

The damselfly and dragonfly watercolour collection of Edmond de Selys Longchamps: I Agrionines

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In the nineteenth century Edmond de Selys Longchamps assembled a collection consisting of watercolours, drawings and notes on Odonata. Most illustrations were based on specimens from his extensive odonate collection and were mainly executed by Selys himself and by Guillaume Severin. These illustrations and notes are presently housed in the Royal Belgian Institute of Natural Sciences in Brussels. To make this unpublished information accessible, we digitised this material and it will be presented on the website of this Institute. This first article presents the part of the collection concerning Agrionines (all Zygoptera except Calopterygoidea). The Agrionines are represented by 506 sheets with watercolours, 90 sheets with drawings in ink or pencil and 150 sheets with text. To provide an overview of the collection, subject matter and characteristics of the sheets with illustrations and the text sheets are analysed. The majority (85%) of all sheets with illustrations have been associated with current species names by using references and expert opinions. This information should facilitate searching for various species in the watercolour collection. The rediscovery and documentation of this collection of Selys, that remained largely unknown for almost a century, will hopefully prove useful to those conducting research on the taxonomy of Odonata.

Keywords: Odonata; taxonomy; dragonfly; damselfly; Selys; Zygoptera; watercolours; drawings; aquarelles

Introduction

Selys and his odonate specimen collection

The Belgian odonatologist Edmond Michel de Selys Longchamps (1813–1900) is an important figure in the field of the odonatology (Wasscher & Dumont, 2013). With the publication of his comprehensive diaries (Caulier-Mathy & Haesenne-Peremans, 2008) new information about his life and odonatological work has come to light. Selys described over 700 species and 134 genera, which are presently considered valid. His description of characters, with an emphasis on wing venation, was used in the taxonomic literature for many years.

Selys acquired a large collection of dragonflies and damselflies with species from all over the world (Severin, 1905). His pinned odonate collection contained about 1500 species at a time when the number of known described species was approximately 2000 (Selys, 1896). The specimen collection was housed first in Selys' residence in Longchamps, later in his residence in Liège and was added to the collection of the Royal Belgian Institute of Natural Sciences (RBINS) in Brussels around 1905 (Severin, 1905).

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Watercolour collection of Selys

Many species in his collection and some species from other collections were drawn or painted as watercolours (aquarelles) in large part by himself or by Guillaume Severin, who was instructed by Selys. The watercolours and drawings depict specimens from the different groups (sous-familles) recognised by Selys (1896). The French names and Latin names (in brackets) used by Selys for these groups are: Agrionines (Agrioninae), Calopterygines (Calopteryginae), Cordulines (Cordulinae), Gomphines (Gomphinae) and Aeshnines (Aeshninae). The collection lacks illustrations of Libellulines (Libellulinae). The paintings, drawings and sheets with text currently form part of the collection of RBINS in Brussels.

According to Lameere (1902) the illustrations were intended by Selys to be used in an iconic work on the Odonata of the world. This work, preliminarily named ‘Histoire des Insectes Odonates’ by Selys and Hagen (1854, p. 13), was intended to appear within a few years, but it never did.

After the death of Selys, in 1900, the watercolour collection was mentioned briefly by Lameere (1902, p. 12). Severin (1905) mentioned the “*dessins*” (drawings), belonging to the collection of Selys, that were transferred to RBINS around 1905. Although Selys’ large odonate collection was internationally famous and several renowned odonatologists have visited the collection and archives over the years, the watercolours were rarely seen or mentioned for almost a century, probably due to a lack of knowledge of their existence. There are a few exceptions. René Martin used approximately 20 watercolours as illustrations for his publications describing the aeshnids and corduliids in the Selys’ collection (Martin, 1906, 1908, 1909a, 1909b). Another exception is Philip Calvert who visited the odonate collection of Selys in 1895, 1896 and 1929. Calvert states: “. . . colored drawings made from the actual specimens by de Selys himself. These drawings form part of a large series representing many, if not all, of the Agrionines (*sensu Selysii*) known to him, and are now in the entomological section of the Museum at Brussels, where I saw a considerable number of them in July, 1929” (Calvert, 1931, pp. 5–6).

The re-discovery of the watercolour collection began when Patrick Grootaert, then conservator at the RBINS, showed them to Henri Dumont in February 2002 (personal communication, Grootaert, 14 September 2015). Dumont wrote about the 13 thick files with original aquarelles of dragonflies and damselflies in the Selys’ archives to Matti Hämäläinen on 12 February 2002 (personal communication, Hämäläinen, 29 April 2015). Dumont and his son had planned to publish part of the collection but this was never realised. Therefore most of the paintings, drawings and notes have never been published although some of the illustrations we digitised have been used in publications very recently (Garrison & von Ellenrieder, 2015; Seehausen, Hämäläinen, & Wasscher, 2014).

The watercolours, drawings and text sheets of the Selys’ collection are not only of historical interest and considerable artistic merit but also are of scientific value. Some type specimens of poorly known species have suffered damage over the years or are missing, making association of newly acquired material with types difficult. The paintings and drawings thus can supply valuable information as to the original characters of Selys’ type material. Some of the watercolours have already been consulted for this kind of taxonomic research (Bota-Sierra, 2012; Hämäläinen, 2009; Wasscher & van ‘t Bosch, 2013).

