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# EFFECTS OF NEST-TRAPPING ON NESTING SUCCESS OF *EGRETTA* HERONS

SUSAN D. JEWELL[1] AND G. THOMAS BANCROFT

*Research Department*
*National Audubon Society*
*115 Indian Mound Trail*
*Tavernier, Florida 33070*

Abstract.—A box trap was designed and used to capture 30 adult *Egretta* herons at active nests. The trap was placed over a nest with eggs or nestlings and the door was manually closed by pulling a string when the bird had settled to incubate or brood. The trap worked well for catching breeding adults. Fifty-seven percent of the nests remained active after trapping. The probability of the nest remaining active was greatest when birds were trapped in the morning at nests with nestlings at least 4 d old. Nest failures were most frequent when the trap was set between 1000–1600 hours EDT on eggs or on chicks less than 4 d old.

**EFECTO EN EL ÉXITO DE ANIDAMIENTO DE LA CAPTURAS EN LOS NIDOS DE GARZAS DEL GÉNERO *EGRETTA***

Sinopsis.—Una trampa tipo cajón se diseño y utilizó para capturar en sus nidos activos a 30 adultos de garzas del género *Egretta*. La trampa fue colocada sobre el nido con huevos o polluelos y la puerta fue cerrada manualmente halando un cordel, cuando el adulto se encontraba posado sobre los huevos o polluelos. La trampa trabajó muy bien para la captura de adultos. El 57% de los nidos permanecieron activos luego de las capturas. La probabilidad de que los nidos permanecieran activos, resultó mayor cuando las aves fueron atrapadas en la mañana con polluelos al menos de 4 días de edad. El fracaso de los nidos resultó más frecuente cuando la trampa se colocó entre las 1000–1600 horas EDT sobre huevos o polluelos menores de 4 días.

Understanding the responses of individual breeding birds to environmental changes on the foraging grounds requires tracking individually marked breeders. Mist-netting of small birds near the nest, noosing (Blockstein 1985, Chardine and Morris 1987), and trapping (Burger 1971, Frederick 1986) of ground-nesting birds has worked well for capturing adult breeders. Arboreally nesting colonial wading birds pose a special problem for the capture of known breeders. Mist-netting near the colony does not insure that a breeder will be caught (Bateman 1970), and if a breeder is caught, finding its nest may be impossible. Mist-netting within a colony also may be impossible where vegetation is dense and nesting concentration high. Drugging has worked on Little Egrets (*Egretta garzetta*; Hafner and Britton 1983) and Wood Storks (*Mycteria americana*; J. Rodgers, pers. comm.), but requires special permits.

As part of a study of the foraging habitat requirements of an active colony of small herons in Everglades National Park, we needed to follow known breeders from the colony to foraging grounds. We were interested in examining the relationship between foraging habitat selection, stage

[1] *Current address: Research Center, Everglades National Park, Homestead, Florida 33030 USA.*

of nest cycle, and water conditions. This required capturing, marking and releasing known breeders as early in their nest cycles as possible without causing them to desert their nesting attempts.

Here we describe a modification of a nest trap (after Burger 1971, Frederick 1986) and the trapping techniques we developed over three seasons for capturing adult *Egretta*. Our trap, a welded wire cage placed on the rim of the nest, differed from Frederick's (1986) in size, lack of nestling corral, different tripping mechanism and potential for being placed on an arboreal nest. We used the trap for Snowy Egrets (*Egretta thula*), Tricolored Herons (*E. tricolor*), and Little Blue Herons (*E. caerulea*) nesting in mangrove colonies in Everglades National Park (Dade and Monroe counties, Florida). The research was conducted under U.S.F.W.S. Banding Permit 07104 and Florida Banding Permit W88165.

