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ENTOMOLOGY

Distribution and Emergence Patterns of Mayflies Ephemera simulans (Ephemeroptera: Ephemeridae)

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ABSTRACT—Analyses of collections made during the years 1961-1964 reveal that Ephemera simulans is widely distributed in the lake regions of Minnesota and Wisconsin. The period of maximum emergence in central Minnesota and northern Wisconsin occurs during the last three weeks in June, the peak in extreme northern Minnesota about two weeks later.

Collections of Mayflies in the lake regions of Minnesota and Wisconsin during the years 1961-1964 revealed three species, Hexagenia bilineata (Say), Hexagenia limbata (Serville), and Ephemera simulans (Walker) were predominant. One or more of these species is usually present when shoreline residents and motorists experience nuisance problems with Mayflies in the areas studied. All three species are large and tend to emerge en masse.

H. bilineata was collected only from the Mississippi River and its tributaries. H. limbata was collected from lakes, rivers, and streams. E. simulans was collected from lakes and rivers. H. limbata was usually found in association with E. simulans.

A comprehensive review of the biology of E. simulans has been presented by Brit (1962). The effects of respiration and substrate upon distribution have been reported by Erickson (1964). E. simulans has been previously reported from Minnesota by Needham, Traver, and Hsu (1935) and by Daggy (1941). The species has been reported from Wisconsin by Baker (1924).

For this study specimens were recorded according to the state, county and respective latitude of places where gathered, proceeding from south to north. Locations of the collecting points are presented in Figure 1.

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Minnesota Locations


FIGURE 1.—Emergence records of Ephemera simulans in Minnesota and Wisconsin in 1961-1964. Each dot indicates a body of water from which one or more collections was made.

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Wisconsin Locations

The earliest reported emergence within the two-state area was from Noquebay Lake in eastern Wisconsin on May 22, 1962. The latest emergence was from Mille Lacs Lake in east-central Minnesota on July 22, 1963. The peak emergence period in the band which extends across central Minnesota and northern Wisconsin occurred during the last three weeks in June. The peak emergence period in extreme northern Minnesota occurred about two weeks later—during the last week in June and the first week in July. Mille Lacs Lake had the widest range of emergence dates—June 9, 1961, to July 22, 1963. On small lakes where the collectors took pains to gather the earliest emergents each year, it appears that the time of initial emergence varies within a 15-day period from year to year. No tendency is evident for emergence to occur on the same date from several lakes in the same vicinity.

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