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NOTES ON SOME WOOD-BORING BEETLES OF SAANICH, VANCOUVER ISLAND, B. C. (Coleoptera, Cerambycidae & Buprestidae)

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Introduction. The incentive for this study was the discovery of a new road allowance through a tract of forest and bush land. The resultant tangle of stumps, logs and slash afforded an ideal attraction for Cerambycids and Buprestids intent on mating and ovipositing.

The area involved is about 3½ miles north of Victoria, B.C., at the edge of the southern slope of Mount Douglas, where it merges into low-lying flats and hollows. The trend of the road is east and west; it is about a quarter of a mile in length, a convenient size for detailed examination. On the east the road has its beginning at the base of a rocky slope supporting an extensive stand of Garry oak, *Quercus Garryana*. Continuing in a westerly direction the road passes through a shallow valley, crosses a low ridge, and descends again to damp bush and meadow land.

The central ridge supports a heavy stand of first and second growth Douglas fir, *Pseudotsuga taxifolia*, and grand fir, *Abies grandis*, with underbrush of ocean spray, *Spiraea discolor*, in the few open spaces. On the lower ground, alder, *Alnus rubra*, black poplar, *Populus trichocarpa* and aspen, *Populus tremuloides* are the dominant trees, with a luxuriant growth of moisture-loving shrubs of willows, *Salix* spp., crab-apple, *Pyrus diversifolia*, black hawthorn, *Crataegus brevispina*, dogwood, *Cornus pubescens*, cascara, *Rhamnus purshiana* and others.

It was hoped that with such a variety of newly-cut wood exposed at the right season, a large number of species of Cerambycidae and Buprestidae would be found. Accordingly the place was visited as often as possible during the season from March to September, 1934. Notes and collections were made at each visit.

Annotated List of Species. The following list includes all the species of wood-boring beetles collected or observed in this study, together with brief notes on their numbers, habits and dates of collection. Species occurring in numbers exceeding 50 individuals are marked "abundant", those between 25 and 50 are designated as "common" while those between 8 and 25 are noted as "several." When fewer than 8 were collected the exact number is given. All records are confined to the area outlined unless otherwise stated. The specimens mentioned in the list are in the Provincial Museum at Victoria, B.C. The arrangement followed is according to Leng's Catalogue (1920) but with the nomenclature revised in certain cases to agree with more recent taxonomic studies.

CERAMBYCIDAE

Prionus californicus Mots. One under a board at base of oak, July 25. A common species. The adults are nocturnal. The larvae feed in the roots of decayed Douglas fir, grand fir, oak, etc.; occasionally found in the underground portion of fence posts except those of cedar.

Megasemum aspera Lec. One, crawling over Douglas fir wood at 8 p.m., July 4. This is a nocturnal species and is often found in such odd places as water barrels, window ledges, etc., attracted to the vicinity by light. It has been found breeding in Douglas fir stumps.

Tetropium velutinum Lec. One, under a slab of Douglas fir bark, 5 p.m., June 22. Nocturnal, not common. Larvae in Douglas fir.

Opsimus quadrilineatus Mann. One, at rest on Douglas fir stump, 5 p.m., April 22. Another member of the night brigade. They have been found in the base of dead Douglas and grand fir trees 4 to 6 inches in diameter, where the larval stage is passed; the outer portion of the burrows provide winter quarters for the adult.

Leptalia macilenta (Mann). One, on flower of *Rosa nutkana,* June 3. I have never taken it under any other circumstances. Breeds in alder.

Leptalia macilenta v. frankenhauseri Mann. Three, on blossoms of *Rosa nutkana,* May 26. This is the commoner form here, distinguished by the pale lines at the base of the elytra, from the all black colour of *macilenta.*

Pidonia scripta (Lec). Several, on flowers of *Rosa nutkana,* May 13-26. Common, usually seen only on flowers where they feed on the pollen by day, hiding between the overlapping petals by night.

Toxotus vestitus Hald. Four, on flowers of *Rosa nutkana* and resting on trunk of grand fir. May 26-July 4; both the red, and black-legged forms. Has been reared from the decayed roots of Douglas fir.

Centrodera spurca (Lec). One, flying to artificial light at dusk, June 22. A nocturnal species. Adults have been dug out of the ground in the vicinity of Garry oak trees among the roots of *Rosa nutkana* in February. Large larvae were found in gall-like swellings at the base of the rose bush but as I was unsuccessful in rearing them, proof as to their identity is lacking.

Anoplodera vexatrix Mann. Several, on bloom of *Spiraea discolor,* June 24. This is their favourite flower, affording both food and protection as they like to push their way into the heart of the inflorescence.

