

for the Lymantriidae; three above the stig-
matal wart on joints 3 and 4; wart i mod-
erately large on abdomen; wart iv very
small, behind the spiracle; leg plates dis-
tinct. Dorsal eversible areas on joints 10
and 11 normal, whitish, more or less con-
cealed by the hair, often completely so.
Body black with a frosty gray shade; hair
thick, all barbed, some heavily feathered
but none plumed. Tufts from warts i on

joints 5 to 9 and 12 a little more closely
bunched, but no true tufts and no pencils.
Hair gray, mixed with black, with bright yel-
low hairs on the lower side of wart ii on
joints 5 to 13 and at the bases of all the hair
bunches on the thorax. Subventral hair
bunches small. The gray hairs are densely
feathery on warts i to v, the black and yel-
low ones only spinulose. Hair not very
long, quite even but not regularly so.

NOTES ON THE SPECIES OF EXORISTA OF TEMPERATE NORTH AMERICA.

BY C. H. TYLER TOWNSEND, LAS CRUCES, N. MEX.

The following twelve species of *Exo-
rista* all belong to the middle and
eastern United States with one excep-
tion, *E. lagoae* being from Guanajuato
on the Mexican tableland. They com-
prise all the species that I have so far
been able to recognize from the tem-
perate portions of North America.
None of the twenty-seven Mexican
species described by Mr. v. d. Wulp
are included. They mostly belong to
the neotropical fauna. I am under
many obligations to Mr. S. H. Scudder
for sending me, some years ago, the
types of the dipterous parasites men-
tioned in his Butterflies of the Eastern
United States and Canada. It was a
study of these, and comparison of them
with other types which I then possessed,
that enabled me to prepare the follow-
ing table of *Exorista*, as well as a
similar one of the allied genera *Masi-
cera* and *Phorocera*. I have examined
all the species mentioned in the table.

Table of Species.

- | | |
|--|--------------------|
| 1. Palpi wholly black or dark brown-
ish | 2 |
| Palpi wholly or partly yellow or
rufous yellow | 5 |
| 2. Second abdominal segment with
both discal and marginal macro-
chaetae | 3 |
| Second segment with only marginal
macrochaetae | 4 |
| 3. Anal segment unusually bristly,
rather strongly and thickly so | |
| <i>hirsuta</i> | |
| Abdomen with only the usual
bristles | <i>nigripalpis</i> |
| 4. Anal segment brassy yellow polli-
nose | <i>futilis</i> |
| Abdomen shining black and silvery,
without brassy pollen on anal
segment | <i>theclarum</i> |
| 5. Second and third segments with both
discal and marginal macrochaetae
. | 6 |

- Second and third segments with only marginal macrochaetae 8
- 6. Abdomen without any red on the sides, anal segment brassy *blanda*
Abdomen distinctly red on the sides 7
- 7. Second and third segments broadly red on sides, fourth wholly red or reddish yellow, hind tibiae thinly sub-ciliate. . . . *scudderi*
Second and third segments narrowly reddish on sides, fourth without reddish or yellowish, hind tibiae not sub-ciliate, palpi blackish basally *phycitae*
- 8. Hind tibiae thickly and conspicuously ciliate, without longer bristles 9
Hind tibiae not ciliate, at most with bristles that are not flattened, or else with some longer bristles in the cilia 10
- 9. Prevailing tinge of body brassy yellowish or orange . . . *ciliata*
Prevailing tinge dark bluish *datanae*
- 10. Hind tibiae with a fringe of bristles, appearing sub-ciliate, a strong bristle beyond the middle and one or two at tip longer than the rest *lagoae*
Hind tibiae with only scattered bristles 11
- 11. Anal segment orange or rufous, middle and hind tibiae with some scattered strong bristles
platysamiae
Anal segment black and silvery, without reddish, tibiae with weak bristles *eudryae*

Exorista nigripalpis, n. sp.— With median and marginal macrochaetae, but not otherwise bristly, thus differing from *hirsuta*. The abdomen is also more rounded, shining black, approaching that of *theclarum*. Palpi black. Eyes not thickly hairy. Differs from *theclarum* chiefly in possessing discal bristles on the abdominal segments. It is intermediate between *theclarum* and *hirsuta*. Size about the same, 5 or 6 mm. From Illinois (?). Type in University of Kansas collection.

The temperate American species of *Exorista* which I have not yet been able to examine are: *E. leucaniae* Kirkp., *cecropiae* Riley, *doryphorae* Riley, *deilephilae* O. S., and *infesta* Will. The others mentioned in the Osten Sacken Catalogue are Walker's species, and none of them has been recognized. *E. flavicauda* Riley is a *Frontina*. *E. chrysophani* Towns is a synonym of *theclarum*. If *E. deilephilae* has the hind tibiae neither ciliate nor sub-ciliate, it will fall with *platysamiae* in the table, and may be distinguished at once from that species by the sides of the abdomen being broadly red. *E. proserpina* Will., Scudd. Butt. New England, 1919, considered as a possible variety of *blanda*, may or may not be a good species, or even variety.

The ♀ specimen described by me on page 364, Trans. Am. Ent. Soc., 1891, I am inclined to regard as the same species, *ciliata*, to which I there doubtfully referred it. It would certainly seem at first that the differences described were specific, but still greater

ones are known in this and allied genera to be only sexual. We need a careful study of secondary sexual characters in tachinid genera.

NOTES ON SMERINTHUS CERYSI KIRBY.

BY F. L. HARVEY, ORONO, ME.

In his Monograph of the Sphingidae, p. 222, Prof. J. B. Smith says the early stages of the above species are entirely unknown. We are not aware that anything has since been published and presume the following notes may prove interesting.

On May 13, 1895, we received a pair of *S. cerysi* from Mr. Albion Townes, Winthrop, Me. They were mating when captured and remained together for two hours. The next morning there were several eggs in the box. The female continued to lay eggs until May 17, making the period of ovulation about five days. The number of eggs laid was about 160. The eggs began to hatch about May 27 and continued to emerge for about five days making the egg period 15 days.

Mr. Ora W. Knight, who had the care of most of the larvae and succeeded in carrying some through all of the changes, made the following notes:

"Placed the larvae in a gauze net upon *Salix sericea* Marshall. They were fed in this way until June 25, when I was obliged to take them home and they were afterwards fed upon picked leaves. They did not thrive so well and many died, not having strength to pupate. Seven entered the pupa state about July 13. Of

these only five emerged, and they unusually small. The great mortality may have been in part due to insufficient food, but this species seems to be very tender, which accounts for its scarcity in nature."

Prof. Carl Braun secured a female on willow in his garden, Bangor, Me., which laid nearly 200 eggs, and succeeded in getting about 50 pupae from which only one male and one female emerged. His specimens were fed while young upon willow and after the last molt upon poplar.

Mr. Knight has found the larvae of this species feeding upon Balm of Gilead. The larvae are subjected to the depredations of parasites.

The following description of the eggs and larvae were made by the writer.

Eggs pale green, oblate spheroid, much flattened, 2 mm. long.

Larvae just hatched, 4 mm. long. Apple green, horn pale green, when hatched, but turning black inside of two hours. First molt on the seventh day, when the horn became lighter colored. The other molts we did not observe.

• *Mature larvae* apple green, about 38 mm. long, covered with minute granulations. Yellow stripe on each side of head. Seven oblique pale yellow stripes on each side of the body. The posterior wider and brighter,



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