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THE NAMES OF CERTAIN HOLARCTIC HAIRSTREAK GENERA (LYCAENIDAE)

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ABSTRACT. The palearctic genus *Strymonidia* Tutt 1908 and the nearctic genus *Euristrymon* Clench 1961, both in current use, are both synonymized to *Fixsenia* Tutt 1907, on the basis of male genital structure. The currently used palearctic genus *Nordmannia* Tutt 1907, and many other generic names not in general use, must be synonymized to *Satyrium* Scudder 1876, on similar structural evidence. Both *Fixsenia* and *Satyrium* are shown to be holarctic, and both are unusually variable in external facies. All species known to belong to both genera are listed.

The correct generic names to be applied to some of the palearctic hairstreaks has long been a problem. The species concerned are those listed by Higgins & Riley (1970: 235–238) and Higgins (1975: 109–112) for Europe under the genera *Nordmannia* and *Strymonidia*, together with numerous related species in the central and eastern Palearctic. The usage of Higgins & Riley, and Higgins, is representative of that current in the Palearctic literature. Study indicates, however, that neither of these generic names is tenable, and that assignment of the species (i.e., which species are congeneric with which) must be modified.

Malicky (1969) has shown that the long unused generic name *Fixsenia* Tutt must be revived for the widespread species *pruni* Linnaeus in addition to the (Asiatic) type species, *herzi* Fixsen. Some time ago I pointed out (Clench 1961: 212) that *pruni* was congeneric with certain North American hairstreaks to which I gave the new generic name *Euristrymon*. In consequence of Malicky's discovery, *Euristrymon* must therefore fall to *Fixsenia*.

Malicky also concluded that other Old World hairstreaks (he specifically cites *spini*, *ilicis*, *w-album*, and *acaciae*) are congeneric among themselves, and collectively differ from *Fixsenia* in the presence of a serrated ventral keel at the distal end of the penis in the male genitalia, as well as in certain larval and pupal characters. Malicky assigned all these species to the genus *Strymonidia* Tutt, a name which has long been in general use for many of them. The name *Strymonidia*, however, has as its generic type another little known species from Asia, *thalia* Leech, which Malicky was not able to study. I have seen no *thalia* either, but from published illustrations it seemed quite similar to *herzi*, the type of *Fixsenia*, and I was curious about its genitalic structure. In correspondence with Dr. Malicky I asked him about it. He was able to borrow a specimen and sent me a drawing of the genitalic

preparation he made. This showed clearly that *thalia* is indeed congeneric with *herzi*. Therefore the generic name *Strymonidia* is also a synonym of *Fixsenia* and cannot be applied to the species Malicky cites.

The species Malicky included in *Strymonidia*, and additional Old World species as well, are themselves congeneric with a large number of Nearctic species now united in the genus *Satyrium* Scudder. This name, *Satyrium*, has priority over any other and must therefore be applied to these palearctic species.

The discovery that the numerous species of *Satyrium* in both Old and New Worlds are all congeneric has created a large generic synonymy, particularly involving the Palearctic species. The apparent reason is that despite their close structural similarity they have diversified to a considerable degree in appearance. A number of species, among them the type of the genus, combine the un-hairstreak attributes of inconspicuous or absent scent pad, absence of tails and tornal lobe, and essentially spotted patterns. They much resemble blues, and many were originally so described. Bethune-Baker (1892), in fact, made a special point of demonstrating that several of them were actually hairstreaks instead of blues.

The external structural diversity of *Satyrium* and *Fixsenia*, in male scent pad, in wing shape, in tails, and in pattern, finds a remarkable parallel in the New World hairstreak genus *Strymon* Hübner 1818 (i.e., as delimited in Clench 1961: 215*ff*). In *Strymon* an even more striking genitalic homogeneity is associated with similar variation in external structures. Apparently in both these genera extensive adaptive radiation has occurred, although the environmental significance of most of the affected external traits remains largely obscure.

The male genitalia of the European species of both these genera are well figured by Higgins (1975).

The formal synonymy and nomenclatorial data for both *Fixsenia* and *Satyrium*, together with their characters and known included species, are as follows:

Fixsenia Tutt

Fixsenia Tutt 1907, Nat. Hist. British Butts. 2: 142, type species by original designation, *Thecla herzi* Fixsen 1887; Hemming 1967: 193; Malicky 1969: 38, 61.

= *Leechia* Tutt 1907, *l.c.*, type species by original designation, *Thecla thalia* Leech 1893; Hemming 1967: 249. Junior homonym of *Leechia* South 1901. See *Strymonidia*.

