

most birds use dry dust on the ground in sunny places, this Pileated used a scoop of damp earth in shady woods next to a swamp. LAWRENCE KILHAM, *Department of Microbiology, Dartmouth Medical School, Hanover, New Hampshire 03755*. Received 7 February 1975, accepted 20 May 1975.

A method for marking young gulls for individual identification.—

Recognition of individual offspring is often desirable in studies of colonial, ground-nesting, semi-precocial birds that may travel some distance from the nest or mix with other broods. A variety of marking techniques has been used for this purpose (e.g., numbered leg bands, color bands, paints and dyes). The effectiveness of these techniques is limited by such factors as bands being obscured except when a bird is captured or standing, a limited number of color combinations or poor retention times.

During a recent study of individual recognition between parent Ring-billed Gulls (*Larus delawarensis*) and offspring, we used a cattle marking product, called F-F Brands (Victor Business Forms Company, 2105 Y Street, Lincoln, Nebraska), that was not limited by these restrictions. The "brands" are 1.86-inch-diameter (75 mm) yellow tags that are consecutively numbered 0 to 999 with large black numerals. The tags are made of a specially bonded rubberized fiber, guaranteed to withstand all weather conditions. They were attached to the natal down of the synsacral region of recently hatched chicks with F-F Cement. The glue was not noted to cause adverse effects to either the skin or juvenal plumage. Tags also were glued to rocks to designate nest sites at which marked chicks hatched. We were able to monitor several nests and chicks at one time, as the bright yellow tags contrasted well with the grayish back of chicks and drab gravel substrate (Fig. 1). Tag numbers were read easily with the naked eye or 7 x 35 binoculars at approximately 10 and 53 m respectively. Tagged chicks also received Fish and Wildlife Service bands for verification of identity if tags were lost.

In 1971 and 1972, we applied 378 F-F Brands to Ring-billed Gull chicks. After 14 days, 92.2% of the tags were still attached to chicks. Three factors contributed to tag loss: removal by adults, substrate type and amount of vegetation in a nest territory, and replacement of natal down by juvenal plumage.

A few tags (2.2% of total) were pulled off by adults. Particular adults consistently removed tags from their chicks. We are unable to explain why these adults would not tolerate tags on their offspring.

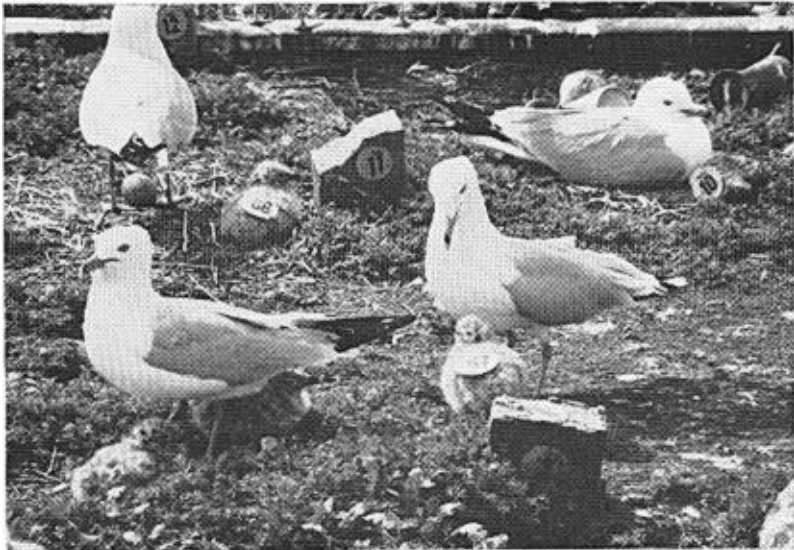


FIGURE 1. Young Ring-billed Gulls and nest sites tagged with F-F Brands.

Type of nesting terrain also affected tag retention by chicks. Losses were higher from chicks that hid in tight crevices under rough boulders where tags could be caught and subsequently pulled off. This problem increased as chicks approached two weeks of age because they hid more often beneath boulders, and the tags began to loosen as the juvenal plumage replaced the natal down to which tags were glued. Feather growth and obstructions in the habitat accounted for 5.6% of the tag losses during our observation period.

There was no indication that these tags attracted predators, but this possibility should be considered prior to application in environments where predation is known to occur.

We also tagged Herring Gull (*L. argentatus*) chicks in an adjacent colony with similar results. Tag loss was caused by the same factors recorded for Ring-bills, but, in addition, some Herring Gull chicks lost tags that caught on woody vegetation prevalent in that colony. The marker, therefore, is probably most suitable for use in colonies having relatively unobstructed terrain such as gravel or sand beaches.

This appears to be an expedient method for marking semi-precocial offspring for individual identification. Although tested only on gull chicks, it probably is suited for a variety of species, particularly ones nesting in areas having sparse vegetation. If used on chicks smaller than Ring-bills, reduction in tag size by trimming may be desirable. Longer term identification, beyond two weeks, may be possible if juveniles are recaptured and a new tag glued to the juvenal plumage.—FRANCESCA J. CUTHBERT AND WILLIAM E. SOUTHERN, *Department of Biological Sciences, Northern Illinois University, DeKalb, Illinois 60115*. Received 19 February 1975, accepted 30 May 1975.

Apparent brooding behavior of a male Rufous-sided Towhee.—On 21 June 1974 at the Rose Lake Wildlife Research Area in Clinton County, Michigan, we found a Rufous-sided Towhee (*Pipilo erythrophthalmus*) nest 103 cm above ground in a tangle of multiflora rose (*Rosa multiflora*). A female was incubating three eggs. The nest contents were examined, usually before midday, throughout the nesting period. A female incubated the clutch from 21 to 30 June except for 24 June when the nest was unattended. No male was seen near the nest during the incubation period.

On 1 July a male was on the nest in an apparently normal brooding position. When the bird left the nest, we found three recently hatched nestlings. On 2 July a male was again observed on the nest covering the nestlings. On both days no female was seen near the nest; however, one was brooding on 3, 4, and 6 July. Neither parent was present on 5 July. On 7 July one nestling was missing. The nest was empty on 8 July. On the latter two dates both parents were in the vicinity of the nest site, but no fledglings were observed.

Although male Rufous-sided Towhees lack an incubation patch (Bent, *U.S. Natl. Mus., Bull.* 237: 568, 1968), we believe that this male was brooding the nestlings, thus helping to reduce heat loss. Furthermore, Skutch (*Ibis*, **99**: 69-93, 1957) stated that there is a lack of correlation between incubation (and presumably brooding) and the presence of an incubation patch in male passerines.

We have found no previously published instance of brooding by the male Rufous-sided Towhee. Earlier reports indicated that the male may assist in incubation, but such behavior has not been substantiated in more recent studies (Verner and Willson, *Ornithol. Monogr.*, No. 9: 28, 1969).

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