Agrionines

This article provides an overview of the Agrionines in the watercolour collection of Selys. His classification (Selys & Hagen, 1850, 1854) positioned the two sous-familles Agrionines and Calopterygines in the troisième famille (third family) Agrionidées (Agrionidae) of the Odonata (Dumont, 1999). The species of the Agrionines are currently placed in the suborder Zygoptera of

Table 1. Légions, genres and sous-genres of Agrionines described by Selys in his Synopses des Agrionines from 1860 to 1877.

Year	Légion	Genre	Sous-genre
1860	Pseudostigma	Megaloprepus	<i>Megaloprepus, Microstigma</i>
		Mecistogaster	<i>Pseudostigma, Mecistogaster</i>
1860	Protoneura	Platysticta	<i>Palaemnema, Platysticta</i>
		Alloneura	<i>Peristicta, Disparoneura, Alloneura, Nososticta</i>
		Protoneura	<i>Idioneura, Neoneura, Protoneura</i>
1862	Lestes	Lestes	<i>Megalestes, Archilestes, Lestes, Sympycma, Platylestes</i>
1862	Podagrion	Paraphlebia	<i>Paraphlebia</i>
		Philogenia	<i>Philogenia</i>
		Podagrion	<i>Podagrion</i>
		Heteragrion	<i>Heteragrion</i>
		Perilestes	<i>Perilestes</i>
		Chlorolestes	<i>Chlorolestes</i>
		Argiolestes	<i>Argiolestes</i>
		Podolestes	<i>Podolestes</i>
		Amphilestes	<i>Amphilestes</i>
1863	Platycnemis	Amphicnemis	<i>Pericnemis, Amphicnemis</i>
		Hypocnemis	<i>Hypocnemis</i>
		Platycnemis	<i>Trichocnemis, Calicnemis, Metacnemis, Platycnemis, Psilocnemis, Allocnemis</i>
		Chlorocnemis	<i>Chlorocnemis</i>
1865	Agrion	Argia	<i>Hyponeura, Argia, Onychargia</i>
1876	Agrion	Agrion	<i>Ceratura, Anomalagrion, Ischnura, Amphigrion, Oxyagrion, Acanthagrion, Xiphiagrion, Enallagma, Nehalennia, Agrion, Pyrrhosoma, Eythromma, Pseudagrion, Xanthagrion, Ceriagrion, Argiagrion, Anisagrion, Erythragrion, Telagrion, Leptagrion</i>
1877	Agrion	Telebasis	<i>Leptobasis, Stenobasis, Telebasis, Amphicnemis, Pericnemis</i>
		Argiocnemis	<i>Argiocnemis, Agriocnemis</i>
		Hemiphlebia	<i>Hemiphlebia</i>

Table 2. Légions, genres and sous-genres of Agrionines described by Selys in the Revision des Agrionines of 1886.

Légion	Genre	Sous-genre
Pseudostigma	Megaloprepus	<i>Megaloprepus, Microstigma, Anomisma</i>
	Mecistogaster	<i>Mecistogaster, Pseudostigma</i>
Podagrion	Paraphlebia	<i>Paraphlebia</i>
	Philogenia	<i>Philogenia</i>
	Megapodagrion	<i>Megapodagrion</i>
	Heteropodagrion	<i>Mesagrion, Heteropodagrion</i>
	Heteragrion	<i>Heteragrion</i>
	Perilestes	<i>Perilestes</i>
	Chlorolestes	<i>Neurolestes, Chlorolestes</i>
	Allolestes	<i>Allolestes</i>
	Argiolestes	<i>Podopteryx, Argiolestes</i>
	Podolestes	<i>Podolestes</i>
	Synlestes	<i>Synlestes</i>
	Amphilestes	<i>Amphilestes</i>
Platycnemis	Hypocnemis	<i>Hypocnemis</i>
	Idiocnemis	<i>Idiocnemis</i>
	Trichocnemis	<i>Hemicnemis, Trichocnemis</i>
	Platycnemis	<i>Psilocnemis, Platycnemis</i>
	Calicnemis	<i>Calicnemis</i>
	Allocnemis	<i>Metacnemis, Allocnemis</i>
	Chlorocnemis	<i>Chlorocnemis</i>
Protoneura	Platysticta	<i>Palaemnema, Platysticta, Protosticta</i>
	Alloneura	<i>Disparoneura, Alloneura, Nososticta, Isosticta</i>
	Neoneura	<i>Peristicta, Idioneura, Neoneura</i>
	Protoneura	<i>Microneura, Protoneura</i>

the order Odonata. The superfamilies Lestoidea Calvert, 1901, Platystictioidea Kennedy, 1920, and Coenagrionoidea Kirby, 1890 (Dijkstra, Bechly, et al., 2013) are represented in the watercolour collection of Selys by many illustrations. Two of the illustrated species, *Tatocnemis malgassica* (Ag246a and Ag246b) and *Hypolestes trinitatis* (Ag278a), are now included in the superfamily Calopterygoidea Selys, 1850. The category sous-genre in the classification of Selys is in most cases comparable with the level of genus in the modern classification of Odonata. Above the level of genus Selys recognised two categories, légion and genre, that are no longer in use. The names written by Selys on the illustrations of the watercolour collection are here referred to by Selys' names and followed by the codes that indicate specific illustrations (see material and methods). Most Selys' names are binomial and these are comparable to species names but others have just one term and are comparable to species-group names or genus-group names.

