

Colton, California, by Mr. G. R. Pilate, and were deposited Oct. 21, 1888. They hatched March 27, 1889, and the last one hatched June 20th, making a total period from egg to imago of 242 days. The food-plant given me by Mr. Pilate was cotton wood or willow. At the time they hatched the willows were just beginning to swell their buds a little. These were given to them and they ate them by boring into them, acting as borers in this stage just as the larvæ of *Ilia* do in oak buds; and some of them continued this boring habit till after the second moult, the young leaves at this time being about half an inch long. The fringe along the sides of the larvæ places this species near *Ilia* instead of with some other species that do not have the fringe; but of this I expect to have something to say in another article.

### SYNOPSIS OF THE NORTH AMERICAN SPECIES OF ASTATUS, LATR.

BY WM. J. FOX, PHILADELPHIA.

#### FEMALES.

1. Marginal cell as long or longer than the first submarginal (if shorter it is scarcely noticeable)..... 2  
Marginal cell always much shorter than the first submarginal..... 6
2. Dorsulum rather strongly and closely punctured..... 3  
Dorsulum more or less sparsely punctured..... 5
3. Entirely black..... *unicolor*.  
Abdomen red..... 4
4. Pygidial area long, narrow, a little more than twice longer than it is broad at the base; stigma of wings black..... *bicolor*.  
Pygidial area of a more triangular form, not more than twice longer than its base is broad; stigma of wings yellowish.... *pygidialis*.
5. Metanotum with a well-marked, triangular depression at apex; the length of the marginal cell is fully equal to the first submarginal; pubescence of thorax white..... *occidentalis*.  
Metanotum without a well-marked depression at apex (if present at all it is very faint); the length of the marginal cell is a little less than the first submarginal; pubescence of thorax black; abdomen black or red and black..... *nubeculus*.

6. Metanotum with coarse, irregular, radiating striations ; antennæ and legs stout..... *nevadicus*.  
Metanotum finely sculptured .....7
7. Tegulæ testaceous ; metanotum finely granulated..... *montanus*.  
Tegulæ whitish ; metanotum very finely striated..... *elegans*.

## MALES.

1. Marginal cell as long or longer than the first submarginal (if shorter it is scarcely noticeable).....2  
Marginal much shorter than the first submarginal .....6
2. Entirely black.....3  
More or less red.....5
3. Pubescence of thorax black ; forewings, except basal third fuscous ; metanotum strongly reticulated..... *nubeculus* (= *nigropilosus*.)  
Pubescence of thorax white.....4
4. Wings hyaline throughout ; first joint of flagellum fully one-third longer than the second ; metanotum not depressed before apex ..... *unicolor*  
Forewings stained with fuscous medially ; first joint of the flagellum about one-quarter longer than the second ; metanotum more or less depressed before apex..... *occidentalis*.
5. Pubescence of thorax white ; metanotum recticulated... .. *bicolor*.  
Pubescence of thorax black..... *nubeculus*.
6. More or less red ; tegulæ whitish ; wings subhyaline.....7  
Cæruleous ; wings fuliginous ..... *cæruleus*.
7. Metanotum very finely granulated ..... *elegans*.  
Metanotum very finely and transversely striated..... *bellus*.

## ASTATUS, LATR.

*Astatus*, Latr. *Precis. Caract. gen. Ins.*, p. 114, 1796.

*Astata*, Latr. *Hist. Nat. gen. et part. des Crust. et Ins.* III., p. 336., 1802.

*Astatus*, Kohl. *Verh. Zool.-botan. Gesell. Wien.* XXXIV., p. 431, 1885.

1. *ASTATUS UNICOLOR*, Say.

*Astata unicolor*, Say. Exped. St. Peter's River II., p. 337,  
 ♀; Smith, Catal. Brit. Mus. Hym. IV., p. 310, pl. VIII,  
 fig. 1., 1856, ♂.  
 Canada to Texas.

2. *ASTATUS OCCIDENTALIS*, Cress.

*Astata occidentalis*, Cr. Proc. Ent. Sect. A. N. S. Phila., 1881,  
 p. III., ♂ ♀.

Resembling closely *nigropilosus*, but is at once distinguished by the white pubescence, and by the marginal cell being fully as long as the first submarginal; the depression on metanotum, apically, is much stronger. Length, 12-14 mm.

Nevada, Montana, Washington.

3. *ASTATUS NUBECULUS*, Cress.

*Astata nubecula*, Cr. Proc. Ent. Soc. Phila., p. 466, ♂.

*Astata nigropilosa*, Cr. Proc. Ent. Sect. A. N. S. Phila., p.  
 IV., 1881, ♂ ♀.  
 Col., Nev., Cal., Mont., Washington.

4. *ASTATUS BICOLOR*, Say.

*Astata bicolor*, Say. West. Quart. Reporter II., No. 1., 1823;  
 Lec. Ed. I., p. 166. ♀ ♂.

*Astata rufiventris*, Cress. Trans. Amer. Ent. Soc. IV., p. 218. ♀

*Astata terminata*, Cress. ibid. ♂.

Canada and the entire United States. *A. terminata*, Cress., is a slight variety, having the metanotum a little more strongly roughened.

5. *ASTATUS PYGIDIALIS*, n. sp. ♀.

Front strongly and rather closely punctured, sparsely so along the inner orbits; vertex very sparsely punctured; the distance between the hind ocelli is almost twice greater than that between these ocelli and the inner eye-margins; antennæ rather stout, first

joint of the flagellum about one-quarter longer than the second, which is about equal to the third; collar and dorsulum rather strongly and closely punctured; scutellum, except on sides, almost impunctate; metanotum roughened and with irregular, radiating striations or ridges and with a strong medial carina, which extends to the apex where it joins a transverse curved ridge, which bounds the strong pyriform depression at this place, the sides and posterior face of metathorax roughened; legs tolerably stout, the posterior tibiae and tarsi strongly spinose; abdomen very sparsely punctured; pygidium about twice as long as it is broad at the base, the sculpture appearing squamate. Black; mandibles medially, clypeus medially, scape beneath, tegulae and legs, rufo-testaceous; abdomen entirely ferruginous, with a somewhat yellowish tinge; head and thorax clothed with tolerably dense, white pubescence; wings subhyaline, the apical portion darker; stigma yellowish; marginal cell a little shorter than the first submarginal, obliquely truncate. Length, 8-10 mm. Three specimens. New Jersey, Texas.

6. *ASTATUS NEVADICUS*, Cress.

*Astata nevadica*, Cr. Proc. Ent. Sect. A. N. S., Phila., 1881,  
p. V. ♀.  
Nevada, N. Mex., Montana, Washington.

7. *ASTATUS MONTANUS*, Cress.

*Astata montana*, Cr., l. c., p. V. ♀.  
Nevada, Col., Mont.

8. *ASTATUS ELEGANS*, Cress.

*Astata elegans*, Cr., l. c., p. VI., ♀ ♂.  
Nevada, Col., Mont., Washington. This species appears to  
be closely allied to the *A. stigma* of Europe.

9. *ASTATUS BELLUS*, Cress.

*Astata bella*, Cr., l. c., p. VI., ♂.  
So. California.

10. *ASTATUS CÆRULEUS*, Cress.

*Astata cærulea*, Cr., l. c., p. IV., ♂.  
Nevada.