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Keith D.P. Wilson

18 Chatsworth Road, Brighton, BN1 5DB, UK
Email: kdpwilson@gmail.com

Abstract

Arising from a number of 2019 IUCN Red List assessments for a subset of Chinese Odonata, a series of corrections and taxonomic revisions were made to the World Odonata List. The rationale for these amendments is provided here. *Paragomphus wuzhishanensis* Liu, 1988 is shown to be a junior synonym of *Paragomphus pardalinus* Needham (1942). *Epophthalmia kuani* Jiang 1998 is synonymised as a junior synonym of *Epophthalmia. elegans* (Brauer, 1865) and *Epophthalmia bannaensis* Zha & Jiang, 2010 is treated as a junior synonym of *Epophthalmia vittata* Burmeister, 1839. *Idionyx pseudovictor* Xu, 2013 is shown to be junior synonym of *Idionyx claudia* Ris, 1912 and *Sympetrum anomalum* Needham, 1930 is treated as a junior synonym of *Sympetrum maculatum* Oguma, 1922.

Key words: Odonata, China, synonymy, *Rhipidolestes nectans* (Needham, 1928), *Sinolestes editus* Needham, 1930, *Burmagomphus collaris* (Needham, 1929), *Stylurus annulatus* (Djakonov, 1926), *Lamelligomphus biforceps* (Selys, 1878), *Lamelligomphus choui* Chao & Liu, 1989, *Gomphidia fukienensis* Chao, 1955, *Sympetrum vulgatum* (Linnaeus, 1758)

Introduction

The International Union for Conservation of Nature (IUCN) was established in 1964 and is the most comprehensive information source on the global conservation status of species of animals, fungi and plants. The IUCN Red List of Threatened Species uses a formalised procedure for assessing the extinction risk of a species involving the application of a defined set of criteria. The IUCN Species Survival Commission (SSC) Dragonfly Specialist Group (DSG) is the Red List Authority responsible for undertaking and documenting Odonata assessments. The DSG has adopted the World Odonata List (WOL) (Schorr & Paulson, 2020) as the nomenclatural authority for odonate species.

In 2019 I was involved as a consultant to the IUCN to undertake initial assessments of a subset of Chinese odonate species as either one of the first steps in the Red Listing process or the completion of an updated assessment of species previously assessed. In carrying out a review of data several inconsistencies were found in the literature as well as in the WOL extant in 2019. In recommending changes to the WOL, which have now already been amended in its current version, it was suggested by the list's compilers, Martin Schorr and Dennis Paulson, that it would be helpful to publish a rationale for those amendments in order to make them publicly available. The revisions for a subset of the Chinese odonates are detailed here together with the rationale for changes made to the WOL list in 2020 (Schorr & Paulson, 2020).

Taxonomic amendments reflected in published literature

Rhipidolestes nectans (Needham, 1928)

Taolestes nectans Needham, 1928

Syn *Rhipidolestes apicatus* Navás, 1934

Syn *Rhipidolestes bidens* Schmidt, 1931

Between 1928 and 1931 three species of *Rhipidolestes* Ris, 1912, all with dark faces, were described from Zhejiang Province, China. The first of the trio was described as *Taolestes nectans* by Needham (1928) from a single female, collected from Hangzhou, Zhejiang. In the same publication Needham erected the new genus *Taolestes* to receive it. Needham (1930) subsequently described the larvae of *nectans*, again under the *Taolestes* genus. The female *nectans* description included: a blackish face with a very narrow pale stripe across the front of the clypeus, broad yellow stripe between eyes. The male colouration was not described but the male abdominal segments 9-10 were figured showing a very small basal spine and the characteristic form of the superior appendages were shown in lateral and dorsal view. We now known from photos taken in the field of live male *Rhipidolestes nectans* in Zhejiang that its upper head, lateral synthorax (excluding metepimeron), and abdominal segments 8-10 are heavily pruinosed white (Zhang, 2019b: 1145).

