Notes on the Termites of British Columbia

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Owing to the increasing importance of Termites in the Pacific States to the south of us, it seems not out of place at this time to bring together certain notes on the distribution and some of the outstanding characteristics of the Termite species of British Columbia. The distributional records are taken from the collections at the University and the habits are described from personal unpublished notes supplied by Professor G. J. Spencer and by quotations from Banks' and Snyder's "Revision of the Nearctic Termites," supplemented by some of my own observations. I am indebted to Professor Spencer for supplying me with his notes and for permission to use the material at the University, which is mostly of his own collecting.

The most commonly observed termites on the mainland of British Columbia may be one or other species of the genus **Termopsis** which is, in many respects, the most generalized genus of Termites. The two species concerned are **T. augusticollis** Hagen and **T. nevadensis** Hagen, whose winged form are about the same size, namely an inch from the head to the tip of the folded wings. The structure and habits of the two species are so similar as to be easily confused, while the nymphs and soldiers are practically indistinguishable. However, the flying forms can be readily distinguished, **nevadensis** being smaller and darker with the abdomen in some cases nearly black. A third and somewhat uncommon species, is **Reticulitermes hesperus** Banks which can be readily distinguished from the others by its smaller size, the winged forms being only one centimetre long and the wingless ones still smaller.

As far as I am aware, British Columbia is the only Province in Canada where termites occur and since, as Snyder remarks, " . . . no locality in the world has yielded more than nine species of Termites," it would seem that our having three species, is a very generous allotment.

With regard to the **Distribution** of the species in the Province, **T. augusticollis** is recorded from as far north as Skidgate, about midway on Queen Charlotte Islands (lat. 53° N.) (C. H. Crickmay), from the west coast of Vancouver Island at Long Bay and at Tofino (G. J. Spencer) and very commonly on the south east part of Vancouver Island and the lower mainland. **T. nevadensis** has apparently very much the same distribution on the lower mainland and on Vancouver Island as the above species, and in addition has been taken in flight at Salmon Arm, at the head of the Okanagan valley in the Interior (H. Leech) **Augusticollis** seems to occur more commonly around Vancouver and New Westminster while **nevadensis** is the prevailing species around Victoria. Nymphs of one of these species have been taken freely in early spring from Van Anda, on Texada Island, in the Gulf of Georgia

(Spencer). **R. hesperus** occurs fairly commonly at Departure Bay near Nanaimo, and has been taken at Goldstream (Spencer) and at Langford Lake (G. Beall), both near Victoria.

Observations on the species. Both genera occurring in this Province are characterized by absence of the worker caste, the sexual nymphs playing the role of workers to a certain extent. Thus in a caged colony of **augusticollis,** I have several times seen larger nymphs presenting pellets of excrement, upon which members of colonies feed to some extent, to soldiers. Snyder mentions that in the two larger forms, normally-winged, short-winged and wingless, sexual forms occur; also that in **R. hesperus** the soldiers occur in two distinct forms, both short-headed and long-headed.

Flight. In the latitude of Vancouver and Victoria, **augusticollis** flies chiefly about the first week in September while **nevadensis** flies about two weeks later. Delayed flights of both species may occur considerably later into the autumn; thus an individual of a small swarm was taken at the University flying in the open on 16 December, 1930. At Tofino on the west coast of the Island, **augusticollis** flies in August. Speaking of California, Snyder says that this species flies from the end of November until May. **R. hesperus** has been taken swarming at Departure Bay, Nanaimo, just about the middle of August (Aug. 13) for two seasons (A. Berkeley, V. Lucas). The flights are apparently of short duration, shorter than in the case of the two larger forms.

Local habitat. The species of **Termopsis** are found in old stumps and logs, especially if the latter are partly buried; they have been found fairly abundantly in the thick plank walls of old sunken greenhouses. From these latter locations they may swarm at any time during winter, irrespective of the season and then the whole flight usually perishes as soon as it encounters the sudden cold outside. In the region of New Westminster practically every old stump and log has its **Termopsis** colony and yet, strangely enough, the colonies are invariably very small and are generally to be found in the soft outer shell of the stumps. Around Victoria, on the other hand, **Termopsis** colonies are often very large and are generally to be found honey-combing the heart of a stump while leaving the surface intact and hard. Moreover, in Victoria, I once found a number of nymphs and a soldier coming up from a hole in the ground and attacking the under surface of an old board, notwithstanding the fact that most workers have shown that the two species of **Termopsis** in question are **not** subterranean in habit. Again it has generally been considered that these species do not build definite nests, yet my observations show that there seems to be a tendency to keep small nymphs in droves or nurseries in separate parts of the colonies, I have also seen, in spring, a colony with soldiers, large nymphs and sexual members, all in a central fissure of a log, with very young nymphs in side galleries. Another instance of this nesting habit or at any rate, the necessity for restricted spaces, was shown in a colony of **T. augusticollis** which I kept in a shallow glass-topped observation cage for two months, and noted that the termites built up several straight walls of excrement between the glass and the floor to a height of 3/8 of an inch.

One curious point of Termite habit was noted once in New Westminster, when a colony was found in which the galleries of **Termopsis**

were so intimately mixed with those of the carpenter ant that the two very diverse forms seemed almost to be using the same nest.

Concerning the habitat of **R. hesperus** . . . one colony found by Professor Spencer near Nanaimo, occurred in an old fallen tree lying in the open on a bare slope, the outer shell of the tree being hard and weather-beaten and the core dry and punky. In the same log occurred one of the species of **Termopsis** and a colony of true ants. Not far from this spot a swarm of **hesperus** was seen emerging, on two successive years, from a small hole in a lawn . . . probably from a log which had been buried when the lawn was filled in some years before. Snyder describes **hesperus** as being frequently subterranean and as living at times under old cow-pats and even in living roots. I have found the species twice, at Langford and at Nanaimo; in each case the termites inhabited tender, dry, half-buried wood, lying on warm slopes much frequented by mound-building ants.

In view of the northern occurrence of the two species of **Termopsis,** it is interesting to note their tolerance to **water** and to **cold,** factors usually considered markedly hostile to termites. Around Vancouver, New Wesminster and on Texada Island the genus occurs commonly in the same piece of wood as millipedes, centipedes and sow-bugs, although it generally occurs in the dry parts of the wood. In winter, however, the wood may be uniformly soaked through. Mr. Spencer mentions certain of these unusual habitats . . . a colony was found in a mossy log spanning a tidal spring just above high-water mark at Tofino; another occurred in a log in Long Beach above Uclulet, V.I.; also when the library ground at the University was being levelled in winter time a buried log was removed from a low-lying spot. The log was completely submerged under shallow water and being rotten, came apart on being pried out, disclosing a flourishing colony of **Termopsis** inside. Finally, in January, 1929, in the woods on the campus, a large Douglas fir log which had been tapped for termites for several successive years, was opened again and the termite colony was found in the usual location, within two inches of the outside of the log. The tunnels had been flooded during the winter and the frost had frozen the water so that the insects were found lying motionless on beds of ice. How long they had been so situated could not even be surmised. However, on being removed to a laboratory and slowly thawed out, the insects lived for some months, suggesting that they are adapted to being frozen.