Selys wrote eight synopses concerning the Agrionines between 1860 and 1877, allocating 68 sous-genres into six légions (Table 1) (Selys, 1860a, 1860b, 1862a, 1862b, 1863, 1865, 1876, 1877). In 1886 he published a revision (Selys, 1886) and presented a new classification for allocating sous-genres among four légions (Table 2).

Material and methods

The watercolour collection of Selys contains illustrations and texts. There are watercolours (aquarelles) and/or drawings (with ink or graphite pencil) on the sheets with illustrations. The size of a typical sheet with illustrations is 18 cm by 22 cm with most glued in pairs onto cardboard mounts. This situation was also described by Calvert during his visit in 1929 (Calvert, 1931). The notes on the sheets with illustrations and on the text sheets are written in ink or in



Figure 1. The 13 archive folders with the watercolour collection in a cabinet (RBINS Brussels). Photo: M. Hämäläinen

pencil. The cardboard sheets, the loose illustrations and sheets containing text about the Agrionines are stored in six archive folders in a cabinet in the department of entomology of RBINS (Figure 1).

We have assigned all sheets with illustrations and text sheets a unique code and these codes are written on the cardboard sheets or on the paper sheets folded around the loose illustrations. The code for illustrations (e.g. Ag35ae) consists of two characters from the sous-famille according to Selys, followed by one to three digits and by one alphabetic character (a, b or c) according to the



Figure 2. Watercolours of (a) *Neoneura fulvicollis* Selys, 1886 (Ag222b) and (b) *Enallagma boreale* Selys, 1875 (Ag35ae), executed by Selys (collection RBINS).

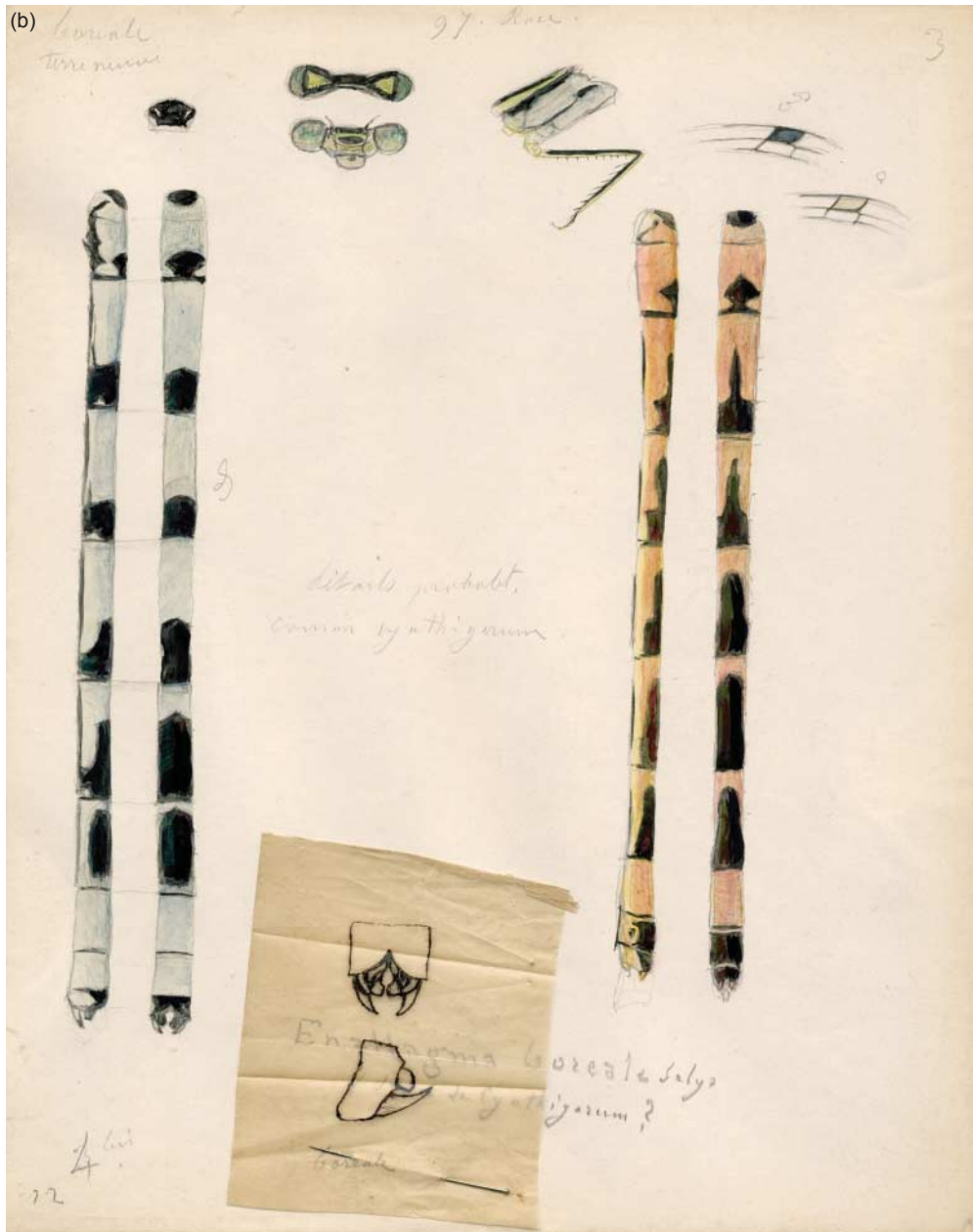


Figure 2. (Continued)