Rhipidolestes bidens Schmidt (1931) was the second of the trio to be described from Zhejiang at Hsiieh-Tau-Gebirge, Ninpo, Tsche-kiang (probably Xuedou Mountain, Ningpo, Zhejiang). Schmidt (1931) described the face as brown-black, labrum shimmering dark metallic green and blue, head black and both forehead and midsection pruinosed white, synthorax brown-black with bright humeral stripes and lower lateral up to second suture plus coxae pruinosed, abdomen dark metallic blue-green with S8-10 matte brownish-black. Schmidt figured the tip of the abdomen showing a very small basal spine and the characteristic form of the superior appendages were shown in lateral and dorsal view.

The third species *Rhipidolestes apicatus* Navás (1934) was described from a male from T'ien-Mou-Chan, Chekiang (Tianmushan, Zhejiang). Navás (1934) described the labrum and clypeus as: 'caeruleo-viola-ceis, nitendibus' i.e. shining or glittering blue-violet, perhaps equivalent to black with metallic violet-blue reflections. Navás (1934) figured the caudal appendages *R. apicatus* including abdominal segments 9-10 showing a very small basal spine. Navás described the lateral synthorax and abdomen with segments 8-10 pruinosed. The caudal appendages and S9 basal spine are identical to those figured for *R. nectans* by Needham (1930).

Most *Rhipidolestes* have black faces with orange, red or blue markings. Lieftinck (1948) noted, when describing *Rhipidolestes juncundus*, that *R. bidens*, *R. nectans* (Needham, 1929) and *R. apicatus* all have dark faces, partly or almost wholly black, or metallic blue green. Asahina (1956) tentatively synonymised *R. bidens* with *R. nectans* based on male and female *R. nectans* specimens collected from west Tien-Mu-Shan, Chekiang (Tianmushan, Zhejiang), which is the same locality at the type-location for *R. apicatus*. He felt Needham's male description rather inadequate to decide the identity of *R. nectans* but nevertheless stated that it was highly probable that his specimens belonged to *R. nectans*.

Asahina (1956) also examined the type female *nectans* in the California Academy, which he stated was 'quite similar' to his female specimens and summarised: 'I should tentatively make our material belong to Needham's "*nectans*"…'

Davies & Tobin (1984), Bridges (1994) and Steinmann (1997) all accepted Asahina's synonymy and treated *R. bidens* as a junior synonym of *R. nectans*.

Chao (1962) noted that during 1934 to 1936 Navás published 31 new Chinese species most of which were deposited in the Zoological Institute of Academia Sinica. Navás paid scant attention to the published odonate literature and after Chao examined many of the types in 1961, he found most of them were not new to science. Chao (1962) synonymised 12 of Navás' types as junior synonyms in a single paper. As mentioned, *R. apicatus* was described from the same locality as Asahina's (1956) *R. nectans* material from Tianmushan, Zhejiang, which Asahina argued was a senior synonym of *R. bidens*. The brief description of *R. apicatus* and drawings of caudal abdomen and anal appendages provided by Navás (1934) exactly matches the descriptions given for both *R. bidens* by Schmidt (1931) and that given for *R. nectans* by Asahina (1956). It is clearly a junior synonym of *R. nectans* as stated by Asahina (1956).

The only known *Rhipidolestes* species currently known from Zhejiang are *R. nectans*, *R. bidens* and *R. apicatus* plus a putative new reddish-brown faced species clearly allied to *R.* rubriceps Navás also known from neighbouring Jiangxi Zhang (2019a).

It is evident that both *R. bidens* and *R. apicatus* are junior synonyms of *R. nectans* as has already been stated by previous authors.

It should be noted that Bridges (1994) and Tsuda (2000) erroneously cited the authorship of *R. nectans* as Needham (1929) rather than Needham (1928). Davies and Tobin (1984) and Steinmann (1997) correctly cited authorship as *R. nectans* Needham (1928).

***Sinolestes editus* Needham, 1930**

Syn *Sinolestes truncatus* Needham, 1930

Syn *Sinolestes ornatus* Needham, 1930

Needham (1930) established the genus *Sinolestes* and described three new species within the genus in the following order: *Sinolestes edita*, *Sinolestes truncata* and *Sinolestes ornata*. Needham (1930) placed *Sinolestes* in Coenagrionidae but Lieftinck (1939) transferred the genus to Synlestidae Tillyard, 1917.

