

- HUBBS, C. L., A. L. KELLY, AND C. LIMBAUGH. 1970. Diversity in feeding by Brandt's Cormorant near San Diego. *Calif. Fish and Game*, **56**: 156-165.
- MURPHY, R. C. 1936. Oceanic Birds of South America. New York, Am. Mus. Nat. Hist.
- NELSON, E. W. 1903. Notes on the Mexican Cormorant. *Condor*, **5**: 139-145.
- SERVENTY, D. L. 1938. The feeding habits of cormorants in south-western Australia. *Emu*, **38**: 293-316.
- THOMPSON, W. A., I. VERTINSKY, AND J. R. KREBS. 1974. The survival value of flocking in birds: a simulation model. *J. Anim. Ecol.*, **43**: 785-820.
- VAN DOBBEN, W. H. 1952. The food of the cormorant in the Netherlands. *Ardea*, **40**: 1-63.
- WELLER, M. W. 1967. Notes on some marsh birds of Cape San Antonio, Argentina. *Ibis*, **109**: 391-411.
- MICHAEL L. MORRISON AND R. DOUGLAS SLACK, *Department of Wildlife and Fisheries Sciences, Texas A & M University, College Station, Tex. 77843*. Received 10 March 1977, accepted 23 May 1977.

Nightlighting as a Method for Capturing Common Nighthawks and other Caprimulgids.—Nightlighting has been used to capture many species of birds (Labisky, *Ill. Nat. Hist. Surv. Biol. Notes*, No. 40, 1959), but few published accounts of nightlighting caprimulgids exist. We have found no reference to nightlighting Common Nighthawks (*Chordeiles minor*) in the literature, but Sprunt (*U. S. Natl. Mus., Bull.* 176, 147-162, 1940) reported catching several Chuck-will's-widows (*Caprimulgus carolinensis*) by nightlighting. According to the U. S. Fish and Wildlife Service files, the 23 Common Nighthawks we banded in 1969 constituted an annual all-time high for one permit in the banding of caprimulgids in North America (J. M. Sheppard, 1974 pers. comm.). Of these, 20 (14 males and 6 females) were adults captured by the method described below.

We concentrated our efforts on gravel roads adjacent to irrigated cropland near Shepherd, in semiarid, southcentral Montana. Observations of nighthawks on the roads were made on seven nights during the summer of 1969. All of the captures were made on 28 and 29 June 1969.

We located nighthawks by driving slowly, 15-20 mph, along the backroads at night, between 2200 and 0100, with headlights on high beam. When a nighthawk was seen, generally 10 to 20 yd from the vehicle and on the edge of the road, we stopped, leaving the headlights on, and one of us quietly left the vehicle and stalked the bird while shining a 6-volt flashlight beam on it. The netter approached slowly, being careful not to come between the headlights and the bird, and captured it with a 12- by 14-in fish landing net on a 6-inch handle. Better results were obtained when the motor was left running to muffle the sounds of the approach. Birds seen but not captured were usually ones that flushed before we saw them on the ground. With nightlighting, we captured 23 nighthawks (including two recaptures and one injury) of the 41 we saw on the roads.

Common Nighthawks seemed most prone to roost on the roads after a rainstorm. The banding area received 4.13 inches of rain in the four days prior to the successful banding. All other road-roosting nighthawks were seen during or immediately after a rainstorm, except on 26 July 1969, when five nighthawks were seen close together on dry ground. The field adjacent to the road was being irrigated, however. We also noted that road-killed nighthawks were generally found during rainy periods.

M. A. Jenkinson and R. M. Mengel (1974 pers. comm.) tried to capture Chuck-will's-widows and Whip-poor-wills (*Caprimulgus vociferus*) by nightlighting in Kansas. Their techniques were similar to ours, but they used a small spotlight, held by one person who remained in the car while the other attempted to capture the nightlighted bird. (In our operation, the netter carried both the net and the light.) They also used a net 30 inches in diameter on both a 7- and 12-ft pole and removed the bulb from the car's dome light or covered it with red cellophane. They noted, as we did, that birds shined too long tended to "recover" and fly away. They captured only three birds (all Whip-poor-wills) from over 75 attempts. They felt that, contrary to what many ornithologists believe, nightlighting caprimulgids was very inefficient.

