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The Biology and Behaviour of the Woodwasp  
*Sirex noctilio* F. in New Zealand

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Abstract

THIS paper describes the biology of *Sirex noctilio* F. giving information about larval development, including the variable number of instars found relative to conditions in the wood. The behaviour of adult woodwasps is discussed, with particular reference to differences in the behaviour of the sexes. The way in which the moisture content of the wood influences larval development, adult oviposition and fungal inoculation as well as its effect on the length of the life cycle in various parts of the host tree, is described. In the introduction, reference is made to most of the research, completed to date, on *noctilio* and certain other siricids, while in the discussion the implications of our findings on forest practices are outlined.

INTRODUCTION

THE woodwasp *Sirex noctilio* F., was first found established in the introduced pines of New Zealand in 1922. It had been seen, but apparently not collected, in the Wairarapa District of Wellington Province as early as 1900 (Miller and Clark, 1935). By 1928 it was widespread in the North Island and was established in *Pinus radiata* D. Don. plantations in Nelson Province and also in the northern section of Canterbury Province. By 1931 Miller & Clark (1935) had established *Rhyssa persuasoria* L. (Ichneumonidae), an external larval parasite of woodwasps, in forests at Nelson, Hanmer and Rotorua. An unsuccessful attempt to establish *Ibalia leucospoides* L. (Ibaliidae), an egg parasite of siricids, had also been made. Clark (1933) had also established the fact that *S. noctilio* carried a fungal symbiont and, following Buchner (1928) and Cartwright (1929), had established the presence of morphological structures, in the adult female woodwasp, which were associated with fungal storage in a resting spore (oidial) form. Clark (1933) also reported that, on one occasion, he obtained a fungal culture from "glands" attached to the hind gut of a female larva. He believed this to be the same as the fungus he had obtained from the organs in the adult and from the larval burrows in the wood. There was no identification of the fungus from any of these locations, though Clark felt that the ones from the wood resembled cultures of *Stereum sanguinolentum* Fr. he had received from Cartwright.

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