

HABITAT AND MALES OF ALASKAN SNIPE FLY PESTS, (*SYMPHOROMYIA*: RHAGIONIDAE)

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The pest problem caused by *Symphoromyia atripes* Bigot in coastal Central Alaska was pointed out by Travis (1949) and Sailer (1951). Frohne and Williams (1951) claimed that *S. kincaidi* Aldrich is as vicious and abundant in Southeastern Alaska as *atripes* and appears on the wing several weeks earlier. The elusive males of both Alaskan *Symphoromyias* were vainly sought until 1952 when my son Dick and I swept thirty male *kincaidi* at Thane near Juneau and verified the correct association of the sexes made tentatively by Aldrich (1915).

As a basis for eventual control of immature stages of *S. atripes*, entomologists of the Arctic Health Research Center have carried on a modest but prolonged (1950-55) search for the larval habitat in the limited accessible areas of the Upper Cook Inlet where female *atripes* are common. The present note characterizes, though superficially, two *atripes* breeding habitats which were finally pin-pointed in 1955 by recovery of two newly hatched females in Dove type emergence traps. Several hours of intensive sweeping over one of these breeding areas at the beginning of the emergence period the following summer yielded nine *atripes* males, very likely the first taken in Alaska, and two *kincaidi*, a species not previously reported from Central Alaska.

MALES. Interestingly, these Alaskan male *atripes* do not fit very well Aldrich's description of the lone male type specimen (dating back to Osten Sacken's collections of 1876 in California). Dr. Aldrich noted: "I associate this male with Bigot's species (*atripes*) because there are no indications to the contrary, and both sexes were collected by Osten Sacken at the same place only a few days apart. Strangely enough, nobody since his time appears to have obtained this species of

female with any male." Alexander Hubert (personal communication, 1953) found a second presumed *atripes* male while searching American museums for the type specimens of all 22 species recognized by Aldrich. Hubert was perplexed that these *atripes* males should be unlike *kincaidi* males, for (as he wrote) "*atripes* is closely related to *kincaidi*, judging by the females." However, our Alaskan male *atripes* are grey, even less like the jet black *kincaidi* males than is Aldrich's type *atripes* male from California. I shall point out the major differences between Alaskan male *atripes* and Aldrich's description. Since *kincaidi* often occurs with *atripes* it may be helpful, also, to show other workers how to separate the species of males easily.

The mesonotum in the nine Alaskan male *atripes* is striped (*vittate*) almost as conspicuously as in the female; Aldrich's male is "unstriped, not at all *vittate*." The abdominal color for both sexes of Alaskan *atripes* is similarly grey pruinose. While Aldrich likewise finds it "cinereous pollinose" in the female, he declares it is *black* in the male.

Kincaidi males may invariably be distinguished from Alaskan *atripes* with the unaided eye by use of the following characters: *kincaidi* are jet black, velvety, much more densely pubescent, and the abdominal pile is mostly yellow; the thorax is unstriped or virtually so; the genitalia are preceded by a conspicuous abdominal constriction; the first antennal segment is less swollen; they average smaller (5.5-6.5 mm. long). *Atripes*, on the contrary, are grey pruinose, less pubescent, and the abdominal pile is blackish; the thorax (mesonotum) bears chocolate-brown *vittae*; the abdomen tapers evenly to the terminalia (without an abdominal constriction preceding a dilatation of the terminalia);

the first antennal joint is more swollen; they average larger (5.5–8.0 mm. long).

It is considered unwarranted to infer that Dr. Aldrich associated the wrong male with female *atripes*, although he himself suggested this might be the case. From the very first the western American *Symphoromyias* have given taxonomists trouble. Osten Sacken in 1877, cited by Aldrich (1915), said of the Californian species, of which there are fifteen: "As these species resemble each other very closely, and as both sexes often differ in coloring, I deem it more prudent not to attempt to describe them." *Symphoromyias* vary intraspecifically, too, e.g., the nine males of *atripes* collected in the same area near Independence Mine August 4, 7, and 8, 1956, range 5.5–8.0 mm. in length. Size varies similarly in *kincaidi*. The genus is practically based on the closed anal cell, and yet I have several *atripes* females with open anal cells, and Alexander Hubert has seen the same condition in *S. sackeni*. *Atripes* females seem to become darker further south. Thus Southeastern Alaskan specimens generally have a darker stigma and markedly heavier infuscation of the wings than Cook Inlet specimens. It may be especially interesting to secure male *atripes* from the Southeastern region, since these males might be expected to approach or even fit Aldrich's type. A more promising approach, however, is to search out the larvae for rearing in the habitat to be described in the following paragraphs.

