A method for trapping breeding adult American Oystercatchers

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A method for trapping breeding adult American Oystercatchers

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ABSTRACT. We present an efficient and effective method for trapping adult, breeding American Oystercatchers (*Haematopus palliatus*) that minimizes disturbance to nesting birds and the risk of trapping injuries. We used a remote controlled mechanical decoy to lure territorial adults to a leg-hold noose-mat trap. We trapped 25 birds over two seasons and were successful on 54% of our trapping attempts in 2003. We only trapped birds before the breeding season or between nesting attempts to reduce nest-site disturbance.

SINOPSIS. **Método para atrapar adultos de *Haemantopus palliatus***
Presentamos un método eficiente y efectivo para atrapar adultos reproductivos de *Haemantopus palliatus* que minimiza el disturbio en las reas de anidaje y el riesgo de heridas asociadas a su captura. Utilizamos un señuelo como carnada con un mecanismo dirigido por control remoto, para atraer y atrapar a machos territoriales. Atrapamos 25 individuos en dos temporadas y tuvimos un éxito de captura de 54%. Tan solo atrapamos aves antes de la época reproductiva y entre intentos reproductivos para reducir el disturbio en las reas de anidaje.

Key words: American Oystercatcher, decoy, *Haematopus palliatus*, leg-hold noose-mat, shorebird trapping

Shorebirds are commonly trapped at their nests during the breeding season, sometimes resulting in nest abandonment, damage to eggs, or attraction of nest predators (Gratto-Trevor 2004). We sought to develop a method for trapping American Oystercatchers (*Haematopus palliatus*) that minimized disturbance to adult birds and their nests. The American Oystercatcher was recently listed as a species of "High Concern" in the U.S. Shorebird Conservation Plan (Brown et al. 2001) due to evidence of a significant population decline in the center of the bird's range (Mawhinney and Bennedict 1999; Davis et al. 2001). Davis (1999) constructed a demographic model to investigate American Oystercatcher population trends. Her analysis was constrained by a lack of information about key demographic parameters, particularly juvenile, subadult, and adult survival rates. Additional mark-recapture studies are essential for determining these important demographic parameters (Pollock et al. 1990).

We have been trapping and banding breeding American Oystercatchers at Cape Hatteras National Seashore (75.53W, 35.24N), Cape Lookout National Seashore (76.54W, 34.61N) and on Audubon sanctuaries at the mouth of the Cape Fear River near Wilmington, North Carolina (77.97W, 33.92N), since 1999. The National Audubon Society manages three small islands where oystercatchers nest at high densities (McGowan 2004). Cape Hatteras and Cape Lookout are long, narrow Barrier islands that comprise over 180 km of coastline (Godfrey and Godfrey 1973). Our goal is to establish a color-banded population of birds to study patterns of dispersal and survival of birds nesting along the Atlantic coast of the southeastern United States. From 1999 to 2001 we experimented with several methods of trapping birds. Initially we used mist nests and a flip trap (Bub 1991) at nests, but we were unsuccessful because birds easily recognized and avoided our traps. We then experimented with a walk-in nest cage (Bub 1991). We trapped one member of several pairs with this method but were never able to trap both birds at their nest. We were also concerned that the risk of disturbance and injury with the method was high. Birds often reacted violently to capture, increasing the risk of injury or nest abandonment.

The method described here relies on the intense and often violent territorial behavior of American Oystercatchers. Oystercatchers defend large, linear territories that can span up to

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Fig. 1. American Oystercatcher decoy and leg-hold noose-mats. Photograph by Shiloh Schulte.

1.6 km of beachfront habitat during the breeding season. If a nonresident oystercatcher enters the territory of a breeding pair, resident birds display and attack intruders (Nol and Humphrey 1994).

The trap we developed consists of a set of leg-hold noose-mats (Bub 1991:195–203; Mehl et al. 2003) that are partially buried in the sand. Each noose-mat was made from 1.2 m × 0.3 m panels of 2.54 cm × 2.54 cm welded wire fencing. Each panel was covered with hundreds of slipknot leg-hold nooses tied with 22.7 kg test monofilament fishing line. We tied the nooses (approximately 13 cm in diameter) as described by Berger and Muller (1959) for a bal-chatri trap for raptors (Mehl et al. 2003). Each panel was held in place with stakes and covered with 3–4 cm of sand so only the fishing line nooses protruded out of the sand. Each panel took approximately 4 h to complete. We placed 3–5 panels around an oystercatcher decoy in the middle of an active oystercatcher territory (Fig. 1). In most cases, resident pairs displayed and attacked the decoy as if it were an intruding bird, eventually entangling their feet in the fishing line nooses as they approached the decoy. We removed trapped birds immediately to avoid injuries. Tangled oystercatchers were unlikely to break free due to the thickness and tensile strength of the noose material, but the heavy monofilament allowed the noose to loosen easily. We did not glue nooses because we found that glue weakened the monofilament and made nooses more likely to break.

