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Determining the Habitat of an Aquatic Wasp in the Check Hall River

Introduction:

Dr. LuBomir Masner of the Canadian National Insect Collection recently visited SCEPTRE and has possibly discovered a new species of *Psychopria*, parasitic wasps in the family Diapriidae. While studying the Check Hall River, Dr. J.B. Woolley introduced me to the idea of collecting these wasps. Dr. Masner requested us to collect more specimens, needed for species description. In addition, we were interested in determining more precisely the habitat of these tiny creatures. Other species of *Psychopria* are known to be parasites of aquatic fly larvae in the family Psychodidae. In search of their hosts, adult wasps are thought to crawl beneath the water's surface with small air bubbles surrounding their bodies, supplying them with oxygen.

Purpose:

To characterize the habitat of *Psychopria* n. sp. using quantitative analysis.

Methods:

To collect my specimens, fifteen pan traps were set out in the Check Hall River upstream from the Springfield guesthouse trail and fifteen downstream of the trail's end. The pans were yellow, light weight plastic bowls 15cm in diameter and 4.5cm deep. The pans were placed in various locations along the river's edge. They were filled approximately half full with water and one drop of Kodak Photoflow to break the water's surface tension, trapping unsuspecting insects. The traps' contents were collected in two small nets, one for each area, and then stored in vials containing 70% ethanol. After analyzing the vials' contents, fifteen pan traps were set up above the guesthouse trail around the larger, faster flowing stream, and fifteen traps around the smaller, slower stream the next day. On the third day, six pan traps were placed around the pools created by the larger stream and six beside the riffles.

Results and Discussion:

Many different species of flies and other various insects were collected in the pan traps. My first task was to identify *Psychopria* n. sp. This two to three millimeter long aquatic wasp has a dark black body and dark legs. The antenna, composed of thirteen segments, are almost as long as the body. Male wasps have hair on their antenna. The wings are covered with setae and a dark stripe runs down the forewing (see Figure 1). From my results, I was able to narrow down *Psychopria* n. sp.'s habitat. They seem to prefer the small pools created by the fast flowing stream. The stream is frequented mostly by females seeking to lay their eggs. A total of twenty-seven females and two males were collected, indicating either that *Psychopria* n. sp. has a very strongly female-biased sex ratio, or that males and mating occurs in another habitat (see Table 1). Dr. Woolley and I attempted to observe the wasps underwater, but were unsuccessful.

Future Research:

Further studies on *Psychopria* n. sp. include observing it in its natural habitat, studying

the larvae it parasitizes, and comparing future observations at other rivers with these results. Perhaps a type of portable aquarium could be constructed to allow underwater observation of these insects with some sort of magnification.

Acknowledgements:

I want to thank Dr. J.B. Woolley for his invaluable assistance, knowledge, and patience, as well as Emily Towers for taking the time to draw a beautiful picture of *Psychopria* n. sp. for me.

TABLE 1: Numbers of Psychopria n. sp. collected in pan-traps.

DAY	AREA	FEMALE	MALE
1 7:00 a.m. - 1:30 p.m.	upstream (from trail)	6	1
	downstream (from trail)	3	1
2 7:00 a.m. - 3:00 p.m.	larger stream (upstream)	10	0
	smaller stream (upstream)	2	0
3 11:30 a.m. - 6:00 p.m.	pools (by larger stream)	4	0
	riffles (by larger stream)	2	0

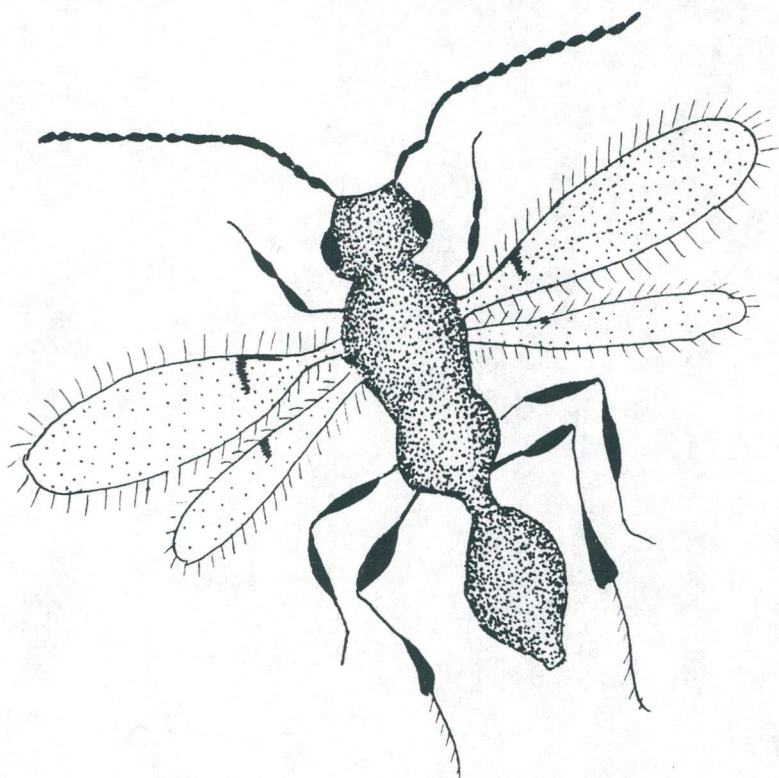


FIGURE 1: Psychopria n. sp.