

rence of this species in California or even on the Pacific coast of North America is unknown to the writer, neither have I heard of a single complaint from the orchardists of this coast, which would lead to the suspicion that any species of *Clisiocampa* occurred in the orchards, or was likely to be a source of trouble. The occurrence of these last two species in California, as stated by Boisduval, I believe to be the result of errors on the part of his correspondents, though, from what we know of the distribution of other common Atlantic forms, it is quite possible that one or both may occur in British Columbia and Washington Territory, or even as far south as Oregon.

ON SOME SPECIES OF NISONIADES.

By J. A. LINTNER.

Mr. Wm. H. Edwards has submitted to me for examination some examples of Nisoniades, which prove to be undescribed species. They are the following:

NISONIADES NÆVIUS, n. sp.

Size somewhat less than *N. Juvenalis*, and *N. funeralis*. Wings fuscous, almost black, with a purple reflection.

Primaries with four minute, subquadrangular, white, costapical, hyaline spots, of which the fourth (from costa) may be obsolete; a similar spot in cell 3, and none in the discal cell. An irregular umber-brown spot centres on the discal cross-vein, and at about the middle of cell 1 b (the submedian interspace) is another, showing more distinctly in the ♀. The subterminal row of obscure, rounded, intranervular fuscous spots rest on a dark umber-brown ground. All the markings are nearly lost in the dark ground; those best defined are two confluent trapezoidal spots in cell 1 b, forming the inner termination of the transverse row of spots, and defined without and within by a W in umber-brown. The spots of the transverse row are not of the ordinary sagittate form.

Secondaries dark brown, showing faintly the two rows of intranervular paler brown spots, more distinct in the ♀. Cilia dark brown, lighter upon their outer half in one ♂, and quite pale, approaching whitish in the ♀.

Beneath, paler brown, and showing more or less distinctly the two ordinary lines toward the margin of pale brown spots, and in one ♂ example, a white spot in the discal cell, not seen on the upper surface. Head and palpi concolorous with the thorax abdomen and legs.

Expanse of wings: ♂, 1.45 to 1.65 in.; ♀, 1.65 to 1.70 in.

Described from 3 ♂'s, collected at Indian River, Florida.

This species is allied to *N. funeralis* Scudd.-Burg. Its markings are similar in form and arrangement and nearly as incon-

spicuous, and the pale fringe of the secondaries in one example shows a tendency toward the white fringe of that species. Its wings are not quite as pointed. The examples before me show none of the bluish hairs which sprinkle the primaries of *N. funeralis* and are still more numerous in *N. Juvenalis* Fabr. and *N. Propertius* Scudd.-Burg.

This may possibly be the *N. Terentius* of Scudd.-Burg., based upon the genital armature; but as the differences presented between the genitalia of this species, which have been carefully observed, and those of *N. Terentius* as described and illustrated, are greater than those which have served to separate other of the genitalic species, it would not be proper to accept the two as identical.

NISONIADES PETRONIUS, n. sp.

In ornamentation and general character, allied to *N. Propertius* Scudd.-Burg., resembling it in the quite oblique line of subsagittate black spots crossing the nervules. The black markings of the wings are more strongly contrasted with the dark brown ground than in *N. funeralis* or *N. Nævius*, but less so than in *N. Propertius* and *N. Juvenalis*—about equal to *N. Persius*. The white hyaline spots of the primaries are of medium size—smaller than in the average of *N. Juvenalis*; that in the discal cell is small; that in cell 3 on the transverse line of sagittate spots is crescentic, concave toward the base; below the latter, in cell 2, a smaller white spot, wanting in one example.

Beneath, reddish-brown, especially the secondaries, which show two rows of pale brown submarginal spots which become obsolete before reaching the front margin of the wing, and wholly want the white spots in cells 6 and 7 which characterize *N. Juvenalis** and *N. Propertius*. The white spots of the primaries are larger than above.

Head: above the eyes and just behind the "locklet" are a few white scales; behind and beneath the eyes are some pale yellow-brown scales, and similar colored hairs compose most of the palpal covering, quite in contrast with the dark brown color of the legs, thorax and abdomen.

A single ♀, accompanying the examples submitted to me, I refer, somewhat doubtfully to this species, from general markings and the pale-colored palpi. The transverse row of ellipsoidal black spots, and those of the medial and basal regions, are conspicuously outlined on a somewhat pale umber-brown ground—the contrast about that presented in *N. Martialis* ♀. An oval white spot in cell 2 accompanies the round one in cell 3. The costo-apical white spot in cell 9 is wanting.

* In 45 examples of *N. Juvenalis* before me, these white spots are a prominent feature. In one example, the spot's each occupy the entire breadth of the cell.

Expanse of wings: ♂, 1.90 to 2 in.; ? ♀, 1.80 in.

Described from 4 ♂'s and 1 ♀ from Indian River, Florida.