position of the sheet on the cardboard mounts. In three cases an e (extra) was added to the code if a second digital image of the same sheet was necessary to document all information due to an attached folded piece of paper, e.g. the illustration of *Enallagma boreale* (Ag35ae) (Figure 2). The code for text sheets consists of the character T for text followed by two characters from the sous-famille according to Selys and by one to three digits e.g. TAg17 (Figure 3). The archive folders are also given a code written in pencil on the inside of the folder.

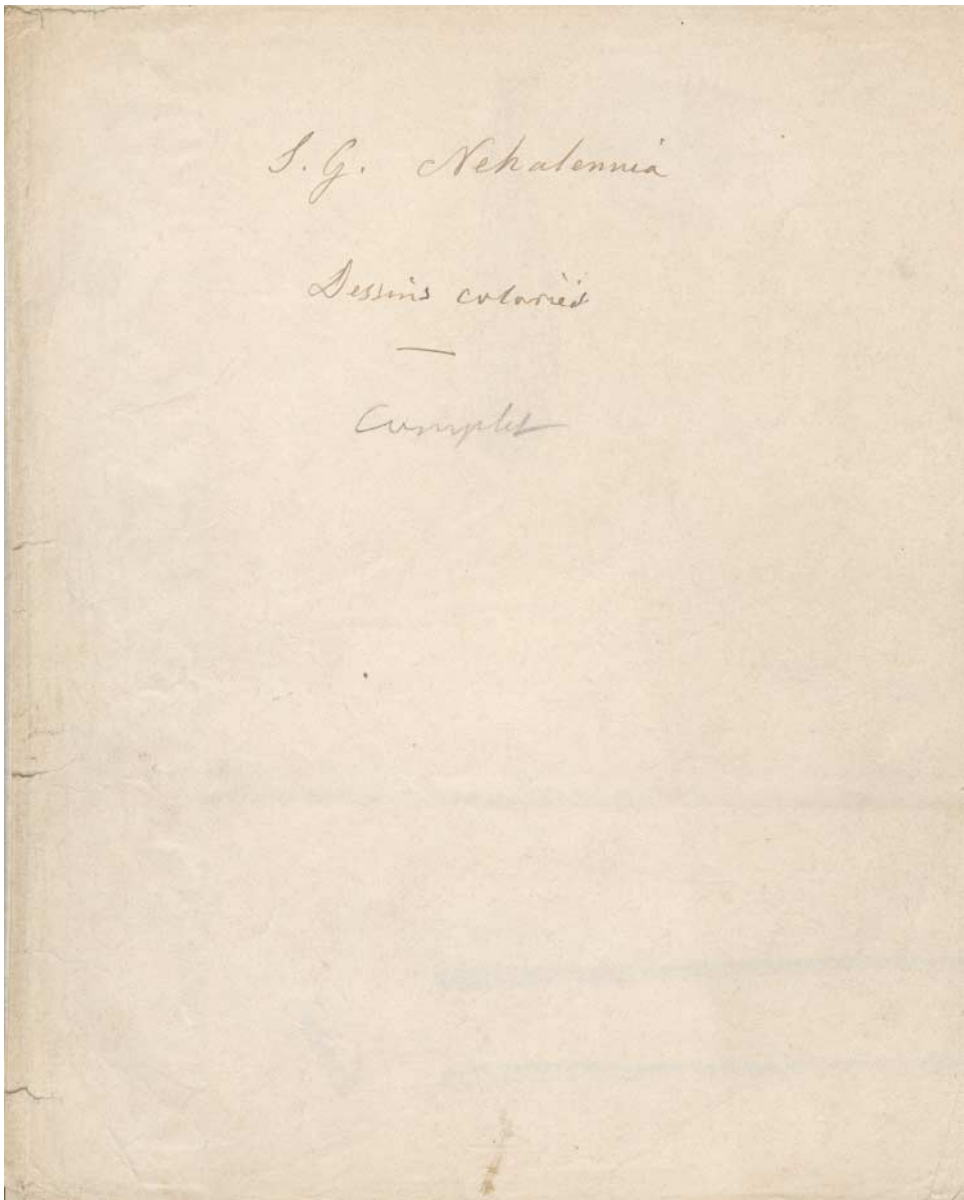


Figure 3. Text sheet *Nehalennia*, written by Selys (TAg17, collection RBINS). This is a separation sheet giving information on content.

The illustrations and texts were scanned in RBINS with a Canon mp830 digital scanner in February 2014 and with a Canoscan LIDE210 digital scanner in May and June 2014 with a scan resolution of 300 dpi. The digital images are created and stored in high quality (TIF) and in lower quality (JPG).

Subject matter and characteristics were analysed from the sheets with illustrations (see Figure 4) and from the sheets with text. All information gathered from the watercolours, drawings and texts is linked to the digital images of the sheets.