The only differences between the three *Sinolestes* species as described by Needham (1930) was the wing colour pattern; *S. edita* with hyaline wings, *S. truncata* possessing wings heavily marked with dark, broad cross-bands and *S. ornata* having wings marked with dark, narrow cross-bands. Chao (1947), the First Revisor, synonymised *S. ornata* with *S. edita*. Asahina (1956) adopted this treatment for Fujianese specimens and suggested the third species *S. truncata* might also be a junior synonym of *S. edita*. Based on a series of specimens from the same location in Guangxi, some with broad cross-bands and some with narrow cross-bands, Wilson & Reels (2003) synonymised *S. truncata* with *S. edita.*

Since *Sinolestes* is masculine and in accordance with the ICZN (1999) these specific name endings should be Latinised as *S. editus*, *S. truncatus* and *S. ornatus* as treated above.

***Burmagomphus collaris* (Needham, 1929)**

Syn *Burmagomphus campestris* (Needham, 1929)

In recent years there has been some confusion over the date of authorship and the synonymy regarding *Burmagomphus collaris* (Needham, 1929) and *Burmagomphus campestris* (Needham, 1929).

Needham (1930) provided detailed descriptions of both *G. collaris* and *G. campestris* as new species in his 1930 book titled: The Dragonflies of China, but Needham (1929) also published both *G. collaris* and *G. campestris* as new species in an earlier paper titled: Key to the Adults of Peping Odonata. No type locations were given in the key but under the International Code of Zoological Nomenclature (ICZN, 1999), for names published before 1931, it was not necessary to specify the type locality for name availability. Jan van Tol, the Naturalis Biodiversity Centre, Leiden (pers com), is of the opinion that the names listed in the 1929 key were indeed made available, as proposed in a key which provided definitions of the species included, and in consequence the author citation should be *Burmagomphus collaris* (Needham, 1929) and not *Burmagomphus collaris* (Needham,1930). Similarly, *Gomphus campestris* should be listed as a junior synonym of *B. collaris* with author citation Needham, 1929 rather than Needham, 1930.

Chao (1953; 1954) placed collaris in the genus *Burmagomphus* and synonymised *Gomphus campestris* with *Burmagomphus collaris*. When species synonyms are first described in the same publication, according to the ICZN (1999) the 'First Revisor' has the choice to declare the valid name. *Burmagomphus collaris* should be treated as the senior synonym following Chao (1953; 1954) as the First Reviser. Davies and Tobin (1985), Bridges (1994), Steinmann (1997) & Lee (2001) all overlooked Chao (1953; 1954) and erroneously listed *B. collaris* as a junior synonym of *B. campestris*. Tsuda (2000) and Zhang (2019a) both correctly treated *B. collaris* as the valid senior synonym but cited the authorship date as Needham, 1930.

In consequence of the recognition of Needham (1929) it became apparent that several other valid new species names, included in Needham's 1929 key, were also first made available in 1929 rather than in Needham (1930): *Gomphus somnolens* Needham, 1929 (currently *Asiagomphus somnolens*), *Sympetrum fatigans* Needham, 1929 [a junior synonym of *Sympetrum uniforme* (Selys, 1883)], *Coenagrion plagiosum* Needham, 1929 (currently *Paracercion plagiosum*) and *Ischnura lobata* Needham, 1929 [a junior synonym of *Ischnura asiatica* (Brauer, 1865)].

***Stylurus annulatus* (Djakonov, 1926)**

Davidius annulatus Djakonov, 1926

Syn *Gomphus kreyenbergi* Ris, 1928

Syn *Gomphus flavicornis* Needham, 1931

Syn *Stylurus tongrensis* Liu, 1991

The Chinese endemics, *Stylurus flavicornis* (Needham, 1931), *Stylurus kreyenbergi* (Ris, 1928) and *Stylurus tongrensis* Liu, 1991 were all shown to be junior synonyms of *Stylurus annulatus* (Djakonov, 1926) by Wilson (2019). *Stylurus annulatus* was described from the Russian Far East.

