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A NIGHT-LIGHTING TECHNIQUE FOR CAPTURING CORMORANTS

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Abstract.—A night-lighting technique was developed, using a modified jon-boat, for capturing wintering Double-crested Cormorants (*Phalacrocorax auritus*) that roost in cypress trees surrounded by water. During November–March of 1990–1993, 115 cormorants were captured. In 1993, 33 cormorants were captured at the rate of 2.5 cormorants per hour of effort. The approximate cost of the fully equipped capture boat was $4000 (US). Only one bird was slightly injured from night-lighting and it is concluded that this is a safe and cost-effective way to capture wintering cormorants in the Delta region of Mississippi.

TÉCNICA DE ILUMINACIÓN NOCTURNA PARA CAPTURAR CORMORANES

Sinopsis.—Se desarrolló una técnica de iluminación nocturna para capturar, desde un bote, individuos invernales de *Phalacrocorax auritus*, que pernoctaban en árboles de ciprés rodeados de agua. De noviembre a marzo de 1990–1993, se capturaron 115 cormoranes. En el 1993, se capturaron 33 aves para una tasa de 2.5 individuos/hr de esfuerzo de captura. El costo aproximado del bote completamente equipado fue de $4,000. Durante las capturas sólo una ave fue herida, por lo que se concluye que el método es seguro y costo-efectivo.

Various modifications of the night-lighting technique that employ boats have been used to capture waterfowl and other birds for many years (Bishop and Barratt 1969, Cummings and Hewitt 1964, Lindmeier and Jessen 1961, Snow et al. 1990). Almost no information has been published describing techniques used to capture post-nestling cormorants. Foster and Fitzgerald (1982) used a modified bal-chatri trap placed in shallow water loafing areas to capture Olivaceous Cormorants (*Phalacrocorax olivaceous*) in Paraguay. We needed a technique with a capability to capture several cormorants from the same roost site within one or two consecutive nights. We describe a modified night-lighting technique for capturing Double-crested Cormorants (*Phalacrocorax auritus*) at their

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FIGURE 1. Jon-boat showing positioning of night-lighting equipment (bow rail, lights, converter box, and generator) and personnel.

winter roost sites in the delta region of Mississippi. Cormorants that winter in this area use cypress trees (*Taxodium distichum*) surrounded by water for night roosts. The birds were captured for use in a radio telemetry study to determine cormorant movements and activities around aquaculture facilities.

EQUIPMENT AND METHODS

Our capture boat was a 4.6 m jon-boat equipped with a 0.6 m high bow rail and a padded bow seat for kneeling (Fig. 1). A 25-hp outboard motor was used to power the boat. Three 500-W floodlights were mounted on the bow rail during the capture sessions. The lights were plugged into a four-receptacle box mounted on the inside of the boat and adjusted to provide the desired field of illumination. Electricity for the floodlights was provided by a 2250-W, 120-V gasoline generator secured and grounded to the boat. The exhaust system of the generator was extended over the gunwale to divert the fumes away from the boat operator. An AC-DC, 30-A converter was connected to the generator to provide electricity for two hand-held spotlights (400,000–1 million candlepower). Hand-held spotlights were powered by a 12-V marine battery when the generator was not in use. Cormorants were captured with a commercially available landing net approximately 0.8 m in diameter and 1.2 m deep with a 2–3 m handle (Fig. 1). Burlap bags (1 × 0.6 m) were used to hold the

cormorants after capture. The approximate cost of the fully equipped capture boat was $4000 (US).

The capture procedure required two people: one person to operate the boat and spotlight, and one person to net the birds. At least 30 min after dark, the capture crew would slowly approach the roost in a manner that caused the cormorants to flush from trees onto the water. While maneuvering the boat through the roost, a hand-held spotlight was used to locate cormorants beyond the illumination range of the floodlights. The boat was then directed toward a cormorant, or raft of cormorants, highlighting the target bird with the hand-held spotlight. The speed of the boat was fast enough to overtake the swimming cormorant without creating a bow-wake. Upon approaching the cormorant, the capture person would kneel on the padded bow seat and lean out, over the safety rail, with a net raised at shoulder level behind the lights. When a cormorant was within range, the net was swung downward and over the bird. The capture person then lifted the cormorant from the water while twisting the handle 180° to prevent the bird from swimming or jumping out of the net. The head and feet of the captured birds were restrained as they were removed from the net. Each captured cormorant was placed in a separate burlap bag and the opening taped shut. The bag was secured lightly around the cormorant to prevent injury and to reduce stress. Captured cormorants were then transported to shore for processing as soon as possible.

Capture sessions were conducted during a variety of weather conditions consisting of dark overcast and clear moonlit skies, and fog, rain, wind and rough water.

RESULTS AND DISCUSSION

During November–March of 1990–1993, 115 cormorants were captured using this technique with the only injury being the loss of a toenail as a cormorant was being removed from the net. Unrelated to capture, two cormorants were asphyxiated when they were exposed to gasoline that was accidentally spilled when refueling the generator. During 1993, 33 cormorants were captured in 13 h (2.5 cormorants captured/hour of effort). Our rate was much higher than the capture rate of one Olivaceous Cormorant/h reported by Foster and Fitzgerald (1982) when using a modified bal-chatri trap. Using equipment and techniques similar to ours, B. Blackwell (pers. comm.) captured seven Double-crested Cormorants in 2 h on calm water at the mouth of a Maine river during the breeding season. Lindmeier and Jessen (1961) reported a success rate of 1.3 ducks/h in Minnesota. Cummings and Hewitt (1964) reported a success rate of 6.9 ducks/h on dark nights and 2.15 ducks/h on clear nights in New York. Bishop and Barratt (1969) reported averages of 4–6.6 ducks/h in Iowa. As members of a capture team gained experience working with the birds and the equipment they became more efficient. Bishop and Barratt (1969), Cummings and Hewitt (1964), and Snow et al. (1990) reported that ducks were easier to capture on dark, calm, overcast nights. We found these conditions to be similarly favorable for capturing cormorants.

The combination of the lights and noise produced by the generator and the boat motor seemed to disorient the birds (Cummings and Hewitt 1964, Drewien et al. 1967, Lindmeier and Jessen 1961). If a raft of cormorants was approached slowly, the birds would normally remain in a tight group, parting slightly as the boat was slowly maneuvered among them. Under these circumstances, the cormorants seemed to ignore the boat, allowing easier capture. We found, however, that approaching the middle of a raft of cormorants at too fast a speed would cause the birds to fly toward the lights on the capture boat.

Individual cormorants tended to be more wary of the capture boat than flocks. They would often swim away from the boat and begin diving before the boat moved into capture range. Cormorants that were not captured by the third attempt usually became too skittish, making further netting attempts futile.

Cummings and Hewitt (1964) note that >80% of their birds were caught in areas with 15.2–25.4 cm of water. Bishop and Barratt (1969) note that prairie marshes with at least 61 cm of water were workable for their equipment. Many cormorant roost sites in the delta region of Mississippi are ox-bow lakes where the water may be >3 m in some places. Capturing cormorants in the shallow water areas of a roost, however, was easier because cormorants swimming underwater in areas <1 m deep created a surface wake. This wake allowed the operator to maneuver the boat to the optimum position for capture of the cormorant when it surfaced.

This modified night-lighting technique is a useful and efficient method for capturing cormorants in the Delta region of Mississippi, and presumably in other areas.

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