

the genus *Alces* on which it finds greater protection and comfort amid denser pelage. Unfortunately, I have no information to offer at this time regarding its breeding habits and larval development.

Observed internal parasites of the Riding Mountain Wapiti are: Tapeworm (sp?); Round worms (*Ascaris*); and Stomach worms (*Strongylus*). Although subject to infestation by the liver fluke (*Fasciola magna*) this parasite was not noted in the livers examined.

Biting flies of the several species which irritate domestic cattle are evident in due season

and without doubt cause the Wapiti annoyance. On numerous occasions Wapiti have been seen to behave as if bothered by nose-flies, running with tossing heads and from time to time rubbing their noses against their fore legs.

A small unidentified insect is invariably found infesting the muzzle and nasal orifices of young calves. Apparently they do not bite or otherwise cause irritation, as their presence is tolerated without objection. I believe they are attracted by the natural moisture.

Further study is necessary regarding the parasitology of the Riding Mountain Wapiti by more competent authority.

(To be concluded)

## BULL-FROG APPETITES

By P. A. TAVERNER



WITH reference to W. E. Scott's note in the September, 1933, number of *The Naturalist*, p. 143, on Bull-frogs eating trout.

Though not a herpetologist in general or a "frog-ologist" in particular, I have had considerable to do with Bull-frogs, especially in "collecting" them for epicurean purposes. The method of catching them with red flannel bait on a hook has been used and found admirable where frogs were plentiful, or sport, rather than frogs' legs, the principal objective. An early discovery in this method of capture was that after the red flannel had been shed on surrounding bushes or whipped off in the air, the bare hooks remained practically as efficiently attractive as before, the only loss seeming to be their decreased visibility. Another practical observation made was that the bait or the hook had to be in motion to arouse the interest of the victim. It was evident that it was motion, not form, shape or colour, that was essential to the deception that barbed hooks were tempting provender. Experiments with various baits and methods developed that a Bull-frog will attempt to eat anything that moves within its immediate field of observation. A rolling pebble is snapped up as quickly as a scurrying beetle, and a dangling grass plume is jumped at as readily as is a passing insect. The object may be rejected as inedible after trial but the general policy is to catch first and try afterwards that no possible opportunity be wasted. Even then memory seems short, or tactile reactions are deemed unreliable, for often second and third attempts may be made on the same object and sometimes even alarming,

or presumably painful, experience with lacerating hooks will not deter from further and immediate adventure. A frog's psychology seems to be that anything that moves is alive and anything alive is good to eat,—bar nothing it can swallow. Size is a secondary consideration, trial is the only criterion and the size that a hungry Bull-frog with grim determination can envelope sufficiently for the process of digestion is surprising. If a tail or two, or other odd parts have to hang without for a while, it is too bad but cannot be helped and is certainly no reason for foregoing the bellyful that does find comfortable lodgment inside.

Old readers of *The Naturalist* may remember reports of Bull-frogs eating Orioles and Olive-sided Flycatchers, and some years ago naturalist circles were stirred to the depths by charges of nature-faking, and elections to the Ananias Club, because one had embroidered his tale with a story of a Bull-frog fielding Tree Swallows in flight. It is not at all probable that Bull-frogs regularly climb trees or tall dead stubs after Orioles or Olive-sided Flycatchers or go careening into the air to catch Swallows overhead, but there is little doubt that, should a bird of any reasonable degree of smallness come down to drink or bathe too near to a semi-concealed Bull-frog of proper bigness, the latter would avail itself of the opportunity, with very good chances of success. The same would undoubtedly be true of fish, tadpoles, mice or anything else that proclaimed its vitality within seizing distance of this animated grave-yard.

Bull-frogs have long been blamed and probably justly so, for considerable mortality among the downy young of ducks and water birds that are



raised in their marshy habitats. I have never seen a frog catch a duckling but I believe ducklings have been taken from the stomachs of frogs and that lack of opportunity would be the only preventive to their so doing.

