

Pileated Woodpeckers, *Dryocopus pileatus*, Foraging in Suburban Habitats in New Brunswick

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Pileated Woodpeckers (*Dryocopus pileatus*), usually woodland birds, were seen often in Sackville, New Brunswick, in winters 2005-2007. Excavations in trees were made mostly by two female birds. A male bird joined each female briefly in late winter. These birds probably all roosted in wooded areas west of town. Most large trees in town are broad-leafed, in contrast to the mostly conifer woods to the west (there are only open lands to the east). Feeding excavations in town were mostly in maples, with little use of elms. Prey noted were large larvae, seemingly of sawflies, unlike published reports of Pileated Woodpecker feeding mainly on adult ants and beetles. Excavations further weakened trees already damaged by boring insects, causing perceived risks to passers-by and to overhead wires. Work by woodpeckers alerted arborists to weakened trees or branches, many of which were removed. Local people were excited at seeing, close up, these impressive – and tame – birds.

Key Words: Pileated Woodpecker, *Dryocopus pileatus*, foraging, suburban habitats, New Brunswick.

Pileated Woodpeckers (*Dryocopus pileatus*; PIWO hereafter) are thought of as woodland birds (Bent 1939). In over 50 years, I only twice encountered the species foraging in sight of houses, before they invaded Sackville, New Brunswick (45°50'N, 64°15'W; human population 5500), in autumn 2005. As reports accumulated, it seemed that one or several individuals here were not always behaving as described in publications on the species. This study thus started from curiosity about novel behaviour.

Study Area and Methods

Built-up parts of Sackville adjoin the Tantramar dykeland, formerly saltmarsh, the largest treeless area in Canada's Maritime Provinces (Figure 1). The site slopes gradually upwards to the west, into largely continuous forest that formerly included the area where the town now stands. The town limits were greatly enlarged in 1974, and now include several formerly separate villages (Middle Sackville, Upper Sackville and Mount View to the north; Frosty Hollow to the south).

Nearby forest is mixed, with conifers (mostly *Picea* spp. and *Abies balsamea*) predominating in a "fog belt" around the upper Bay of Fundy. Trees in town, planted, are largely broad-leafed, including especially maples (*Acer* spp.) and elms (*Ulmus* spp.). Those plantings line streets in older residential areas and around Mount Allison University; more recent housing developments and industrial areas often have few trees and no mature ones.

Study was mainly observational, often following up reports by other people. Actual sightings of the woodpeckers were far outnumbered by their excavations. The latter were monitored at irregular intervals, which

varied with distance from my home. As records accumulated, I searched areas without reports around known PIWO sites. Except on the university campus and in town parks, my searches were mostly in areas viewed from streets. Chips, easily visible on grassy lawns and sidewalks (which were seldom snow-covered in those winters), could often be detected from a distance of 30+ metres. The study spanned nearly two years from my first sighting (12 November 2005), including winters of 2005-2006 and 2006-2007. No obvious differences between years were noted, so data from both years were combined.

Results

PIWO were active in Sackville mainly between early November and late March 2005-2007 (Table 1), and were not seen there before or since. Most chronological evidence was from freshly cut chips and excavations, distinguished from those of other woodpeckers by size, as sightings of birds were infrequent and unpredictable.

The accumulated distribution of PIWO activity in Sackville (Figure 1) involved two well-separated areas. Most activity was seen in built-up areas of the old town, with minor use also detected in Middle and Upper Sackville. The old town included some 90 trees worked, to varying degrees, by PIWO, with about 12 trees used in the northern area. Diggings were mostly in live wood (as judged from chips) of large, live trees (Tables 2,3), often in relatively well-treed areas.

Trees used by PIWO in Sackville were mostly maples (Table 4), especially Norway Maples (*Acer platanoides*), which may be planted more often than other maple species. Elms, which included most other large trees in town, were little used, although many

