

SYNOPSES OF SOME NORTH AMERICAN ANTHOMYIINAE (DIPTERA).

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Herewith are presented synopses of genera of Anthomyiinae to facilitate the identification of some of the species which I have recently described in this subfamily.

Eremomyoides Malloch.

This genus is distinguished from its allies by having hairs on prosternum, propleura in centre, pteropleura, and hypopleura.

KEYS TO SPECIES.

MALES.

1. Eyes separated by more than twice the width across posterior ocelli; fore tibia with 1 posterior bristle; costal setulae distinctly longer than diameter of costal vein; hind tibia with one or two bristles on anterior surface; apex of second antennal segment on inner side transverse; fifth sternite with a number of erect setulose hairs on apical half of inner margin of each process, the basal half bare.....*setosa* Stein
Eyes separated by less than twice the width across posterior ocelli; fore tibia normally with two posterior bristles.....2
2. Eyes separated by less than width across posterior ocelli; hind tibia reddish; costal setulae weak; second antennal segment almost transverse on inner side at apex; fifth sternite with very short hairs on entire length of inner sides of processes.....*cylindrica* Stein
Eyes separated by at least as great a distance as width across posterior ocelli; hind tibia black.....3
3. Costal setulae weak, hardly distinguishable from the costal hairs; hind tibia without an anterior bristle; thorax with three pairs of presutural acrostichals; second antennal segment angulated at apex on inner side.....*fuscipes* Malloch
Costal setulae strong, outstanding; hind tibia with an anterior bristle; thorax with two pairs of presutural acrostichals; second antennal segment transverse at apex on inner side.....*similis* Malloch

FEMALES.

1. Fourth abdominal tergite obtusely rounded apically, curved over apex of abdomen and armed with long, dense bristles, appearing tufted.....*parkeri* Malloch
Fourth abdominal tergite normal, not curved over apex of abdomen nor tufted, with a few bristles at apex.....2
3. Costal setulae weak, but little stronger than the costal hairs, and not longer than diameter of costal vein; mid tibia with an anteroventral and an anterodorsal bristle; apex of second antennal segment angulate at centre on inner side.....*fuscipes* Malloch

Costal setulae strong, longer than diameter of costal vein; mid tibia with an anterior bristle in addition to the other two; second antennal segment transverse at apex on inner side.....4

4. Hind tibia black; second segment of fore tarsus less than three times as long as its width at apex, third and fourth segments very much widened*similis* Malloch

Hind tibia rufous; second segment of fore tarsus at least four times as long as its width at apex, third and fourth segments but little widened*setosa* Stein

Anthomyia Meigen.

KEY TO SPECIES.

1. Deep black species, without conspicuous markings.....*aestiva* Meigen
Black species with dense pale gray pruinescence and deep black markings on thorax and abdomen.....*pluvialis* Linné

Egle Robineau-Desvoidy

Only one species, *mystacea* Coquillett, lacks the distinctive bristle on the anteroventral surface of the mid tibia in the male. The bristle referred to is found in both sexes. Meigen's species, *aestiva*, does not belong to this genus but to *Anthomyia*, the propleura being hairy. The species occurs in Newfoundland and Labrador.

KEY TO SPECIES.

1. Mid tibia without an anteroventral bristle; hind tibia with about 9 anterodorsal and 6 posterodorsal bristles, 3 of the latter short.....*mystacea* Coquillett
Mid tibia with an anteroventral bristle near middle.....2
2. Abdomen cylindrical, pale gray pruinose, with a series of black dorso-central spots; hind femur usually with 4 widely spaced anteroventral bristles on apical half; hind tibia with 1 anteroventral, 2 anterodorsal and 2 posterodorsal bristles.....*cinerella* Fabricius

Abdomen depressed, black, slightly pruinose on each side of median line on dorsum so that when seen from behind each segment has a black vitta which is connected with an anterior transverse band and usually also with one on posterior margin.....3

3. Hind tibia with from 13 to 15 closely placed setulae on anterodorsal surface*hirta* Malloch

Hind tibia with from 5 to 8 bristles of irregular lengths on anterodorsal surface.....*radicum* Linné

Of the four species here listed *radicum* and *cinerella* are of general distribution and common to Europe and North America. The other two occur in the Western States at high altitudes and *mystacea* also in the extreme northwest.

Hammomyia Rondani

Generic characters: Head more or less buccate, parafacial in profile at least as wide as third antennal segment; distance between vibrissae not greater than distance of either from nearest eye-margin; abdomen in both sexes cylindrical or subcylindrical; female genitalia usually with two or more strong curved apical spines; hind tibia with at least three antero- and posterodorsal bristles; wing-veins 3 and 4 convergent apically; frons of female always less than one-third of the head-width, with or without interfrontal bristles.

