perceived southern range limit. These fluctuations are likely to occur during periods when crossbills invade southern areas (as was the case in the winter/spring of 1989/90). Also, although other northern species have shown marked expansion in Oxford County and the southwest — Red-breasted Nuthatch (*Sitta canadensis*); Golden-crowned Kinglet (*Regulus satrapa*); Pine Warbler (*Dendroica pinus*) (Holdsworth, pers. obs.; Weir, 1989b) — these species have increased primarily due to maturing conifer habitat. The habitat the White-winged Crossbills used to nest in at Wildwood Lake was fairly young spruce plantations, and this habitat is widespread throughout Oxford and the southwest. If White-winged Crossbills were truly expanding into southern Ontario, it would be likely that they would be found much more regularly throughout the areas supporting young spruce plantations.

The future of the White-winged Crossbill's nesting status in southern Ontario is likely as uncertain as the comings and goings of the birds themselves.

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Notes

Red-breasted Nuthatch Nesting in Residential Waterloo

In 1989, a pair of Red-breasted Nuthatches (*Sitta canadensis*) successfully nested in our back yard in residential Waterloo. Several aspects of this nesting seemed exceptional to me: this species breeding in a large urban centre, its choice of nesting site, and interspecific interactions. I was fortunate to observe nesting activity from the first day of excavation to the first fledgling's flight from the nest hole.

The Red-breasted Nuthatch prefers coniferous or mixed forests as reflected in its provincial distribution which is most dense across the Canadian Shield and the boreal forest. In southwestern and south-central Ontario its sporadic distribution is of relatively recent origin, and likely due to the maturity and proliferation of coniferous plantations (Mills 1987). In New York state, it was mainly confined to higher elevations in the

mountainous regions until at least early in this century, but has since expanded across much of the state due to reforestation (Peterson 1988).

I have always considered the Red-breasted Nuthatch a species of the forest interior, which is certainly reinforced in the literature (Godfrey 1986). Our yard, although well-wooded and part of a fairly well-treed section of the neighbourhood, is not a forest. The trees in the neighbourhood are aligned in hedges and coppices. The lot itself is about 0.2ha with a small 1940s house in the middle. The property lines are all treed: the front or west has a high hedge along half of it, and a line of 15m Norway spruce (*Picea abies*) which also lines the driveway, a mixture of thick "edge" shrubs and orchard trees are along the north, a double row of 15m Norway spruce straddles the east line (back yard), and 20m cottonwoods (*Populus deltoides*) are on the south line. Other trees, notably a Norway maple (*Acer platanoides*), Scotch pine (*Pinus sylvestris*), and apple (*Malus* sp.) trees are in the back yard.

Throughout the winter and early spring of 1989, a pair of Red-breasted Nuthatches was among the many bird species visiting our feeders and using the trees for shelter. The first sign of nesting was on 8 April, when both sexes were observed busily drilling the beginnings of a hole in a 90cm high, 20cm diameter apple tree stump. The stump was not rotten, and the wood was extremely hard. The stump is located in the southeast corner of the back yard, 6m from the base of the large maple, 6m from the nearest cottonwood, 7m from the corner of the house, and 15m from the spruces.

This same day, the male began aggressively attacking and driving away other species including Black-capped Chickadees (*Parus atricapillus*) numerous times, a male Downy Woodpecker (*Picoides pubescens*) on several occasions, Brown Creepers (*Certhis familiaris*), and once even a House Finch (*Carpodacus mexicanus*). This aggressiveness continued for several days. With the exception of the finch, all attacks were directed against species which overlap feeding strategies or nest in cavities. By late April the attacks became less tenacious and frequent. Of note, the one attack on the House Finch was on 31 May, and involved an individual feeding on sunflower seeds at the feeder. Perhaps the male nuthatch was defending this source of food at a critical time in its breeding cycle.

Following is a summary of behavioural observations entered by date.

16 April

Female visits House Wren nesting box and pitches out some wood shavings.

17 April
Alarm notes heard during a. m. Afterwards, no sign of either bird for the entire day.

18 April
Both birds excavating and working at a frantic pace throughout entire day. By day's end, they could enter the hole entirely. The male removed fragments of wood to a perch in the nearby maple where it dropped them.

24 April
Female transporting nesting material into cavity and spending as long as 20 minutes inside. Male attacking other species but without intensity of earlier days.

5 May
Female probably incubating, more often in cavity than out feeding (not confirmed). Chicken-wire fence 80cm high installed around stump to discourage predation from neighbourhood cats (*Felis catus*).

? May
Sometime in the first two weeks of May, the female began the curious habit of smearing spruce sap around the entrance of the hole. The action of entering the nest took its toll on the female, who after several days became increasingly disheveled, having lost many breast feathers in the pitch. Since it was mainly the female who incubated, the feather loss can be partly attributed to the developing brood patch. The male was not affected.

18 May
High-pitched peeping was heard from the nest hole indicating young inside. Both adults took turns feeding with the female remaining in the nest for long periods.

29 May
Young were observed for the first time. Feeding occurred generally at three- to five-minute intervals, and the fare seemed to be mainly insect larvae and the occasional flying insect. The female seemed to feed more frequently than the male, at one occasion making four consecutive feedings. The male made uncharacteristic high-pitched squeaking noises while gleaning bark and branches. The female was observed entering the nest for the night at 2035h, a time consistent within 10 minutes of similar observations on subsequent nights.