***Lamelligomphus biforceps* (Selys, 1878)**

Onychogomphus biforceps Selys, 1878

Syn *Lamelligomphus laetus* Yang & Davies, 1993

Syn *Lamelligomphus parvulus* Zhou & Li, 2000

Zhang (2019a) treated *Lamelligomphus laetus* Yang & Davies 1993 as a new junior synonym of *Lamelligomphus biforceps* (Selys, 1878). In their original description Yang and Davies (1993) did compare their specimens of *L. laetus* with the description of *L. biforceps* (see Fraser, 1934). However, they concluded that their specimens from Dali, Yunnan were different from *L. biforceps* based only on minor colour differences. It is now clear that *L. biforceps* is widespread across the southern Himalayan belt occurring from Uttarakhand (Prasad, 1974; Kumar & Mitra, 1998) to Darjeeling (Laidlaw, 1922) and Arunachal Pradesh in India (Mitra, 2002), Nepal (Asahina, 1955; St. Quentin, 1970; Mahato, 1988), Bhutan (Mitra, 2002) and Yunnan, China (Zhang, 2019a). The minor colour differences of *L. laetus* fall within the phenotypic variability of *L. biforceps* within its broad range.

***Lamelligomphus choui* Chao & Liu, 1989**

Lamelligomphus choui was described by Chao & Liu (1989) from a single male from Anhui, China. Chao & Liu's (1989) drawings of the anal appendages show the male superior anal appendages are markedly hooked and the elongate inferior appendages clearly overlap the superiors. As such, *choui* belongs in the genus *Lamelligomphus*, as it was originally described.

***Gomphidia fukienensis* Chao, 1955**

Kosterin and Chartier (2018) referenced a personal communication by Haomiao Zhang indicating that the subspecies *G. kruegeri fukienensis* Chao (1955) should be treated at species level and indeed Zhang (2019a) treats both *G. kruegeri* Martin, 1904 and *G. fukienensis* as valid species. Zhang (2019a) states that apart from the colour pattern differences the posterior hamulus and female vulvar laminar are structurally different. Zhang (2019a) also provides good photographs of the penile organ and posterior hamulus of both *G. kruegeri* and *G. fukienensis*, which are clearly different in structure.

***Sympetrum vulgatum* (Linnaeus, 1758)**

Libellula vulgata Linnaeus, 1758

Syn? *Libellula variegata* Müller, 1764 (nec Linnaeus, 1763)

Syn *Sympetrum decolorata* Selys, 1884

Syn *Diplax imitans* Selys, 1886

Syn *Sympetrum flavum* Bartenev, 1915

Syn *Sympetrum vulgatum ibericum* Ocharan, 1985

S. imitans was originally described under the genus *Diplax* by Selys (1886) from a female collected from Beijing, China. Selys (1887) redescribed *S. imitans* based on specimens from

Far east Russia (Amur). Bartenev (1915), Belyshev (1973) and more recently Malikova & Kosterin (2019) all treated *S. imitans* as a subspecies of *Sympetrum vulgatum* (Linnaeus, 1758). In Europe the taxonomic relationship between the nominate subspecies, *S. vulgatum ibericum* Ocharan, 1985 and *S. vulgatum decoloratum* (Selys, 1884), considered by some taxonomists to possibly be good species (Kalkman, 2014), were assessed using molecular analysis (Hinojosa et al., 2017). The authors concluded that despite the very different outward appearance the taxonomic placement at species level was not justified and they elected to maintain their subspecies status. The molecular study did not include *S. imitans* from east Asia but clearly *S. vulgatum* can vary quite considerably in appearance in the western Palearctic.

S. imitans is probably merely a yellow form or a subspecies of *S. vulgatum* and at the species level should be treated as a synonym of *Sympetrum vulgatum* (Linnaeus, 1758) in accordance with Malikova & Kosterin (2019).

