

On 6 March 1979, in Burnett County, Wisconsin, I saw 2 radio-tagged birds, with 2 unmarked Sharp-tailed Grouse at 1422; they flushed as I approached them. At 1431, 45 m distant, I observed a juvenile Goshawk flush from the carcass of a juvenile female Sharp-tailed Grouse, one of the tagged birds seen 9 min earlier. This grouse weighed 679.5 g 79 days earlier when tagged with a 24.1-g (3.5% of bird weight) radio-package.

The time between radio-tagging and death indicates these grouse survived the "adjustment period" reported to be 2 days (Dumke and Pils 1973:46; Herzog 1979:318) to 2 weeks (Boag 1972:516) for other Galliformes with radio-packages of similar design. Neither bird had signs of skin irritation at the areas of contact with the radio-package. Radio-package weight was less than the 4% of body weight acceptable for birds (Brander and Cochran 1971:96). I detected no obvious behavioral differences between these Sharp-tailed Grouse and untagged flock members during previous observations. Despite apparent "proper" radio-tagging, I suspect these Goshawks selectively preyed upon the radio-tagged grouse.

Previous observations of Goshawk predation on radio-tagged Sharp-tailed Grouse are lacking or unpublished, although Ammann (1959) and Blus (1967) reported Goshawks preying on untagged Sharp-tailed Grouse at spring display grounds.

Financial support was provided by the Wisconsin Department of Natural Resources and University of Wisconsin, Stevens Point. I thank J. E. Toepfer for guidance regarding radio-tagging and radio-package construction. R. K. Anderson and R. N. Rosenfield constructively commented on drafts of this note.

LITERATURE CITED

- AMMANN, G. A. 1959. Sharp-tailed Grouse predation by Goshawk. *J. Wildl. Manage.* 23:110-111.
- BLUS, L. J. 1967. Goshawk predation on Sharp-tailed Grouse in the Nebraska sandhills. *Wilson Bull.* 79:449.
- BOAG, D. A. 1972. Effect of radio packages on behavior of captive Red Grouse. *J. Wildl. Manage.* 36:511-518.
- BRANDER, R. B., AND W. W. COCHRAN. 1971. Radio-location telemetry. Pp. 95-103 in R. H. Giles, Jr. (ed.), *Wildlife Management Techniques*. 3rd ed. The Wildlife Society, Washington, D.C.
- DUMKE, R. T., AND C. M. PILS. 1973. Mortality of radio-tagged pheasants on the Waterloo Wildlife Area. *Wis. Dept. Nat. Resour., Tech. Bull.* 72:1-52.
- HERZOG, P. W. 1979. Effects of radio-marking on behavior, movements, and survival of Spruce Grouse. *J. Wildl. Manage.* 43:316-323.
- MICHAEL W. GRATSON, *College of Natural Resources, University of Wisconsin, Stevens Point, Wisconsin 54481*. Received 11 Feb. 1981; accepted 19 Oct. 1981.

Sightings of Knots Banded and Color-marked in Massachusetts in August 1980.—

The North American Red Knot (*Calidris canutus rufa*) is known to "winter" primarily in temperate latitudes of South America with small numbers also wintering in subtropical and temperate North America (Palmer 1967, in *Shorebirds of North America*, Viking Press, New York). However, the routes and stopover areas between breeding and wintering grounds are not well described. This report presents findings of a color-marking program we initiated in order to learn more about the population size and migration routes of *C. c. rufa*. We also hope this summary will stimulate further reporting of sightings of color-marked knots.

On 7 August 1980 we captured and marked 161 knots in Scituate, Massachusetts (ca. 42°N, 71°W) using a rocket net (18 × 9 m, 2.5 cm knotless nylon) propelled by 4 rockets. Each bird was (1) dyed yellow on the rump, tail, and undertail coverts with a saturated solution of 95% ethanol and picric acid, (2) banded on the left tibia with a stainless steel

TABLE 1. Sightings of Red Knots banded and color-marked in Scituate, Massachusetts on 7 August 1980.

Location	Date	No. of knots present	No. of marked birds	Observer
Massachusetts				
Scituate	07 Aug. 1980	2500	161 ^a	authors
	08 Aug. 1980	2400 ^b	18	authors
	11 Aug. 1980	1000	12	Peter Stangel
	17 Aug. 1980	480	6	authors
	24 Aug. 1980	700	0	authors
	06 Sep.–10 Oct. 1980	400 ^c	0	authors
Duxbury	10 Aug. 1980	77	11	authors
Plymouth	08 Aug.–14 Aug. 1980	49 ^c	0	Peter Stangel
	15 Aug. 1980	40	1	Peter Stangel
	18 Aug. 1980	265	1	Peter Stangel
	21 Aug.–26 Sep. 1980	2350 ^c	0	Peter Stangel
Chatham	10 Aug. 1980	350	ca. 4	Wayne Petersen
	17 Aug. 1980	75	3	authors
	20 Sep. 1980	50	1	authors
New York				
Jamaica Bay	16 Aug. 1980	“others”	1	Richard P. Guthrie
U.S. Virgin Is.				
Anegada I.	23 Aug. 1980	14	1	Richard R. Veit
Argentina (southbound)				
Penin. Valdes	12 Sep. 1980	10	1	Laura Payne
	02 Oct. 1980	2625 ^b	2	Laura Payne
	05 Oct. 1980	3800 ^b	1	Laura Payne
Florida				
Sarasota	01 Jan.–14 Jan. 1981	4500	0	authors
Venezuela				
Maracaibo	06 Mar.–15 Mar. 1981	900	0	authors
Argentina (northbound)				
Penin. Valdes	28 Mar.–22 Apr. 1981	ca. 8000	6 ^d	authors
Texas				
Galveston	24 Apr. 1981	1300	0	Joseph A. Van Os
New Jersey				
Cape May Co.	14 May–25 May 1981	61,000 ^{b,e}	13	authors