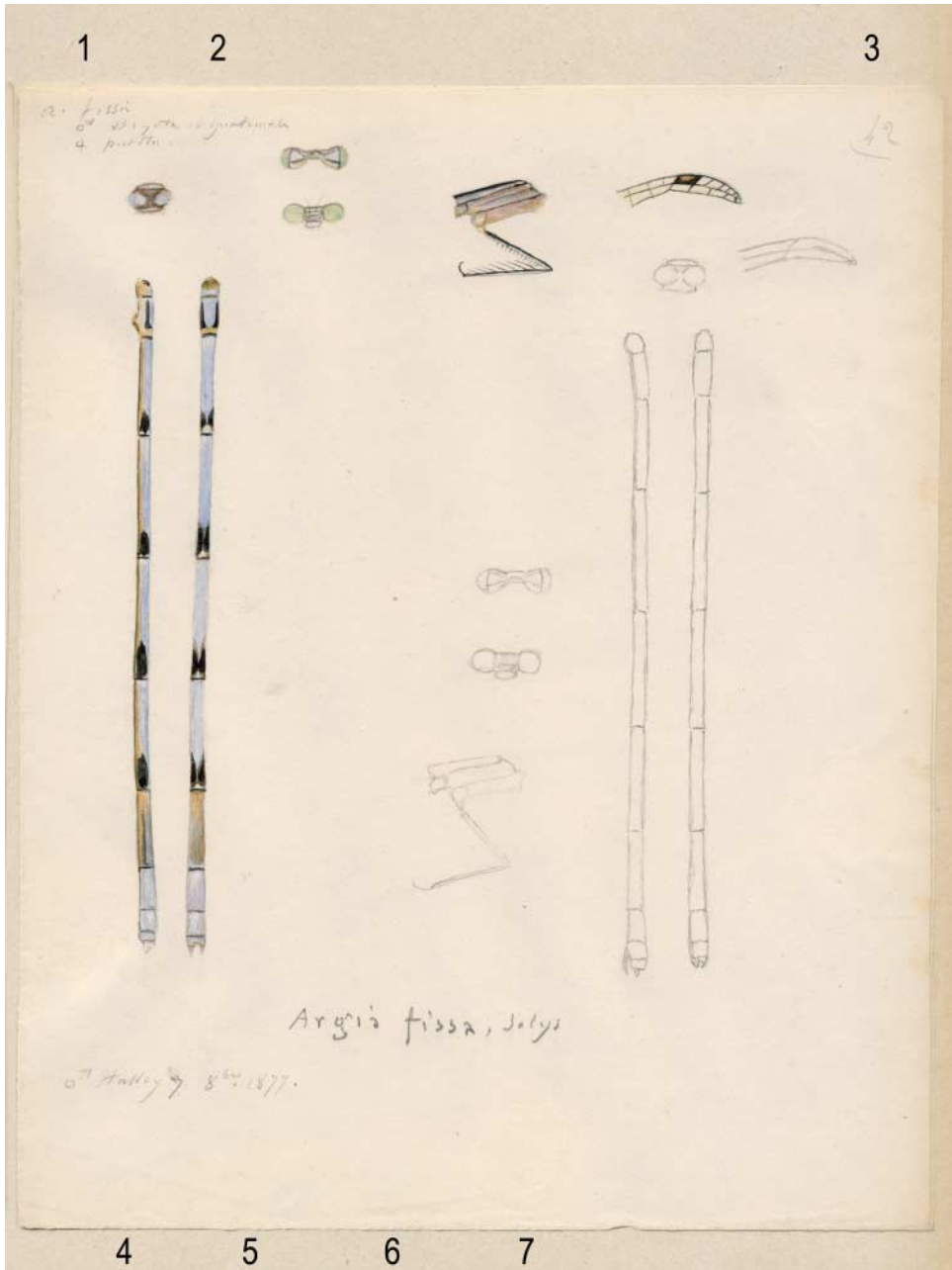


Figure 4. Watercolour of *Argia fissa* Selys, 1865, executed by Selys (Ag27a, collection RBINS). Selys wrote text on the illustration: notes (1), locality (2), number (3), location where the illustration was made (4), date when the illustration was made (5), name given by Selys (6), surname (7).

Information on the locality of the depicted specimens was recorded from both sheets with illustrations and corresponding text sheets. An interpretation was made of the geographical information to match the locality to a country and a continent. The division of the world into continents was based on Selys' monographies (Selys & Hagen, 1854, 1858): Europe, Afrique, Amérique, Asie and Océanie. We allocated various localities in America to North America

(Canada south through present-day Panama and the Caribbean) or South America. Oceania comprises Australia, New Zealand, Polynesia, Micronesia and Melanesia. New Guinea and Indonesian islands we considered part of Asia.

