DISTRIBUTION OF BUTTERFLIES ON VANCOUVER ISLAND

by RICHARD GUPPY

The distribution of Rhopalocera on Vancouver Island is definitely unusual, and provides therefore some food for thought. The greater part of the population of butterflies is concentrated in the southeastern part of the island. Here the number of species and individuals is probably about average for a temperate climate, while in much of the western and northerly sections butterflies are very scarce and represented by few species.

At first glance an obvious explanation for this phenomenon seems right at hand. On maps showing the life zones of the Pacific Coast of North America, the area of V.I. where most Rhopalocera are found is set aside, not only from the remainder of the island but from all of the Pacific northwest, as a distinct zone. But unfortunately for this theory there is not the same sharp delineation between butterfly-occupied and butterfly-less areas, as there is between the gulf island zone and the coastal rain forest which covers the remainder of the island.

It is most fortunate that there exists a collection of Rhopalocera of the west coast of V.I. The owner of this collection makes no pretence at a serious study of Lepidoptera. He has collected these specimens at odd times over a number of years. No doubt he would himself be the first to admit that it was not much of a task, owing to the fewness of the species available. Yet I consider the effort most definitely worth while; without it we would not have any knowledge of the butterflies of the V.I. west coast.

Following is the complete list of species included in the above collection; I have listed all the *Polygonia* species found on V.I., and I expect they all occur on the west coast, though I cannot identify specimens myself with certainty: *Papilio zelicaon, P. eurymedon, Neophasia menapia, Pieris rapæ, Danaus plexippus, Polygonia satyrus, P. faunus, P. oreas, P. zephyrus, Nymphalis californica, N. milberti, N. antiopa, Vanessa cardui, Vanessa carye, Limenitis lorquini, Incisalia iroides, Lycænopsis pseudargiolus.*

Now I think we can explain the presence of every one of the above species on the basis of food plant availability. Briefly then, the scarcity of butterflies in the rain forest area seems to be due to the small selection available, before the coming of civilization, of those plants commonly used by butterflies as food, coupled with the reluctance of many species to move abroad in search of fresh pastures.

Papilio zelicaon feeds on *Heracleum lanatum,* which grows abundantly on the rocky headlands along the open coast. The host of *Neophasia menapia* is *Pinus contorta,* a common tree in the low sandy areas. *Papilio eurymedon* and *Limenitis lorquini* feed on deciduous trees which find a foothold beside lakes and rivers. Where clearing has allowed the spread of such trees, the butterflies have followed. *Lycænopsis pseudargiolus* probably uses as a host *Spiræa douglasii,* which grows abundantly in the shallows of lakes. Being like all Lycænidæ a stay-at-home, it has not followed the clearings and on the west coast is still confined to a few favored spots beside bodies of fresh

water. *Incisalia iroides* feeds on *Gaultheria shallon,* the usual ground cover in all of the rain forest. The remaining species on the west coast list are wanderers and strong fliers, which are sure to locate their host plants wherever these may spring up, or, as in the case of *Nymphalis californica* and *Danaus plexippus,* they migrate far beyond their breeding range.

It may seem that I am painting the west coast as something of a desert, since only a dozen or so of nearly sixty species of butterflies can find suitable hosts there. But it must be remembered that the Rhopalocera constitute relatively few groups, and the species in each group tend to have a similar taste in food plants. Nearly all the Satyridæ like grasses. On V.I. at least, the Plebeiinæ are almost confined to lupins, while *Speyeria* and *Boloria* care only for violets. Space will not allow me to go further into the matter from this direction; we must consider a few species which certainly find hosts on the west coast, but which do not seem to occur there. *Papilio rutulus* usually flies with *P. eurymedon.* Being difficult to net and looking on the wing much like others of the genus, it could easily get overlooked. *Incisalia eryphon* feeds on *Pinus.* It is another insect which could easily escape notice. On the east coast one has little chance of obtaining specimens without previous knowledge of the exact spots where colonies may be found. The presence of stands of *Pinus* is no guarantee that *I. eryphon* will be be found there also. One circumstance frankly puzzles me. The masses of magnificent *Lathyrus* which cover the ocean beaches between forest and tide should certainly harbour *Everes amyntula.* I found this species common at Kelsey Bay, on the east coast, but far north of the benevolent gulf islands zone.