^a Number caught and marked.^b All birds were not searched for marks.^c Sum of birds counted on more than one day.^d Includes two birds captured and released.^e Count by Wade Wander, New Jersey Audubon Society.

band issued by the United States Fish and Wildlife Service, and (3) color-banded with a blue plastic band (National Band and Tag Company, Newport, Kentucky) on the right tarsus. After measuring (wing, bill, and weight) all birds were released at the point of capture.

Periodic censuses of local shorebird resting areas were maintained for about a month following release of the marked knots. In addition, International Shorebird Survey co-operators and other ornithologists in North, Central, and South America were alerted to watch for marked birds via our own mailings as well as notices in popular and technical ornithological journals. Finally, we searched for marked birds at areas of knot concentrations in New Jersey, Florida, Venezuela, and Argentina.

Results and discussion.—The majority of knots marked on 7 August apparently departed southeastern Massachusetts within 10 days of marking, as evidenced by the decreasing ratios of marked to unmarked birds at and near the banding site (Table 1). Subsequent sightings of the marked knots suggest that the birds caught on 7 August travelled to southern Argentina, the fastest one taking about 36 days to reach Peninsula Valdes (ca. 43°S, 64°W), a distance of about 8300 km.

During the 1981 northward migration we also had 7 sightings at Peninsula Valdes of knots from the 7 August "banding class," including 2 captured on 11 April and another seen on 22 April, the last day of field work. On 14 May we again found members of the 7 August banding class, now in Cape May County, New Jersey (ca. 39°N, 75°W), plus an additional 12 sightings between 14 and 25 May (Table 1).

We also had some important negative results. Between 1 and 10 January we looked for marked birds among approximately 4500 knots in the Sarasota region of western Florida. None from the 7 August banding class was found. Between 6 and 15 March we looked for marked knots among migrants in western Venezuela, carefully checking approximately 900 birds; no marked birds were found.

The results presented here show that a well-timed banding and survey program at strategic locations is a fruitful way to research knot migration. Our work also has included other banding and color-marking in Florida, New Jersey, Massachusetts, and Argentina. Taken together, and with some additional field work, we are confident that a well-founded estimate of the relatively small world population of *C. c. rufa*, as well as a good description of the migration routes and major staging areas, will be possible.

We thank the interns and friends of Manomet Bird Observatory who have provided field assistance and financial support for our work. For logistical support, we thank Arturo Tarak and Pablo Canevari, Administracion Parques Nacionales (Argentina), Clark Casler and José R. Lira B., Universidad de Zulia (Venezuela), Roger and Katy Payne (New York Zoological Society), Manuel Sacerdoti and N. Charles Rowe (Banco de Boston), Marian Glasp and Ann Galli (Wetlands Institute, New Jersey) and Howard and Bendy Payne (Sarasota, Florida). We also thank the Scherman Foundation and the Frederick W. Beinecke Fund for financial support. Finally, we thank Joseph A. Hagar for his helpful comments throughout our work.—BRIAN A. HARRINGTON AND LINDA E. LEDDY, *Manomet Bird Observatory, Manomet, Massachusetts 02345*. Received 27 Aug. 1981; accepted 2 Oct. 1981.

Cowbird Egg in Common Tern Nest.—The Brown-headed Cowbird (*Molothrus ater*) may rarely lay an egg without chance of survival in an inappropriate nest such as that of a duck, hawk, or gull (Friedmann, U.S. Natl. Mus. Bull. 233:44–46, 1963; Friedmann, et al., *Smithson. Contrib. Zool.* 235:10, 1977). We wish to report the first instance where a tern was the host species (Herbert Friedmann, pers. comm., 22 August and October 1980).

On 7 July 1979, while banding nestlings of the Common Tern (*Sterna hirundo*) on an island in Redberry Lake, Saskatchewan, 52°40'N; 107°11'W, we found a tern nest containing 2 tern eggs and 1 egg of the Brown-headed Cowbird. The tern nest was surrounded by sparse grasses at the north end of the sandy 2-ha island.

In 18 years of visits once or twice yearly to this island, we have not previously observed cowbirds or their eggs in any nest on this island, although they are common along the mainland shore, 2 km distant, and on 3 larger islands, 1, 1, and 3 km distant.

We wish to thank Herbert Friedmann and Steve Rothstein for help in preparing this note. The junior author acknowledges support from the Office of Migratory Bird Management, U.S. Fish & Wildlife Service.—C. STUART HOUSTON, 863 University Drive, Saskatoon, Saskatchewan, Canada S7N 0J8 and PATRICK W. BROWN, School of Forestry, Fisheries and Wildlife, University of Missouri, Puxico, Missouri 63960. Received 20 Aug. 1981; accepted 24 Sept. 1981.