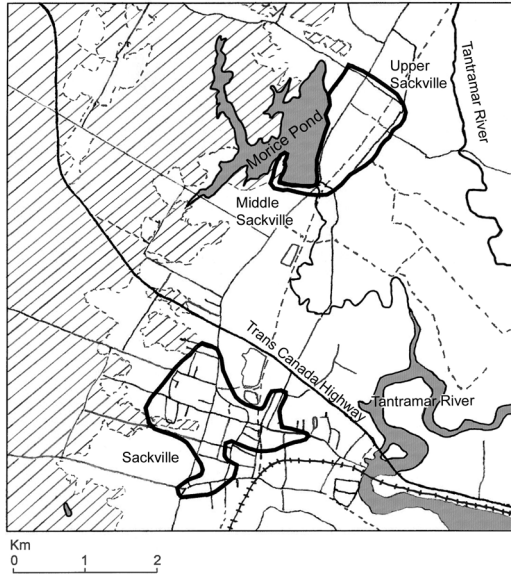


FIGURE 1. Location of study area in Sackville, New Brunswick. Areas of Pileated Woodpecker activity in 2005-2007 outlined (heavy lines). Main built-up area of Sackville ("old town") roughly corresponds to the southern activity area of woodpeckers. Areas of more-or-less continuous woodland (west of town) are shown by diagonal hatching; note "corridor" of woodland connecting forest to built-up area of "old town" (assumed to be route by which woodpeckers entered and left "old town"). Unhatched areas to east of town are treeless dyked grasslands.

were dead, dying, or in poor condition. The old maples used were nearly all alive, though some had upper trunks or a few large branches dead. Evidence from PIWO diggings indicated that many mature maples were infested by larvae of wood-boring insects, some of which were seen (by other people) as the birds extracted them. Some larvae, and one adult, collected from a PIWO-worked tree, were identified as sawflies (Hymenoptera; per R. Aiken, Biology Department, Mount Allison University).

PIWO use of urban trees in Sackville was apparently restricted to foraging. Many trees were investigated by PIWO, often resulting in only a few chips or small excavations. Others were subjected to intensive excavation during two to three weeks, producing large piles of chips (up to 15 cm deep by 60 cm across) while creating cavities extending up to 1.5 metres along and halfway through a trunk (Table 5). In a few cases excavations from opposite sides of a tree met in the middle, and some trees were undoubtedly weakened by PIWO excavations.

No reports suggested PIWO activity focussed in any particular areas in early morning or late afternoon,

TABLE 1. Timing of excavation activity of Pileated Woodpeckers, Sackville, New Brunswick 2005-2007.

Month	Number of trees with observed activity	
	earliest	latest
September (2006 only)*	1	
October (2006 only)*	4	
November	14	
December	28	3
January	5	36
February	2	19
March	1	15
April		9
May		3
unknown		4

*reported after activity ended.

TABLE 2. Estimated heights of trees worked by Pileated Woodpeckers and heights of their excavations, Sackville, New Brunswick, 2005-2007. (Trees worked in both years were counted only once, but excavations in them may appear more than once).

Height (m)	Number of trees	Number of excavations
0-2		15
2-4	1	41
4-6	1	37
6-8	1	14
8-10	5	5
10-12	4	3
12-14	9	8
14-16	26	
16-18	34	
18-23	2	
not estimated	8	22

TABLE 3. Diameters (breast height) of trees worked by Pileated Woodpeckers, Sackville, New Brunswick* 2005-2007

Diameter (cm)	Number of trees
≤ 40	4 (1)
41-50	30
51-60	22 (3)
61-70	26
71-80	7 (2)
>80	6 (1)
not estimated	12

* Numbers in parentheses from Middle/Upper Sackville, others in main built-up area of Sackville.

as would be expected if the birds roosted in town. On two occasions PIWO were seen in late afternoon flying away from diggings in a westerly direction (towards the continuous woods). No evidence of nesting in built-up areas of Sackville was found or reported in the study

TABLE 4. Tree species winter usage by Pileated Woodpeckers, Sackville, New Brunswick* 2005-2007

Tree species	Number of trees worked with excavations				Total *
	large	medium	small	chips only	
Norway Maple <i>Acer platanoides</i>	10 (3)	17 (2)	29 (2)		56 (7)
Sugar Maple <i>Acer saccharum</i>		2			2
Red Maple <i>Acer rubrum</i>	1	2		1	4
Silver Maple <i>Acer saccharinum</i>	1	3	(1)		4 (1)
Manitoba Maple <i>Acer negundo</i>		1	5		6
Maple <i>Acer</i> spp.?	4	3	5	1	13
Sub-total					85 (8)
Elm <i>Ulmus</i> spp.?	1	2	2	6	9
Linden <i>Tilia</i> spp.?				1	1
Trembling Aspen <i>Populus tremuloides</i>			(1)		(1)
Sub-total					10 (1)
Stub (spp.?)			2		2
Totals	17 (3)	30 (2)	43 (4)	9	97 (9)

* Numbers in parentheses from Middle/Upper Sackville, others from main built-up area of Sackville.

area, where several observers in the second Maritimes Breeding Bird Atlas were active throughout breeding seasons of 2006 and 2007.

