trapping nonbreeding birds in areas where floating bait traps could not be used. This trap, however, probably can be used only under unique circumstances (i.e. very narrow shoreline where coots are actively feeding or preening, relatively flat topography on the shoreline, and near a road or other access area). No injuries resulted from the trapping procedure.

CONCLUSIONS

In my study on age-specific breeding biology of coots (Crawford, 1975), I needed to trap and color-mark relatively large numbers of coots of different ages and in a variety of breeding conditions. Therefore, I used several trapping methods.

Nest traps, if used properly, are an excellent way to capture specific breeding adults. Floating bait traps and, if the situation

permits, car-pull traps are useful for capturing nonbreeding adults. I did not want to use night-lighting to capture nonbreeding adults during June and July because of possible disturbance to nesting birds. Small drive traps operated at night are useful to capture specific broods, and night-lighting is an excellent and efficient means of capturing large numbers of both juveniles and adults.

ACKNOWLEDGMENTS

Funds for this study were provided by the Iowa Agriculture and Home Economics Experiment Station, Ames, Iowa, and the University of North Dakota Faculty Research Grant No. 4522-75. Personnel of the Iowa Conservation Commission provided logistic support as did J. Malcolm and L. Jones, J. Clark Salyer National Wildlife Refuge, Upham, North Dakota. I am grateful to M. W. Weller for his superb guidance and encouragement throughout the study. D. Jorde prepared Figure 2, and P. J. DuBowy and W. L. Hohman read the manuscript.

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