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RECORDS OF SNOW FLEAS (*COLLEMBOLA*) FROM  
NORTHEASTERN OHIO

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Insects of the order *Collembola*, known commonly as Snow Fleas, have seldom been studied in Ohio. These insects are sporadic in both time of appearance and in distribution, so that all field records are of interest and value. In recent years several collections have come to my attention, and these are placed on record here. Acknowledgment is made to Dr. Harlow B. Mills, Chief of the Illinois State Natural History Survey, for identification of these specimens and for a critical reading of the manuscript.

Snow Fleas are usually found only in late winter and early spring when they cluster in great numbers on the surface of the snow. Folsom (1902) recognized three species of true Snow Fleas: *Achorutes nivicola* Fitch, and two species described by him as new: *A. packardi* and *A. harveyi*. All three had been reported in the literature previously as *A. nivicola*. Folsom (1916) listed *A. packardi* from Salem, Ohio, collected by A. D. MacGillivray. This is the only published Ohio record known to me. The more common species, *A. nivicola*, has never been reported from Ohio, although it seems reasonable that this should be commonly found in the state. Three locality records have been established by the present study.

On 9 February 1954, a large mass of Snow Fleas was found on a fresh bank of snow at the pumping station of the Akron Water Works near Twin Lakes. This is situated in Portage County, some 3 miles northeast of Kent. These insects formed a large, black patch, conspicuous on the white background and were on the north-facing slope of a railroad bank. Many specimens were collected by John Gettrust, superintendent, and Jack Olson, chemist, at the water works. Some were kept alive for about a week, being fed on banana. Three days after the original collection, 2 in. of fresh snow covered the ground and further specimens could not be found. Some 10 weeks later on April 22, Snow Fleas appeared again in great abundance. One day later, only a few remained and these were floating on puddles formed by heavy rains. Specimens have not been collected at that location since that time. Dr. H. B. Mills identified the specimens as *Achorutes nivicola* Fitch, now known as *Hypogastrura nivicola* (Fitch). (See Mills, 1934; and Maynard, 1951, for an account of this species.)

On 23 February 1954, Snow Fleas were also collected in large numbers at the residence of Mr. and Mrs. Baughman in Canal Fulton in Stark County. They were found on the snow in great abundance, against the foundation of the house. After three days they disappeared. They had not been seen before, nor reported to me since that time. Dr. Mills identified specimens as belonging to *Hypogastrura*, resembling *H. sahlbergi* Reuter. This European species has not previously been recorded from North America. Dr. Mills wrote (personal communication), "The presence of European forms in this country is to be expected and we are constantly running into them. It is probable that many of them are not recent introductions for the proportion of Holarctic forms is extremely high in this group." Dr. Mills is planning further study on these specimens for precise identification.

During 11-14 February 1955, Snow Fleas were found near Uniontown, also in Stark County. They were found in abundance around the foundation of a house and a cold frame on a farm southwest of Uniontown. Specimens were collected by Mrs. James Jarret. After the disappearance of the snow, specimens were found for a short while on the lower limbs of lilac bushes and in depressions in the ground. These were identified by Dr. Mills as *H. nivicola*. At the same time these specimens were collected, some other Snow Fleas were observed, but not collected, about a half mile away, where they were found in a corn field. Unfortunately, specimens were not available for identification. On 2 March 1957, Mrs. Jarret found specimens again on fresh snow in a huckleberry swamp some 30 yd behind her house.

Snow Fleas seem to appear primarily at times when the ground is snow-covered, the sun is shining brightly, and the temperature is just above freezing (Melnichenko, 1935; Chapman, 1954). Macnamara (1919) observed that, "As a rule they do not appear until the thermometer approaches 25° F, and from 30° F upwards they reach their greatest abundance." Snow is not necessary for their emergence from the ground, but it is during the presence of snow that these insects are easily detected and most records have been made under such a condition. Hence the name "snow fleas." Folsom (1901) believed these insects are distributed primarily by streams which form from melting snow, although man undoubtedly also transports them through products of agriculture.

Maynard (1951) regarded the common Snow Flea as a member of *Hypogastrura*, and recently the genus *Achorutes* has been suppressed (Opinion 435, Internat. Comm. on Zool. Nomen. 1956). Accordingly, the Snow Fleas should now be placed in the genus *Hypogastrura*, and the common species reported here should now be listed as *H. nivicola* (Fitch).

Snow Fleas (*Collembola*) are now known to occur in Ohio. Two localities in northeastern Ohio are the first to be reported for *Hypogastrura nivicola* (Fitch), and one record is given for a presumed European species *H. cf. sahlbergi* Reuter.

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