

# Biological observations on *Dorytomus imbecillus* Faust, 1882, in West Greenland (Coleoptera, Curculionidae)

Arne Fjellberg<sup>1</sup> & Jens Böcher<sup>2</sup>

Fjellberg, A. & J. Böcher: Biological observations on *Dorytomus imbecillus* Faust, 1882, in West Greenland (Coleoptera, Curculionidae).  
Ent. Meddr 74: 81-86. Copenhagen, Denmark 2006. ISSN 0013-8851.

<sup>1</sup> Zoological Museum, Lund University, Helgonavägen 3, S-223 62 Lund, Sweden.

E-mail: Arne.Fjellberg@zool.lu.se

<sup>2</sup> Zoological Museum, University of Copenhagen, Universitetsparken 15, DK-2100 København Ø.

E-mail: jjbocher@snm.ku.dk

## Dansk sammendrag

Bortset fra Europa er snudebillen *Dorytomus imbecillus* Faust, 1882, udbredt i lavarktiske og køligt tempererede områder hele vejen rundt om Nordpolen. Indtil for nylig blev den betragtet som sjælden i Grønland, idet den udelukkende var fundet af den navnkundige grønlandsforsker Christian Vibe på fem lokaliteter i Vestgrønland. Imidlertid indsamlede den entomologiske "Kissavik Ekspedition" i juli 2003 arten på et stort antal lokaliteter i området fra Kuannersooq/Kvanefjord (øst for Paamiut/Frederikshåb) mod nord til Kangerlussuaq/Evighedsfjorden. Samtidig blev der foretaget biologiske og fænologiske iagttagelser, således at vi nu har et godt billede af artens livscyklus i Grønland: Imagines klækkes i midten af juli og overvintrerer. I første halvdel af juni lægges æggene i unge pilerakler, særligt af tundra-pil (*Salix arctophila*), hvorefter de voksne sandsynligvis dør. Larven lever primært i og af den centrale del af raklen, som derved får et karakteristisk udseende; larvetiden tager ca. en måned. I overgangen juni/juli søger de udvoksede larver ned i jordoverfladen, hvor de forpupper sig. Efter et par uger klækkes den nye voksne generation.

## Abstract

The holarctic weevil *Dorytomus imbecillus* Faust, 1882, was considered rare in Greenland. However, during July 2003 the entomological "Kissavik Ekspedition" collected the species frequently along the southern part of the west coast. At the same time biological and phenological observations were done so that we are now able to describe the life cycle of the species in Greenland. Adults hatch in the middle of July and hibernate. In first half of June the eggs are laid in developing willow catkins, especially of *Salix arctophila*, after which the adults probably die. The larvae primarily live in and from the interior part of the catkins which thereby attain a characteristic appearance. The larval development takes about one month. At the transition of June/July the first larvae leave the catkins and pupate in the upper soil layer, mostly just underneath the willow. Following about a fortnight the new adult generation appears.

Date	Loc.	Old adult	Larva	Pupa	New adult	Notes
26. June	Kuannersooq/Kvanefjord: Nigerlikasik	x				Adult caught in vegetation of <i>Salix uva-ursi</i>
28. June	Allumersat/Bjørnesund: Egaluit	x				Adults netted on <i>Salix</i> spp. ( <i>arctophila</i> , <i>glauca</i> )
29. June	Allumersat/Bjørnesund: Egaluit	x	x			Larvae in catkins of <i>S. arctophila</i> , imago on catkins
30. June	Allumersat/Bjørnesund: Itilleq		x			Larvae in catkins of <i>S. glauca</i>
4. July	Kangerlussuaq/Grædefjord: Nuussuaq		x			Larvae in catkins of <i>S. arctophila</i>
7. July	Egaluit Paarliit/Præstefjord		x			Larvae in male/female catkins of <i>S. arctophila</i>
10. July	Godthåb/Nuuk			x		Pupae in soil under <i>S. arctophila</i> . Empty catkins
11. July	Fiskefjord: Illutalik					Empty catkins of <i>S. arctophila</i>
12. July	Kangia Fjord		x			Larvae in soil under <i>S. arctophila</i> , empty catkins
13. July	Søndre Isortoq: Nuuk		x	x	x	Larvae i catkins of <i>S. arctophila</i> along late snowbeds
15. July	Maniitsoq/Sukkertoppen			x		In soil under <i>S. arctophila</i> , empty catkins observed
17. July	Ikkamiut Kangerluarsuat: Tasersuaq					Old, empty catkins of <i>S. arctophila</i>
19. July	Kangerlussuatsiaq/Evighedsfjorden: Tasiusaq			x	x	Soft new adults on bushes of <i>S. arctophila</i> , pupae in soil
23. July	Itilleq Fjord					No signs of attack on <i>S. arctophila</i> . Species probably absent

Table 1: Phenological observations of *Dorytomus imbecillus* by the “Kissavik Expedition”, 2003.

