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METAL BARRIERS PROTECT NEAR-GROUND NESTS FROM PREDATORS

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Abstract.—We describe a method of protecting near-ground nests by using a metal cylindrical barrier that excludes ground predators. Aerial predators may be excluded by adding a canopy of stiff wire prongs. Tests in Florida show that this method significantly reduces nest predation of Seaside Sparrows (*Ammodramus maritimus*).

BARRERAS DE METAL PARA PROTEGER DE DEPREDADORES NIDOS CERCA DEL SUELO

Resumen.—Se describe un método utilizando barreras cilíndricas para proteger de depredadores nidos cerca del suelo. Depredadores aereos pueden ser excluidos utilizando un docel de alambre de "púas" (estrias). Pruebas en Florida mostraron que este tipo de artefacto reduce la depredación de nidos tales como el de *Ammodramus maritimus*.

The activities of humans around bird nests may increase the likelihood of predation (Bart, Living Bird 16:187–192, 1977). If the objectives of a study require close examination of nest contents on successive days, it is important to protect nests, which become valuable investments to the investigator. After working with salt-marsh sparrows (*Ammodramus*) for several years, we found that a metal barrier placed around the nest site significantly reduces nest predation. The type of barrier chosen depends on the species of terrestrial predators in the area. In the northeastern U.S. salt marshes, where the main nest predators (garter snakes, *Thamnophis sirtalis,* and Norway rats, *Rattus norvegicus*), are not highly arboreal, we used ¼ in (0.64 cm) hardware cloth. In Florida salt marshes, where the common predator is the rice rat (*Oryzomys palustris*), a proficient climber, we employed galvanized sheet metal. We recommend circular barriers with a minimum circumference of 4.5 m. However, some individual birds do not accept this size, and we have used barriers up to 6 m in circumference. The barrier should be embedded in the substrate 5–6 cm, and extend above ground at least 1.5 m. Surrounding vegetation, which could serve as a bridge over the barrier, should be removed or flattened.

Once incubation has begun, and the chances of desertion are slight, we move the cylinder to within 5 m of the nest, and leave it for one day to allow the birds to habituate to it. We then put the cylinder around the nest, but leave a gap in one side, and the vegetation undisturbed, allowing

the parents to enter surreptitiously. We then watch the parents to confirm that they are visiting the nest regularly. After acceptance, the adults will often fly directly over the barrier to reach the nests, sometimes landing on it before entering. After confirmation of acceptance, the barrier is closed, dug in, and outside vegetation removed. Again, the nest should be watched to make sure the adults are entering the cylinder as before. During 1977–1978 in New York, we placed barriers around 51 Seaside Sparrow nests, and all were accepted.

Although the cylinders exclude terrestrial predators, they may increase the likelihood of visits by aerial predators. To prevent this, we constructed a canopy of wire prongs over the cylinder. Stiff wires, such as used for surveyor's flags, may be employed. We usually embed 12–15 wires, 122 cm long, in the ground on the outside edge of the cylinder, bending them inward from the top edge of the barrier to form a flexible canopy over the nest. This method appears to deter visitations by Fish Crows (*Corvus ossifragus*) in Florida, and would probably discourage the entry of other aerial predators.

In Florida we determined that galvanized metal barriers with wire prongs significantly reduce nest predation of Seaside Sparrows. In 1979, 20 of 42 protected nests produced young, whereas two of 34 unprotected ones were successful ($\chi^2_{\text{adjusted}} = 13.94$; $P < 0.001$). Another benefit of the metal barrier is that it retains young for up to a week after they have fledged, allowing extended studies of growth rates and diets.

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