Acknowledgments.—Primary support was from the National Geographic Society with additional funding from the Hawaii Audubon Society, Moorhead State Univ. (Minnesota), and Brigham Young Univ. (Hawaii). We are indebted to Peter Connors who originally established the Feather River site, and generously shared his knowledge of tundra biology in the Nome region. We thank Lee Johnson for assistance in the field, and Robert Gill, Jr. for advice and logistical aid early in the project. Tex Sordahl and an anonymous referee provided helpful reviews of the manuscript.

LITERATURE CITED

CONNORS, P. G., B. J. MCCAFFERY, AND J. L. MARON. 1993. Speciation in golden-plovers, *Pluvialis dominica* and *P. fulva*: evidence from the breeding grounds. Auk 110:9–20.

GREENWOOD, P. J. 1980. Mating systems, philopatry and dispersal in birds and mammals. Anim. Behav. 28:1140–1162.

JOHNSON, O. W. AND P. G. CONNORS. 1996. American Golden-Plover (*Pluvialis dominica*), Pacific Golden-Plover (*Pluvialis fulva*). *In* The Birds of North America, No. 201–202 (A. Poole and F. Gill, eds.). The Academy of Natural Sciences, Philadelphia, and The American Ornithologists' Union, Washington, D.C.

———, P. G. CONNORS, P. L. BRUNER, AND J. L. MARON. 1993. Breeding ground fidelity and mate retention in the Pacific Golden-Plover. Wilson Bull. 105:60–67.

MOITORET, C. S., T. R. WALKER, AND P. D. MARTIN. 1996. Predevelopment surveys of nesting birds at two sites in the Kuparuk Oilfield, Alaska, 1988–1992. U.S. Fish and Wildlife Service Technical Report NAES-TR-96-02, Fairbanks.

PATON, P. W. C. AND T. C. EDWARDS, JR. 1996. Factors affecting interannual movements of Snowy Plovers. Auk 113:534–543.

TOMKOVICH, P. S. AND M. YU. SOLOVIEV. 1994. Site fidelity in High Arctic breeding waders. Ostrich 65:174–180.

OSCAR W. JOHNSON, PATRICIA M. JOHNSON, *Dept. of Biology, Montana State Univ., Bozeman, Montana 59717;* PHILLIP L. BRUNER, ANDREA E. BRUNER, *Dept. of Biology, Brigham Young Univ.–Hawaii, Laie, Hawaii 96762*; RONALD J. KIENHOLZ, *210 7th St. N. E., Dilworth, Minnesota 56529*; AND PAUL A. BRUSSEAU, *P.O. Box 142375, Anchorage, Alaska 99514.* *Received 3 Sept. 1996, accepted 12 Jan. 1997.*

Wilson Bull., 109(2), 1997, pp. 351–353

Greater Flamingos breed on Aldabra Atoll, Republic of Seychelles.—A Greater Flamingo (*Phoenicopterus ruber roseus*) chick was observed on 13 April 1995 on Aldabra Atoll, Republic of Seychelles (46°20′E, 9°24′S). The chick was in a brackish tidal basin located in the Cinq Cases/Takamaka region of the island of Grande Terre. The basin is approximately 1.1 km^2 in area and is 700 m from the coast and 1500 m from the lagoon. Two adults were with the chick, although as many as 19 flamingos were in the same basin earlier in the year. The chick was one-third to one-half adult-size with dark gray legs and decurved bill and covered with gray down. It probably was between 25 and 39 days old (Uys et al. 1963). We found three complete nests and three incomplete nests in the basin, but only one nest appeared to have been used. The nests were short cylindrical pillars of mud with a shallow concave nest cup. We took measurements of the single used nest: total height was 33.5 cm, nest diameter was 32.5 cm × 38 cm, nest cup diameter was 13.5 cm × 18 cm, and nest cup depth was about 2.5 cm. All six nests were clumped together

approximately 30 m from shore and 5 m from a small clump of mangroves (*Avicennia marina*). The nests were in 8.5 cm of water at the time of discovery, but due to tidal influences the height of the nest above the apparent high water mark was 12 cm. The juvenile was observed two months later at the same basin on 15 June with two adults. One of the adults took flight, circled the basin three times, and landed. The juvenile then took flight, circled the basin twice, and landed after approximately 10 minutes in the air. This was probably one of its first flights as the young first fly 70–90 days after hatching (Cézilly et al. 1994). The juvenile was last observed with 15 adults at Bassin Flamant on 12 September. Bassin Flamant is approximately 3 km from its natal basin.

There are no previous known records of flamingos successfully breeding on Aldabra (Benson 1984), despite a reference that flamingos breed on Aldabra in small numbers (Feare and Watson 1984). A single fresh egg was found at Grand Bassin Takamaka on 25 September 1967 by Benson and Penny (1971) after a single flamingo had flown away, but no nest mound was found and this was not accepted as evidence of breeding (Benson and Penny 1971, Benson 1984).

Whether flamingos on Aldabra are a resident population or a migrant population from East Africa has been speculated for some time. If it is a migrant population, it is odd that flamingos have not been sighted on other nearby islands such as Cosmoledo (Penny 1974). The apparent absence of flamingos in the winter months of May–Aug. is probably a result of the lack of observers rather than migrating flamingos, as birds were seen from June–Sept. 1995 when research officers were present on Aldabra. Flamingo numbers have also appeared to decline since first being described at the turn of the century when Abbott estimated between 500–1000 flamingos and Dupont recorded "several hundreds" (Benson 1967). In 1964–1965, Gaymer (1967) estimated there were about 50 flamingos on Aldabra, while the highest number of flamingos recorded at any one time in 1967–1968 was 55 (Benson and Penny 1971). The greatest number of flamingos observed at one time between Dec. 1993–April 1994 was 32; the greatest number between Nov. 1994–May 1995 was 24; and the greatest number between April 1995–Nov. 1995 was 28. The evidence seems to support that flamingos on Aldabra are residents, but whether they constitute a breeding population or represent a "dead end" for a group of birds that wandered to Aldabra is still unknown.

