

SYSTEMATIC ENTOMOLOGY IN THE PACIFIC NORTHWEST

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The possibilities open to the entomological taxonomist in the Pacific northwest are legion. This has been most forcibly illustrated by an insect survey, in its second year, conducted by the writer on Peavine Ridge, McMinnville, Oregon. Genera and species new to science have been discovered in the few groups in which authorities have been available. Of many other groups, little or nothing is known and the collector has difficulty getting his material determined even to genus.

All of the methods known to the collector have been used in this survey. Collecting has been confined to about one half to three quarters of an hour each day when the weather permitted. All of the stations are covered about once a week in this manner during most of the collecting season. To date general sweeping of the foliage has been most productive and for this reason has been most frequently used for the initial stages of the study. Later on, as determinations are received and knowledge of the species is gained, rearing studies may be taken up. Determination of the collectoids is the prime objective at this time.

Peavine Ridge is almost due west of McMinnville, Oregon. The area of the survey extends for about four miles in a general direction from the southeast to the northwest. Five major stations are getting the bulk of the work. These are numbered: 1, 2, 3, 3A, and 4 for no good reason save that station 3A was added after the project was started. Four of the stations are along small water courses, station 4 being the only dry station to date.

Station 1, at an elevation of 210 feet, has the largest stream of the lot, a stream that dries up in spots during a warm summer. The dominant tree is Oregon Ash (*Fraxinus oregona* Nutt.) with Broadleaf Maple (*Acer macrophyllum* Pursh.) and Garry Oak (*Quercus garryana* Dougl.) as subdominants. The shrub layer is largely composed of Oregon Grape (*Berberis aquifolium* Pursh.) and Salmon-

berry (*Rubus spectabilis* Pursh.). A fern layer consisting of Swordfern (*Polystichum munitum* Kaulf.) and rushes is present. Water Hemlock (*Cicuta douglasii* C. & K.) and grasses abound in the herb layer.

The elevation at station 2 is 600 feet. This station is rather open, most of the trees being young. The area was "cut over" about 1914. Oregon Ash and Willows (*Salix* sp.) are the dominant trees. The most abundant shrubs are Western Hazel (*Corylus californica* Rose), Poison Oak (*Rhus toxicodendron* L.) and Salmonberry. Brake-fern (*Pteridium aquilinum* v. *pubescens* Underw.), Snowberry (*Symphoricarpos albus* L.) and Swordfern comprise most of the fern layer with grasses, St. Johns Wort (*Hypericum perforatum* L.), Water Hemlock and Common Monkey-flower (*Mimulus guttatus* D.C.) the majority of the herb layer. Two small temporary streams converge at this station and form a nice small meadowland.

Station 3, only a short distance from station 2, is very different from that station. The elevation is 605 feet. A small permanent spring rises in the middle of the area. Douglas Fir (*Pseudotsuga mucronata* Raf.) and Broadleaf Maple are the predominant trees. Salmonberry and Willows are the most abundant shrubs with Swordfern, Giant Chain-fern (*Woodwardia fimbriata* Smith) and Oregon Grape dominating the fern layer and assorted grasses and Umbelliferae the herb layer. At this station is the first sign of the encroachment of the Douglas Fir subclimax forest and the best example of that forest in the area.

Station 3A, at an elevation of 980 feet was overlooked for some time as it was rather well camouflaged from the road. It is the smallest of the five and to get to it the collector has to push through a barrier of low hanging fir branches. This station, although small, has been one of the most

productive in the variety of insects taken. Oregon Alder (*Alnus rubra* Bong.) and Broadleaf Maple are the dominant trees. Important shrubs are Salmonberry, Evergreen Blackberry (*Rubus laciniatus* Willd.) and Stink Currant (*Rubus bracteosum* Dougl.). The more abundant members of the fern layer are Giant Chainfern and Brake-fern. The herb layer is pretty well choked out but there is one patch of Western Wild Ginger (*Asarum caudatum* Lindl.) and occasional Smooth Woodland Violets (*Viola glabella* Nutt.) and Western Trilliums (*Trillium ovatum* Pursh.).

Station 4, at an elevation of 1085 feet, is a dry station. It was "cut over" about 1916 but it is coming back to a nice young stand of Douglas Fir and Garry Oak. The shrub layer is composed largely of Snowberry, Western Hazel and very young Garry Oak. Brakefern is the chief constituent of the fern layer. The herb layer contains grasses, English Plantain (*Plantago lanceolata* L.) and Heal-all (*Prunella vulgaris* L.).

Each of the stations is comparatively small, the combined areas covering scarcely more than five acres. Considering the restricted extent of the stations, quite a number of interesting species have been collected as indicated by the lists and notes of the determiners.

Dr. C. P. Alexander of the University of Massachusetts has discovered four or five species of *Tipulidae* that are new to science. Prior to this survey, some 50 species of *Tipulidae* were recorded from Oregon. By the end of the 1946 season, 125 species of craneflies had been taken from Peavine Ridge alone.

Dr. Frank Shaw, also of the University of Massachusetts, reports a probable new genus of *Mycetophilidae* and many interesting things. He mentions the seeming close relationship of western *Mycetophilidae* with those of the Palearctic region.

A list of the spiders from Dr. W. J.

Gertsch of the American Museum of Natural History indicates that three new genera and nine new species of *Arachnida* have been taken in the area.

Dr. H. H. Ross of the Illinois Natural History Survey, commenting on the four species of *Trichoptera* collected through 1946, mentions that one species has a wide range. Another species is a new record for the state and the second specimen taken. The remaining two species are new to science.

It would appear that as more and more groups are studied, many more new species will be discovered. In the Pacific Northwest are innumerable areas equally rich in insect life and many that are more so.

No great aptitude is required to collect insects, the essential condition being that the collector be in the right place at the right time. It is an indication of a notable lack of knowledge of the insects of the Pacific Northwest, that so many new genera, new species and new locality records are found in such a restricted area and in such a short time.

There are many things to be done in the Pacific Northwest. Local authorities in many groups, especially the more obscure ones, are needed. A central type or paratype depository should be formed for students of northwestern insects. Too many types are in eastern collections where they are not available to local students. More western type material will be represented in these eastern collections before we have the required systematists. This is a regrettable state of affairs but one that must be recognized. Frequently this loss is somewhat compensated by the return of paratypes to western collections.

More ardent general collecting and surveys similar to that of Peavine Ridge should be made of the diverse habitats; life histories should be studied; local lists of known species should be compiled and, above all, this information should be made available through publication as progress permits. There is indeed much to be done.