A good many years ago I watched an interesting episode from its comic beginning to its tragic end. It was on Lake Muskoka, Ontario. An only fair sized Bull-frog (it may have been a Green Frog) was sunning itself in a semi-comatose condition at the water's mossy edge when a rather medium-sized Garter Snake came up behind and struck it on the back. Why the snake made this gratuitous attack on an animal hopelessly too large to eat is a mystery. Its eyes were obviously out of scale with its swallow. Anyway the attack was suicidal. The reaction was immediate and positive. At the touch, and like a flash, the apparently sleeping frog turned, grabbed the snake by the middle and plunged into deep water. There was a splash and turmoil, the water boiled and bubbled, the mud was stirred up from the bottom, and for a minute all that could be seen was a rapidly moving con-

fused mass of frog and snake obscured by white water and mud. The snake strenuously objected to being swallowed alive while the frog was grimly determined that it should be. Then quietness came and the frog slowly rose to the surface with the head and a mid section of the snake's body well swallowed. A moment's pause and the struggle began again, this time rather shorter and when time was called it was evident that the frog had still more of the snake where it could be of most use. Several such spasms followed each other until finally the frog slowly climbed up on a floating log nearby and blinked in the sun, its belly stretched to its fullest rotundity and the end of the snake's tail feebly squirming out of the corner of its mouth. We saw the same frog several times within the next few days in the same locality, recognizing it by the faint scratches the snake's teeth had made in the original attack. It seemed a perfectly well and satisfied frog, content with the world in general, and hopeful that providence would again send such a treasure trove its way.

## NOTES AND OBSERVATIONS

**BIRD NOTES FROM UNITY, SASKATCHEWAN**—The following birds have become more numerous in the last three years in the neighbourhood of Unity, which is 120 miles west and slightly north of Saskatoon.

*Evening Grosbeaks:* These were not seen in town here until a very few years ago but have been more present in the winter time during each of the last three years. Last winter there was one flock of about 16 around in January and another flock of about the same number toward the end of February and in both cases the flocks seemed to stop about two weeks. Probably it may have been the same flock here twice.

*Magpies:* I first saw one pair in Manito Forest Reserve 10 miles north west of Unity about 1926, since then having seen no more till two years ago in that neighbourhood.

Last year magpies were quite common in the said Reserve and were frequently seen around the Unity neighbourhood. I saw one pair quite late last Fall in a somewhat wooded valley two miles from Unity and a pair again in about the same spot on the 23rd of April, 1933. I am wondering if these birds may have spent the winter here.—S. HUMPHRY.

**WHITE-CROWNED SPARROWS IN NOVA SCOTIA.**—A perusal of my permanent field notes discloses the fact that in May, 1922, a White-crowned Sparrow was seen at Greenwich, Kings County,

by Mrs. H. M. Neary. Again in May, 1929, several were reported by J. W. Piggott at Bridgetown who stated that they stayed about his farm premises for several days. None of these were collected, however, for which reason the species has not been included in the Nova Scotia list.

That this bird does visit Nova Scotia in transit, however, has now been definitely established, for on May 15, 1933, one was seen on my premises at Wolfville at close range. My attention was first attracted to it by the bird's striking and, to me, unfamiliar song. The following day, May 16th, two specimens were collected, one at Bridgetown by J. W. Piggott, and the other at Wolfville by W. E. Godfrey, and this would suggest that a migrating wave of the species has come to our Province. The two specimens above mentioned will shortly be added to the Provincial Museum collection at Halifax and will fill a long-felt want.—R. W. TUFTS.

**MIGRATION OF SWANS.**—During each of the past three years I have observed what struck me as very interesting behaviour on the part of migrating swans.

On November 9, 1930, eleven passed over my house, flying east, and fairly low. They came from the north, but when they were about a quarter of a mile due west of my place, they turned and came east. On November 9, 1931, a





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