## METHODS

We formed a 61 by 183 cm section of welded wire fencing (2.5 by 5.0 cm mesh) into a cylinder 61 cm tall and approximately 33 cm in diameter (Fig. 1). We covered the top with welded wire and left the bottom open. The entrance was 25.5 cm high and 20 cm wide, starting 10 cm from the bottom. The door, 35.5 cm high and 28 cm wide, was welded wire curved to fit the opening. The two vertical door tracks were made from 8-gauge steel wire, each 95 cm long, bent at an angle near the top and bottom, and secured by spot-welding to the wire cage. The door was attached with utility wire looped around the vertical door tracks. We painted the trap with flat black paint. The completed trap was placed on the rim of a nest containing eggs or chicks. Sufficient clearance above the nest was required to allow for propping the door open. Occasionally small branches were bent and tied to increase clearance. The trap was stabilized by tying the top and bottom to branches with short sections of camouflaged cord. The door faced the direction from which the bird was expected to approach, based on prior observation from a blind.

To set the trap, the open door was rested on a black wooden dowel placed through the roof of the trap. To release the door, a trip cord (made of camouflaged cotton or nylon cord) attached to the dowel was pulled from an observation blind 5–10 m away. Several other methods of setting the trip stick could be used, depending on impeding vegetation and trap position relative to the blind. The bird usually returned to the nest area within 1–5 min. The bird generally walked directly into the trap if the door faced the direction from which the bird approached. The observer would wait until the bird had settled into an incubating or brooding position before tripping the door.

## RESULTS

We trapped 30 *Egretta* herons in 1986 (4), 1987 (14) and 1988 (12). These included 15 Snowy Egrets, 13 Tricolored Herons and 2 Little Blue Herons. The average duration from the time we first disturbed the bird to assemble the trap and blind to the time the bird was released was 45–

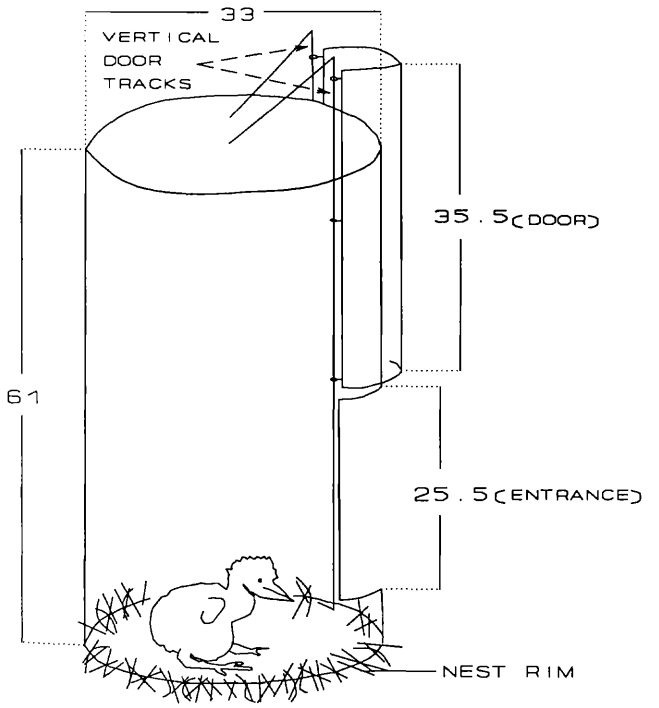


FIGURE 1. Design and dimensions (cm) of the nest trap for small herons.

60 min. All birds were measured similarly, had radio transmitters attached with back harnesses and released at the colony site. We followed the nests and adult birds to determine if the nesting attempt remained active. Four Snowy Egrets and nine Tricolored Heron nesting attempts failed during the day immediately after capture. Both attempts by Little Blue Herons remained active. Radio-tagged adults of successful nesting attempts returned to the colony.

Maintenance of an active nest for the days immediately following capture varied with the time of day birds were trapped (Table 1). The combined sample of morning and afternoon captures had a significantly lower probability of failing than did mid-day captures ($G = 6.18$, df = 1, $P < 0.05$). Success also varied with age of the nest contents. All nesting attempts with chicks older than 3 d remained active, while only one-third of the nests with younger chicks or eggs remained active. Sample sizes were not sufficient to investigate the interaction of time of day and age of nest contents nor were they large enough to look at differences between species.