This is the largest species known to us in the genus. It is separable from *N. Juvenalis* and *N. Propertius* by its darker color, less distinct ornamentation, less rounded wings, and absence of the white spots of secondaries in cells 6 and 7. From *N. Nævius* with which it is associated, it is distinguished by its large size, more distinct markings, and the contrasting lighter shade of the palpi.

The genitalia of this species resemble those given for *N. Horatius* and *N. Virgilius*, named from their genital armature, by Scudder and Burgess, but I am unable to refer it to either. Examples from Florida, which Mr. Scudder has kindly permitted me to examine, and labeled by him as *N. Horatius*, have the white hyaline spots of the primaries larger than in the above species, and, according to notes made at the time of their examination, "larger than in any of the *N. Juvenalis* in my collection, except in a single example taken at Center, in which they are about the same in size and similar in form."

NISONIADES PROPERTIUS, Scudd.-Burg.

Several years ago, through the kindness of Mr. Scudder, I was permitted to examine the species of the Nisoniades in his collection, including several of his types. Among them were eight examples, bearing his label of *Propertius*, from the following localities; two from Mokiah Pass, Palmer collection; one from Sierra Nevada; four from California; one from Juniper Mountains.

The following notes upon this species were made by me at the time, upon comparison of the material with the examples of *N. Juvenalis* in my own collection.

Size of *N. Juvenalis*; the primaries more pointed; the submarginal row of sagittate and black spots is more oblique, being more drawn inwardly toward the base as it approaches the internal margin, whence it follows that, while in *Juvenalis*, of the two subelliptical whitish spots in cell 1 b, the lower one is as near to the outer margin as that in cell 3; in this species it is always further removed. The hyaline spot in the discal cell is smaller than in *N. Juvenalis* and is much less conspicuous underneath. Of the four costo-apical hyaline spots, 1, 3 and 4 are in line, or 3 is somewhat nearer to the base of the wing; 2 is nearer the apex and is elongated. The thorax and abdomen are fuscous, instead of umber-brown. In general color it is darker, more approaching *N. Persius*—the black spots not offering so strong a contrast with the ground as in *N. Juvenalis*; the primaries are nearly covered with bluish hairs, which is perhaps the best characteristic feature of the species.

It is very doubtful if the genitalic form, *N. Tibullus* of Scudd.-Burg., can be separated from *N. Propertius*.

This species has also been received from Utah and Arizona. I have also in my collection, examples received from Mr. Henry Edwards (No. 76), from Havilah, California, and Vancouver Island in the Middle and Eastern States.

NISONIADES ICELUS, Lintn.

Mr. W. H. Edwards has allowed me to examine two examples of this species, which he had obtained from the Western collections of Mr. Morrison in 1880, taken in Washington Territory. This extreme western locality for this insect is an interesting addition to our knowledge of its distribution. Mr. Scudder, in his *Systematic Revision of American Butterflies* (1872), gives as its distribution, Canada to West Virginia; Atlantic Coast to Michigan. In the Edwards' *Catalogue of the Diurnals of North America* (1877), its habitat is given as New England, Middle States and Illinois. Subsequently (my *Entomolog. Contrib.*, No. IV., 1878), I identified it among some Colorado collections of Mr. Morrison. These western examples do not differ in size or in any particular feature from our eastern forms. The examples before me are without date of collection. They are in fresh condition, and are rather more strongly marked with white scales toward the costal and outer margins of the primaries than those ordinarily met with.

An interesting feature of this species, observed by Dr. Speyer, is noticed in his valuable paper on the *Genera of the Hesperidæ of the European Faunal-Region* (Canad. Entomol., x. p. 169). It is the presence of a long and thick tuft of hairs on the posterior tibiæ. This is not found in *N. Brizo* Boisd.-Lec.—a species so closely allied to *N. Icelus*, that some writers have questioned their specific difference. It has been observed in but one other species of Nisoniades, viz., *N. Persius* Scudd. It also characterizes the Hesperidean genus *Daimia* of Murray, of which the European *D. Tethys* Men. is the type and sole species, and *Scelothrix* of Ramb.—united with *Pyrgus* H. by Dr. Speyer in his last Revision of the European Hesperidæ (1878), as Group II, having *maculatus* Brem. as the type of the group. This tuft or hair-pencil differs in the several species. In *N. Icelus* it is produced from the femoral joint of the tibia, and is widely spread apart in the examples before me. In length it exceeds the tibia by nearly one-half. Like the costal-fold, it is probably confined to the ♂ sex.

A revision of the proof of this paper has enabled me to add the following: Since the above was written, an examination of the Nisoniades in my collection has shown the presence of the tibial hair-pencil also in the males of *N. funeralis* Boisd., *N. Nævius* Lintn., and *N. Lucilius* Lintn. I cannot detect it in any other than the above mentioned five species. In the genus *Pyrgus*, I find it

in *P. centaureæ* Ramb., *P. scriptura* Boisd., *P. Xanthus* Edw., *P. Petreius* Edw., and *P. ericetorum* Boisd. It is not present in *P. tessellata* Scudd. Of *P. Oceanus* Edw., *P. Ricara* Edw., *P. Phil-etas* Edw., and *P. cæspitabis** Boisd., I possess no examples for examination. It exists also in *Achlyodes Thraso* Hübn.

