These radio-marked grouse were birds of the year and had never before experienced snow. Yet with the coming of the first snow of adequate depth, they did not hesitate to roost in it. Within a few hours after snowfall these birds started active burrowing and in a few days were seen using several snow roosting patterns.

A direct indication of the insulating value of a snow burrow is the increased signal strength of the transmitter, correlated to the warming of the power cell by retention of body heat in the burrow. The warming of the transmitter package resulted in optimal current output and maximum transmission strength.

This project was made possible through National Science Foundation Grant GB-1345, the Minnesota Agricultural Experiment Station Project 17-83H, Federal Aid to Wildlife Restoration, Minnesota Project W-35-R, and the Minnesota Division of Fish and Game. I gratefully acknowledge William H. Marshall for his guidance and advice throughout the project.—GEOFFREY A. GODFREY, *Department of Entomology, Fisheries and Wildlife, University of Minnesota, St. Paul, Minnesota 55101.*

A method for obtaining food samples from insectivorous birds.—An analysis of niche differentiating mechanisms separating two sympatric species of swallows nesting near Ellensburg, Washington, prompted the development of a technique for analyzing the birds' food habits without destroying them. In this instance, a small population of Barn Swallows (*Hirundo rustica*) and Cliff Swallows (*Petrochelidon pyrrhonota*), nesting together under a bridge, was the object of the investigation.

The technique we developed, flushing the digestive tract and evacuating it completely with a warm 1 per cent saline solution, requires two men in the field, one to hold the bird and position the receptacle under the cloaca, the other to open the bird's mouth and insert the plastic tubing. A 10-cc disposable plastic syringe is filled with warm saline solution, and a flexible plastic tube, 16 cm long and 4 mm in diameter, is coated with Vaseline, and inserted gently into the esophagus until the tip rests against the stomach. The bird is held with a receptacle under the cloaca and its head downward to avoid filling the oral cavity with water and drowning it.

After the tube is inserted, the saline solution is forced gently into the digestive tract until it starts to flow from the cloaca. Pressure is then increased on the plunger, forcing the saline solution through the digestive tract, out the cloaca, carrying whole and particulate insects that are collected in the glass receptacle. Our samples consisted mainly of insect wings, heads, and elytra.

The technique works equally well on nestling and adult swallows. Nestlings present a special problem—if a fecal sac is present, it prevents the solution from flowing freely through the digestive tract. Often the nestlings eliminated the fecal sac during handling. When they did not, rubbing the abdomen in a posterior direction usually effected its elimination.

Marked adults continued normal nesting activity; follow-up observations made on the nestlings revealed no adverse effects. A few mortalities occurred during capture: 72 swallows (40 adults and 32 nestlings) were sampled with 6 mortalities consisting of 5 adults (6.94 per cent) and 1 nestling (1.38 per cent). In two of these birds dissected to determine the effectiveness of the flushing technique, the digestive tract was found completely evacuated except for a few food particles at the lips of the cloaca.

While useful in analyzing the food habits of insectivorous species of birds, attempts to apply the technique to adult seed-eating species were unsuccessful; apparently the gizzard inhibits the flow of the saline solution through the digestive tract.—DAVID T. MOODY, *Route 3, Box 111, Moses Lake, Washington 98837.*