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reproduction in any medium, provided the original author and source are credited.
**ABSTRACT:** *Procericola bourgognei* is reported for the first time from South Sweden, the northernmost locality so far known for a species of the family Canestriniidae. Specimens of *P. bourgognei* are found under the elytra of *Carabus (Procrustes) coriaceus*. Female beetles had, on an average 3.4 times more mites than male beetles. No sex-linked difference in the prevalence could be observed. Prevalence varied around 30% over the season. The species was found from early July till at least later than August. No seasonality was observed in the frequencies of juveniles, males, and females. SEM-photos show the mites in situ under the elytra. No clues to the feeding behaviour were found.

**RÉSUMÉ:** Le *Procericola bourgognei* est signalé pour la première fois dans le Sud de la Suède, situation la plus septentrionale, à notre connaissance, pour une espèce de la famille des Canestriniidae. Des spécimens de *Procericola bourgognei* ont été découverts sous les élytres du *Carabus (Procrustes) coriaceus*. Les coléoptères femelles avaient en moyenne 3,4 fois plus d’acariens que les coléoptères mâles. 30% des coléoptères étaient porteurs d’acariens, ceci indépendamment de leur sexe et de la saison. Cette espèce a été trouvée de début Juillet à au moins après Août. Aucune variation saisonnière n’a été observée dans la proportion des jeunes, mâles ou femelles. Des photos faites à partir du SEM montrent les acariens in situ sous l’élytre. Aucun indice de leur manière de se nourrir n’a été découvert.

Mites of the family Canestriniidae are associated with beetles (Cooreman, 1950, Samšiňák, 1971). Six genera are known in Europe on Carabidae (Samšiňák, 1971), and of these, 5 species (3 genera) have been found on *Carabus (Procrustes) coriaceus* L. (Samšiňák, 1964). *C. coriaceus* is widely distributed in Europe and with several subspecies. According to Samšiňák (1964) the distribution of *Procericola bourgognei* (Oudemans, 1923) is almost the same as that of the beetle, but so far it is not known north of Belgium and W. Germany. Evans et al. (1961) reported *Photia saetolata* (Cooreman, 1950) on carabid beetles from England.

Carabid beetles were collected with pit-falls in the vicinity of Lund, South Sweden, from April through November, 1979. The traps were inspected at irregular intervals. All carabid beetles were examined, but only *C. coriaceus* was positive for canestriniid mites. The mites were found at


two localities, one (Lilla Abusa, N 55°42', E 13°23') about 11 km E of Lund in a beech forest, and the other about 16 km E of Lund in a rather wet birch-alder forest, at the field station Sten­soffa (N 55°42', E 13°26') of Lund University. At a third locality, Räften, 8 km E of Lund, no specimens of canestriniid mites were found, although a large number of *C. coriaceus*, and other Carabidae, were inspected. The find­ings are the first mites of this family in Sweden.

All mites were found under the elytra of the beetles, often in great numbers, and all develop­mental stages were present. No special predilec­tion places under the elytra were observed, even though most mites were found at the anterior part of the abdomen.

Altogether 74 *C. coriaceus* from the two first-mentioned localities were examined and 247 *P. bourgognei* were found. The over-all prevalence was 31.3% [range over the season 21% - 33% (100%)].

There was a 1:1 sex ratio among the beetles, but 72% of the mites were found on female beetles. Thus each infested female had, on an average 19.9 mites, while each infested male had 5.8 mites only, that is 3.4 times more on female than on male beetles.

The first specimens of *C. coriaceus* were col-

![Abundance of *C. coriaceus*](image-url-1)

![Infestation of *P. bourgognei*](image-url-2)

**Fig. 1**: Seasonality of *Carabus (Procrustes) coriaceus* and *Procericola bourgognei*. The abundance of *C. coriaceus* is expressed as 100 x (number of beetles trapnights^-1^). The infestation frequency of *P. bourgognei* is expressed as [number of mites (all stages) x (infested beetles)]^\text{-1}^.
Fig. 2-4: 2 (left): SEM-photograph of *Procericola bourgognei* in situ on *Carabus (Procrustes) coriaceus*. Mites and exuviae on the soft integument of the dorsal part of the abdomen which is folded. The spiny surface is one of the beetle tergites.

3 (middle): Female of *Procericola bourgognei* in situ on the dorsum of the abdomen of a *Carabus (Procrustes) coriaceus*.

4 (right): Gnathosoma of the female *Procericola bourgognei*, shown in Fig. 3.
lected at the end of May, but no specimens of *P. bourgognei* were found until the beginning of July (Fig. 1). There seems to be a peak of infestation simultaneously with the peak abundance of *C. coriaceus*. The material of mites as well as that of the beetles, is, however, rather small from July and the infestation figures are uncertain. The seasonal occurrence of juvenile, male, and female mites (Tab. 1), was tested by a $X^2$-test ($X^2 = 5.32$ d.f. : 8). This value means that the null-hypothesis, no seasonal difference in the observed frequencies of juveniles, males, and females, can not be rejected. This means that the mites probably reproduce at least from May till after August.

**Table 1**: Observed and expected frequencies of juveniles, males, and females of *Procericola bourgognei* on *Carabus (Procrustes) coriaceus* over the season.

<table>
<thead>
<tr>
<th>Date</th>
<th>juv. (E)</th>
<th>cr (E)</th>
<th>Q (E)</th>
<th>Σ</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/7</td>
<td>4 (5.1)</td>
<td>2 (1.6)</td>
<td>3 (2.3)</td>
<td>9</td>
</tr>
<tr>
<td>25/7</td>
<td>2 (2.3)</td>
<td>1 (0.7)</td>
<td>1 (1.0)</td>
<td>4</td>
</tr>
<tr>
<td>23/8</td>
<td>90 (85.6)</td>
<td>21 (26.1)</td>
<td>39 (38.3)</td>
<td>150</td>
</tr>
<tr>
<td>6/9</td>
<td>37 (27.1)</td>
<td>13 (11.3)</td>
<td>15 (16.6)</td>
<td>65</td>
</tr>
<tr>
<td>13/11</td>
<td>8 (10.9)</td>
<td>6 (3.3)</td>
<td>5 (4.8)</td>
<td>19</td>
</tr>
</tbody>
</table>

The findings throughout the season of *P. bourgognei* under the elytra only, indicates that the mites feed and reproduce there. An investigation of the dorsum of a *C. coriaceus* by SEM (Figs 2-4) did not, however, show any penetration of the cuticle by the mite chelicera. Neither was any feeding behaviour of the mites observed.

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**LITERATURE**


*Paru en novembre 1985.*