

Though Burrowing Owls do not appear to excavate their own burrows, they do modify existing mammalian burrows (Bent, A. C. 1938. Life histories of North American birds of prey, part 2. *U. S. Nat. Mus. Bull.* 170.). Thomsen (1971. *Condor*, 73: 177-192.) reports Burrowing Owls in California apparently dig with their beaks. She reports sand, dirt and stones to be common in pellets from September-April, with the greatest amount appearing from January to April. At this time the owls are establishing and renovating burrows. She found material in the pellets similar to that of the burrow substrate. Best (unpubl. M. S. Thesis, N. M. St. Univ., Las Cruces) reports Burrowing Owls carry and shred horse manure in their beaks before lining their burrows with it. Thus the manure, stones and glass may all be accidentally swallowed by Burrowing Owls.—Dennis J. Martin, Museum of Southwestern Biology, University of New Mexico, Albuquerque, New Mexico. (present address, Zoology Dept., Utah State University, Logan, Utah 84321)

**Wintering Kentucky Warblers (*Oporornis formosus*) and a warning to banders.** Two Kentucky Warblers banded in the Panama Canal Zone in 1968 have provided some interesting data on the utilization of wintering grounds by that species. One individual (USFWS band 108-21505) was first banded 26 October 1968 at a forest area on the Navy Pipeline Reservation in the Canal Zone (9° 9' 35" N, 79° 44' 36" W). (For a description of this and other study areas see Karr, J. R. 1971. *Condor* 73: 107-111; 1971. *Ecol. Monogr.* 41: 207-233. The bird was subsequently recaptured in November, December (2 times), February (2 times), March and finally on 10 April 1969. No netting was attempted in January. All captures except the one in April were made in an area no more than 50 meters in diameter. The April capture was made about 150 meters from the center of the other captures. It is assumed that the movement in April signalled the beginning of the northward migration. Although less conclusive other unbanded North American migrants in several lowland study areas were present for most of the winter period in relatively small areas. Progressive plumage changes allowed identification in some cases, such as a male *Piranga rubra*. These observations and those of others (Moreau, R. E. 1966. *The bird faunas of Africa and its islands*. p. 266; Charles Leck, Pers. comm.) indicate sedentary habits (territoriality??) in temperate passerines wintering in tropical areas.

Another Kentucky Warbler (USFWS band 68-78114) was first captured at Chiva Chiva Road in the Canal Zone (9° 03', 56" N, 79° 34' 13" W) on 15 December 1968 during a net period used as a demonstration of techniques to the Panama Audubon Society. During a subsequent net operation the same individual was recaptured in the same area (within 50 to 100 meters) on both 27 and 28 January 1971, over two years later. These observations indicate that Kentucky Warblers, and perhaps other species also, are rather sedentary on the wintering grounds and may return in subsequent years to the same home range.

One other observation of the bird caught in 1968 and 1971 deserves comment. Several loops of mist net were entangled around both shoulders of the bird when it was captured on 27 January 1971. Although no infection was observed the skin was rubbed on both shoulders, presumably from the abrasive action of the net when the bird flew. In two places the skin had healed and imbedded the net in or below the skin. No other adverse effects were noted. Presumably, I, or someone working with me from the Audubon group, did not take the necessary precautions to insure that all netting was removed from the bird. Because of the danger of infection and/or subsequent entanglement great care should be taken to remove all net when it is necessary to cut nets to remove birds.—James R. Karr, Smithsonian Tropical Research Institute, P. O. Box 2072, Balboa, Canal Zone.

**Crop Mycosis of Hand-raised Blue Jay Fledglings Cured by Treatment with Milk of Magnesia.**—One of the difficulties we have found to be associated with hand-raising nestling Blue Jays (*Cyanocitta cristata*) under confined conditions is a disease similar to one called "sour-crop" in poultry by poultrymen. Veterinary pathologists refer to the disorder as a crop mycosis. Regardless, the causative organism is usually one or more species of a *Mucor* fungus although other related genera may sometimes be involved.

