

Notes on the mass occurrence of *Cylindroiulus teutonicus* Pocock in Sweden.

By

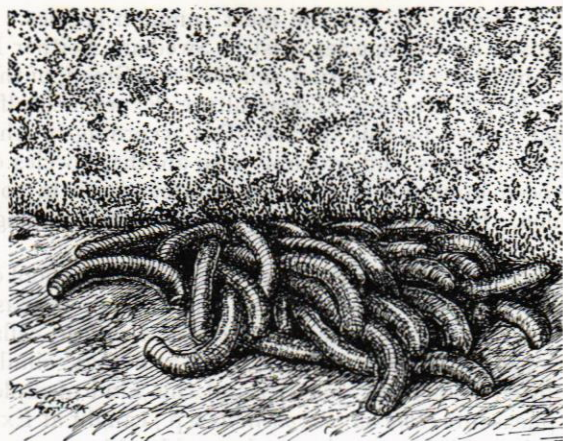
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Some years ago the author (Fauna och Flora, 1942, pp. 79—81) recorded the local occurrence in enormous numbers of *Cylindroiulus teutonicus* Pocock at Experimentalfältet, the research station outside Stockholm. On the 7th of September 1938 hundreds of these crawled about at the base of the stone wall supporting the bridge across the road by The Royal School of Forestry. A similar accumulation was observed some hundred yards away at the foot of the staircase forming the entrance to this station.

Subsequently I received the information that a similar mass occurrence had been observed near the Museum of Natural History (loc. cit. p. 79, footnote).

In every instance the animals were eagerly bent upon finding suitable cracks between the stones. Similar observations have been made in Linköping by a brother of the well-known specialist on diplopods, Dr. H. Lohmander, and by a teacher of biology in the same town. The animals occurred at first in flower-beds and in a small park but finally they found their way into a gutter where they occurred in such enormous quantities that it would have been easy to scoop them up with a shovel. In a later piece of information (Lindgren 1945, pp. 39—40) I have also given an account of a similar occurrence at Malmö in the south of Sweden.

On the 13th of September 1949 a new mass occurrence was observed in exactly the same place as the diplopods had been discovered eleven years earlier, this time in company with some specimens of *Lithobius* sp., as well as a few beetles (e.g. *Otiorrhynchus dubius* Ström (nodosus O. Fabr.)). This time, too, the animals were bent upon finding suitable cracks in which to seek shelter. Daily observations revealed, however, that the suitable cracks were not numerous enough to shelter the diplopods. Hence the sinking temperature and the rains made those of them which did not succeed in finding hibernation quarters more and more sluggish. Finally they were swept into the gutter and removed by the sweeper's broom.



One of the mass occurrences of *Cylindroiulus teutonicus* Pocock at Experimental-fältet, mentioned in the text. Drawing by Dr. M. Sellnick from a photograph taken on the 13th of September, 1949. About $\frac{2}{3}$ of natural size.

Both Professor I. Trägårdh and Dr. Forsslund of the Forest Experiment Station have told me that they had observed the diplopods almost every autumn in the road leading to the building. The grounds surrounding the institute consist of lawns, orchards and a coppice of oak and other trees. From the very great numbers of diplopods present we may infer that these biotypes are very favourable for the propagation of *C. teutonicus*, which is known to be synanthropic in Sweden.

On the other hand it seems to be safe to assume from the behaviour of the diplopods in the autumn that hibernation quarters must be very scarce, because firstly they assemble in enormous numbers and secondly they make a kind of exodus to other localities for the purpose of finding suitable hibernation quarters.

In the localities in the vicinity of Stockholm, however, only a part of the crowd succeeded in reaching their goal, the others succumbing in the attempt. As regards the mass occurrences at Malmö and Linköping mentioned above, they seem to be due to a casual increase in the numbers of specimens. As far as I know, this phenomenon has not been observed any more times in these towns.

According to Schubart (1934, pp. 212—213) and Blunck (1933) this species is occasionally injurious to growing plants. The latter author (loc. cit., p. 13) in his paper »Tausendfussfrass an Kartoffelknollen» writes: — »In diesem Sommer sind die heranwachsenden Kartoffelknollen in Schleswig-Holstein vielerorts schwer von Tausendfüßen heimgesucht worden.» Other species of diplopods also took part in the

damage, but *C. teutonicus* was the most common species. No records of damage caused by this species exist in Sweden. Neither Dr. O. Ahlberg of the Plant Protection Station, nor Director Green, of the Botanical Garden of the Royal Academy of Agriculture, Experimentalfältet, know of any damage caused by this species. But according to Ahlberg *Blaniulus guttulatus* Gervais and probably also another species of the same genus have been injurious to growing potatoes both in southern and central Sweden. Blunck, too, records cases of such damage (loc. cit., p. 15).

Since this was written the preparator at The Royal School of Forestry, Mr. Bertil Bülow, has disclosed that in the autumn he has noted the presence of *C. teutonicus* in great numbers in a potato cellar near the bridge mentioned in the introduction, and also that, similarly in the autumn, he often finds large quantities of this kind of diplopod in the stomachs of pheasants (*Phasianus colchicus* ssp.) caught at Experimentalfältet, where these birds occur in not inconsiderable number. This last observation is interesting, as according to Schubart (loc. cit., pp. 13, 213) an examination of starlings in the U. S. A. has indicated that during the spring months of April to June more than 40 percent of their diet consists of myriapods and in particular of *C. teutonicus*. However, thanks to their tough cuticle and their secretion of protective exudates, diplopods appear on the whole not to be specially attacked by enemies. Schubart (loc. cit., p. 13) writes: »Von Feinden werden die Diplopoden nicht übermässig geplagt», and points out in connection that experiments with cage birds have shown that these exhibit a marked repugnance for diplopods. Cloudsley-Thompson (1949, p. 139) says: »On the whole there seems little doubt that enemies do not play a very great part in the ecology of Myriapods, whose numbers are chiefly governed by physical conditions in the environment.» Compare also the same author, 1951, p. 16.

References.

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