The name written by Selys on the illustrations was either the name he gave the species he described, the name he intended to publish or the species name already in use. Searching for a given species in the watercolour collection requires knowledge of the nineteenth century name. To facilitate this search, we checked if the Selys' name accompanying the illustrations is still in use. The association with current species names was checked for the sheets with illustrations of one species and with a binomial Selys' name using as a primary source 'The World Odonata List' (Schorr & Paulson, 2014) and as additional references: Bridges (1994); Dijkstra and Kalkman (2013); Dijkstra, Clausnitzer, and Martens (2007); Dijkstra and Clausnitzer (2014); Donnelly (1984, 1990); Dow (2009); Fraser (1922); Garrison and von Ellenrieder (2014); Hämäläinen (1991); Kirby (1890); Kosterin (2015); Lieftinck (1957); van Tol (2011); Villaneuva (2012); von Ellenrieder and Garrison (2007, 2008). These sources provide the current author of a species and the year of description. Taxonomic experts gave their opinion on illustrations, accompanied by Selys' names not currently in use. Illustrations with Selys' names that consist of one term and are comparable to a species-group name were also examined. Based on expert opinion some illustrations were identified and Selys' names were associated with current species names. When the experts found associated species names that are still uncertain, possible current names were suggested and the following additional references were used: Asahina (1977); Dijkstra and Clausnitzer (2014); Dijkstra and Kalkman (2013); Donnelly (1984, 1990); Dumont (2004); Förster (1903); Fraser (1922); Gassmann (2015); Gassmann and Richards (2011); Kirby (1890); Kosterin (2015); Lieftinck (1954); Lieftinck (1957); Marinov and Pikacha (2013); Meurgey (2009); Paulson (2009); Selys (1883); von Ellenrieder and Garrison (2008). Higher classification follows Dijkstra, Kalkman, Dow, Stokvis, and van Tol (2013).

Results

Watercolour collection

The watercolour collection of the Agrionines has 747 sheets and the majority of the sheets consist of illustrations.

Information from the illustrations

The watercolour collection contains 596 sheets with illustrations of species representing Selys' Agrionines. These illustrations are of two different types. There are 506 watercolours (e.g. Figure 2) and 90 with ink and/or graphite pencil drawings (e.g. Figure 5). Most sheets (563) have illustrations of one species. All watercolours comprise one species per sheet. Males are always painted on the left of the sheet and females on the right. Selys made many drawings of wings to characterise sous-genres (comparable to genera) (e.g. Figure 5). Thirty-three sheets consist of drawings of appendages of different species (e.g. Figure 6). There are two sheets that are very different from the others and are of unknown origin and date. One sheet has drawings on plastic tape. The text on this sheet is unreadable and the drawings are unclear (Ag66b). One sheet is a photo of a damselfly wing (TAg99).

Selys began his watercolours with a pencil drawing. His illustration of *Enallagma annexum* (Ag34b) is still completely drawn with pencil and was presumably never completed. On some