***Paragomphus pardalinus* Needham, 1942**

Syn *Paragomphus wuzhishan*ensis Liu, 1988 syn nov

Paragomphus wuzhishanensis Liu, 1988 was described from female only material from Wuzhishan, Hainan (Chao, 1990). Wilson & Reels (2001) commented that several of the *Paragomphus pardalinus* Needham, 1942 female specimens, they had collected from Hainan, exhibited the same features listed by Liu (1988) in his original description of *P. wuzhishanensis*. These features included the dorsal stripe joined to the frontal yellow collar, extension of the middle lateral yellow synthoracic spot past the spiracle and the raised ridge above the ocelli. The female subgenital plates are clearly very similar if not identical. The dorsal stripe of *P. pardalinus* can be completely detached in a small number of specimens but it is usually connected to the collar stripe by a fine line at the outer margin in most individuals. The occiput of *P. pardalinus* can be dark coloured or with a yellow centre. The separation of *P. wuzhishanensis* and *P. pardalinus* appears to rely entirely on the joined dorsal and collar stripes and a small tubercle located in front of the occipital margin, which are also present in *P. wuzhishanensis*. This latter character may be present on some *pardalinus* females but absent on others so none of these characters are unique to *wuzhishanensis*.

Zhang & Tong (2009) obtained four *Paragomphus* final instar larvae and one adult female from Wuzhishan, Hainan in March 2008. They noted that the adult female possessed a yellow humeral stripe not connected to the collar stripe. The four larvae subsequently emerged as four males, which were then described by Zhang & Tong (2009) as the first males of *P. wuzhishanensis*. Unfortunately, Zhang & Tong did not compare their males with the description of the holotype male *P. pardalinus* described from Han-ying-ts'nen, six miles southeast of Nodoa, Hainan (Needham, 1942) but with a specimen claimed to be *P. pardalinus* from Hainan. The latter specimen was figured by Zhang & Tong (2009) with reduced lateral foliaceus outgrowths on abdominal segments 8-9 that were intermediate between *P. capricornis* and putative *P. wuzhishanensis*. Needham (1942) described the type male of *P. pardalinus* with lateral foliaceus outgrowths on abdominal segments 8-9 as: 'leaf-like lateral expansions of these segments'. It's a pity Zhang & Tong (2009) did not take note of the original *P. pardalinus*

description as it would have been clear to them that the male reared specimens were true *P. pardalinus*, with marked lateral S8-9 foliaceous outgrowths, and also apparent that *P. wuzhishanensis* was a junior synonym.

Garrison, Cordero-Rivera and Zhang (2014) were not convinced that *P. wuzhishanensis* was a genuine species as they found male material from the same site in Hainan with variable foliaceus outgrowths, some very expansive and some less so. Curiously (Zhang, 2019a) illustrates *P. pardalinus* in his new book of Dragonflies and Damselflies of China with extensive foliaceus outgrowths as figured by Zhang & Tong (2009) for *P. wuzhishanensis* and by Wilson (2005) for *P. pardalinus*. Clearly it is now obvious that *P. wuzhishanensis* is a junior synonym of *P. pardalinus* as suggested by Wilson (2005) and Garrison, Cordero-Rivera and Zhang (2014).

P. pardalinus males are easily confused with those of *P. capricornis*. The drawings of the male *P. pardalinus* caudal abdomen given in Chao (1990) do not have extensive abdominal foliaceus outgrowths at S8-9 and clearly depict the abdomen of *P. capricornis*. For further comparison and distinction of these two species see Wilson and Reels (2001) and Wilson (2005). The records of *P. pardalinus* from Longshan, Guangxi and Dinghushan, Guangdong given by Chao (1990) refer to *P. capricornis*; a not uncommon southern and southwestern Chinese species entirely overlooked in mainland China until Wilson (1995) described its presence in China (Hong Kong) for the first time. Chao (1995) recorded the presence of *P. capricornis* in mainland China for the first time in Fujian citing Wilson's earlier publication of *P. capricornis* from Hong Kong (Wilson, 1995). Tsuda's (2000) record of *P. pardalinus* from Hong Kong also refers to misidentifications of *P. capricornis* by Japanese odonatists.