Grammoptera filicornis Csy. Common, on flowers of *Rosa nutkana,* May 6 - 26. Mating pairs were found on freshly cut branches of *Populus trichocarpa* giving an indication of their host plant, but no further developments were observed as proof of this.

Leptura obliterata (Hald). Common, usually taken in flight and resting on or crawling over Douglas fir logs, July 1-29.

Anoplodera laeta Lec. Several, August 23, flying about freshly-exposed roots of recently-felled Garry oak, in which it breeds.

Anoplodera crassipes Lec. Three, at rest on leaves etc. One, on flower of *Carum Gardneri.* Breeds in *Abies grandis, Betula occidentalis,* etc.

Anoplodera dolorosa Lec. One, on flower of *Spiraea discolor,* July. It is commonly taken feeding in flowers of *Spiraea discolor,* and breeds in Douglas fir.

Anoplodera chrysocoma Kby. One, on flower of *Rosa nutkana,* May 13. A very wide ranging species recorded from coast to coast.

Anoplodera dehiscens Lec. One, flying about Douglas fir wood, August.

Ulochaetes leoninus Lec. Five, two males and three females, taken in flight June 10 and July 1 - August 26. Flying about logs of grand fir and walking over roots and stumps of same. One of our finest

longhorns. It resembles a bumblebee both in appearance and actions.

Necydalis cavipennis Lec. One, extracted from pupal cell in Garry oak stump in February. It is usually scarce, but may be seen in a small "colony" flying about an old oak stump, probably one brood emerging from that particular stump. It has a very close resemblance to an Ichneumon.

Rosalia funebris Mots. One, flying among Douglas fir stumps on which it alighted, no doubt having strayed from a nearby alder clump. July 29. Our most handsome species, typical of the Vancouveran fauna; found in numbers about alder logs in which the larvae feed. It can emit a faint rasping sound by rubbing the edge of the pronotum over a file-like process on the mesonotum.

Semanotus ligneus amplus Csy. Two, on cedar fence post, March 28. This is exclusively a cedar feeder in the larval stage. They may be taken in numbers in late winter by digging them out of their pupal cells in cedar logs a year old.

Semanotus litigiosus Csy. Six, two on Douglas fir slash, April 28, four about Douglas fir logs, April 26. They keep to the undersides of branches and are easily overlooked.

Gonocallus collaris Kby. One, at rest on Douglas fir slash, 5 p.m., June 17; no others found. First record for Vancouver Island (Hardy, 1936). Occurs across the continent in the north from Newfoundland to Alaska, south to British Columbia.

Callidium vancouverense V. D. Several on Douglas fir slash, April 28-30; they were busily running about on the underside of the branches, mating and ovipositing and occasionally flying.

This species originally described from specimens taken at Sidney, V.I., is closely allied to the western form of *C. antennatum* var. *hesperum*.

Phymatodes decussatus v. obliquus Csy. Several, Garry oak logs and slashing, June 24. Often found abundantly about dead oak trees.

Xylotrechus undulatus Say. Three, running over Douglas fir logs and on trunk of grand fir, June 10 and August 5.

Xylotrechus annosus (Say). One, flying and alighting on newly-felled *Populus trichocarpa*, April 22. The only two other known records for Vancouver Island are Sidney and Nanaimo. Breeds in *Populus*.

Neoclytus conjunctus (Lec). Several, Garry oak logs and slash, March 15-22. Nearly every dead or decaying oak tree is riddled with their borings, the smaller branches ofter being reduced to powder.

Monochamus obtusus Csy. One, grand fir log, July 29. This is the first record for Vancouver Island of this species. (Hardy, 1936).

Monochamus oregonensis Lec. Abundant, frequenting logs of grand fir, May 26-June 15. Flying about in the vicinity, or at rest on the sides or beneath the logs where they were noticeably in pairs.

Synaphoeta guexi (Lec). Seven, on willow logs, July 1 - August 5. This somewhat scarce species was found on the logs at the hottest time of the day. One female resting on the side of the log, was joined within five minutes by three males, no doubt arriving in response to a "wireless" call.

BUPRESTIDAE

Chrysophana placida (Lec). Seven specimens of this attractive little species were taken on newly-cut Douglas fir cordwood, June 10 and July 1. It breeds in various conifers, and the larvae sometimes mine the center of pine cones.

Chalcophora angulicollis (Lec.) Several specimens of this large species were taken. The heavy booming flight and clumsy hit or miss alightment gives a ludicrous note to the "seriousness" of collecting. May 13 - June 29.