6 June a. m.
At 0700h I awoke to the incessant distress calls of juvenile nuthatches. At 0715h I watched a young teetering on the edge of the entrance hole launch itself towards the top of the chicken wire, but miss the target, grasping the wire of the diamond-shaped hole one level below. Without hesitating, it flew weakly just past my head, gaining about 2m of altitude, and landing on a branch of the nearby maple. It then flew to a perch 3.5m high in a cottonwood, where it settled in and

began food-begging calls (Figure 1). There was no sign of the adults. At least two voices emanated from the hole and a second fledgling perched at the entrance. It remained there when I left for work.

6 June p. m.
When I returned from work, there was no sign of nuthatches in the yard.

8 June
The female made a brief visit to the feeder.

In summary, the exceptional aspects of this breeding record include nesting in an urbanized area, a nest site in extremely hard wood and entrance cavity only 80cm from the ground, and aggressive attacks to drive other species from the yard.

The Red-breasted Nuthatch is typically regarded as a forest interior species requiring a minimum of 4 to 10ha of continuous forest habitat (Whitcomb *et al.* 1981, Freemark and Merriam 1986). The lowest nest reported in Ontario by Peck and James (1987) was 1.5m from the ground. The Waterloo nest appears to be the lowest ever recorded according to Bent (1948) and DeGraaf and Rudis (1987).

Data on incubation and fledging periods for this species are scarce. No information has previously been reported for Ontario nests (Peck and James 1987), and Bent (1948) reported an incubation period of 12 days based on a single observation. Based on information from one individual, Bent (1948) concluded that the fledging period was 18 to 21 days.

While many forest-dwelling species, particularly open-nesting neotropical migrants, are declining in the face of our "cultural" landscape, some species seem able to adapt to these new conditions. Perhaps this nest record is one such example.

Significant dates and numbers

8 April	First day of excavation
5 May	Female begins incubation
18 May	Eggs hatch
6 June	Young fledge
Incubation	13 days
Fledging	19 days

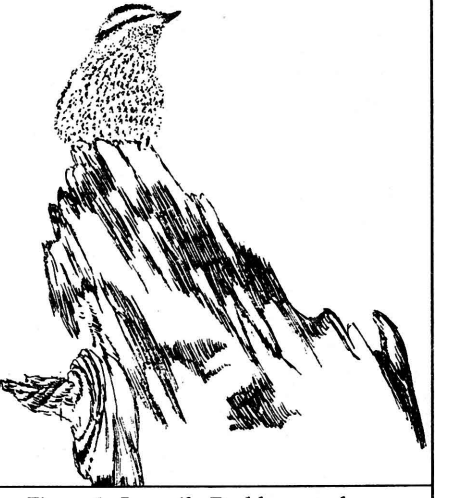

Figure 1: Juvenile Red-breasted Nuthatch. Drawing by *E. D. Cheskey.*

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Bohemian Waxwings Eating Tree Buds

On 14 January 1990, Ron Tozer, Doug Tozer, and the author made three separate observations of Bohemian Waxwings (*Bombycilla garrulus*) eating the buds of white elm (*Ulmus americana*). The first observation was at 0800h of more than 100 Bohemian Waxwings along Highway 649 in Peterborough County just north of Bobcaygeon. This flock actively ate the buds of a large white elm despite the presence of abundant buckthorn (*Rhamnus*) berries within 500m. One half hour later, we observed another flock of 20 Bohemians eating the buds on a single, isolated, small white elm among other trees along Highway 36 near Buckhorn, Peterborough County. Later that afternoon, we saw yet another flock of 15 Bohemian Waxwings budding on a large white elm along Victoria County Road 8 west of Bobcaygeon. Between the second and third observations, we also observed a small group of Bohemian Waxwings eating buckthorn berries in Bobcaygeon.

The winter diet of Bohemian Waxwings is mainly berries and other fruit (Bent 1950). I recall one winter in the mid 1970s seeing Bohemian Waxwings eating ash (*Fraxinus*) buds at the Central Experimental Farm in Ottawa. Bent (1950:71) lists only the "buds of poplars" (*Populus*) in the diet of

Bohemian Waxwings. Furthermore, there is no mention in either Bent (1950) or Martin *et al.* (1951) of Cedar Waxwings (*Bombycilla cedrorum*) eating tree buds. Jim Mountjoy (in litt.), who has studied Cedar Waxwings extensively, was "not aware of references to waxwings eating buds other than those cited in Cramp (1988)." Cramp (1988:494-496) lists the buds of several tree species including elm eaten by Bohemian Waxwings in Europe.

It remains a mystery why three independent flocks of Bohemian Waxwings were observed eating elm buds when berries were readily available. They may have been eating buds for their protein content as a lack of protein in fruit seems to be the most important limitation of a diet which is high in fruit (Jim Mountjoy, in litt.). Bohemian Waxwings were observed in the same areas on several dates before and after 14 January 1990, but elm bud eating behaviour was never noted on any of these other occasions.

Acknowledgements

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Book Reviews

Mar. 1976 (republished 1986). By *Louise de Kiriline Lawrence.* Natural Heritage/Natural History Inc. 104 pp. CN$??, paperback.

Ernest Thompson Seton gave us histories of mammals based on composite studies of more than one individual. Louise de Kiriline Lawrence gives us the life history of a Yellow-bellied Sapsucker based on her observations of one bird.

Primed to read her incomparable word-paintings, I came to an abrupt halt on page 3, where I read of sapsuckers "sucking" sap from holes they had bored in trees. Would I find more fallacies in an otherwise charming book? I did. On page 77, she again refers to the woodpeckers sucking sap; yet on the next page, she has Ruby-throated Hummingbirds "lapping" the stuff, which is also how sapsuckers imbibe it.

Other than that duplicated error, Mrs. Lawrence gives a full account of the life history of a male sapsucker as observed by her over two summers. Her story follows the bird from its arrival in spring,