## Introduction

The distribution of the holarctic weevil *Dorytomus imbecillus* Faust, 1882 (Fig. 1) covers northern parts of Russia (within the Arctic Circle) from Vorkuta to Kamchatka and Mongolia and also northern Canada and northern USA including Alaska (Korotyaev 1976, Anderson 1997). The species is thus absent from Europe, but found in Greenland. Here it was considered rare (Böcher 1988) and until 2003 only known from five localities in the southwestern part (between Ivittuut in south and Kangaamiut in north). All collections were performed by the renown Greenland zoologist Christian Vibe. The species is known to feed on *Salix* spp. where the larva lives in the catkins (Korotyaev 1976, Ol'shvang & Bogacheva 1991, Anderson 1997). So far only imagines had been found in Greenland.

During the summer of 2003 the “Kissavik Expedition” from the Zoological Museum, University of Copenhagen, made several records of the species along the west coast from Allumersat/Bjørnesund in south to Kangerlusuatsiaq/Evighedsfjord in north, including the first collections and observations of larvae and pupae and noted the feeding habits of the species in Greenland.

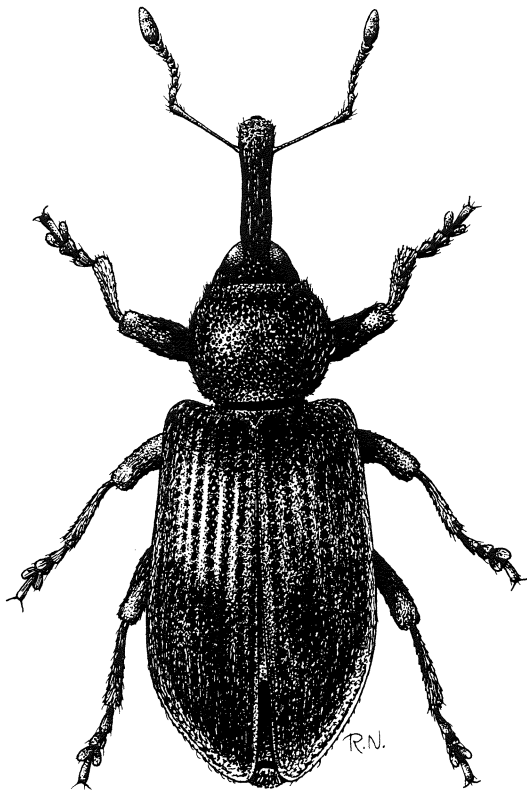


Fig. 1: *Dorytomus imbecillus* Faust, 1882. The length is about 5 mm. Drawing by Robert Nielsen.



Fig. 2: Larvae of *Dorytomus imbecillus* in situ in catkin of *Salix arctophila*. Equaluit Paarliit/Præstefjord, 07.VII.2003.

Fig. 3: Pupae of *Dorytomus imbecillus* from Nuuk, Søndre Isortoq, 13.VII.2003.

### Field observations of larvae, pupae and imagines

The “Kissavik Ekspedition” set out from Paamiut/Frederikshåb on June 26<sup>th</sup>, and already the next day (in Kuannersooq/Kvanefjord: Nigerlikasik) the first imago was found crawling freely on a rock/gravel surface among *Salix uva-ursi*. By careful searching in Allumersat/Bjørnesund several imagines were found sitting among leaves and on female catkins of *Salix arctophila* in lush meadows near snowfields (Equaluit, June 28<sup>th</sup>). By splitting catkins the pinkish curculionid larvae were found boring in the terminal part of the stem (Fig. 2). Some larvae were also sitting freely exposed, or hidden by the woolly hairs of the plant, feeding on the catkins from the outside.

With some training attacked plants were easily spotted by the deformation of the catkins due to larval feeding. During the next days, until July 13<sup>th</sup>, larvae were found in many places on *Salix arctophila*, occasionally also on *S. glauca* (Table 1). Both male and female catkins were attacked, but the skinny male catkins were apparently not favoured.

Pupae (Fig. 3) were found in the period July 10<sup>th</sup>-19<sup>th</sup>. Pupation takes place in the soil and litter underneath the low bushes. An easy way to collect pupae was by upturning the thin soil/litter/root layer where plants were growing as carpets upon rocks and boulders. The whitish pupae were lying freely in the soil, not protected by a spun cocoon like those made by the *Otiorrhynchus* spp. living in the same places. Newly hatched, not yet hardened adults were observed from July 13<sup>th</sup> onwards.

