THE RED-TAILED HAWK IN MANITOBA.

By Norman Criddle, Treesbank, Man.

The Red-tail is one of the most beautiful of our Canadian hawks and in Manitoba among the semi-wooded areas, is still one of the commonest. That it is still numerous is due to the fact that its more secluded haunts have enabled it to escape much of the persecution to which the misinformed public have subjected its close allies, the Rough-legged and Swainson's hawks.

The favourite nesting sites of the Red-tail are along the wooded borders of rivers and streams, though the bird is by no means confined to such places, but is found breeding over much of the semi-wooded portions of the province. In general habits this hawk does not differ greatly from Swainson's hawk, to which reference was made by the writer in a previous volume of The Ottawa Naturalist. It is, however, two or three weeks earlier in arriving from the South in spring time, commences to build earlier, and is far more a bird of woodlands than either Swainson's or the Rough-legged hawk. Moreover, it has never been found nesting upon the ground and rarely in isolated trees.

The nest of this species is composed of large and small twigs, well lined with the inner bark of aspen poplar, being a somewhat bulky structure. There seems a general tendency, on the bird's part, to seek a new nesting site each year. This, however, is not always done, some birds being known to occupy the same nest for two or more years in succession. The same nests have also been rebuilt and used after one or more years interval. There is reason to suspect that old nests would be much more frequently utilised were it not for the fact that the Western Horned owl habitually takes possession of these before the hawks return. Thus, the nests available for the latter depend upon the number of horned owls present in the vicinity.

The number of eggs laid by each female varies somewhat and seems to depend, at least to some extent, upon the food supply. In 1917, the six nests under observation close to the writer's home, contained but two eggs each and in only one of the six did the parents succeed in rearing more than one young though both were hatched in every instance. The first nest was discovered on May 6, containing two eggs. Other nests with eggs were located as late as June 14. It is difficult to account for the mortality among the young, though it is noteworthy that the deaths occurred while they were still quite small, and that the latest hatched, and consequently smallest, was invariably the one to die. Dead examples presented no indication of violence but seemed to show that, in all probability, death was due to

starvation, the lack of food being due in its turn to a scarcity of ground squirrels (gophers) and to the unusual number of hawks nesting in the district.

The curious habit of the old birds in gathering a green leafy bough and placing it in the nest, characteristic of Swainson's hawk also, is very marked in the Red-tail, a fresh bough being gathered at least once daily during the time when the young are small. There has been some doubt hitherto as to the cause of this habit, but by observing the nestlings I am led to believe that the bough acts as a sun shade, as the young have been seen to repeatedly pull the bough over themselves and crouch beneath it. Doubtless it also acts as a shield and hides the young from their enemies. The leaves are also occasionally eaten.

As the young develop they acquire a good deal of boldness and defend themselves with both beak and claws. They have a habit of closely watching the intruder backing up meanwhile at the approach of a hand; then suddenly they leap forward with wings outstretched and it requires a rapid movement to escape their onslaught. The old birds make no efforts to defend their young, but fly high overhead uttering loud cries which are, at times, answered in a shriller key by the young beneath. In the fall these birds may be seen resting upon trees and telephone posts, looking very un-Red-tailed in appearance and superficially very like the young of Swainson's hawk. Towards the middle of October they make their way steadily southward and by the end of the month have practically all passed beyond our borders.

The food habits of hawks have been discussed on many occasions and the examination of stomachs by Fisher and others in the United States shows that all our large buzzard-like hawks, such as the Redtail, Rough-legged and Swainson's hawks, are extremely useful. In discussing these from the standpoint of the prairie farmers, however, we have to take into consideration the fact that the prairie provinces are largely grain producing. Secondly, that they are infested by several species of ground squirrel which are quite unknown in eastern Canada and which take heavy toll from the grain fields. Thus our problems in regard to hawks are quite unlike those of the east and it seems a mistake to unite these in an article of this sort.

As the Red-tailed hawk is more an inhabitant of woodlands than the other species mentioned above it naturally follows that it is not so much a hunter of the plains, hence the prairie ground squirrels do not form so large a proportion of its food. They are, however, taken in quite large numbers and are supplemented by wood-loving kinds such as Franklin's ground squirrel, the common red squirrel and by mice. The food habits are also much more difficult to ascertain owing to the thorough manner in which the parents clean up the nest and to

their habit of not leaving food nearby. Thus, unless one kills the birds and examines their stomachs, it is necessary to rely almost wholly upon the disgorged pellets overlooked by the parents, which unfortunately are practically absent during the early stages of the existence of the young. Details of pellets examined in 1917 are:

July 2—14 pellets collected beneath the nest of a pair of young; two made up of feathers and weed seeds from one or more vesper sparrows; four containing hair of voles and mice and odd bones of these rodents; the remaining pellets containing ground squirrel hair and a few bones chiefly of the striped species, *Cetillus tridecemlineata*; a few aspen leaves were also present.

July 10—Six pellets beneath the nest of a single nestling, chiefly made up of vole hair and with three sets of teeth of these animals, also bones and feathers of a young crow. Pellets from another nest taken on the same day, five in all, showed a few bird feathers, parts of two voles, much hair of the same rodents, ground squirrel hair and three tail tips of Franklin's ground squirrel.

July 31—Three pellets gathered containing hair and bones of ground squirrels, the former of *C. richardsoni* and *franklinii*. Odd bones and a tail of the last species were also located upon the ground. The young hawk had left this nest about ten days. Another nest from which the young had departed was examined on October 5; it contained broken pellets consisting of ground squirrel hair and bones.

These studies, as was mentioned above, relate to a single season's observations. Similar studies, covering a number of years show little variation in the kind of food consumed. The situation of the hunting grounds naturally influences the results inasmuch as these are apt to be frequented by a greater number of animals of one species in one place and another kind elsewhere. A shortage of some particular animal, such as ground squirrels, will have to be made up by the collecting of some other such as mice or birds, all of which have to be taken into consideration before we can arrive at a true knowledge of any hawk's food habits.

With regard to the relation of Red-tailed hawks to poultry, I have yet to learn of a single instance of these hawks having attacked poultry of any kind, though it is not at all an uncommon event to find them nesting within a few hundred yards of barnyards and poultry runs. Such is the evidence brought out by this investigation. The destruction of a few sparrows may be used against the hawks. The killing of a vastly greater number of noxious rodents leaves a large balance in the bird's favour. We can, therefore, come to but one conclusion, namely, that it is not only a friend to the farmer but also a useful ally as a conserver of our food supply.



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