

Willow weevils in Juneau, Alaska

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What we have seen and learned about willow weevils in Juneau



Figure 1: A willow weevil on snow.



Figure 2: A willow area at the end of Industrial Boulevard in Juneau.

We often see adult willow weevils crawling on the snow in March and early April (Figure 1). Derek Sikes of the University of Alaska Museum of the North identified photographs of specimens as *Dorytomus*. Of the 252 records of *Dorytomus* in Alaska, *D. leucophyllus* is the only species that has been found in Juneau.

On April 11, 2021 we visited a willow area at the end of Industrial Boulevard in Juneau (Figure 2). We shook one of the trees and several adult weevils fell on the snow beneath the tree. A few of these adults were placed in a terrarium and kept indoors. Within a few hours we observed four couples mating (3). It appeared that the weevils were on the tree for the purpose of mating.



Figure 3: Willow weevils mating in a terrarium.



Figure 4: A female willow weevil on a willow catkin.



Figure 5: A weevil larva inside a dissected catkin.

After mating the female lays an egg on the catkin (Figure 4). We never found more than one larva inside the catkins that were examined (Figure 5). This indicates the weevil may only lay one egg per catkin.

Catkins containing willow larvae are usually bent (Figure 6). A cavity with brown edges inside the catkin indicates where the larva has been feeding.



Figure 6: A willow catkin dissected to show the cavity in which a weevil has been feeding.



Figure 7: Front view of the weevil larva showing the head.

With the amount of frass produced as the larvae eat the catkins we wondered if it is beneficial to the willows (Figures 8-9).

Of the catkins that we monitored, the larvae pupated within the catkin and adults emerged in early June (Figure 10). To understand if the weevils are overwintering as larvae or adults, we examined the fallen catkins, leaf litter and soil below willows that were used by weevils. So far we have not found any weevils.

After captive adults emerged we examined several catkins on trees in mid-June and found no evidence of the adult weevils mating, laying eggs, or producing any more larvae.



Figure 8: The rear end of the larva and clumps of fecal pellets called frass.



Figure 9: Willow weevil frass on a willow catkin.

On March 14 and 15, 2022 we found weevils on top of the snow near to where we had observed them on willow trees last summer (Figure 11) and we found one adult on a newly emerged catkin on this willow tree (Figures 12–13).

On April 27, 2022 we saw some willow catkins with the willow weevil larva in them (Figure 14). Our conclusion, so far, is that the larva pupate within the catkins and the adults emerge in the summer. They overwinter as adults and mate and lay their eggs on the catkins in spring.

According to the literature some birds have learned to target catkins with weevil larva in them (Figures 15–16).

A couple of useful reports about willow weevils

Fjellberg and Bøcher (2006) worked on *Dorytomus imbecillus* whereas the species we observed was probably *D. leucophyllus*. However there appeared to be significant differences that could alter our conclusions:

1. They found more than one larvae inside individual catkins whereas we only observed one per catkin.
2. They observed pupation taking place in the soil and litter underneath the low bushes. Despite several days of scraping the soil and looking for pupae we never found any. We also observed the weevils pupating inside the catkins and emerging as adults before the catkins fell to the ground. Also we never saw any indication of the adults mating or laying eggs on any catkins after the early June emergence of the adults. This indicated they overwintered as adults rather than pupae.



Figure 10: An adult weevil after emergence from a catkin.



Figure 11: A weevil on the snow.

Leatherman (2011) observed warblers, vireos, kinglets, orioles, Red-winged Blackbirds, House Finches, grosbeaks, and tanagers all vigorously seeking the catkins with weevil larvae in them. And he thought the complete list of weevil seekers is probably much longer. In east-central England, Morris (1998) strongly suspected several bird species (Blue, Marsh, Willow, Long-tailed, and Coal Tits) of preying on *Dorytomus* larvae in aspen catkins. So far we have observed Bohemian Waxwings and Song Sparrows eating the willow catkins. We suspect they may be targeting the ones with weevil larvae in them. To our knowledge there has been very little work or information about the birds in Alaska eating willow catkins.

We have observed several insects feeding on the willow catkins when they emerge in the spring. We have also observed several birds feeding on these insects. We conclude that the catkins are extremely important food for early emerging insects, especially queen bumblebees, at a time when other flowers have not bloomed. The insects are probably an important food for several species of birds. To see what we have observed feeding on willows look at <https://www.naturebob.com/sites/default/files/Willows.pdf>.

See also

- https://www.naturebob.com/sites/default/files/Su2011_Article_DeclineInTheDiversityOfWillowT.pdf
- <https://doi.org/10.1016/j.landurbplan.2010.03.004>
- Morris (1969)
- O'Brien (1970)
- Robbins (1997)



Figure 12: A willow tree on which we found an adult weevil.



Figure 13: An adult on a willow catkin.

References

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- Leatherman D (2011) *Dorytomus* weevil larvae in cottonwood catkins. *Colorado Birds* 45: 124–127. Available from: https://www.naturebob.com/sites/default/files/CB_2011_45_2_Apr.pdf.
- Morris MG (1969) Notes on the life history of *Dorytomus hirtipennis*. *The Entomologist's Monthly Magazine* 105: 207–209.
- Morris MG (1998) Comparative aspects of the biology of three species of *Dorytomus* (Col., Curculionidae) associated with aspen, *Populus tremulae*. *The Entomologist's Monthly Magazine* 134: 197–213.
- O'Brien CW (1970) A taxonomic revision of the weevil genus *Dorytomus* in North America (Coleoptera: Curculionidae). University of California Press, Berkeley, California.
- Robbins J (1997) *Dorytomus taeniatus* in the catkins of *Salix*. *Cecidology* 12: 42–43.



Figure 14: A willow weevil larva in a willow catkin.



Figure 15: This Bohemian Waxwing is eating a willow catkin in Juneau.



Figure 16: A Song Sparrow eats a willow catkin in Juneau (Photo by Doug Jones).