Paragomphus pardalinus is a Hainan endemic as noted by Zhang (2019).

Amendments arising from hitherto unpublished taxonomic revisions

Epophthalmia elegans (Brauer, 1865)

Macromia elegans Brauer, 1865

Syn *Epophthalmia kuani* Jiang, 1998 syn nov

When describing *Epophthalmia kuani* from Jiangsu, China Jiang (1998) provided four differences that serve to distinguish *E. kuani* from its congeners *E. elegans* (Brauer, 1865) and *E. frontalis* Selys, 1871. Two of these differences refer to minor colour markings that in any case apply only to *E. frontalis*. The third difference concerns the shape of the posterior hamule, which is stated to be arc-shaped at the end with: 'curved teeth on venter', although it is figured with hook-shaped tip and only one ventral tooth. I have compared Jiang's figure with specimens of *E. elegans* from southern China and can find no difference in the structure of the posterior hamule. The fourth and last difference concerns the penile organ stated to have three flagella (rather than two flagella). Twelve years later the same Jiang in Zha & Jiang (2010) wrote: 'Thirteen specimens of *E. elegans* males from Yunnan, Shanxi, Jiangsu, Anhui and Shandong province, China were studied. All their penile organs possessed three long flagella. So we can surmise the description of two flagella for *E. elegans* in Sui & Sun (1984) is incorrect.' Zhang (2019a) considered *E. kuani* was a: 'dubious' species.

Given there are no valid characters to distinguish *E. kuani* from *E. elegans* it should be treated as a junior synonym.

***Epophthalmia vittata* Burmeister, 1839**

Syn *Epophthalmia cyanocephala* Hagen, 1867

Syn *Epophthalmia vittata sundana* Lieftinck, 1931

Syn *Epophthalmia bannaensis* Zha & Jiang, 2010 syn nov

Zhang (2019a) did not recognise *Epophthalmia bannaensis* Zha & Jiang, 2010 as a valid species and considered it to be a junior synonym of the very closely related *E. frontalis* Selys, 1871. However, *E. bannaensis* should be treated as a junior synonym of *Epophthalmia vittata vittata* Burmeister, 1839. It has the same facial, thoracic and abdominal colour pattern and the structure of the secondary and caudal genitalia are very similar if not identical. The authors of *E. bannaensis* compared it with *E. frontalis* Selys, 1871, *E. elegans* (Brauer, 1865) and *E. kuani* Jiang, 1998 but overlooked *E. vittata* in their description and differential diagnosis, perhaps because it has never previously been recorded from China other than Xizang (Tibet), see Lieftinck (1931).

The type-locality for *E. bannaensis* is Xishuangbanna, Yunnan. *E. vittata* is widely distributed throughout India and Sri Lanka (Fraser, 1936; Babu et al., 2013), including neighbouring areas to China in north India (Uttar Pradesh & West Bengal). There are also records from Pakistan (Chaudhry et al., 2013), Xizang, China (Lieftinck, 1931), North Vietnam and Sumatra and Java in Indonesia (Subramanian, 2010). It clearly disperses widely as it has also been recorded in the Andaman and Nicobar Islands (Lieftinck, 1931, Subramanian, 2010).

***Idionyx claudia* Ris, 1912**

Syn *Idionyx pseudovictor* Xu, 2013 syn nov

Idionyx pseudovictor Xu, 2013 was described from single teneral female that had emerged from a larva collected in southwest Fujian. Most female *Idionyx* species have distinctive vesicles on top of the head with prominent horns; features which are a considerable aid in identifying females. *I. pseudovictor* is one of the few Chinese *Idionyx* without any specialised vesicles. Two species of *Idionyx*, whose females possess unspecialised vesicles, similar in form to their male counterparts, have been recorded from Fujian, namely: *Idionyx victor* Hämäläinen, 1991 and *Idionyx claudia* Ris, 1912. The author of *I. pseudovictor* (Xu, 2013) paid a great deal of attention in his differential diagnosis to closely compare his female with *I. victor*. This part of Xu's (2013) differential diagnosis is copied below:

"The female adult of the new species can be separated from that of *I. victor* by the following characters (*I. victor* in parentheses): (1) labrum entirely yellow (labrum yellow, narrowly bordered with blackish-brown), (2) distal end of ventral synthorax entirely yellow (distal end of ventral synthorax marked with a large elliptical brown spot on poststernum); (3) abdominal S1–2 with middorsal yellow stripe from basal to

distal margin (abdominal S1 without middorsal stripe and S2 with middorsal stripe on distal 2/3); (4) valvula vulvae pointed triangularly, not projecting beyond apical border of 8th tergite (valvula vulvae acuminate, pointed sharply, projecting beyond apical border of 8th tergite)."

Of these features observed in *I. pseudovictor* all apply to *I. claudia* except (2), as *I. claudia* has a large elliptical brown spot on poststernum. However, the *I. pseudovictor* specimen described was teneral and the dark ventral colour pattern is most likely undeveloped. I examined a teneral *I. victor* specimen I had to hand from Guangxi (Wilson, 2005) and it had a pale greyish-yellow poststernum. Clearly the colour develops with maturity at the poststernum. *I. claudia* is dismissed in the differential diagnosis by Xu (2013) based only on the wings of *I. pseudovictor*, that are broadly tinted with golden amber beyond the level of the triangle rather than in *I. claudia*, which is stated to have wings: 'tinted only at extreme base'. This latter statement is entirely incorrect. I have examined three females of *I. claudia* collected from Maoershan, Guangxi (Wilson, 2005) and all are strongly enfumed with amber beyond the hind wing triangle. Also, in Zhang (2019a), *I. claudia* is shown with heavily enfumed wings beyond level of triangle in the female. Moreover, in the original description by Ris (1912: 83-84, figs 18, 19, pl. 3/fig. 2) the female wings of *I. claudia* from north Guangdong are depicted in plate 3 (Figure 2) and are clearly shown to have heavily enfumed wings beyond the triangle.

The description of *Idionyx pseudovictor* Xu, 2013 dismissed *I. claudia* in error and *I. pseudovictor* should be treated as its junior synonym of *Idionyx claudia* Ris, 1912.

***Sympetrum maculatum* Oguma, 1922**

Syn *Sympetrum anomalum* Needham, 1930 syn nov

Needham (1930) described *Sympetrum anomalum* from a pair of museum specimens housed in the collection of the Bureau of Entomology, Nanking, Jiangsu, China. Their place of collection was not given but presumed to be China. The only record that exists for this taxon is the original description of the pair from the Nanking Museum. Steinman (1997) remarks the current location of the type male is unknown but perhaps in the Peking Museum.

The male description of *S. anomalum* given by Needham (1930) bears a remarkably close resemblance to *Sympetrum maculatum* Oguma, 1922. I have carefully compared the two descriptions provided by Needham (1930) and Sugimura et al. (2001) and am surprised at the very high degree of similarity. Both are entirely greyish-black species of similar relatively small size. The complex maculation of the dorsal and lateral synthorax are identical, both have entirely black legs apart from pale undersides of fore femora, both have slight flavescence at the base of the wings, both have pale whitish male faces with a large black central T-stripe, and both share identical form of the caudal appendages. *S. anomalum* is clearly a junior synonym of *S. maculatum*.

Needham's (1930) book The Dragonflies of China provided an extremely useful contribution to the Chinese fauna with an account of 266 Chinese odonates and descriptions of 63 species new to science. About one-third of these new species have proved to be synonyms and it is surprising that this synonym has been overlooked for so long.

S. maculatum is thought to be endemic to Honshu, Japan, where it occurs predominantly on the northeastern coast. There is a record from Shikoku, Japan but this record is either doubtful (Karube, 2009) or perhaps a vagrant. It has been regionally red list assessed as Endangered with a decreasing population trend (Karube, 2009). The Chinese pair of specimens may have originated either in Japan or were possibly vagrants to Jiangsu, which is less than 1,000 km distance across the East China Sea from Honshu.

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