

crown. A faint tinge of red appears on the throat, with an even lesser amount on the rump and bend of wing areas. The outermost primary on each wing is all white but the next six primaries in sequence show on each wing a narrow, delicate line of pink along their exterior margins.

Our series of wintering Rosy Finches show considerable color variation which is probably a manifestation in large part of geographic variation, since various representatives doubtless came from widely situated breeding areas. Three examples seem worthy of comment. Two males taken by the late Gary Lloyd at Echo Canyon, 6000 feet elevation, Summit County, Utah on 19 March 1964, seemed different from the other wintering example of *L. t. tephrocotis* and so were submitted for identification to Richard E. Johnson, who is revising the group. He reported that they possess characters which are the same as those of the breeding population of *L. t. tephrocotis* from Montana rather than the northern Alaska population which all our others represent. Another example examined by Johnson which was taken on 23 March 1938 at Bacchus is a hybrid between *L. atrata* and *L. tephrocotis*, being slightly closest to *atrata*. French (Condor, 61:18-27, 1959) found two areas where hybridization occurs and as a consequence individuals show mixed characters of *L. atrata* and *L. t. tephrocotis*. These areas are the Bitterroot mountains of the Montana-Idaho border and the Seven Devils Mountains of western Idaho. Presumably this winter example originated in one of these two areas.—WILLIAM H. BEHLE, *Department of Biology, University of Utah, Salt Lake City, Utah 84112, 16 October 1972.*

Leaf bathing in three species of emberizines.—During the dry summers of coastal California, when water may be locally scarce, the use for bathing of moisture collected on vegetation may be an important aspect of feather maintenance. Sources of water at these times can be from dew, condensed fog, or water drops from a garden sprinkler. There appear to be few observations on record of this method of bathing. The present note describes my observations on leaf bathing in three species of emberizines.

In Strawberry Canyon, Berkeley, California, at 09:41, on 24 May 1971, I observed a Rufous-crowned Sparrow (*Aimophila ruficeps*) bathing on leaves of a eucalyptus about five feet in height. The leaves of the tree were covered with water droplets from a sprinkler which had been on earlier that morning. The sparrow would bend forward, touching the wet leaves with the breast and belly, and flutter the wings rapidly. It continued this behavior for about three minutes, at which time its body feathers appeared quite soaked. The crown seemed to have remained dry. The bird then flew to the ground beneath the eucalyptus, ruffled its feathers, preened, and scratched its head. The sparrow remained squatting on a sunny spot on the ground with the feet hidden by its feathers which were fluffed in such a way as to make it look dorsoventrally compressed. It stayed in this position for some 13 minutes. The wings during this time were constantly flicking out and in, its head constantly was turning as it continually looked around. All this was interspersed with short bouts of preening. At 09:57 a bus was driven by, scaring the bird away. The sparrow now appeared quite dry. I have often observed captive White-crowned Sparrows (*Zonotrichia leucophrys*) after a bath, resting in a flattened posture similar to that described above for the Rufous-crowned Sparrow. The posture adopted after a bath in water is quite different from that during sun-bathing when the feathers of the back and rump are ruffled so as to expose the apteria. The head does not turn constantly about, but is held quite still. The open bill points skyward at an angle of about 45 degrees while the wings droop and the tail is spread.

At 13:45 on 12 August 1971, two juvenile Oregon Juncos (*Junco oreganus*) with spotted breasts were observed being fed by an adult male (sex by plumage) on a lawn on the campus of the University of California, Berkeley. The grass had recently been watered, so that water drops clung to the blades. I observed the adult feeding one juvenile twice and the other once. Between bouts of being fed by the adult the juveniles were apparently feeding themselves, pecking at the grass and kicking backwards with both feet. In between feeding bouts the two juveniles bathed on the wet foliage, dipping forward and fluttering their wings rapidly.

A White-crowned Sparrow was trapped in a residential area in Berkeley, California, on 1 May 1971. It was banded with a red color band for recognition and given the freedom of my home along with four other captive White-crowns. The sparrows were periodically given Romaine lettuce which I washed under a tap prior to feeding to the birds, so that water droplets often remained on the leaves. On several occasions Red was seen alternating bouts of feeding and of bathing on the lettuce leaves. The last time I observed lettuce-bathing by Red was on 30 October 1971. I continued to offer Romaine lettuce almost daily, and into the month of February, but could not induce further leaf-bathing behavior. On 20 February 1972, I placed a sprig of coyote bush (*Baccharis pilularis*) under a tap so that water droplets collected on the leaflets. With a clothes pin, I attached the plant on the outside of a cage in my birdroom, making it accessible to my free-flying White-crowns. Red approached, pecked at the moist greens several times, flew on to it, and then proceeded to go through bathing movements. On one occasion I saw Red bend forward, twist his head in such a way so as to expose the right side of his cheek and neck to the moist vegetation, then flutter his wings and push forward so as to deliberately anoint the cheek and neck with water. Between bathing movements, Red fluffed and shook his feathers, preened, and waggled his tail. This bout of leaf-bathing continued for about three minutes, after which the sparrow did not appear to be very wet. Miller (Condor, 44:232, 1942) similarly observed an adult Rufous-sided Towhee (*Pipilo erythrophthalmus*) leaf-bathing for approximately a minute after which "it was only slightly wet, but it had apparently satisfied an instinct at least."

Other field-observers have reported that the leaf-bathing activities of one species may attract other forms to do likewise (Officer, Aust. Bird Watcher, 1:236, 1962; Verbeek, Auk, 79:719, 1962). Whenever a pan of water was offered to my captive flock of White-crowns, the bathing activities of one individual would stimulate others to do likewise. This social facilitation would extend to the 50 other assorted fringillid and estrildid finches in my bird room which would then try to bathe in their drinking vessels or bird baths provided for them. Interestingly, I never observed the leaf-bathing activities of Red being imitated by any of the other birds in the room, suggesting that this was a habit peculiar to this one individual.

Dow (Bird-Banding, 39:227-229, 1968) reported leaf-bathing by Cardinals (*Richmondia cardinalis*) and pointed out that, "Foraging behavior usually preceded dew bathing, thus it is possible that contact with wet leaves during foraging stimulated the bathing." My observations on the two Juncos and the White-crowned Sparrow appear to lend support to Dow's conclusion.

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