

## THE ANT-LIKE FLOWERBEETLES (COLEOPTERA: ANTHICIDAE) OF THE CURONIAN SPIT (LITHUANIA)

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**Abstract.** Beetles of eight species: *Anthicus antherinus* L., *A. ater* Panz., *A. bimaculatus* Ill., *A. flavipes* Panz., *A. sellatus* Panz., *Cordicomus gracilis* Panz., *Omonadus formicarius* Goeze and *Notoxus monoceros* L. have been found during our research in the Curonian Spit. *Cordicomus gracilis* Panz and *Omonadus formicarius* Goeze are very rare in Lithuania; only single specimens of this species were found on the shore of the Curonian Lagoon during our research.

**Key words:** Anthicidae, Curonian Spit, Lithuania

### Introduction

The most important information on the fauna of Coleoptera of the Curonian Spit was summarized in monographs on Lithuanian beetles (Pileckis, 1976; Pileckis & Monsevičius, 1995, 1997). Since the appearance of these publications a lot of time has passed, and new data on the Coleoptera of Curonian Spit were published by some other authors (Ferenca 2003, 2004, 2006; Ferenca & Tamutis, 2009; Ferenca *et al.* 2002, 2006, 2007; Ivinskis *et al.* 2003, 2009; Ivinskis & Rimšaitė 2005; Šablevičius 2003, 2004; Tamutis & Ferenca 2006; Tamutis *et al.*, 2008) during the period of 2002–2009. Ant-like flowerbeetles (Coleoptera: Anthicidae) are phytosaprophagous, their larvae develop in decayed vegetation (Pileckis & Monsevičius, 1997). According to the published data, the fauna of Lithuanian ant-like flowerbeetles comprises a total of 12 species (Pileckis & Monsevičius, 1997; Barševskis, 2001; Tamutis, 2003). In Europe, 389 species and subspecies of ant-like flowerbeetles were recorded, 11 species were found in Belarus, 1 in Kaliningrad region, 12 in Latvia, 23 in Poland and 10 in Estonia (Nardi, 2010). Most of Anthicidae species are considered rare in Lithuania (Pileckis & Monsevičius, 1997; Ferenca *et al.*, 2006, 2007; Alekseev, 2008), mostly because of the lack of data. This article presents data that contributes to the knowledge on the distribution and abundance of Anthicidae in the Curonian Spit. No comprehensive research on the species abundance and distribution of Anthicidae in Lithuania has been carried out so far. Data on species composition, distribution, habitat prevalence and seasonal dynamics of Anthicidae in Lithuania are presented in this publication for the first time.

### Material and Methods

The research was carried in different habitats of the Curonian Spit (Kuršių Nerija National park) in 2002–2009. Insects were collected using Barber's pitfall traps and

entomological net in the dunes and on the shore of the Curonian Lagoon. Investigation of beetle (Coleoptera, Insecta) abundance and species composition was carried out in the Curonian Spit in May–October of 2008. Five plastic pitfall traps (0.5 l) every 5 m in a line were used in each plot. Pitfall traps were covered with roofs, the diameter of a pitfall trap was 9.5 cm, the height was 14.5 cm; they were filled with 5% acetic acid. Traps were checked every two weeks. Nine plots were selected in different habitats: burnt *Pinus montana* forest (Alksnynė); burnt and cut *Pinus montana* forest (Alksnynė); dune pine *Pinus sylvestris* forest (Alksnynė); old-growth mixed forest (Juodkrantė); grey dunes overgrown by lichen and moss (Nagliai reserve); grey dunes with lichen, moss and *Poaceae* sp. (Nagliai reserve); *Alnus glutinosa* forest (Nagliai reserve); white dunes with *Leymus* sp. (Nagliai reserve); uncovered white dunes (Nagliai reserve).

Species of the genus *Anthicus*, *Cordicomus* and *Omonadus* were also collected by hand-searching while examining a bank on the shore of the Curonian Lagoon and the Baltic Sea coast in the environs of Juodkrantė, Pervalka and Nida. Some material of *Notoxus monoceros* L. was collected in grey dunes with entomological net. Species were identified by investigating the structure of male genitalia using the key of Freude, Harde & Lohse (1969).

The material is deposited at the Institute of Ecology, Nature Research Centre and Kaunas T. Ivanauskas Zoological museum.

## Results

In total, 572 specimens of ant-like beetles belonging to 8 species were collected during the research. The most numerous species of Anthicidae in the Curonian Spit was *Anthicus bimaculatus* Ill. (437 specimens). The other species arranged in a decreasing sequence of specimens were *Notoxus monoceros* L. (76 spec.), *Anthicus ater* Panz. (21 spec.), *A. sellatus* Panz. (18 spec.), *A. flavipes* Panz. (11 spec.), *A. antherinus* L. (7 spec.), *Cordicomus gracilis* Panz. (1 spec.), and *Omonadus formicarius* Goeze (1 spec.) (Fig. 1).