BREEDING AREAS. The females of *S. atripes* occur locally along fast coastal streams of Southeastern and Central Alaska from sea level to about 3500 feet. Often they are most numerous and troublesome at about the 2500-foot level where bushy alders, willows, and dwarf birches replace the conifers as the characteristic woody plants. Snowfall is heavy on these slopes or plateaus, and the summer is short and wet. *S. kincaidi* females are found in the same areas as *atripes* in Southeastern Alaska; they have been overlooked in Central and Western Alaska

though known now to be present, but rare, since the collection of two *kincaidi* males in the Upper Cook Inlet in 1956.

One has the impression from accumulating collection data that neither species actually breeds in the forest of Western hemlock, Sitka spruce, and Douglas fir (Southeastern Alaska) or in the black or white spruce woods (Central Alaska), but that the females descend to the inhabited forested areas along the streams to seek blood. Certainly conifers are unessential, because *S. atripes* abounds at Kukak Bay, Alaska Peninsula, beyond the westward limit of conifers. At any rate three seasons were spent in a vain search for breeding places in the forests near sea level.

Two similar alpine areas, from each of which one *S. atripes* hatched in an emergence trap, will be described preliminarily as representative *Symphoromyia* breeding habitats. Larvae must, of course, be collected before the specific immature microhabitat, which is undoubtedly in the wet peaty soil, can be designated. The positive breeding places are in the exceedingly craggy watershed of Fishhook Creek. They are one mile and one and three-quarters miles below Independence (gold) Mine, which is in the Talkeetna Mountains about fifteen miles northwest of Palmer, Alaska. They lie between the Willow Creek Road and Fishhook Creek at elevations about 3,200 and 3,000 feet. Fishhook Creek is a permanent mountain torrent, fed by snow fields, which dashes madly through, over, and about granite boulders, rocks, and rubble forming a terrain so helter-skelter that it proved practically impossible to find spots level enough for the Dove type emergence traps. There is, nevertheless, a good deal of boggy, soggy soil; there are also pockets of standing water among the rocks. The weather there is cloudy or rainy most of the summer. Surface water seldom reaches a temperature as warm as 45° F.

Besides the bushes, luxuriant coarse herbaceous plants are as characteristic of these *Symphoromyia* habitats as the rocks and wetness. The tall weeds *Heracleum*

lanatum (wild celery) and *Veratrum eschscholzii* (hellebore), from the flowers of which the snipe flies were probably swept (since the pollen is often seen adhering to their eyes), grow rankly shoulder or even head high. Aside, too, from ubiquitous Alaskan plants such as bunchberry, Labrador tea, broad and narrow-leaved fireweeds, and some uncommon or inconspicuous flowering plants and mosses which were omitted from the following list, the species of characteristic plants listed, probably provide the most practical way to recognize the snipe fly habitat. I am indebted to my wife, Gertrude Frohne, for naming the plants which I have tried to arrange according to conspicuousness and abundance: *Valeriana sitchensis*; *Geranium erianthum*; *Aquilegia formosa* (columbine); *Aconitum delphinifolium* (monkshood); *Anemone narcissiflora*; *Luetkea pectinata*; *Limnorchis hyperborea* and *dilatata* (bog orchids); *Petasites frigidum* (colt's foot); *Polemonium acutiflorum* (Jacob's ladder); *Senecio triangularis*; *Myosotis alpestris* (forget-me-not); *Loiseleuria procumbens* (trailing azalea); *Erigeron grandiflorus*; *Castilleja pallida*; *Epilobium* spp. (3 small species); *Vaccinium uliginosum* (blueberry); *Ranunculus* spp. (buttercups); *Sedum roseum*; *Swertia perennis* (star gentian); *Veronica*

wormskjoldii (alpine speedwell); *Zygadenus elegans* (death camas); *Saxifraga* spp.; *Leptarrhena pyrifolia* (leatherleaf saxifrage); *Viola langsдорffii*, *epipsila*, and *selkirkii*; *Phyllodoce glanduliflora* (yellow heather); *Cassiope stelleriana* (heather).

SUMMARY. Males of the snipe flies, *Symphoromyia atripes* Bigot and *S. kincaidi* Aldrich were swept in two mountain areas where there was evidence of larval breeding in the Upper Cook Inlet region, Central Alaska. No *S. atripes* males have been taken heretofore in Alaska. Differences from the type specimen are pointed out. *S. kincaidi* has not been reported previously from north of Southeastern Alaska. The alpine breeding areas of the two *Symphoromyias* are discussed, and the habitat is characterized preliminarily by the vegetation.

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