The decoy was carved from blue-foam construction insulation, coated with foam coat, and painted to resemble an American Oystercatcher. A heavy-duty 10-cm long spring was attached to the bottom of the decoy. We mounted the decoy on a wooden box containing two radio-controlled servomotors. The motors and controller were part of a standard model airplane remote control kit available at many hobby shops for US $50 to $150. One servomotor turned the decoy from side to side. The second servomotor controlled a mercury

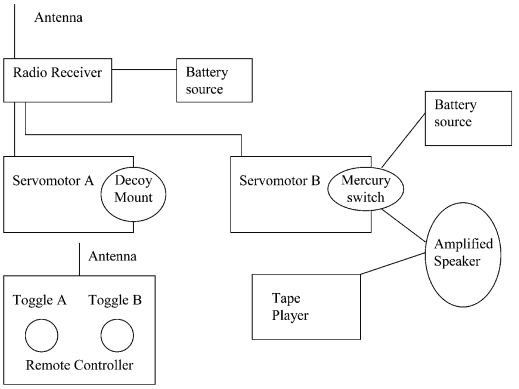

Fig. 2. Schematic diagram of circuitry for motorized decoy box. The remote control has one switch to control each servomotor in the box.

tip switch that activated an amplified loop tape of oystercatcher territorial calls (Fig. 2). This device allowed us to move the decoy and play the calls at will from up to 200 m away. The box was partially buried in the sand (Fig. 1). With this arrangement we were able to quickly and easily move the trap from one breeding territory to another. It took approximately 15 min to install the trap at each site. Total cost for the decoy and the radio-controlled box was approximately US $175.

During the 2002 and 2003 breeding seasons, we captured 25 breeding adult oystercatchers using the noose carpet and decoy design. It is difficult to report exact success rates and trapping times because the method evolved through trial and error over time (e.g., the decoy did not move or make sounds until May of 2002). We were most successful trapping birds just before egg laying when birds were courting and making nest scrapes. We were very successful when the decoy and trap were placed near the nest scrapes. Birds that were not making scrapes were generally not interested in the decoy. Birds only attacked the decoy in pairs. If a resident bird was alone when the decoy was set up, it always waited until its mate returned before attacking. We also caught several birds that were tending chicks. Adults aggressively defend their chicks from intruding adults at this stage. Occasionally, when the resident birds were unresponsive, we were able to herd them toward the decoy, which they subsequently attacked before they were trapped. We trapped and banded 18 breeding adults in 2002. Once the method was refined in the 2003 season, we trapped 7 birds in 13 attempts, for a success rate of 54%. Trapping times ranged from as short as 5 min to as long as one hour. We removed all traps after one hour regardless of success. If resident adults were tending chicks, we limited the trapping time to 0.5 h to reduce stress on the birds. We did not attempt to trap birds that were incubating eggs, again to minimize disturbance. We trapped birds in March and April before the breeding season started, between nesting attempts in May and June, and when birds were tending chicks in May and June. Aside from very minor skin abrasions on the tarsus, no birds were injured as a result of our trapping efforts. After birds were trapped, banded, and released, most flew 200 m away, but all birds remained on their territories. On two occasions after banding one member of a resident pair, we left the decoy and trap set up, hoping to catch the second bird of the pair. Both times the birds returned within 5 min and both times we caught the individual we had just released. These observations suggest that birds recover quickly from the stress of trapping and that birds do not become trap-shy once caught. The response of individual birds to the decoy and trap were highly variable, but we believe that with patience and persistence most birds can be caught with this method.

The decoy and noose-carpet trap is an efficient method for trapping breeding American Oystercatchers with a minimum of disturbance to birds and their nests. In light of recent evidence that American Oystercatchers are experiencing high rates of nest predation and nest failures related to human disturbance (Novick 1996; Davis 1999; Davis et al. 2001; George 2002; McGowan 2004), trapping methods that reduce nest-site disturbance are preferred. Although we only attempted to trap birds without eggs or with chicks, it may be possible to trap birds away from their nest during incubation without substantial disturbance to nests. This method may also be applicable to other species of territorial shorebirds, such as Willets (*Catoptrophorus semipalmatus*), Wilson's Plovers (*Charadrius wilsonia*), and Killdeers (*Charadrius vociferous*) for which trapping disturbance is a concern.

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