We do not know if our success in capturing Common Nighthawks was due to local, opportune conditions or if there are specific differences in vulnerability

to nightlighting in the caprimulgids discussed. Sprunt's (op. cit.) report on capturing Chuck-will's-widows suggests that local conditions may be important. Bent's (*U. S. Natl. Mus., Bull.* 176, 1940) statement that Poor-wills (*Phalaenoptilus nuttallii*) were especially tame and unsuspecting implies variations in shyness among the caprimulgids, perhaps size-related. Labisky (*Ill. Nat. Hist. Surv. Biol. Notes*, No. 62, 1968) found that Greater Prairie Chickens (*Tympanuchus cupido*) were much harder to capture by nightlighting than Ring-necked Pheasants (*Phasianus colchicus*).

Although we found nightlighting satisfactory in capturing Common Night-hawks, potential caprimulgid nightlighters should be aware of the experiences of Jenkinson and Mengel and possibly others who did not publish negative results.

We acknowledge and thank Louis M. Moos, who supervised the banding, Marion Anne Jenkinson and Robert M. Mengel, who offered their observations and suggestions, and Robert L. Eng, who reviewed the manuscript.—JON E. SWENSON, *Montana Department of Fish and Game, 615 So. Taylor Ave., Glendive, Mont. 59330* and STAN SWENSON, *Box 86, Shepherd, Mont. 59079*. Received 8 December 1974, accepted 5 June 1977.

Roadrunner takes Birds from Mist Net.—The Roadrunner (*Geococcyx californianus*) is seldom outmatched for boldness and adaptability. A demonstration of these traits occurred late in the morning of 3 January 1975, in my backyard on the outskirts of Stillwater, Oklahoma. The bird was photographed in the act of taking a dead female Cardinal (*Cardinalis cardinalis*) caught in a furled mist net. The Cardinal had been caught accidentally before dawn and was dead when I discovered it. Noting the condition of the bird, I had delayed its removal until ready to fill the bird feeders later in the morning.

The roadrunner is a very infrequent visitor and its presence always engenders excitement in our household. On this occasion the bird appeared at 1115 from under some junipers near where the Cardinal was held in the mist net. It emerged slowly, and began sunning near the sheltering shrubs.

After preening and repeated feather spreading, the Roadrunner then walked under the net and the Cardinal nearly six feet above it. The bird suddenly lunged upward, grasped the head of the Cardinal, and hung there for several seconds before dropping to the ground. The Roadrunner jumped vertically three more times, each time grasping the bird, kicking, flapping and hanging. The weight and activity of the bird tore the Cardinal free from the netting. The Roadrunner ran out of the yard with the Cardinal and under the nearby shrubbery. The entire episode took approximately 25 minutes.

Following the incident described above, the Roadrunner became a frequent visitor to the mist net. When the bird was observed in or near the shrubbery, activity by other birds in the immediate vicinity diminished. On two occasions the bird was observed taking live prey (one Cardinal and one Dark-eyed Junco, *Junco hyemalis*) from the net in the same manner as above. These latter incidents occurred during active banding operations. On the first occasion the Cardinal was deliberately left in the net to determine whether the Roadrunner would take the live prey. The second incident occurred before I could intervene. I therefore set a wire ground trap, baited with a dead House Sparrow (*Passer domesticus*) wired to the interior baffle. Within one hour the Roadrunner had trapped itself and was banded and color marked (plastic leg band). The marked bird remained in the neighborhood for approximately six more weeks, spending much of its time in the vicinity of the mist net.

The only comparable reported occurrence of avian predation on a netted bird, to my knowledge, is that by Gill and Stokes (*Wilson Bull.*, **83**: 101-102, 1971). They observed Smooth-billed Ani (*Crotophaga ani*) deliberately attack and begin eating (skull portion) an immature male Blue-black Grassquit (*Volatinia jacarina*) caught in a mist net 21 February 1970 in Colombia, South America. The two predation incidents, i.e. ani and roadrunner, occurred during periods of presumed food shortage.—JOHN S. BARCLAY, *Department of Ecology, Fisheries and Wildlife, Oklahoma State University, Stillwater, Oklahoma 74074*. Received 30 March 1977, accepted 7 June 1977.