

## LOCAL ABUNDANCE OF THE WASPS *CHLORION ATRATUM* AND *MEGASTIZUS UNICINCTUS* (Hymenoptera: Sphecidae and Bembicinae)<sup>1</sup>

HUGH B. LEECH

Dominion Forest Insect Laboratory, Vernon, B.C.

On August 22, 1945, a small box containing live wasps was received from Frank Choveaux of Okanagan Landing, B.C. It contained two species, one a black bembicid with an orange-red band across the abdomen, the other a blackish sphecid. These were subsequently identified by G. S. Walley as *Megastizus unicinctus* (Say) and *Chlorion (Priononyx) atratum* (Le-Peletier), respectively.

According to an interesting account of the habits of these species by H. E. Smith (1915. The grasshopper outbreak in New Mexico during the summer of 1913. U.S. Dept. Agric. Bul. No. 293, 12 p., 2 figs.), *C. (P.) atratum* is an important grasshopper parasite, stocking its nests with nymphs. Many of the burrows are re-opened by *M. unicinctus* females, which destroy the *Chlorions'* eggs and replace them with their own. Despite extensive outbreaks of hoppers in British Columbia, there is no record of the wasps occurring here in numbers.

Mr. Choveaux reported hundreds of the wasps to be congregated on heads of grain and grasses each night, and he wondered if they might damage the seeds. That evening we visited the area concerned, a field about 3 miles from Vernon, just below the upper Landing road and west of its junction with the Commonage road. Grasshoppers were abundant; 1945 was the third successive year of an outbreak of *Melanoplus mexicanus mexicanus* (Sassure) (det. I. J. Ward). Mr. Choveaux said that though the blue *Chlorion* was present but rare in previous years, the *Megastizus* had not been on his farm before.

A few strips of tall grasses had been left when the seed crops were cut, and on the tops of these grasses black clusters of the wasps could be seen from a distance of several hundred yards. They were in

groups of from six to twenty, mostly on the seed heads, but extending for some distance down the upper stem. At 7:30 p.m. they were quiet, and easily captured. When picked up in the fingers the male *Megastizus* gave a most realistic show of stinging; the long spikes of the trident at the end of the abdomen were extruded, and the center one pressed against my skin strongly enough to be felt—and what was worse, it looked just like a sting. The simulated attack was psychologically effective and I found it hard not to drop the insect hurriedly.

The wasps were often in mixed lots, though in any one group each species showed a preference for its kind, e.g., where *M. unicinctus* were present they usually made up at least 75% of the total on that grass head. However, in all, the *Chlorion* outnumbered the *Megastizus* by nearly three to one. Of several hundred *Megastizus* examined, all were males. Only a single female was present in a random sample of 230 *C. atratum*: this despite the lateness of the season, shown by the fact that the wings of many of the *Chlorion* were faded and had ragged edges. Indeed on September 5, by which time the wasps were scarce, the proportion of the two species was still nearly three to one, and again all *Megastizus* were males and only a few *Chlorion* females were found.

I did not discover where the females of the two species spend their nights. They were not on the ground or under stones and trash; neither were they roosting on grasses or bushes within a quarter of a mile of where the males congregated. Perhaps the heavy clay in the field was unsuited for burrows, and the actual nesting site was in lighter soil some distance from the roosting grounds. A few male wasps were seen in tall weeds along the fence line and roadside bordering the field, but no other roosting ground was visible.

<sup>1</sup> Contribution No. 2417, Division of Entomology, Science Service, Department of Agriculture, Ottawa, Canada.