

perature dropped to  $-28.6^{\circ}\text{C}$  while the finches slept in a relatively warm  $9-10^{\circ}\text{C}$ , a temperature difference of nearly  $40^{\circ}\text{C}$ .

On the mornings I checked in March ( $n = 6$ ), the finches left the roost shortly after first light (about 0630) in groups of 3–10 birds. Estimated roost population remained at 60–70 individuals. On 17 March some finches still occupied the roost at 0800, indicating some variability in departure times. It appears the birds returned to the roost at about 1500 each day. Daily occupancy of the roost by the majority of birds was thus about 15–16 h in duration.

*Discussion.*—Studies by King and Wales (1964) at a rosy finch roost in Utah provide conservative calculations on the physiological capabilities of finches to survive a winter night. For February birds they calculated energy reserves of 26 kcal/bird for *L. t. littoralis* and 20 kcal/bird for *L. t. tephrocotis*, and a total nocturnal energy expenditure of 8.4–10.7 kcal/night when roosting at  $-3.3^{\circ}\text{C}$  for 15 h. Their calculations do not incorporate radiant heat reflected from the bird back to itself off the roost walls, nor the energy content of food in the alimentary canal. Still, it is clear that the reported energy reserves are more than sufficient to sustain a bird through the winter night when it occupies a sheltered roost.

Conditions at the Virginia City roost reduce the nocturnal energy requirements of the finches by reducing the temperature gradient between bird and roost environment. My observations indicate the Montana finches roosted in a more favorable microclimate than those in the Utah study. This situation should have allowed greater flexibility in an individual bird's daily time budget by reducing the amount of time required for the acquisition of food. A bird would have the option of spending a greater amount of time in the roost each day, reducing the risk of predation and the amount of maintenance energy expended when not obtaining food. This may explain the mid-day presence of rosy finches in the mine shaft roosts observed by Miller and Twining (1943).

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#### LITERATURE CITED

- BEHLE, W. H. 1944. Notes on Leucostictes wintering in Salt Lake Valley, Utah. Condor 46:207–208.
- . 1973. Further notes on rosy finches wintering in Utah. Wilson Bull. 85:344–346.
- BENT, A. C. 1968. Life histories of North American cardinals, grosbeaks, buntings, towhees, finches, sparrows and allies, part 1. U.S. Natl. Mus. Bull. 237.
- FRENCH, N. R. 1959a. Distribution and migration of the Black Rosy Finch. Condor 61: 18–29.
- . 1959b. Life history of the Black Rosy Finch. Auk 76:159–180.
- KING, J. R., AND E. E. WALES, JR. 1964. Observations on migration, ecology, and population flux of wintering rosy finches. Condor 66:24–31.
- LEFFINGWELL, D. J., AND A. M. LEFFINGWELL. 1931. Winter habits of the Hepburn Rosy Finch at Clarkston, Washington. Condor 33:140–150.
- MILLER, A. H., AND H. TWINING. 1943. Winter visitant rosy finches in northeastern California. Condor 45:78.
- SHAW, W. T. 1936. Winter life and nesting studies of Hepburn's Rosy Finch in Washington State, Part I. Winter. Auk 53:9–16.
- SHREEVE, D. F. 1980. Behaviour of the Aleutian Grey-crowned and Brown-capped Rosy Finches *Leucosticte tephrocotis*. Ibis 122:145–165.
- PAUL HENDRICKS, 305 East Maplewood Ave., Littleton, CO 80121. Received 30 September 1980, accepted 21 March 1981.

**A Three-legged Cattle Tyrant.**—In 1966 a surveillance program on arbovirus transmission was established in certain forested areas of the state of Sao Paulo, Brazil. We studied the emergence of Rocio Virus, (Togavirus, flavivirus), an agent of epidemic human encephalitis which includes wild birds as hosts during part of its life cycle (Lopes et al.

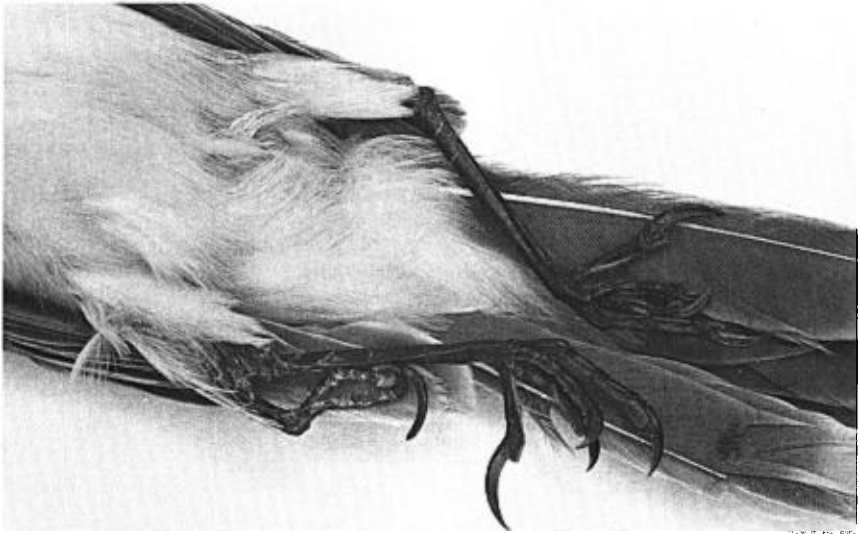


FIGURE 1. A three-legged Cattle Tyrant.

1978). For this reason, the surveillance program was enlarged and a systematic examination of wild bird sera was undertaken in state coastal areas. Birds were captured by use of Japanese mist nets (ATX type with 36 mm mesh). Captures were made throughout the year and the birds were released after being bled for virus examinations.

On 10 August 1977, during a 3-day collecting trip in Peruibe (24°20'S, 47°00'W), an unusual adult male Cattle Tyrant (*Machetornis rixosus*) was netted. The bird had an abnormal extra leg attached to the tibio-tarsus of the right leg (Fig. 1). The abnormality measured 11 mm and the distal extremity showed 2 deformed toes with claws. Two contour-like and several down-like feathers were attached to the leg.

Similar abnormalities have been found in non-passerines: (1) *Zenaidura macroura* with an extra leg (Frankowiak 1962); (2) *Capella gallinago fuscata* with 2 extra toes; and (3) *Larus delawarensis* with an extra digit on each leg (Ryder and Chamberlain 1972).

This was the only bird with an extra leg captured among more than 53,000 birds netted by us in south Brazil between 1966 and 1977.

#### LITERATURE CITED

- LOPES, O. S., L. A. SACCHETTA, T. L. M. COIMBRA, G. H. PINTO, AND C. M. GLASSER. 1978. Emergence of a new arbovirus disease in Brazil. II. Epidemiological studies on 1975 epidemic. *Am. J. Epidemiol.* 108:394-401.
- FOGARTY, M. J. 1969. Extra toes on the halluces of a Common Snipe. *Auk* 86:132.
- FRANKOWIAK, R. G. 1962. Mourning Dove with three legs. *Auk* 79:278.
- RYDER, J. P., AND D. J. CHAMBERLAIN. 1972. Congenital foot abnormality in the Ring-billed Gull. *Wilson Bull.* 84:342-344.
- OSCAR DE SOUZA LOPES, LIA DE ABREU SACCHETTA, AND EMILIO DENTE, *Seção de Vírus Transmitidos por Artrópodos, Instituto Adolfo Lutz, Caixa Postal 7027, 0100—Sao Paulo, Brazil.* Received 25 March 1980, accepted 11 November 1980.