Most sightings were of single birds, those determined to sex being females only, until late February 2006. Two sightings in each winter, all in late February to April, involved two birds each, confirmed (once each year) as a male near a female. These "pairs" foraged in the same tree, but were not seen to interact in other ways. On 3 March 2006, in late afternoon (16:05-16:15 AST), both birds departed independently in the same direction, into a "corridor" of woodland extending westward to the forest.

Public concern was sometimes expressed about "damage to apparently sound trees". One property owner tacked sheet-metal across a large cavity to deter further PIWO activity! Utility companies, the university, and some land-owners thought it necessary to have trees removed before they could fall through wires or onto buildings, vehicles or people. My notes indicated that at least 25 PIWO-worked trees were felled between March 2006 and August 2007, vs. only one such tree that fell naturally (in a windstorm) during that period.

Many people were excited to see these large woodpeckers in town, where no previous sightings were known to local bird students. The birds were not at all shy, often allowing approach within a few metres – for viewing or photography.

TABLE 5. Estimated volumes of tree excavations by Pileated Woodpeckers, Sackville, New Brunswick* 2005-2007

Volume (litres)†	Number of excavations
<1	41 (1)
1-2	15 (1)
2-3	9
3-4	8
4-5	6
5-7	9
7-9	5 (1)
9-11	6
11-15	4 (2)
>15 (max. 33)	6

* Numbers in parentheses from Middle/Upper Sackville, others from main built-up area of Sackville.

† Volume figures were derived as follows:

(i) measurements (cm) were taken (or estimated, for high excavations) of tree diameter at excavation (DX); vertical length (LX) and horizontal width (WX) of excavation.

(ii) cavity was assumed roughly triangular in horizontal section [area of triangle (1/2 bh) = 0.5 WX × 0.5 DX]; thus volume (of triangular prism) = (0.5 WX × 0.5 DX) × LX, in cubic centimetres = litres/1000.

Discussion

The only published works found on PIWO in the northeast (Flemming et al. 1999; Kellam 2003) treated foraging habitat in summer and behaviour in fall, respectively. Given the low density of PIWO in this

region, and the difficulty of continued observations of them in their usual forested habitats, the scarcity of studies is not surprising. The present study may be the first on winter foraging near PIWO's northern range limit, but findings in this peripheral area may not all represent behaviour typical of the species elsewhere in its range.

Earlier studies, mostly in east-central or western USA (summarized by Bull and Jackson 1995), found nesting and roosting usually in the same "territory", used also for foraging. Existing pairs were closely associated in roosting and nesting activities. The present study, based on small numbers of birds, found regular foraging by single birds, in areas apparently used neither for roosting (in winter) nor for nesting (in summer).

Females here usually foraged alone in winter, in suburban habitats not reported as used regularly elsewhere in this region (Erskine 1992). They were joined there by males only in late winter (February-April). That timing might reflect first pairing by females that failed to establish foraging territories in typical woodland habitats in their first autumn? Males might follow such females from roosting areas to foraging habitats for purposes of pair-formation. Use of large suburban parks (with similar habitats) in Europe by the congeneric Black Woodpecker (*Dryocopus martius*) is not unusual (personal observations in West Berlin 1978), so might become more frequent in PIWO in future.

Studies of PIWO in other northern (and mountain) regions mostly involved conifer habitats, where nesting, roosting, and feeding largely occurred in dead trees. In the present study, most foraging activity was in live broad-leafed trees, especially maples – with relative avoidance of elms, despite frequent poor health of the latter. This suggested deliberate focus by PIWO on a particular food (sawflies), which might be specific to maples, or be occurring only during an outbreak of that prey organisms.

Work elsewhere also emphasized feeding on particular species (adult carpenter ants or wood-boring beetles) (Bent 1939; Bull and Jackson 1995), but the few observations of prey noted here (by D. Bliss and K. Bunker-Popma, personal communications) suggested that larval insects were important foods – as implied also by the extensive excavations. Such soft-bodied prey likely were under-represented in earlier food studies that relied on gizzard analyses.

The present study expanded the known range of behavioural strategies used by this species – although some of these may be characteristic only of this study area and period. It also revealed widespread interest in, and concern of, the public with activities of these impressive birds, when their activities extended into suburban habitats where they were easily observed.

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A shorter version of this paper was presented at the September 2007 conference of the Society of Canadian Ornithologists, at Chaffeys Lock, Lake Opinicon, Ontario.

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