LITERATURE CITED

BENSON, C. W. 1967. The birds of Aldabra and their status. Atoll Res. Bull. 118:63–111.

———. 1984. Origins of Seychelles land birds. Pp. 469–486 *in* Biogeography and ecology of the Seychelles Islands (D. R. Stoddart, ed.). Dr. W. Junk Publ., The Hague, Netherlands.

——— AND M. J. PENNY. 1971. The land birds of Aldabra. Philos. Trans. R. Soc. Lond. B Biol. Sci. 260:417–527.

CÉZILLY, F., C. TOURENQ, AND A. JOHNSON. 1994. Variation in parental care with offspring age in the Greater Flamingo. Condor 96:809–812.

FEARE, C. J. AND J. WATSON. 1984. Occurrence of migrant birds in the Seychelles. Pp. 559–574 *in* Biogeography and ecology of the Seychelles Islands (D. R. Stoddart, ed.). Dr. W. Junk Publ., The Hague, Netherlands.

GAYMER, R. 1967. Observations on the birds of Aldabra in 1964 and 1965. Atoll Res. Bull. 118:113–125.

PENNY, M. 1974. The birds of Seychelles and the outlying islands. William Collins Sons, London, England.

UYS, C. J., G. J. BROEKHUYSEN, J. MARTIN, AND J. G. MACLEOD. 1963. Observations on

the breeding of the Greater Flamingo *Phoenicopterus ruber* Linneaus in the Bredasdorp District, South Africa. Ostrich 34:129–154.

RAYMOND E. RAINBOLT AND DAVE M. AUGERI, *Dept. of Fisheries and Wildlife, 104 Nash Hall, Oregon State Univ., Corvallis, Oregon 97331;* SUSAN M. PIERCE, *2408 23rd Ave., Greeley, Colorado 80631;* AND MITCHELL T. BERGESON, *E9599 State Rd. 40, Colfax, Wisconsin 54730.* *Received 15 Aug. 1996, accepted 15 Oct. 1996.*

Wilson Bull., 109(2), 1997, pp. 353–355

Wildlife mortality and entanglement by discarded hip chain string.—The assessment and quantification of an organism's habitat is essential in accomplishing many research and management goals. A component of this is the measurement of linear distances, occasionally over many kilometers (Gysel, L. W. and L. J. Lyon. 1980. Habitat analysis and evaluation. Pp. 305–327 *in* Wildlife management techniques manual [S. D. Schemnitz, ed.]. Fourth ed. The Wildl. Soc., Washington, D.C.; Orth, D. J. 1983. Aquatic habitat measurements. Pp. 61–84 *in* Fisheries techniques [L. A. Nielsen, and D. L. Johnson, eds.]. Am. Fish. Soc., Bethesda, Maryland). Hip chains (also called string boxes) are a valuable tool used by biologists to measure long distances where using a tape measure would be difficult, if not prohibitive. Hip chains meter a polyester or cotton string that is pulled from a spool inside the unit. The observer ties the string to a stationary object and walks away as the hip chain tallies the distance traveled on an odometer. Hip chains have the advantages of allowing the observer to measure distances while both hands are free to complete other tasks and the string is advertised as disposable (e.g., 1996 Ben Meadows Company catalog). However, the string left behind can be an eyesore or a source of mortality for wildlife as this article demonstrates.

In May, 1994, I used a hip chain to measure linear stream distances in the Oregon Coast Range, Lincoln Co. I used cotton (biodegradable) string and walked within the stream's wetted channel. Nine days later, I walked the same stream and found a dead American Dipper (*Cinclus mexicanus*) tangled in the residual string (Fig. 1). The string left behind was still in long (>100 m) segments, had floated downstream, and had accumulated on the upstream side of rocks and woody debris. The dipper's legs were greatly entangled in the many loops formed in one of these accumulations. These loops appeared to have tightened as the bird struggled or was swept downstream and the bird was unable to escape.

Discarded hip chain string also has killed other wildlife. I informally surveyed colleagues locally and queried subscribers to electronic bulletin boards dedicated to wildlife topics. Nineteen respondents reported ≥13 species of which >24 individuals were dead and 9 individuals were released alive. Animals killed were 4 bats, 5 Western Screech-Owls (*Otus kennicotti*), 4 Northern Spotted Owls (*Strix occidentalis caurina*), >3 unidentified songbirds, 2 thrushes, 2 American Robins (*Turdus migratorius*), 2 Varied Thrushes (*Ixoreus naevius*), a Wood Thrush (*Hylocichla mustelina*), Belted Kingfisher (*Ceryle alcyon*), and a Steller's Jay (*Cyanocitta stelleri*). Two robins, and a Red-tailed Hawk (*Buteo jamaicensis*), Long-eared Owl (*Asio otus*), Northern Saw-whet Owl (*Aegolius acadicus*), Spotted Owl, Western Screech-Owl, Flammulated Owl (*Otus flammeolus*), and Northern Pygmy-Owl (*Glaucidium gnoma*) were found entangled and released alive. Most animals (>93%, N = 32) were caught in flight, 1–1.5 m above the ground or water. Few (25%) were snared only by the tip of one wing with two to five wraps of string; however, the rest were completely tangled, indicating they struggled to free themselves following capture. The Spotted Owls were all caught in thicker cruising string whereas all others were tangled in hip chain string. Animals