

# An evaluation of selected capture techniques for nesting shorebirds

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## Introduction

In many shorebird studies there is a need to capture nesting adult birds. In deciding what capture technique to utilize in a given situation, the advantages and disadvantages of various techniques must be evaluated. Although many potential shorebird capture techniques have been described, there is a lack of information on their relative merits.

I conducted a nesting study of the Mountain Plover (*Charadrius montanus*) from 1969-74 (Graul, 1973, 1974, 1975, 1976a, 1976b) in which I tried a number of capture techniques that had been described for use with other species. In this paper I will describe my results, since I think they will apply to a wide range of shorebird species.

## Methods

I utilized four trapping techniques to capture adults at nests or with small chicks away from the nest. The only difference between trapping at a nest and in a situation with small chicks is that in the latter cases I had to confine the chicks. This was accomplished either by staking the individual chicks down by tying monofilament line to their legs or by holding the chicks in a small cage constructed of hardware cloth. With chicks it was necessary to confine all members of the brood together. If this was not done, the attending adult would avoid the confined chick(s) and brood one of the siblings.

I first used a spring-loaded, manual release trap (Figure 1). This trap consisted of an approximately 40 cm x 50 cm hoop net driven by two standard rat traps. The frame of the hoop was nine-gauge wire that was attached to the arms of the rat traps. The hoop was covered with minnow seine netting with a 1/4" x 1/4" mesh. The traps were nailed to a T-frame constructed of 1" x 2" wood. When the trap was set, the hoop was held in place by a piece of coat hanger wire that was attached to one arm of the wooden frame. The preceding wire was, in turn, held by a small loop of wire. The trap was

placed adjacent to a nest and triggered by pulling a monofilament string attached to the small wire loop. Since the trap had a tendency to jump up when triggered, the wooden frame was held firmly in place by three large spikes driven into the ground.

In some cases a drop net was utilized which consisted of a 1 m x 2 m frame covered with three layers of mesh net (2 1/2" mesh). One end of the frame was held 45 cm above the ground with a stick which was pulled away once the adult had settled on the nest.

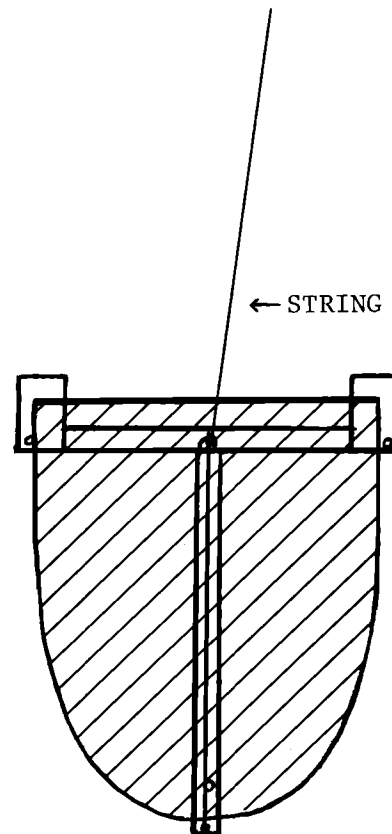
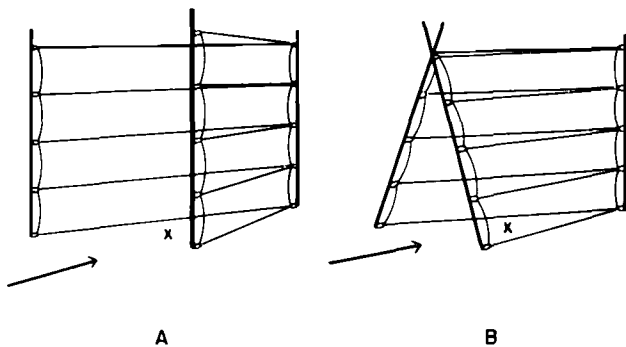


Figure 1. Spring-loaded, manual release trap in set position.

Night-lighting (Labisky, 1959, 1968; Cummings and Hewitt, 1964) was utilized at some nests. I used a 200,000 candlepower light (Brookstone Co., 121 Vose Farm Road, Peterborough, NH 03458), powered by a 12-volt car battery. Using this technique, I would slowly drive to a nest with the light on the bird. An assistant would then get out of the car and net the bird with a mist net-covered hoop attached to a 2 m long pole.

A mist net tunnel trap was used frequently at nests. The technique has been described in detail by Martin (1969). The technique utilizes a V-shaped arrangement of two upright mist nets combined with a flushing approach toward the open end of the V. Details of the technique are described by Martin as follows: "I use two 30 or 36 mm mesh four-shelf mist nets, six meters long, linked by a common conduit pole. This center pole is placed about four meters from the nest, and the two nets are extended on opposite sides of the nest, each passing about 1.3 meters from the nest site and about two meters beyond." He further



described how to modify the preceding into a tunnel: "In this arrangement, the two end poles are positioned closer together (the nets pass about 0.8 meter from, and on opposite sides of, the nest) and are crossed near their tops, providing a slight overlap of the two nets along their entire length, preventing vertical escape. Generally, 12-meter nets are more practical for this procedure, since they allow increased flexibility in the amount of overlap and pocket sag. It is also advisable to bind together the two vertical end strings (one from each net) which anchor the mesh at the closed end of the tunnel. Clothes pins work admirably for closing this gap." pp. 234-235.<sup>1</sup>

In addition to trapping at nests, I did try to capture Mountain Plovers in flocks with mist nets. In these attempts I tried nets that measured 12 m x 2 m and 12 m x 1 m.