We can now turn for a while to the butterflies of the east coast, where some sixty species are found. Here also, much of the country was originally too heavily wooded to allow of much butterfly life. Ignoring for the moment the man-made clearings, there are found three types of terrain which provided a favourable environment: (1) the dry southern tip of the island, which appears never to have supported a continuous growth of timber; (2) rocky areas where the soil is too thin to support large trees; (3) mountains above the timber line.

The park-like country around Victoria is evidently the headquarters of the island butterfly population. There are several species which still are found there, though not elsewhere on the island. *Cœnonympha inornata* is one of these. Here it is represented by a subspecies, *C. i. insulana,* whose entire range is confined to this tiny bit of territory. *Euphydryas editha taylori,* extremely abundant some seasons in the park land around Oak Bay, is said to occur also at Comox. Another species which seems to have established itself around Victoria without wandering further north is *Phyciodes campestris.* A form of *Hesperia comma* also has become numerous in the Oak Bay park of recent years, but I have taken a solitary specimen of *H. comma* at Cameron Lake, and another on Mt. Benson near Wellington. It seems likely in view of the sudden "eruption" of *H. comma* around Victoria, that it may spread rather rapidly, but by 1956 it had not spread at all.

Another subspecies of some interest is *Plebeius sæpiolus insulanus.* Most probably a lupin feeder, the V.I. population as far as is known is confined

to Mt. Malahat. This is the more strange since three other lupin-eating species are found nearly everywhere that their host plant grows, though there are some notable exceptions. On Mt. Benson for instance, there appear to be only *Glaucopsyche lygdamus* and *Plebeius icarioides.*

The above few species complete the list of those which have been satisfied to occupy the southern tip of the island only. A number of butterflies have moved northward, taking advantage of stony hillsides which can support only scattered trees, and most of these have established themselves on the high peaks above timber line.

To the specialist in Rhopalocera, alpine collecting on V.I. is not particularly rewarding. Several species supposed to be adapted to high altitudes I have not found above 3000 ft. *Parnassius clodius* is one of these. *Œneis nevadensis* occurs high up, but not so commonly as at moderate elevations. Probably the best spot on the island for this species is near my home, a rocky area close to the sea and only a few hundred feet above it. We have only two species which can be described as strictly confined to high altitudes. *Plebeius aquilo* I have only found on Mt. Arrowsmith above the 5000 ft. level. It has been collected on Mt. Becher at about 4500 ft. These are still the only known localities on V.I., but in fact they are the only alpine areas which have been visited by lepidopterists. Mt. Becher is a part of the Forbidden Plateau, where most high altitude collecting is done, because of the tourist accommodation provided by the lodge near by. I have myself tried Mt. De Cosmos near Nanaimo. On two occasions I climbed nearly to the summit of the 4000 ft. mountain, without collecting anything worthy of note. Our other high level species is of particular interest, because its presence remained unsuspected until 1950. Mr. LLEWELLYN JONES collected the first V.I. specimens of *Parnassius smintheus* that summer. It is a matter for speculation how it escaped the notice of earlier collectors. Its general resemblance to *P. clodius* could have caused it to be overlooked by some, not given to chasing every butterfly that showed up. However, as I have intimated, most of the high mountains of V.I. are still quite unexplored, let alone by butterfly enthusiasts, so the colony could easily have built up somewhere else and only recently been transferred to Mt. Arrowsmith. *Lycæna mariposa* is found on Mt. Arrowsmith and over much of the Forbidden Plateau. The glamour was somewhat taken out of this butterfly by Mr. JONES, who found a colony by the highway near Port Alberni. I do not know the exact elevation of this spot; it cannot be more than 1500 ft.

In conclusion I must remark on several species known to collectors all over the world, but which on V.I. are always rather scarce. Why this should be I do not know. *Vanessa atalanta* seems to occur only as a straggler. *V. cardui* sometimes comes in numbers on migration, but as the winter kills them, the species is absent most seasons. *Nymphalis antiopa* is said to be common at times, but I have never found it so. I have come across only one specimen of *Pieris napi. Danaus plexippus* is recorded for V.I. on the basis of a single specimen taken by my brother at Tofino.

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