Normal healthy birds about four to five weeks old usually lose the bright red

appearance of their oral cavity and it turns pink. Crop mycosis causes the development of a white mucous membrane which also gives the oral cavity a pinkish appearance. Thus, when the bird is less than five weeks old the malady is readily observed. However, when the birds are older it is more difficult to detect. The stimulation of food, or potential food, with the normal healthy bird causes the pink to dissipate and a bright red appearance to the cavity again develops. A Pavlov-type response is indicated because the introduction of an empty spoon into the oral cavity as the young bird gapes for food, brings on the development of the red color. The bright red color does not develop when affected birds feed. Often in 24 hours and definitely within 48 hours the fungus develops to such an extent that the bird has difficulty swallowing and the bird may rotate its head and appear to gape for breath.

The symptoms for the disorder are not unlike some of those for "gape-worm" (*Capillariasis contorta*) which has been found to be the causative factor in the death of many Jays in this area (Helmboldt, C. S., R. P. Eckerlin, L. R. Penner and D. S. Wyand. 1971. The Pathology of *Capillariasis* in the Blue Jay. *J. Wildl. Diseases* 7: 157-161). Birds which have gape-worm also develop the oral and physical symptoms described; however, the worms can usually be found beneath or surrounding the tongue and in the oral cavity.

Observations have indicated that as fledging birds become more aggressive and inquisitive they become susceptible. That is the period when they start pecking at the lettering on newspapers or boxes, the edge of the nest box or corners, and other items associated with hand-raising them. Despite concerted efforts to maintain cleanliness, when they commence flying in a confined area, it is impossible to prevent their pecking on various types of debris which includes dried fecal remains. Presumably, that is the primary source or origin of infection.

Numerous birds have been lost in the last several years because they have become infected with a crop mycosis. Many unsuccessful attempts to cure it were made at various times. Drenches included diluted tincture of gentian violet and iodine, flushing with magnesium sulfate and, out of desperation, twice hourly feedings of sucrose and milk. The greatest temporary success was obtained with the latter treatment but none of the birds recovered fully.

When the symptoms appeared in two birds from a family of five in the spring of 1970, one of them was given a diluted drench (half-strength) of milk of magnesia. The treated bird fed more at the following feedings and by the next morning had improved. The dosage was reduced to a quarter-strength solution on the second day and after treatment on the third day, the bird recovered fully. The untreated bird died within 36 hours.

In the spring of 1971, three birds from one family and two from another developed symptoms of crop mycosis. Two of the first family and one from the second were given the milk of magnesia treatment. The treated birds made a complete recovery but the untreated birds died within 48 hours. Since that time four birds from three families developed symptoms and were similarly treated with milk of magnesia. All of them made a complete recovery.

Perhaps a more exacting test relative to the value of milk of magnesia as a cure could have been conducted. For example, isolate the organism(s), infect healthy birds, await development of the symptoms and treat them. Our population has not been that abundant and our results are being reported to encourage further study to any who might be interested.—Lloyd A. Mitterling, Associate Professor of Pomology, University of Connecticut, Storrs, Connecticut.

**Roseate Tern breeds during its second year.**—Harlow (*Bird-Banding* 42, (1) 1971) reports a three year old Roseate Tern (*Sterna dougallii*) breeding in Massachusetts. On 3 August 1971, I trapped a two-year-old Roseate Tern (1003-37353) on a nest with a single one-day-old chick on Great Gull Island, N. Y. (411-0720). This tern had been banded as a nestling on Great Gull Island by Helen Hays, 3 July, 1969.

The two-year-old Roseate was in full breeding plumage; it had a complete black cap, long outer tail feathers, no dark shoulder patches, and red on the bill measuring 17mm. along the side of the upper mandible from the base of the feathers. The other bird trapped on the nest had not been previously banded, but was also in breeding plumage.—Grace Donaldson, Department of Education, American Museum of Natural History, New York, N. Y. 10024.