NISONIADES SOMNUS, n. sp.

Belongs to the *N. Icelus* and *N. Brizo* group; size of the former—its wings somewhat narrower and more extended apically.

Male, dark brown in color, approaching *N. Persius*. Primaries, without the anteapical white spot above, and the large patch of bluish-white scales resting on the discal cross-vein of *N. Icelus*. The black transverse bands are of the position and character of those of *N. Icelus*, but are almost lost in the ground color. Secondaries, nearly as dark as the primaries, showing indistinctly the two rows of pale brown spots.

Beneath, wings bronze by reflection. The primaries have a short costo-apical white streak in cell 8 and a minute white dot in cell 9 (*N. Icelus* has usually a subquadrangular white spot in cells 6, 7 and 8 each, and occasionally the spots form a continuous line nearly across the wing, from 2 to 8 inclusive); an intranervular series of pale streaks, and on the secondaries, the two rows of yellow-brown spots are distinct.

Female, paler brown than the male. The two transverse bands of the primaries are quite distinct, and between them, on the discal cross-vein, is a conspicuous patch of whitish scales; no white anteapical spots; upon the margin, a row of rounded brown spots, separated from the contiguous band, by whitish scales. The bands are broader than in *N. Icelus*, and are almost drawn together on vein 2; the connected series of spots composing each, are shaped much as in *N. Icelus*, are heavily bordered with black, and bear bluish scales. Secondaries, with a geminate discal mark, a submarginal row of yellowish spots much bent inwardly opposite the cell, and a marginal row of small, linear, whitish spots.

Beneath, wings with a strong bronze reflection. The secondaries have the two rows of spots of the upper surface repeated; the primaries have a marginal row of linear whitish spots, a regularly curved submarginal row of eight oblong yellowish spots, and a single white anteapical spot in cell 8.

The antennæ, in this species, are delicately annulated with white. The palpi are shorter than in *N. Icelus*, shaggy, some of the hairs of the second joint extending to the tip of the third. The tibiæ of the posterior pair of legs are without the pencil of hairs characterizing *N. Icelus*.

* Erroneously given as *Cæspitatis* in Edwards' Catalogue.

The last mentioned feature, separates beyond question, this species from *N. Icelus*. It may also be distinguished by the darker and more uniform color of the male, the transverse bands hardly separable from the ground color, the absence of an antepical white spot and of the discal patch of bluish scales. The female resembles *N. Brizo*, but the inner margin of the outer band is much more irregular than in that species, and the submarginal row of spots on the primaries beneath, takes the place in prominence, of a different series seen in *N. Brizo*, of which only the costal one is here represented.

Expanse of wings: ♂, 1.30 inch; ♀, 1.45 inch.

Described from 1 ♂ and 1 ♀, in the collection of Mr. W. H. Edwards, received from Indian River, Florida.

The relationship of this species, suggests the mythological name given it. BRIZO was worshipped as the goddess of sleep. ICELUS was regarded as the inspirer of dreams in mortals, and was the son of SOMNUS, the god of sleep (See 23 *Rept. N. Y. St. Mus. Nat. Hist.*, 1873, p. 163-4).

EUDAMUS PROTEUS (Linn).

Quite an interesting addition to the list of Hesperidæ, occurring in the State of New York, is the above species.

Two examples of it, one of which I have been permitted to see, were captured by Mr. S. Lowell Elliot, of New York City, about the middle of August of last year, in the Central Park Gardens, east of the Mt. St. Vincent Art Gallery, upon the flowers of *Salvia splendens*. Other examples of it, as Mr. Elliot informs me, were seen by him, which he was unable to capture, for as soon as they alighted they were attacked by *Eudamus Tityrus*, which swarmed around these flowers and seemed to recognize the *Proteus* as strangers and intruders.

The species was not observed about other flowers, but were seen hovering around the *Salvia* for three consecutive days, when a cold rain storm ensuing and continuing for several days, terminated their visits.

Scudder reports the species from "Eastern N. America, as far north as Connecticut," but we have not been able to verify its collection in that State. We believe that these are its first captures within the State of New York.

EUDAMUS NEVADA, Scudd.

From an example received from Mr. Henry Edwards, No. 2509, Summit Sier. Nev., Cal., and from an additional example collected by Mr. Nash, of Ithaca, in Colorado, I find that the above form is a valid species, quite easily to be separated from *E. Pylades*, of which, at the time of the publication of the Edwards' *Catalogue of the Lepidoptera of America-Diurnals*, it was believed to be a dwarfed variety.



Lintner, J. A. (Joseph Albert). 1881. "On some species of Nisoniades." *Papilio* 1(5), 69–74.

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