= *Strymonidia* Tutt 1908, *op. cit.*: 483, replacement name for *Leechia* Tutt 1907, *q.v.*, with the same type species; Hemming 1967: 419. New subjective synonym.

= *Euristrymon* Clench 1961: 212, type species by original designation, *Papilio favonius* J. E. Smith 1797; Cowan 1970: 10; dos Passos 1970, J. Lepid. Soc. 24: 33. New subjective synonym.

= *Thecla*, *Nordmannia*, etc., of authors, in part.

The **generic characters** of *Fixsenia* are: hindwings usually tailed, tornal lobe usually present, if slight, but no tornal cleft. **Male genitalia:** uncus lobes low and transverse, the lateral border short; vinculum with dorsal part wide, but without posterior shoulder process, abruptly narrowing to the strap-like ventral part; anterior border of vinculum without corematal processes; saccus present but short, rarely if ever longer than its width at middle; valvae contiguous to more or less their middle, then divergent, the mesial edges not dentate, and with no terminal spine; penis apically upcurved and flared, wih two terminal cornuti of about equal diameter, but with no terminal ventral keel.

In the Palearctic the last character, the absence of a ventral penial keel, is sufficient to separate *Fixsenia* from *Satyrium*, the only other genus with which it may be confused; but the remaining characters are necessary to discriminate it from other New World Strymonine genera. The known members are:

Palearctic species: *herzi* Fixsen 1887; *thalia* Leech 1893; *pruni* Linnaeus 1758.
Nearctic species: *favonius* J. E. Smith 1797; *ontario* Edwards 1868; *polingi* Barnes & Benjamin 1926.

Satyrium Scudder

= *Argus* Gerhard 1850, Versuch. Mon. europ. Schmett. (1):4, type species by monotypy, *Lycaena ledereri* Boisduval 1848; Hemming 1967: 56. Junior homonym of *Argus* Bohadsch 1761.

Satyrium Scudder 1876, Bull. Buffalo Soc. Nat. Sci. 3: 106, type species by original designation, *Lycaena fuliginosa* Edwards 1861; Comstock & Huntington 1958, J. New York Ent. Soc. 66: 116; Ziegler 1960, J. Lepid. Soc. 14: 20; Hemming 1967: 403; dos Passos 1970, *op. cit.*: 28.

= *Callipsyche* Scudder 1876, *l.c.*, type species by original designation, *Thecla behrii* Edwards 1870; Comstock & Huntington 1958, *op. cit.*: 105; Hemming 1967: 91.

= *Neolycaena* de Niceville 1890, Butts. India, Burmah and Ceylon 3: 15, 64, type species by original designation, *Lycaena sinensis* Alphéraky 1881; Hemming 1967: 308.

= *Edwardsia* Tutt 1907, *l.c.*, type species by original designation, *Papilio w-album* Knoch 1782; Hemming 1967: 156. Junior homonym of *Edwardsia* Costa 1838. See *Chattendenia.*

= *Felderia* Tutt 1907, *l.c.*, type species by original designation, *Thecla w-album* Knoch 1782; Hemming 1967: 156. Junior homonym of *Edwardsia* Costa 1838. See *Chattendenia.*

= *Felderia* Tutt 1907, *l.c.*, type species by original designation, *Thecla w-album* Knoch var. *eximia* Fixsen 1887; Hemming 1967: 193. Junior homonym of *Felderia* Walsingham 1887. See *Thecliolia.*

= *Klugia* Tutt 1907, *l.c.*, type species by original designation, *Papilio spini* [Denis & Schiffermüller] 1775; Hemming 1967: 242. Junior homonym of *Klugia* Robineau-Desvoidy 1863. See *Tuttiola.*

= *Kollaria* Tutt 1907, *l.c.*, type species by original designation, *Thecla sassanides* Kollar [1849]; Hemming 1967: 242. Junior homonym of *Kollaria* Pictet 1841. See *Superflua.*

= *Erschoffia* Tutt 1907, *l.c.*, type species by original designation, *Thecla lunulata* Erschoff 1874; Hemming 1967: 169. Junior homonym of *Erschoffia* Swinhoe 1900. See *Pseudothecla.*

= *Bakeria* Tutt 1907, *l.c.*, type species by original designation, *Lycaena ledereri* Boisduval 1848; Hemming 1967: 72. Junior homonym of *Bakeria* Kieffer 1905, but never replaced.