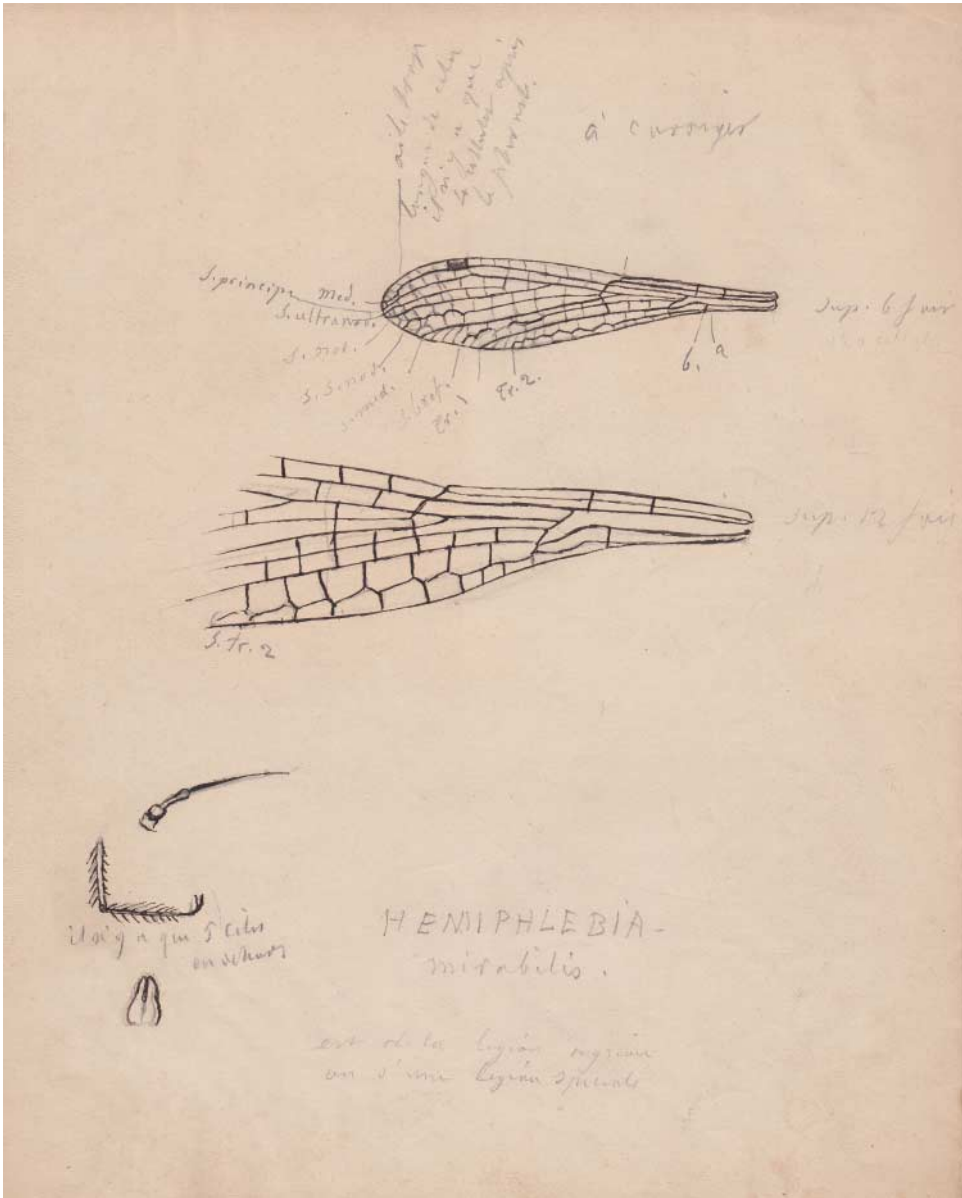


Figure 5. Drawing of a wing of *Hemiphlebia mirabilis* Selys, 1868, executed by Selys (Ag276b, collection RBINS).

sheets part of the pencil drawing is filled in with watercolour paint and it seems to be a work in progress as shown by his illustration of *Argia fissa* (Ag27a) (Figure 4).

Selys mostly wrote the name underneath the watercolours (e.g. Figure 2). There are watercolours depicting one species that have only the name of the sous-genre (comparable to genus) (e.g. *Megalagrion* Ag71b, *Telebasis* Ag287b) and that have only one term and are comparable to species-group name (e.g. *combusta* Ag286a, *melanops* Ag301a). The Selys' names are in some cases followed or preceded by a question mark (see discussion).

On 24 sheets race or var. (variety) names are added to the species-group names. Accompanying notes on these illustrated sheets sometimes provide more information on variety or race

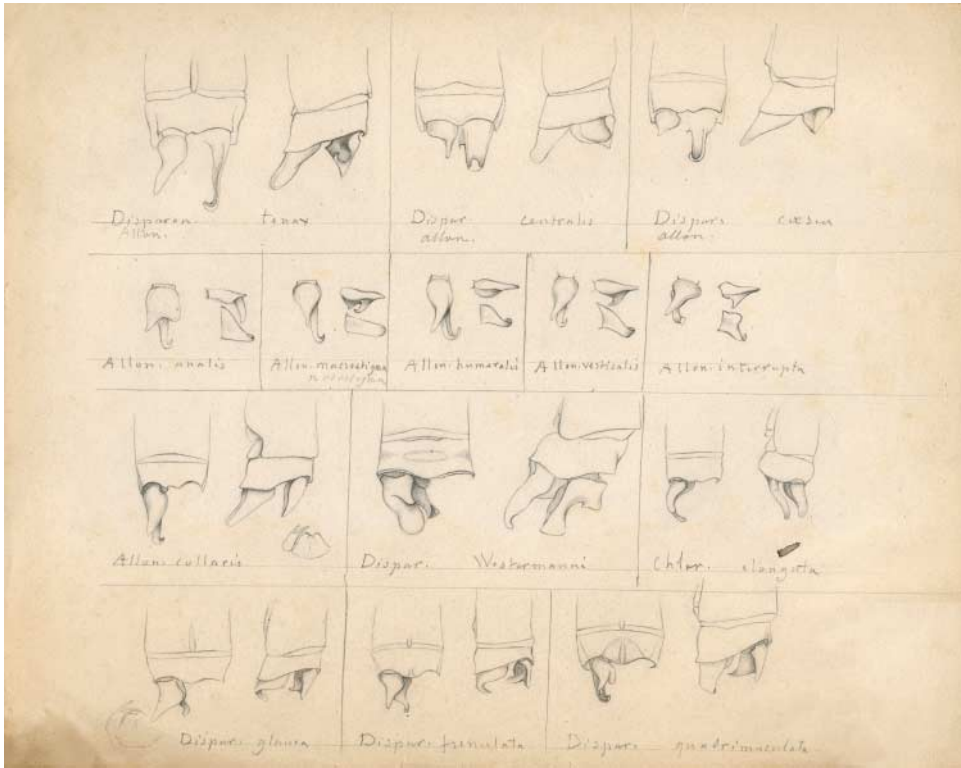


Figure 6. Drawings of appendages for several species of *Alloneura*, *Disparoneura* and *Chlorocnemis* (Agrionines), executed by Hagen (Ag70b, collection RBINS).

names. The term subspecies as a formal taxonomic category was not in use during the late nineteenth century but this term is mentioned as “sous-espèce” by Selys at least once (Selys, 1897) as a synonym of race. He questioned whether some specimens were varieties or races, e.g. the notes on the watercolour of *Palaemnema desiderata* (Ag238b) state “race ou var” (race or variety). In the watercolour collection Selys used several varietal or race names that are similar to species-group names, perhaps indicating interspecific rather than intraspecific variation, for example in *Ischnura bizonata fluviatilis* (Ag164b) and *Ischnura fluviatilis* (Ag167a). Notes accompanying the illustration of *Ischnura bizonata fluviatilis* state “Race de fluviatilis S.” (race of fluviatilis Selys). The sheet for *Ischnura bizonata* without an added race name is not depicted in the watercolour collection. Another example is seen in the watercolour of *Enallagma boreale* (Ag35ae) (Figure 1) where notes beneath the species name read “Race de cyathigerum?” (Race of cyathigerum?). *Enallagma cyathigerum* (Ag34a) is illustrated in another sheet as a species. In contrast, comparison of four different watercolours of *Platycnemis pennipes* (A9260a, Ag260b, Ag261a and Ag261b) reveals that there is one of var. *albidella* and one of race *insularis*. Here race and variety seem to distinguish taxa within one species.

