

formicus), three click beetles (one a *Ludius inflatus*), one blister beetle (*Lytta cooperi*), thirteen ground beetles, five silphids, three darkling beetles, and nine weevils; ten Lepidoptera, including three cutworm larvae; thirteen Diptera including one horsefly, one deerfly, three crane flies, and three maggots (probably parasites digested out of grasshopper bodies); fifty-four Hymenoptera included andrenid and megachilid bees, psammocharid, sphecid and vespid wasps besides thirteen winged and three apparently wingless ants. Also included were parts or all of eight lizards, five *Uta stansburiana stansburiana*, two *Sceloporus graciosus graciosus*, and one gridiron-tailed lizard, *Callisaurus draconoides ventralis*; four spiders; one scorpion; part of one immature bird; and two shrikes had fed on skin and flesh of rodents, probably ground squirrels. G. F. KNOWLTON AND F. C. HARMSTON, *Utah Agricultural Experiment Station, Logan, Utah.*

A Nutcracker's search for buried food.—It is by no means unusual for the Clark's Nutcracker (*Nucifraga columbiana*) to forage for food on the ground in winter. The bird frequently seeks out the carcasses of dead animals that may be more or less covered with snow. In these cases, sight may play a large part in finding food. The following incident seems to indicate that the nutcracker can find small food objects, completely hidden, by other means.

On January 19, 1943, I snowshoed from the loop highway down Blacktail Deer Creek to the junction of that stream with the Yellowstone River, near the north boundary of Yellowstone National Park, Wyoming. The exposed plateau seemed almost devoid of birdlife for snow was falling and swirling in the strong wind. The temperature was about 20 degrees above zero.

On the north side of a ridge about a mile south of the Yellowstone River, a Clark's Nutcracker was flushed from the ground under a large Douglas fir. The bird flew off and I investigated the spot. As it was partially protected by the fir foliage, the snow was only about eight inches deep.

The nutcracker had dug a hole three or four inches in diameter at the top, at an angle of perhaps 30 degrees, through the hard-packed snow to the sloping ground. At the bottom of the excavation, frozen to the ground litter, was a Douglas fir cone. I was unable to determine whether the bird had just started to extract the seeds or whether it had been trying to pry the entire cone loose in order to carry it to a safe perch.

The remarkable feature of this performance was the accuracy with which the hole had been dug. Evidences on the snow showed that, without any exploratory digging, the nutcracker had driven its tunnel unerringly to the isolated food. The snow was sufficiently deep so that the presence of the cone could not have been apparent on the surface. The fox squirrel is known to dig for food as accurately, on occasion. The chief sense employed by that mammal seems to be smell, with memory as a possible accessory aid. By what method did the nutcracker locate its hidden food?—VICTOR H. CAHALANE, *National Park Service, Chicago, Illinois.*

Leopard frogs devouring small birds.—Some interesting instances of leopard frogs devouring live birds have come to my attention during the last twelve years or so. These may be worth recording since it is fairly certain that but few of such occurrences have been witnessed by humans although they may be fairly common in nature. Those of us who have kept captive frogs have observed that they can capture and swallow objects that are a very substantial fraction of the size of the frogs, themselves, and also that movement incites a frog to attack almost anything that is not too large to swallow.

My first instance came from a man living at Gull Harbor, about ninety miles from the south end of Lake Winnipeg. He and a companion, in 1929 or 1930, saw a large frog leap at a hummingbird that they were watching and capture it. They tried to recover the frog, but it escaped under a shed. The bird was hovering at a flower when seized.

The second instance was related by a man living near Portage la Prairie who also observed a large frog take a hummingbird while the bird hovered at a flower.

My third instance was related by my friend, the late Hugh Moncrieff, of Winnipeg—a keen naturalist and nature photographer. He was at his summer cottage at Gimli in the summer of 1939, and was watching a male Ruby-throated Hummingbird hovering at some flowers. He had intended to get out his motion-picture camera and photograph it in color. While trying to estimate the exposure and general situation in advance, he heard a snap and saw a frog fall on the flower-border while at the same time the bird had disappeared. He chased the frog but it escaped under his cottage. He called some boys to help and they recovered the frog in about fifteen minutes or less. He then instructed the boys as to killing the frog and dissecting it to recover the bird. While the operation was going on, Mr. Moncrieff took a moving picture showing the recovery of the hummingbird.

My fourth case occurred in August, 1940, to Mrs. Osborne Scott, whose husband is Passenger Traffic Manager, Canadian National Railway Co. In her garden at the summer cottage at Victoria Beach, on Lake Winnipeg, Mrs. Scott had adopted "an enormous green frog with large black spots" which had complete liberty. This frog was basking in the sun of an old camp bed in the garden, only three or four yards from where Mrs. Scott was sitting on the verandah. A waterhose was playing on the flowers and a leak in the pipe sent up a fine spray near the frog. A few Yellow Warblers were playing in the spray, sometimes flying through it very near the frog. She saw the frog leap about two feet into the air and seize a Yellow Warbler as it flew past. She ran out and found the tail and legs of the bird still protruding from the frog's mouth while the frog had its 'hands' on the tail. The frog soon swallowed the bird completely.

I am unable to state definitely that the frogs were leopard frogs, but that identification is, in my opinion, almost conclusive in every instance, due to the fact that the only frog in the province large enough to handle anything like a hummingbird is the leopard frog. I know of no records of the bullfrog in the province, and the next largest frog we have is the northern wood-frog (*Rana sylvatica cantabrigensis*). The leopard frogs, furthermore, are the only really spotted frogs we have here.—L. S. T. NORRIS-ELYE, *Manitoba Museum, Winnipeg, Manitoba.*

Observation on the food of the Bronzed Grackle.—Although aware of the wide variety of foods taken by the Bronzed Grackle (*Quiscalus versicolor*), I was surprised to find two birds catching, killing, and devouring small leopard frogs (*Rana pipiens*). These grackles were observed in a small, swampy woodlot adjacent to the St. Bonaventure College campus, near Olean, New York. On June 20, 1943, I saw what appeared to be a sick or wounded grackle fluttering about a small pool of water lying in a hollow of the woodlot. When I approached the bird, however, it behaved quite normally and took wing. The next day, June 21, I noticed two birds going through the same performance. Circling the pool, they would suddenly run along the ground, fluttering their wings, and jab viciously at the small frogs which abound in the pool. I watched while the birds killed three frogs, then frightened them away and examined the remains. Each frog was neatly