

Feeding Strategies of American Three-toed and Black-backed Woodpeckers

David H. Elder

During the winter of 2000-2001 (December to March), I observed the feeding activities of several American Three-toed Woodpeckers (*Picoides dorsalis*) and Black-backed Woodpeckers (*P. arcticus*) near Atikokan in northwestern Ontario. The woodpeckers were regular visitors to a stand of Black Spruce (*Picea mariana*) that had been killed by the water of a pond created by Beavers (*Castor canadensis*). The spruce stand was about two hectares (4.4 acres) in size, and was located on the north side of Highway 11, five kilometres east of Atikokan. The trees had been dead for about a year. During regular weekly visits to the site, the number of woodpeckers present varied from none to a maximum of seven (four Black-backed and three American Three-toed), but usually one or two individuals of each species would be found. I became curious about the feeding strategies of the two species when, during early visits to the site, I frequently found both species feeding on the same tree.

Discussion

American Three-toed and Black-backed Woodpeckers tend to feed primarily by flaking bark from

recently dead coniferous trees and consuming insect larvae that are found (Bent 1939, Short 1982, Dixon and Saab 2000, Leonard 2001). My observations revealed that competition and possible conflict were avoided by significant differences in the feeding behaviour used by each species

Dead and dying trees are immediately beset by bark- and wood-consuming insects, part of the decomposition process. While there are always a certain number of dead and dying trees in any given area of forest, an extensive tree kill, whether due to fire, flood, disease or insects, presents the essentially boreal Black-backed and American Three-toed Woodpeckers with a concentrated potential food supply. Both species are quickly attracted to these opportunities. The insects that are available to the woodpeckers appear to be most abundant during the first year after the death of the tree, and are found immediately beneath the bark and in the first few millimetres of wood. Trees that have been dead for more than two years do not seem to support these particular insects, or the larvae have bored into the tree to a depth that makes them inaccessible, and

are thus considerably less attractive to these woodpeckers.

White-spotted Sawyer Beetles (*Monochamus scutellatus*) are attracted to newly dead conifers which are the source of food for their larvae (Escott 2001). The larvae are initially found just below the bark, and create shallow, round galleries. Toward fall, they burrow farther into the tree prior to winter dormancy. Other wood- and bark-eating insects are also attracted to the dead trees, including bark beetles (Borror et al. 1976) that create small, many-branched galleries, again just below the bark on the surface of the sapwood.

Both of the three-toed woodpeckers are somewhat similar in appearance, being rather chunky in stature, and black and white in colour, with males having a yellow forehead. The Black-backed Woodpecker is slightly larger and more robust than the American Three-toed Woodpecker, and this size difference permits a different feeding method. As noted above, both species are bark flakers. The American Three-toed appears to flake almost exclusively, and seeks insect larvae that are present in the inner layers of bark and just at the wood surface (Figure 1). The flaking action, a sideways swipe of the head, removes small pieces of bark and exposes the insect larvae. The action is done deliberately, steadily and rather quietly. I often had to listen very carefully to hear the flaking activity of an American

Three-toed Woodpecker, and frequently saw the bird before I heard it.

Not so with Black-backed Woodpeckers; I was often aware of their presence some distance from the stand of dead spruce, since I could hear loud pecking. Black-backs vigorously remove large pieces of bark when flaking and also drill a short distance into the wood of the tree (Figure 2). The holes they create are rectangular in shape and usually only a few millimetres deep. The holes are quite distinctive and allow the woodpecker to reach, with the aid of its tongue, larvae that are well inside the tree.

American Three-toed Woodpeckers are believed to specialize in the larvae of bark beetles (Scolytidae; Murphy and Lehnhausen 1998), whereas the main food of Black-backed Woodpecker is the larvae of wood-boring beetles (Cerambycidae and Buprestidae; Bent 1939, Villard and Beninger 1993, Murphy and Lehnhausen 1998), including the White-spotted Sawyer Beetle (Escott 2001).

Conclusion

By using a different feeding strategy and targeting different prey species, these boreal woodpeckers can take advantage of opportunistic abundant food sources without competing. I often saw both species feeding in the same tree with no apparent conflict. Their ability to find and utilize large stands of dead trees created by fire,

flood or insect damage is quite remarkable and has been noted by many observers. One can wander through kilometres of boreal forest and only infrequently encounter either of these woodpecker species. But, find a stand of newly dead trees and there they are, often in high numbers.

It is obvious that trees dead for more than two years do not have a strong attraction for either species. This is undoubtedly due to the species of wood-eating insects and their life cycles that utilize dead trees soon after their death and for a short period thereafter. The larger, sturdier Black-backed Woodpecker feeds on insect larvae found under the bark and in the outer wood layers of recently dead conifers by flaking and drilling. The smaller American Three-toed Woodpecker flakes off bark only and does not appear to drill for its prey.



Figure 1: Flaking of bark on Black Spruce by American Three-toed Woodpecker, showing exposed insect larvae galleries, 6 January 2001, near Atikokan, Ontario. Photo by David H. Elder.

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Figure 2: Flaking of bark and holes drilled in Black Spruce by Black-backed Woodpecker, 6 January 2001, near Atikokan, Ontario. Photo by David H. Elder.

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David H. Elder, 23 Birch Road, Box 252, Atikokan, Ontario P0T 1C0