Dicerca sexualis Cr. Eleven specimens, in flight or at rest on stumps and logs

of *Abies grandis*. Very unemotional and easily picked up though ready to feign death and drop to the ground. June 10 and July 1-29.

Buprestis aurulenta L. Common, in flight or at rest or ovipositing on logs of both Douglas fir and *Abies grandis*. May 13-July 4.

Buprestis rusticorum (Kby.) Very common, on *Abies grandis*, June 10-July 29. Sluggish and easily approached.

Melanophila drummondi (Kby.) Most abundant of all the Buprestidae. Chiefly on Douglas fir and *Abies grandis*. May 26 - August.

Melanophila acuminata (Deg.) Several, on *Abies grandis*. Very active both in running over the bark and in taking wing. May 26 and June 15. A northern species extending across the continent along the coniferous belt.

Anthaxia aeneogaster Lap.-Gory. One, on Douglas fir slash, March 22. This species is often found on the dandelion and other yellow flowers.

Chrysobothris pseudotsugae Van D. Four, on Douglas fir logs. Exceedingly active and taking to flight as readily as a fly. June 3 and July 1.

Chrysobothris femorata Oliv. Two, one on *Populus trichocarpa*, the other on *Pyrus*. June 10 and 20.

Summary and Conclusion. Of the seventy or so species of Cerambycidae known to occur on Vancouver Island, thirty-one or about 37 per cent, were captured in this restricted area. Two were first records for the Island.

The most noticeable fact brought out in a study of the list of Cerambycidae is that many of the species are represented by only one or two individuals during the entire season. This apparent scarcity could be accounted for by the fact that some are crepuscular or nocturnal in habit as for example *Prionus californicus* and *Centrodera spurca*. Other species such as *Pidonia scripta* and *Grammoptera filicornis* are generally found on flowers. *Monochamus oregonensis* was one of the few common beetles met with, and from its size and the known powers of the larvae to damage timber by their extensive tunnelling in the heartwood, it might be considered the most important species from an economic aspect.

Of the family Buprestidae, ten, or nearly 50 per cent of the twenty-two species known to occur on Vancouver Island, were collected. Three of these were very common. *Melanophila drummondi* was the most abundant, equalling in numbers the combined individuals of the Cerambycidae and Buprestidae. Members of the Buprestidae are essentially sun-lovers and perhaps for this reason they were met in greater numbers than were the Cerambycidae.

This preponderance of Buprestids might also be accounted for by the fact that except for one species, *Anthaxia aeneogaster*, the members of this family spend their whole existence in the vicinity of their host trees, while the Cerambycids wander considerable distances in search of flowers or are nocturnal in habit. For these reasons a census taken under the conditions outlined will naturally show that the majority of species are those which are most attracted to newly-felled trees.

Considering the two families with reference to their host trees, Douglas fir and grand fir were by far the most attractive, 20 species being observed on or about them. Garry oak came second with 5 species, black poplar 2, aspen and willow with 1 each. No species of either family was seen to pay attention to the stumps or slash of the other shrubs mentioned, although slight evidence of their larval work was noticed in crab-apple.

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A partial list of references appertaining to taxonomic revisions and to life histories of some of the Vancouver Island species dealt with in this paper is appended here.

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THE APPLE SAWFLY HOPLOCAMPA TESTUDINEA KLUG. ON VANCOUVER ISLAND, BRITISH COLUMBIA*

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In June 1940 some small apples damaged by a boring insect were brought to the Entomological Laboratory at Victoria by the owner of a city garden. Each apple had a round hole in the side nearly one-eighth of an inch in diameter; the interior was extensively excavated and contained a black oozy pulp. In some of the apples a whitish sawfly larva was found. This type of injury was something entirely new to us and the apples were forwarded to Mr. W. A. Ross of the Vineland Station, Ontario, laboratory who tentatively identified the insect as the apple sawfly, *Hoplocampa testudinea* Klug. Later this identification was confirmed by Dr. A. M. Massee of the East Malling Research Station, Kent, England, to whom some of the larvae were sent by the Dominion Entomologist. This is the first known occurrence of this insect in North America. A brief survey showed that the species was present in parts of the city of Victoria and the adjoining municipality of Oak Bay over an area of approximately six square miles.

Distribution and economic importance: The apple sawfly is distributed over the whole continent of Europe but is more common in the north. It is the most important apple pest in many parts of Germany, Denmark, south-west France and Holland. It is found in most parts of England but appears to be only locally common and seasonal in abundance. Massee (2) states: "This insect is re-

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