<sup>1</sup> Permission to quote from editor of *Bird-Banding*.

## Results and discussion

The spring-loaded, manual release trap had the advantage of being highly portable and easy to set quickly. Key disadvantages, however, were associated with the use of this trap. Some birds refused to settle on the eggs in a reasonable amount of time (10-15 minutes) due to the presence of the foreign object adjacent to the nest. Additionally, one bird was injured by the trap hoop frame as the bird tried to fly from under the trap as it was being triggered. Finally, about 50% of the birds trapped with this technique subsequently abandoned their nests. For these reasons, I soon discontinued the use of this trap.

The drop net did enable me to capture some birds at nests when they would not approach the preceding trap. The birds did not seem to mind the structure over the nest when they would not tolerate an object on the ground adjacent to the nest. The major drawback was that the wind would frequently cause the frame to fall prematurely.

The spotlight technique, when used properly, allowed me to capture some birds that I could not catch otherwise. The intensity of the light was critical. Whereas I had good success with the 200,000 candlepower light, initial attempts with a 40,000 candlepower failed. Furthermore, the technique only worked on overcast nights. The main disadvantage of this technique was that most birds would subsequently abandon the nests.

The mist net tunnel trap worked well at most nests. One advantage was that the trap was not immediately adjacent to the nest; birds would settle on the nest quickly. Additionally, a bird was actually caught in the netting a short distance from the nest site. Apparently because the trap was not associated with the nest, abandonment was not a problem. The main disadvantage was that the trap was rather bulky to transport and did take some time to set and remove.

Although I have had good success with mist-netting other shorebird species during migration, all attempts at mist-netting flocks of Mountain Plovers failed. The birds could easily be driven towards the nets, but they would then fly over the nets. I even tried this in the evening when it was so dark that I had to use lights to drive the birds.

In terms of techniques, the mist net tunnel trap seems to have the best potential for ground-nesting shorebirds. In cases where it will not work, spotlighting can be utilized as a last resort. Spotlighting also has applications for capturing shorebirds away from nests.

In addition to traps per se, there are some timing considerations for increasing trapping success. On a daily basis there are times when incubating adults are nearly impossible to catch and other times when they can be caught with almost any technique. For instance, Mountain Plovers have a strong tendency to cover the eggs or shade the chicks during the heat of the day; consequently, I did most of my trapping in mid-afternoon.

Similarly, in most species the tendency to incubate increases slowly through time with a peak just as the chicks are hatching. Then, as the chicks grow, the tendency to brood slowly decreases. Some birds, therefore, can be trapped at hatching time when they cannot otherwise be trapped. Mountain Plovers, as well as most other species, will not abandon newly hatched chicks in response to trapping efforts whereas they might do so with eggs.

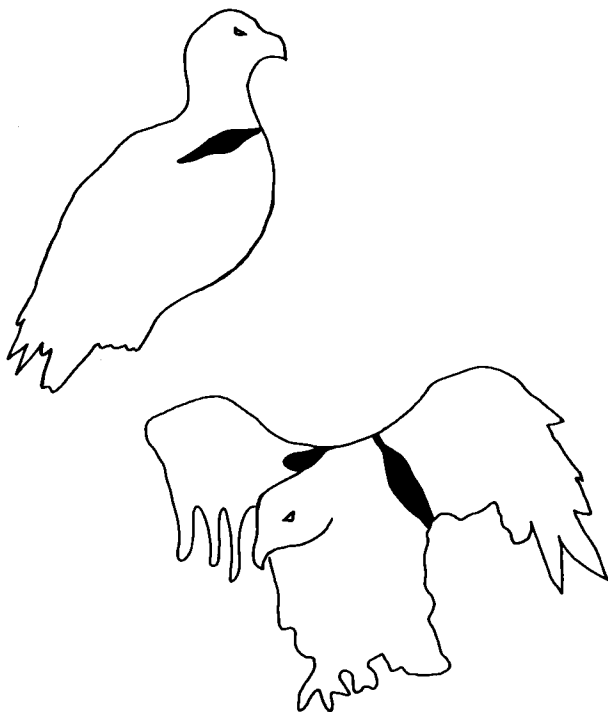
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### Color-marked Golden and Bald Eagles

The research personnel at the University of Washington and Seattle's Woodland Park Zoo have released Golden and Bald Eagles wearing colored vinyl markers in the area of American Camp, Washington.

These eagles have been marked in order to determine the movements of the Golden and Bald Eagle populations that winter on San Juan Island. The colored markers are visible from the rear and the sides of a perching bird, and from above and below a flying bird. Marker colors are orange and yellow.

If you should see such a bird, please note location of bird, date of sighting, activity of bird. Please mail this information with your name and address to the Bird Banding Laboratory, with a copy to Eagle Rehabilitation Program, Woodland Park Zoological Gardens, 5500 Phinney Ave. N, Seattle, WA 98103. Tel: (206) 625-4550 or 625-2244.