

THE ACTIVITY PERIODS OF THE POPULATION OF PARAGYMNOMERUS SPIRICORNIS (SPINOLA). (HYMENOPTERA: EUMENIDAE)

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Abstract

On the basis of 1850 activity data observed at the entrance of 109 nests of *Paragymnomerus spiricornis* (SPINOLA) it can be stated that there is a main activity period falling between 4th June and 8th July which is preceded and followed by a pre- and a post-period, respectively.

The nest building habit (MÓCZÁR, 1939; 1960) and the developmental cycle (MÓCZÁR, 1962) of a wasp inhabiting the loess wall of the Tihany Peninsula in large populations have been discussed earlier in a number of papers. The correlation existing between the activity of the population and the microclimate has been treated by MÓCZÁR—ANDÓ—GALLÉ (1973). A possibility was offered between the 21st June and 16th August, 1971 to study the individual activity phases of the wasps living in large populations.

The activity of the wasps was moderated by the cooler and windy climate which prevailed between the 27th June and 3rd July, 1971. Unfortunately, the century's coldest July day fell on the 1st and 2nd. Notwithstanding the warmest days of the observation period with around 29 °C had a favourable influence than the similarly warm July of 1959 without the extreme temperature values (26,4 °C), thus, the final results of the investigations have not been heavily hampered with the above-mentioned strong fluctuation in temperature.

The maximum and minimum temperature values measured just in front of the loess wall are shown in the upper part of Fig. 1. On the days of observation we made recording for 19 hours (from 8 till 18 h). We closely observed the entrance of the funnel to 109 nests and recorded 1850 entrance and exit flights. The (quantity) number of activities observed in the funnels is shown in the perpendicular axis of Fig. 1, while the observation days are plotted on the horizontal axis. A graph demonstrates the activity data of the individual days. The broken line indicates that during the period of the observation (e.g. 22nd—27th of June) the recording was not continuous. It is revealed from the daily activity data observed in the funnels that the number of activities at the maximum temperature in the beginning of July coincided with the maximum activity of the wasps and it was twice as many on any day (5th—7th July) than previous to these days in 8 days (21st June—4th July) (527—482—522: 198).

On the first day of the observation (21st June), 2 ♂ flew in front of the loess wall, 12 ♀ were building cradles, 6 ♀ were bringing sawfly larvae. The activity of the wasps began weeks before. This is the first phase of the activity (I. or pre-phase), on the regular observation days the unfavourable weather prevailed (29th

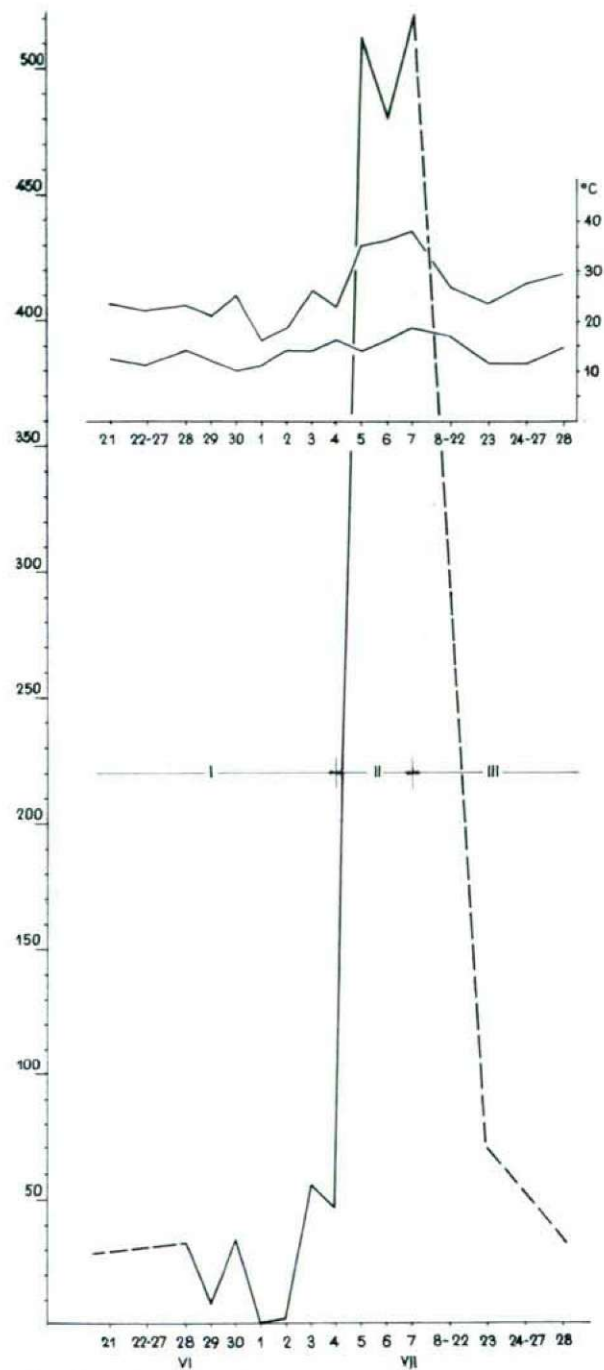


Fig. 1. Daily overall activity of *Paragymnomerus spiricornis* (SPINOLA) population, its stages (I, II, III) and the temperature minimum and maximum values.

June—1st—2nd July) nevertheless activity shew a rising trend until the 4th of July (Fig. 1).

On the 5th of July the highest temperature maximum was accompanied by the corresponding maximum in wasp activity too, this is the second (II) phase, i.e. the main activity phase (5th—7th July).

Two weeks later (23rd July) the activity of the wasps fell back to the level perceived in the first phase. It must be the wasps' declining phase of activity, the third or post-phase. On the 16th of August not even one specimen of *Paragymnomerus spiricornis* (SPINOLA) was observed on the loess wall.

Thus, the activity of the population between the 4th of June, and 8th July may be divided into three phases, i.e. pre-, main and post-phase, because the highest number of specimens was active between these two dates. Furthermore, these two dates may also be regarded to be for any year the main period of flight because there was no apparent effect caused by the extreme values of temperature experienced during the time of observation.

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