KEY TO SPECIES.

1. Legs entirely black, or only the knees reddish; arista with very short hairs, the longest not as long as its basal diameter.....2
- Legs with at least the tibiae entirely or in large part reddish; arista with its longest hairs longer than its basal diameter; prealar bristle absent....3

2. Prealar bristle absent; mid tibia without a ventral bristle beyond middle; abdomen with a series of dorsocentral brown spots and a brown spot at each anterior angle of each tergite.....*maculata* Stein

Prealar bristle present; mid tibia in both sexes with one or two ventral bristles beyond middle; abdomen with a dorsocentral black vitta*paludis* Johannsen

3. Abdomen with a slightly interrupted central vitta and a large brown spot on lateral margin of each tergite; cross-veins of wings slightly infuscated, the outer one nearly vertical, its upper extremity very noticeably further from wing margin than its lower; female with a ventral bristle on mid tibia.....*johnsoni* Stein

Abdomen with a complete dorsocentral vitta and a poorly defined area on anterior lateral angle of each tergite fuscous; cross-veins not infuscated, outer one oblique, its upper extremity not much further from wing margin than its lower.....*marylandica* Malloch

Pogonomyza Schnabl and Dzeidzki.

The species of this genus have the legs entirely black; proboscis very much thickened, as thick as or thicker than the fore femora; the hind tibia with more than two posterodorsal and anterodorsal bristles, and in male without a fringe of fine hairs and without a blunt posterior spine at apex of fore tibia.

All the species are northern in their distribution. One species, *flavipennis*, occurs commonly in Europe in the fall on flowers of knapweed, thistles, and ragweed, and is found in New England and eastern Canada. There are some North American species still undescribed. The larval habits are unknown to me.

KEY TO SPECIES.

1. Hairs of arista very long, much longer than width of third antennal segment; prealar bristle very short.....*flavipennis* Fallen
- Hairs of arista very short, not longer than its basal diameter.....2

- 2 Mid femur with a number of strong bristles on apical half of anteroventral surface and two very long strong ones on basal half of posteroventral, the femora slender.....*spinosissima* Malloch
- Mid femur without bristles on apical half of anteroventral surface, the bristles on basal half of posteroventral surface very short; femora noticeably thickened.....*proboscidalis* Malloch

NEW SPECIES AND LIFE HISTORIES IN PAPAIPEMA SM.
(LEPIDOPTERA) NO. 20.

BY HENRY BIRD,
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***Papaipema insulidens* Bird.**

Although several occurrences of this species have been chronicled since its description in 1902, it remained for the fuller biological details to be detected by Mr. F. M. Jones, of Wilmington, Del., whose western trip in 1918 produced a number of interesting results. Mr. Jones' familiarity with the larval procedure in this genus made his observations particularly valuable, but excepting this one, he reported that no other symptom of *Papaipema* work came to his notice. On August 12th, while at Sisson, California, not far from the base of Mount Shasta, an unfamiliar plant attracted his attention, and an examination proved it to be bored by some larval form of this genus. Specimens of the plant and its contained insect were forwarded to the writer, the plant ultimately being determined by Dr. N. L. Britton, of New York, as *Senecio hydrophilus* Nutt. Of the ecological situation involved, Mr. Jones writes: "Larvae sent to you inhabited a tall, coarse herb, growing very locally, in an open and wet locality—almost out of the water. The flowers were bright yellow and conspicuous, the stems hollow and rather tender. The larva enters the stem and prepares an exit thinly ciled by papery epidermis of the stem. to, or below the ground surface, throws out little, or no frass, pupates low in the stem and prepares an exit thinly ciled by papery epidermis of the stem. At the date found, all but two had pupated (except those killed by parasites), and one of these was about to do so."

Of the twelve pupae forwarded, nine produced adults, with three falling to the usual predatory forces that follow in the wake of *Papaipema*. This mortality is of the average, after pupal change, and in a way, helps to strengthen the assumption that these larvae were doubtless following their usual trend in a preferred and primitive foodplant. Dr. Britton informs us that this section of the large genus *Senecio* has a number of closely allied species, and there is a possibility *insulidens* may take up with others also. Originally described from Vancouver Island, its range is thus extended considerably southward, and it may be assumed to follow the main habitat of the *Senecio* species serving as foodplant.

The larva seems typical of the generic series; head has the usual oblique line at the ocelli which finds a continuation in a lateral border to the cephalic



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