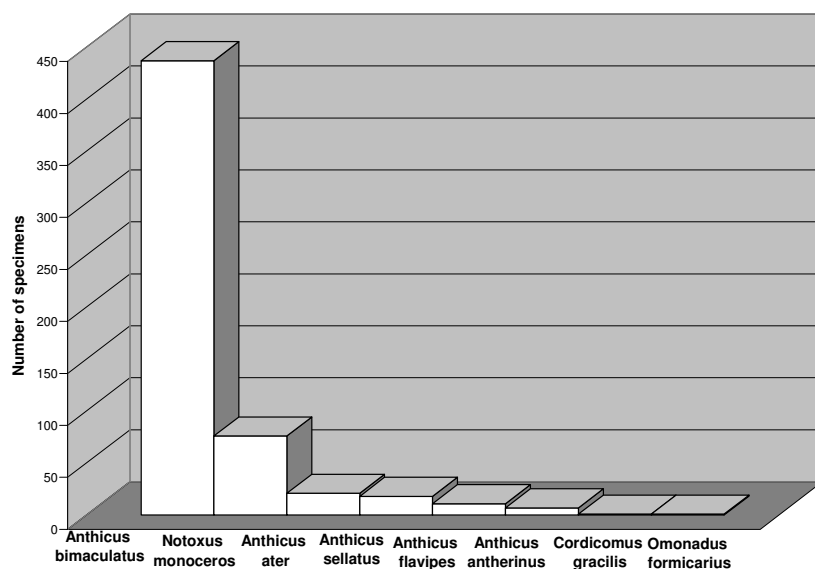


Fig 1. Number of different species of ant-like beetles collected in the Curonian Spit in 2002–2009

Analysis of data on the most numerous species *A. bimaculatus* Ill. collected using Barber's trap in the Nagliai preserve (Kuršių Nerijos National park) in 2008 illustrated seasonal changes of their activity. Beetles of *A. bimaculatus* Ill. were found from the first decade of May, when the research started, until the first decade of September. The increase of specimens was rapid from the middle of May to the beginning of June. From the beginning to middle of June, the activity of *A. bimaculatus* increased slowly. The pike of activity fell on the middle of June. A noticeable sudden decline of activity started from the middle of June, and slowly continued to the first decade of September (Fig. 2).

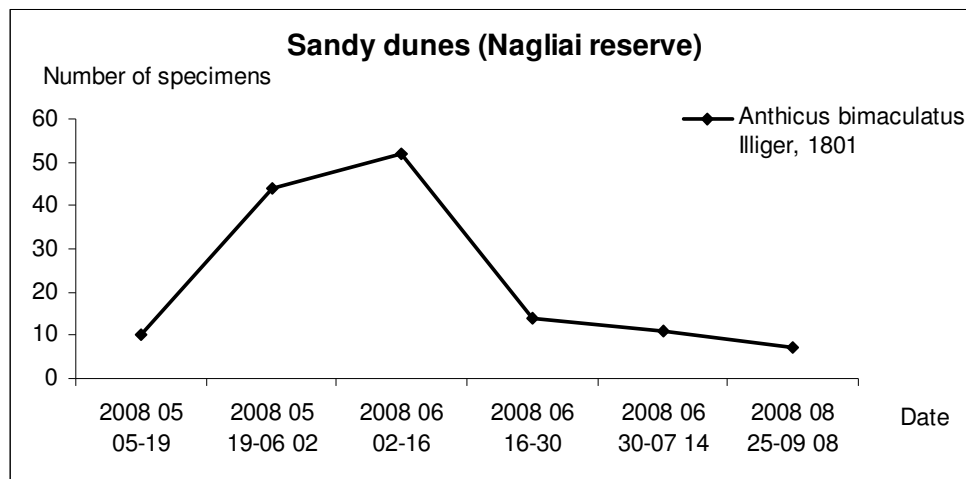


Fig. 2. Changes of seasonal activity of *Anthicus bimaculatus* in the Curonian Spit

