

LITERATURE CITED

Parks, G. H.

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The Removal of Bands by Cardinals.—The cardinal, *Richmondia cardinalis* (Linnaeus) is noted for its antipathy to aluminum bands. Mrs. Laskey writes (*Wilson Bull.*, 56: 27-44, 1944), "In my experience there is no other bird that attacks the band as the cardinal does. I have had to replace several tempered aluminum bands that had been overlapped by pressure from the beak of the wearer." From my own notes the following episode of February 4, 1945, illustrates a cardinal's irritation at being banded. A female cardinal just banded flew to the nearest tree and immediately began to fight her band. She struggled with it so fiercely that she lost her balance and fluttered to a lower branch and finally to the ground. There she lay in a grotesque position and fought her band for ten more minutes. She then flew to another tree where she continued to peck at it but with diminished vigor. She finally flew out of sight with the band still in place. Young (*Wilson Bull.*, 53: 197-198, 1941) has described an even more vigorous reaction to its band by a cardinal over a period of time. He retrapped the bird five days after banding and replaced the band because it was so badly compressed. Finally, a year and three months after banding, some boys brought him the bird which they had picked up as it lay on the ground struggling with its band. The band was so badly worn and compressed that Young again replaced it with a fresh one, but when he released the bird, it seized the band and refused to fly. Not until the band had been removed, did the thin, tailless bird run into the shrubbery.

A number of banders have considered the possibility of a cardinal removing its band, notably Laskey (1944, *op. cit.*). She states that she has never succeeded in proving that a band has been removed, although she has marked many birds by notching their feathers. She further states, without citing her source, that Mrs. Nice and Van Tyne each have evidence of at least one cardinal having removed its band.

During the last two years, I have definite proof of four cardinals removing their bands, three males and a female. The first case was brought to my attention by a peculiarity of a bird's bill. A male (no. 42-200,770) trapped March 17, 1945 had a groove of the left side of the upper horny beak. It looked as if it were caused by a break which had healed, probably when the bird was young. A sketch was made of the injury in my day book. The bird, easily recognized by the damaged beak, was retaken on May 1 of the same year without a band. It was rebanded and returned on April 11, 1947 but the bill now was normal. Since early in 1945 I have notched the tail feathers of about 100 birds, using a code for each. Of these three have repeated without their bands as follows:

(2) No. 42-200,624, an adult female banded May 6, 1945, repeated 54 days later without a band. She was identified by two notches on the second right tail feather. She was rebanded with 42-200,655.

(3) No. 42-224,923, an adult male banded January 31, 1947, repeated without his band on March 7, 1947. He was identified by two notches on the fourth right tail feather. The right foot showed signs of wear, as if the band had been pulled off slowly and with difficulty. The right leg on which the band had been placed was unusually slender. He was rebanded on the left leg with band no. 42-224,972. He has since repeated on March 15, 23, and 30 and April 4, 1947 with the second band untampered with.

(4) No. 42-224,909, another male, was banded on January 18, 1947, and repeated without his band on January 31, 1947. He was identified by two notches on the third right tail feather. This bird was rebanded with 42-224,926.

He repeated on February 4, 8, 9, March 14, 22, 24, April 3, 4, and 10. On March 24 all the feathers and even the skin was gone from the top of his head, probably due to the attack of some animal, as the trap had been overturned. He continued to repeat, however, until April 10. The head healed and showed no signs of infection, although no feathers developed. On April 10 a small hole was noted in the edge of the skull over the right eye. The new band remained on his leg and showed no indications of rough usage.

Of the 124 cardinals banded at the home station between January 1, 1945 and June 1, 1947, 48 have repeated or returned. This is 38 per cent of the birds banded. In other words 8.33 per cent of the birds with known histories removed their bands. At this rate if all the birds banded could have been examined, we should expect to find ten birds without their bands.

The loss of bands raises the question, how does a cardinal remove its band? The no. 2 size is rather loose on the birds, making it possible for the bird to insert its beak between the band and the leg. A small amount of spreading of the band makes it possible for it to slip down over the foot. In one of my cases (no. 3) the appearance of the foot indicated that this had occurred with some injury to the scales covering the foot. More frequently the cardinal compresses the band, causing it to overlap. I have observed several such cases but never was the band closed enough to injure the leg. The cardinal has a very powerful beak and can upon occasion either open or close a band.

Finally, can anything be done to prevent the removal of bands? It is important that the bands be closed tightly and accurately to prevent both overlapping and spreading. I do not believe that it would be advantageous to change to the next smaller size, no. 1A, since the cardinals would be able to compress these more readily. However, it might be an advantage to cut down the size of the no. 2 band a little in order to reduce the danger of its slipping over the foot and to make it more difficult for the cardinal to insert its beak within the band.—Harvey B. Lovell, Biology Department, University of Louisville, Louisville, Kentucky.

A Method of Capturing English Sparrows.—English Sparrows, *Passer domesticus* (Linnaeus) are useful animals for laboratory experimentation, but at least in cities they are difficult to trap. In order to obtain a large number of sparrows for experimental work on photoperiodism a method of capturing them at night at their roosts in a net was worked out. This method, because of its simplicity and effectiveness, may prove useful to persons desiring to use this species in laboratory investigation.

The mouth of the net was held open by a piece of 3/16" galvanized steel wire which was bent into a rectangle measuring three feet by two feet and attached to a small triangular piece of plywood for rigidity. The tail of the net was six feet deep and was made of cheesecloth dyed black to reduce its visibility at night. No drawstring was needed to close the net because the tail was deep enough to prevent the ready escape of a captured bird.

The net was fastened to a sectional pole of the type used in pruning trees. This allowed the length of the handle to be varied at will. In practice a handle with a length of 28 feet (seven four-foot sections) was the longest that could be conveniently maneuvered.

In the vicinity of Boston, where the experiments referred to above were carried out, English Sparrows commonly spend the night in the ivy on the sides of stone and brick buildings. When the ivy is in leaf the birds roost even in areas where the cover is quite thin, but after the leaves have fallen they roost where the bare vines form a dense protective mat.

These roosting sites were readily located at dusk when the birds were returning