= *Nordmannia* Tutt 1907, *l.c.*, type species by original designation, *Lycaena myrtale* Klug 1834; Hemming 1967: 315.
= *Chattendenia* Tutt 1908, *op. cit.*: 483; Hemming 1967: 109. Replacement name for *Edwardsia* Tutt 1907, *q.v.*, with the same type species.
= *Thecliolia* Strand 1910, Entomol. Rundsch. 27: 162; Hemming 1967: 439. Replacement name for *Felderia* Tutt 1907, *q.v.*, with the same type species.
= *Tuttiola* Strand 1910, *l.c.*; Hemming 1967: 451. Replacement name for *Klugia* Tutt 1907, *q.v.*, with the same type species.
= *Superflua* Strand 1910, *l.c.*; Hemming 1967: 420. Replacement name for *Kollaria* Tutt 1907, *q.v.*, with the same type species.
= *Pseudothecla* Strand 1910, *l.c.*; Hemming 1967: 386. Replacement name for *Erschoffia* Tutt 1907, *q.v.*, with the same type species.
= *Thecliola* Waterhouse 1912, Index Zool. 2: 299; Hemming 1967: 439. Incorrect Subsequent Spelling of *Thecliolia*, *q.v.*
= *Necovatia* Verity 1951, Rev. franç. Lépid., Suppl.: 183, type species by original designation, *Papilio acaciae* Fabricius 1787 [proposed as a subgenus of *Strymonidia* Tutt 1908, *vide supra*]. Note: This generic name was overlooked by Hemming (1967), Cowan (1968, 1970), and the *Zoological Record*. I thank Lt. Col. J. N. Eliot for calling it to my attention.
= *Thecla*, *Strymon*, *Strymonidia*, etc., of authors (in part).

I have examined the male genitalia of the following species and find them all congeneric:

fuliginosum, type species of *Satyrium*
behrii, type species of *Callipsyche*
w-album, type species of *Edwardsia*, *Chattendenia*
spini, type species of *Klugia*, *Tuttiola*
sassanides, type species of *Kollaria*, *Superflua*
lunulatum, type species of *Erschoffia*, *Pseudothecla*
ledereri, type species of *Bakeria*
myrtale, type species of *Nordmannia*
acaciae, type species of *Necovatia*

I have not seen the species *sinensis* (type species of *Neolycaena*), but *pretiosum* Staudinger is extremely closely related, perhaps conspecific, and its genitalia, along with those of some other *Satyrium*, were figured by Bethune Baker (1892). His figures show that *pretiosum*, and hence most likely *sinensis*, is a *Satyrium*. I have not seen *eximium* Fixsen (type species of *Felderia*, *Thecliolia*), but from illustrations it seems to be a close relative of *w-album* and I conclude, therefore, that it is probably congeneric.

The **generic characters** of *Satyrium* are: **male genitalia:** distal end of penis with ventral serrated keel; penis with two terminal cornuti, one of which is usually dentate; distally divergent valvae; tips of valvae without a mesial hair-like fringe.

In the Palearctic the presence of a serrated penial keel will discriminate it from *Fixsenia*, or any other Strymonine. In the New World, however, several other genera share this keel, from which the additional characters will separate it. The known species belonging to *Satyrium* are as follows. I include only those whose genitalia I have examined either directly or in published illustrations, except for the species fol-

lowed by "(?)," which are included provisionally, on the basis of external facies alone.

Palearctic species: *eximium* Fixsen 1887 (?); *w-album* Knoch 1782; *spini* [Denis & Schiffermüller] 1775; *latior* Fixsen 1887; *sassanides* Kollar 1849; *lunulatum* Erschoff 1874; *pretiosum* Staudinger 1886; *sinensis* Alphéraky 1881 (?); *ledereri* Boisduval 1848; *myrtale* Klug 1834; *tengstroemii* Erschoff 1874; *ilicis* Esper 1779; *acaciae* Fabricius 1787.

Nearctic species: *fuliginosum* Edwards 1861; *behrii* Edwards 1870; *auretorum* Boisduval 1852; *saepium* Boisduval 1852; *tetra* Edwards 1870 (= *adenostomatis* Hy. Edwards 1877); *liparops* Le Conte 1833; *kingi* Klots & Clench 1952; *calanus* Hübner 1809; *caryaevorum* McDunnough 1942; *edwardsii* Scudder 1870; *sylvinum* Boisduval 1852; *californicum* Edwards 1862; *acadicum* Edwards 1862.

It is worth noting that at one time it was believed (*e.g.*, Riley 1958: 285) that *myrtale* was congeneric with *Erora* Scudder 1872. The latter genus, however, is representative of a wholly New World, primarily tropical, group with no palearctic members at all. This group differs considerably from *Satyrium*, not only in the absence of a serrated penial keel, but also in the high lateral margins of the uncus lobes, the single, always interior, cornutus, and in addition a terminal penial tooth that is either external and part of the shaft or else internal, on the vesica, and eversible. The vesica, moreover, is usually scobinate.

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