

Winter Ecology of a Female White-backed Woodpecker *Dendrocopos leucotos* (Bechstein)

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In the winter of 1977/78, a White-backed Woodpecker was observed in the archipelago of southwestern Finland 200 km from its breeding areas. It foraged on insects living in small dead alders and birches. The potential prey species were identified by rearing the insects from the trunks used by the White-backed Woodpecker. Altogether 628 adult insects emerged. In addition to the big larvae the potential food also included larvae of Sciaridae and Cecidomyiidae (Diptera) living in dense clumps.

Keywords White-backed Woodpecker, prey insects, winter food, sawflies.

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1 Introduction

The White-backed Woodpecker *Dendrocopos leucotos* is an endangered bird species in Finland. Its present population is estimated at only 30–50 pairs. Without protection of old deciduous forests preferred by this woodpecker, extinction of the breeding White-backed Woodpecker population in Finland is highly probable in the next 10–15 years (Virkkala et al. 1993). It is suggested that increased juvenile mortality and/or dispersal are important factors for the drastic decline of this species in Finland during recent decades (Virkkala et al. 1993).

Food (see Glutz von Blotzheim and Bauer 1980, Cramp 1985, and Aulén 1988) is probably the crucial factor in the choice of winter habitat. Especially juveniles could be expected to have difficulties in finding good winter habitats (Virkkala et al. 1993). However, to study feeding ecology is usually more difficult in winter than during the breeding season, since the birds are not bound to any particular site. One way to identify indirectly potential food is to rear artificially the insects from trees visited by the woodpecker, and compare them with those from similar, but intact trees. We made such a comparison.

2 Material and Methods

In 1977/78, a White-backed Woodpecker female was recorded (the author L.S.) between 13 October and 11 April on the island of Aasla in the southwestern archipelago of Finland (60°18'N, 21°56'E) 200 km west of the regular breeding area. The species is only a rare winter visitor to the island being recorded there only twice (8 November 1990 and between 23 October 1993 and 30 March 1994), despite intensive field work since 1975, and once before that (4 January 1966).

The bird was observed in 1977/78 in an area covering a radius of c. 2 km only, three times in both October and November, not in December, twice in January, five times in February, four times in March and three times in April despite 130 days fieldwork in October–April.

The White-backed Woodpecker was usually seen along the shores or along forest edges with dead black alders (*Alnus glutinosa* (L.) Gaertner) and some dead birches (*Betula* spp.). It was also seen on live aspens (*Populus tremula* L.), but was not successfully foraging, only tapping a few times with the bill and then listening. The impression was that the distribution of dead alders mainly determined the bird's occurrence.

On 17 October 1977, the female was seen in a grove which included hazel (*Corylus avellana* L.), alders and birches. It was observed for 1 h 15 min, being finally evicted by a Great Spotted Woodpecker (*Dendrocopos major* (L.)). In this case, the White-backed Woodpecker was mainly seen on alders, letting the observer approach within 10 m without showing signs of alarm. It first removed the bark and then excavated holes in the dead tree itself feeding on the larvae found. After finding a profitable site, it fed there for a long time.

On 26 April 1978, 10 of the trees where the woodpecker had been seen feeding (making holes in the trunk) were sampled by sawing a 50 cm long section of tree trunk (block) from each tree. As a control, 10 similar blocks were taken from trees having no feeding marks made by the woodpecker. Eighteen blocks were taken from alders, two from birches, with diameters from 3.7 to 8.6 cm. Each block was placed individually in a rearing box, and all 628 adult insects emerging were collected.

3 Results

Table 1 shows the insects which emerged from the blocks. In addition to the adult insects, two larvae exited (one *Denticollis linearis* L. and one *Xylophagus compeditus* Wied.).

Among Lepidoptera, only one potential prey species was found. This was *Nemapogon cloacellus* (Tineidae) living in decaying wood.

Of Coleoptera, only three species were potential food because of their size: *Denticollis linearis* (Elateridae), *Phloiortya rufipes* (Melandryidae) and *Leiopus nebulosus* (Cerambycidae).

Within Hymenoptera, there were two potentially important prey species among the sawflies (Symphyta): *Monosoma pulveratum* and *Dineura virididorsata*. Their larvae feed on leaves of either alders or birches and they enter the decayed wood in order to pupate and hibernate. *Xiphidria camelus* L. (Xiphidridae), whose larvae also live in wood of alders or birches, was present, since its parasite *Rhyssella approximator* (Ichneumonidae) was recorded from the intact sample.

All other species of Coleoptera and Hymenoptera in Table 1 seem unimportant as food either because of their small size or sporadic occurrence.

Among Diptera, the woodpecker probably fed on the big larvae of *Xylophagus compeditus* (Rhagionidae). *Medetera* (Dolichopodidae), *Lonchea* (Lonchaeidae) and other unidentified Cyclorrhapa species living under the bark would be at least of suitable size as prey for the woodpecker. A characteristic of small larvae of Sciaridae and Cecidomyiidae living under the bark is that they aggregate with each other forming a real concentration of larvae. Despite their small size, they are probably profitable food for the woodpecker. In winter time, it is not easy to remove the bark, and no scaled areas occurred in our experimental blocks. Because of this, the larvae of Diptera living under the bark had survived.