The species has a certain flexibility in its phenology. On July 13<sup>th</sup>, at Nuk in Søndre Isortoq, pupae and adults were found in a warm site where the catkins of *S. arctophila* were already reaching maturity, while larvae were observed in a nearby snow bed where the willow was still in flower, producing pollen.

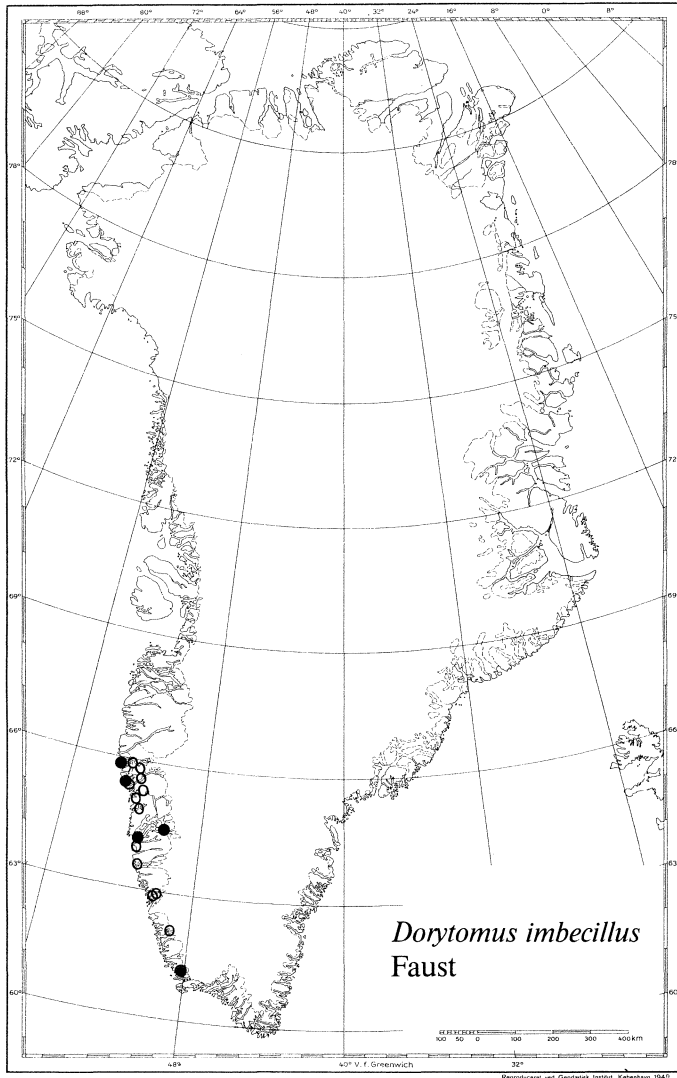


Fig. 4: Records of *Dorytomus imbecillus* in Greenland. The finds by the "Kissavik Expedition" are denoted by rings.

### Probable life cycle in Greenland

According to our observations and to the knowledge of northern curculionids in general, imagines of *D. imbecillus* hatch in mid July and hibernate as adult. Egg deposition probably takes place in the first half of June when the willow catkins start to develop. Larval development probably takes about a month, with pupation in first half of July. Adults emerge from mid July onwards, after about two weeks of pupation. The old generation probably dies away after egg deposition in June, and old imagines were not seen later than June 29<sup>th</sup>.

## Distribution in Greenland

Our records of *D. imbecillus* (Fig. 4), as well as previous records, show a southwestern distribution in Greenland ranging at least from Ivittut north to Kangerlssuatsiaq/Evighedsfjorden. It is interesting, and peculiar that the species has hitherto not been found in the climatically favoured and fairly well studied Qaqortoq/Julianehåb Bugt area south of the known distribution. The species was frequent along the outer coast, becoming more rare in the inner parts of the fiords which have a warmer and drier local climate.

## Acknowledgements

We want to thank the Carlsberg Foundation for generous financial support enabling the expedition to be realised.

## References

- Anderson, R.S. 1997. Weevils (Coleoptera: Curculionoidea, Excluding Scolytinae and Platypodinae) of the Yukon: 523-562 in: Danks, H.V. & Downes, J.A. (eds.). Insects of the Yukon. Biological Survey of Canada (Terrestrial Arthropods). Ottawa. 1034 pp.
- Böcher, J. 1988. The Coleoptera of Greenland. – *Meddelelser om Grønland Bioscience* 26: 100 pp.
- Korotyaev, B.A. 1976. A review of weevils of the genus *Dorytomus* Germ. (Coleoptera, Curculionidae) of North-eastern Asia. – *Revue d'Entomologie de l'URSS* 55(1): 124-136.
- Ol'shvang, V.N. & Bogacheva, I.A. 1991. Weevils (Coleoptera, Curculionidae) of the Northern Ob' River Area. – *Entomologicheskoye Obozreniye* 2, 1990: 332-341.