## Discussion

Ant-like flowerbeetles of eight species were found in the Curonian Spit in habitats of sandy dunes and directly on the shore of the Curonian Lagoon and on the Baltic Sea coast. Seven of these species – *Anthicus antherinus* L., *A. ater* Panz., *A. bimaculatus* Ill., *A. flavipes* Panz., *A. sellatus* Panz., *Cordicomus gracilis* Panz., *Omonadus formicarius* Goeze – are little known and rare in Lithuania (Pileckis & Monsevičius, 1997). *Cordicomus gracilis* Panz and *Omonadus formicarius* Goeze and *Anthicus antherinus* L. are very rare species in the Curonian Spit, too; only single specimens of these species were found on the shore of Curonian Lagoon and on the Baltic Sea coast during our research (Table 1, Fig.3). It should be noted that *A. bimaculatus* Ill. was mentioned as the first record in the Curonian Spit after 1945 by Alekseev (2008), but data of our research showed that *A. bimaculatus* Ill. beetles were common and widely distributed in the Curonian Spit sandy dunes and predominated among other ant-like beetle species. Beetles belonging to two species of Anthicidae were collected with pitfall traps in 2008. The Anthicidae were found in 4 habitats during this research. *A. ater* was found in a burnt and cut *Pinus montana* and an *Alnus glutinosa* forest (single specimens), and *A. bimaculatus* Ill. was noted on white dunes with *Leymus sp.* and uncovered white dune habitats (Nagliai reserve). *A. bimaculatus* Ill. was very abundant in white dunes, constituting 30 % of all beetle specimens.

Table 1. Data on rare Anticidae species in the Curonian Spit National Park

Species	Locality	Date	Coordinates	Number of specimens
<i>Cordicomus gracilis</i> Panz.	Juodkrantė env., shore of the Curonian Lagoon	17 06 2005	55°31'18,8"N 21°06'58,8"E	1
<i>Omonadus formicarius</i> Goeze	Nagliai Reserve shore of the Curonian Lagoon	13 07 2007	55°30'11,8"N 21°06'50,8"E	1
<i>Anthicus antherinus</i> L.	Pervalka env., shore of the Curonian Lagoon	07 07 2003	55°24'27,3"N 21°05'00,4"E	1
<i>Anthicus antherinus</i> L.	Juodkrantė env., Baltic Sea coast	07 07 2004	55°31'27,3"N 21°05'45,8"E	1
<i>Anthicus antherinus</i> L.	Nida env., Baltic Sea coast	11 07 2007	55°18'55,7"N 20°59'11,8"E	2
<i>Anthicus antherinus</i> L.	Nagliai Reserve shore of the Curonian Lagoon	13 07 2007	55°29'30,6"N 21°06'47,3"E	1
<i>Anthicus antherinus</i> L.	Juodkrantė env., Lapnugaris Reserve	20 09 2007	55°33'27,6"N 21°07'44,6"E	2

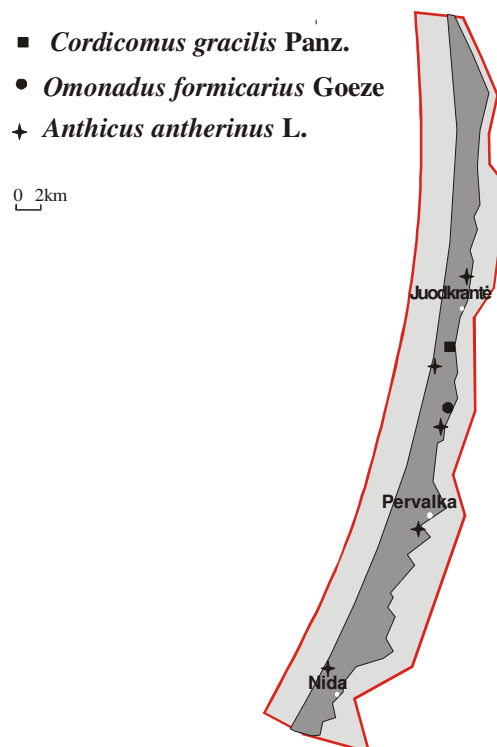


Fig. 3. Localities of rare species of Anticidae in the Curonian Spit

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### **Kuršių nerijos mitravabaliai (Coleoptera: Anthicidae)**

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#### **Santrauka**

Publikacijoje pateikiama informacija apie Kuršių nerijoje aptiktas mitravabalių (Coleoptera: Anthicidae) rūšis: *Anthicus antherinus* L., *A. ater* Panz., *A. bimaculatus* Ill., *A. flavipes* Panz., *A. sellatus* Panz., *Cordicomus gracilis* Panz., *Omonadus formicarius* Goeze ir *Notoxus monoceros* L. Dvi rūšys: *Cordicomus gracilis* Panz ir *Omonadus formicarius* Goeze Lietuvoje retai aptinkamos ir mažai ištirtos. Pateikiama gausiausios Kuršių nerijoje mitravabalių rūšies *Anthicus bimaculatus* Ill. sezoninio aktyvumo dinamika.

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