Of the 13 failures, one resulted from depredation of eggs by American Crows (*Corvus brachyrhynchos*) while we were banding the adult and two resulted when small young were not brooded by an adult during the night.

TABLE 1. Nesting success of Snowy Egrets, Tricolored Herons and Little Blue Herons captured and radio-tagged at different times of the day.

| | Time of day[1] | | | | | |
|---|---|---|---|---|---|---|
| | Morning | | Mid-day | | Evening | |
| Age of nest contents | S[2] | F[2] | S | F | S | F |
| Eggs | 0 | 0 | 3 | 5 | 0 | 0 |
| 0–3-d-old chicks | 2 | 0 | 1 | 6 | 1 | 2 |
| >4-d-old chicks | 4 | 0 | 3 | 0 | 3 | 0 |
| Total | 6 | 0 | 7 | 11 | 4 | 2 |

[1] Morning = before 1000 hours EDT, Mid-day = 1000–1600 hours EDT, Evening = after 1600 hours EDT.
[2] S = succeeded, F = failed.

In the latter two cases, the adults were captured late in the afternoon. Apparently the tagged adult or its mate did not return to the nest. In the morning following trapping, the young were cold and lethargic. These nests were empty on the next check.

The exact cause of failure at the other 10 nests could not be determined with certainty. Abandonment or predation of the nest contents before a parent returned were the most likely causes. Crows were common in both colonies in which we worked and we suspect they caused most of these failures.

## DISCUSSION

This trap design proved safe with no significant trap-related injuries (several birds suffered minor skin scrapes). When the bird was given time to settle into a brooding position, it generally did not react to the falling door. Two factors occasionally prevented us from capturing target birds. Infrequently, when we did not take the time to observe from a blind the bird's entry route, the bird would not find the trap's door and would pace around the exterior of the trap. Secondly, several birds were extremely wary of the trap and would not approach the nest when the trap was set.

Our nest trap was smaller than Frederick's (1986), because size was more critical for our arboreal set-up than Frederick's ground placement. Our dimensions were suitable for *Egretta* herons. Another modification was not using a nest corral. A corral was not practical in an arboreal situation; therefore, we trapped on nests with nestlings too young to be mobile. Our third modification was using a manual tripping mechanism, rather than Frederick's self-tripping one. The manual trip allowed us to be selective in trapping and to close the door sooner than the bird might with a self-trip.

Nest failure related to trapping occurred in 13 of the 30 nests. Failure resulted from abandonment of the nest or depredation of the nest contents before the adult returned. All of the failures occurred at nests with either eggs or young less than 4 d old. We suspect the nest contents could not

physically withstand the absence of the parent. American Crows represent the most serious threat to unattended eggs or young.

We recommend the following procedures for the effective use of this trap. Camouflage the trap and place it on the nest after observing the bird's entry route from a blind. Trap only in the morning and on nests with nestlings at least 4 d old. Wait until the adult settles into brooding posture before tripping the door. In the absence of avian nest predators, this technique also may be effective on smaller young or during the later stages of incubation.

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LITERATURE CITED

BATEMAN, D. L. 1970. Movement-behavior in three species of colonial-nesting wading birds: a radio-telemetric study. Ph.D. thesis. Auburn University, Auburn, Alabama. 233 pp.

BLOCKSTEIN, D. E. 1985. Active netting to capture nesting Mourning Doves. N. Amer. Bird Bander 10:117–118.

BURGER, J. 1971. A method for marsh-trapping breeding Franklin's Gulls. Bird-Banding 42:123–124.

CHARDINE, J. W., AND R. D. MORRIS. 1987. Trapping and color banding Brown Noddy and Bridled Tern adults at the breeding colony. Colonial Waterbirds 10:100–102.

FREDERICK, P. C. 1986. A self-tripping trap for use with colonial nesting birds. N. Amer. Bird Bander 11:94–95.

HAFNER, H., AND R. H. BRITTON. 1983. Changes of foraging sites by nesting Little Egrets (*Egretta garzetta* L.) in relation to food supply. Colonial Waterbirds 6:24–30.

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