Table 1. The total number of insects emerging from both visited and control blocks (n = 10 and 10, respectively), and the number of blocks they exited from.

	Visited		Control	
	Specimens	Blocks	Specimens	Blocks
Lepidoptera				
<i>Nemapogon cloacellus</i> (Haworth)	3	1	-	-
Coleoptera				
<i>Gabrius</i> sp.	-	-	1	1
<i>Quedius xanthopus</i> Erichson	1	1	-	-
<i>Lathrobium longulum</i> Gravenhorst	-	-	3	1
<i>Malthodes marginatus</i> (Latreille)	-	-	1	1
<i>Malthodes guttifer</i> Kiesenwetter	1	1	-	-
<i>Denticollis linearis</i> (Linnaeus)	-	-	2	2
<i>Cerylon histeroideus</i> (Fabricius)	-	-	1	1
<i>Lathridius consimilis</i> Mannerheim	1	1	-	-
<i>Lathridius minutus</i> (Linnaeus)	1	1	-	-
<i>Synchita humeralis</i> (Fabricius)	1	1	5	1
<i>Orchesia micans</i> (Panzer)	-	-	4	1
<i>Phloiortya rufipes</i> (Gyllenhal)	4	1	-	-
<i>Leiopus nebulosus</i> (Linnaeus)	-	-	2	1
Hymenoptera				
<i>Monosoma pulveratum</i> (Retzius)	5	3	2	2
<i>Dineura virididorsata</i> (Retzius)	1	1	1	1
<i>Eusternix</i> sp.	-	-	7	1
<i>Cubocephalus nigriventris</i> (Thomson)	1	1	3	2
<i>Cubocephalus associator</i> (Thunberg)	-	-	1	1
<i>Rhyssella approximator</i> (Fabricius)	-	-	1	1
<i>Stenomacrus</i> sp.	-	-	1	1
<i>Apanteles</i> sp.	3	1	-	-
<i>Blacus</i> sp.	1	1	1	1
Diapariidae	12	2	-	-
<i>Cinctus</i> sp.	17	4	-	-
Diptera				
Nematocera undet.	3	3	3	3
Sciaridae	274	8	87	3
Cecidomyiidae	36	3	78	3
<i>Xylophagus compeditus</i> (Wiedemann)	2	2	-	-
<i>Medetera</i> sp.	8	1	-	-
Cyclorrhapa undet.	46	2	2	1
<i>Lonchea</i> sp.	1	1	-	-

4 Discussion

As the White-backed Woodpecker does not consume all the larvae from a tree feeding site at one time but returns later (Aulén 1988, see also Cramp 1985, p. 894), it is probable that the feeding substrate will still contain representatives of the species fed upon, which may therefore be identified as they emerge as adults in the rearing experiment.

Of Coleoptera, the big species *Denticollis linearis* and *Leiopus nebulosus* were only found in intact trees, but the larvae may have been totally consumed from the trees with feeding marks.

Of Hymenoptera, the sawflies have been reported earlier to be prey of the White-backed Woodpecker (see Cramp 1985, p. 894, Aulén 1988). *Xiphydria* is also listed as prey of this woodpecker by Aulén (1988).

Most of the larvae of Diptera live in the bast under the bark. The larvae of *Xylophagus compeditus* have also been recorded earlier in the diet of the White-backed Woodpecker (see Cramp 1985, p. 894–895). Small larvae of Sciaridae and Cecidomyiidae live in a dense clump. As the White-backed Woodpecker has been observed to scale the bark from alders more often than from other tree species (Aulén 1988, p. 144), the woodpecker may have sought these larvae. Because the bark was not scaled from the experimental blocks, the larvae of Diptera living directly beneath the bark had survived.

The trees utilized at Aasla were notably thin. According to Aulén (1988, p. 35) thin trees of all species were significantly underused in relation to their abundance in forests. The woodpeckers preferred 21–30 cm thick trunks for foraging in black alder.

According to our earlier observations (Nuorteva et al. 1981), the woodpecker was observed foraging on the larvae of *Saperda carcharias* (L.) (Cerambycidae) in winter in living small aspens. The average diameter of trunks at the deep peck mark was only 8.1 cm.

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References

- Aulén, G. 1988. Ecology and distribution history of the White-Backed Woodpecker *Dendrocopos leucotos* in Sweden. Sveriges Lantbruksuniversitet, Institutionen för viltekologi, Rapport 14. 253 p.
- Cramp, S. (ed.). 1985. The birds of the Western Palearctic, Vol IV. Oxford–New York. 960 p.
- Glutz von Blotzheim, U.N. & Bauer, K.M. 1980. Handbuch der Vögel Mitteleuropas, Band 9. Akademische Verlagsgesellschaft, Wiesbaden. 1148 p.
- Nuorteva, N., Patomäki, J. & Saari, L. 1981. Large poplar longhorn, *Saperda carcharias* (L.) as food for white-backed woodpecker, *Dendrocopos leucotos* (Bechst.). *Silva Fennica* 15: 208–221.
- Virkkala, R., Alanko, T., Laine, T. & Tiainen, J. 1993. Population contraction of the White-backed Woodpecker *Dendrocopos leucotos* in Finland as a consequence of habitat alteration. *Biological Conservation* 66: 47–53.

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