Selys executed nearly all the illustrations of the Agrionines and he noted the location and the date on most sheets. Based on these notes, Selys was responsible for 471 watercolour and drawings. We were able to recognise 95 sheets without any note concerning date and place as created by Selys. Other artists produced some of the illustrations. Hermann Hagen executed 23 sheets with drawings of the appendages (Figure 6), comparable to drawings printed in Hagen and Calvert (1902). Five sheets (Ag 112a, Ag142a, Ag142b, Ag191b and Ag195a) are of a different style from that of Selys. They were very likely painted by Friedrich Förster (written by

Selys as Foerster or Forster) and we list him as the artist. That Förster is the artist is evident from the illustration of *Pseudagrion semicolon* (Ag 112a) with the note “*par Foerster*” (by Foerster) and for the sheet with *Argriocnemis coelestina* (Ag142b) with the note “*dessin de Foerster*” (drawing of Foerster). The text in Selys’ diary (Caulier-Mathy & Haesenne-Peremans, 2008) for 17 October 1896 states: “*Reçu lettres et dessins de M. Foerster, agrionines*” (letters and drawings received from M. Foerster, agrionines) suggesting that Förster’s drawings were in Selys’ possession.

The surname(s) following the name, written by Selys on the illustrations, are not necessarily the person(s) who published the first description of the species. It indicates sometimes the owner of the collection, e.g. Hoffmanssegg for the illustration of *Idioneura ancilla* (Ag219b). Hoffmanssegg is not the author of any odonate species. It sometimes indicates the collector of the specimen. For example the name *Argia tinctipennis* (Ag17b) is followed by the names of Bates and Selys. *Argia tinctipennis* is currently a valid species described by Selys in 1865. In his diary Selys describes that he took possession of 500 dragonflies collected by Bates in the Amazon from the customs authorities at the beginning of 1864 (Caulier-Mathy & Haesenne-Peremans, 2008). The locality Amazone is written on the watercolour and the illustration is dated 1877. Selys seems to mention Bates in his notes because Bates collected the specimen on which the watercolour was based. Bates appears 11 times on the sheets with illustrations but he is not an author of any of these species. Selys mentioned his own name 263 times and nine times together with another name. In most cases (204) Selys is the currently accepted author. The two other names mentioned most often are Hagen and Rambur, respectively 94 and 29 times. Many other surnames appear on the sheets: Brauer, Burmeister, Charpentier, Dale, Drège, Drury, Eversmann, Fabricius, Fonscolombe, Förster, Hansemann, Harris, Heyer, Hoffmannsegg, Johansson, Kirby, Kollar, Linnaeus, Mc Lachlan, Nietner, Pallas, Perty, Say, Scudder, Vander Linden, Villers and Walsh. The names are sometimes abbreviated in different ways. For example Hagen is written in full or as “H”, “Hag“ or “Hag.” and Selys has written his own name as “S”, “S.”, “Sely” or “Selys”.

There are 471 watercolours dated in Selys’ hand between 1874 and 1900. Selys commenced painting the Agrionines on 3 September 1874 beginning with *Agriion minutissimum* (Ag85a), currently *Calvertagrion minutissimum* (Selys, 1876). Most illustrations were created in 1876 during which year 99 sheets were produced. The increase in numbers in the years 1875, 1876 and in 1884 was likely connected to the upcoming publications of synopses in 1876 and 1877 and of the revision in 1886 (Figure 7). The date of publication of a species name is compared to the dates when Selys painted specimens of the species. More illustrations were made after the publication of the species description (260) than before (142). The two years when most illustrations were produced were the year before publication and the year of publication of the species description (85 and 41 respectively). The species with the manuscript name of Selys *atrinuchalis* (Ag289a) is illustrated by Selys in 1881 but it took 132 years before the species was described as *Teinobasis fatacula* (Marinov & Donnelly, 2013) (see Appendix 2). In most cases (439) there is only one date written on the sheet when all illustrations on the sheet were made. There were three sheets with illustrations with three dates and 31 sheets with the notation of two dates. The second date is sometimes the following day, e.g. *Acanthagrion truncatum* (Ag131a) and sometimes years apart, e.g. for *Ischnura senegalensis* (Ag162a). In the last case a painting of a female from Japan was added six years later to a sheet that already had paintings of one male and two females. Two different dates in different years (18 September 1884 and 23 May 1885) are written on the sheet with illustrations of *Metacnemis valida* (Ag270a) (Figure 8). On 10 days Selys was so productive that he drew three species in one day, e.g. on 4 December 1884: males of *Neoneura fulvicollis* (Ag222b), *N. rufithorax* (Ag224a) and *N. waltheri* (Ag220b). In a note on the illustration of *Argia kurilis* (Ag25b) he writes that he drew a female based on a description in one hour.

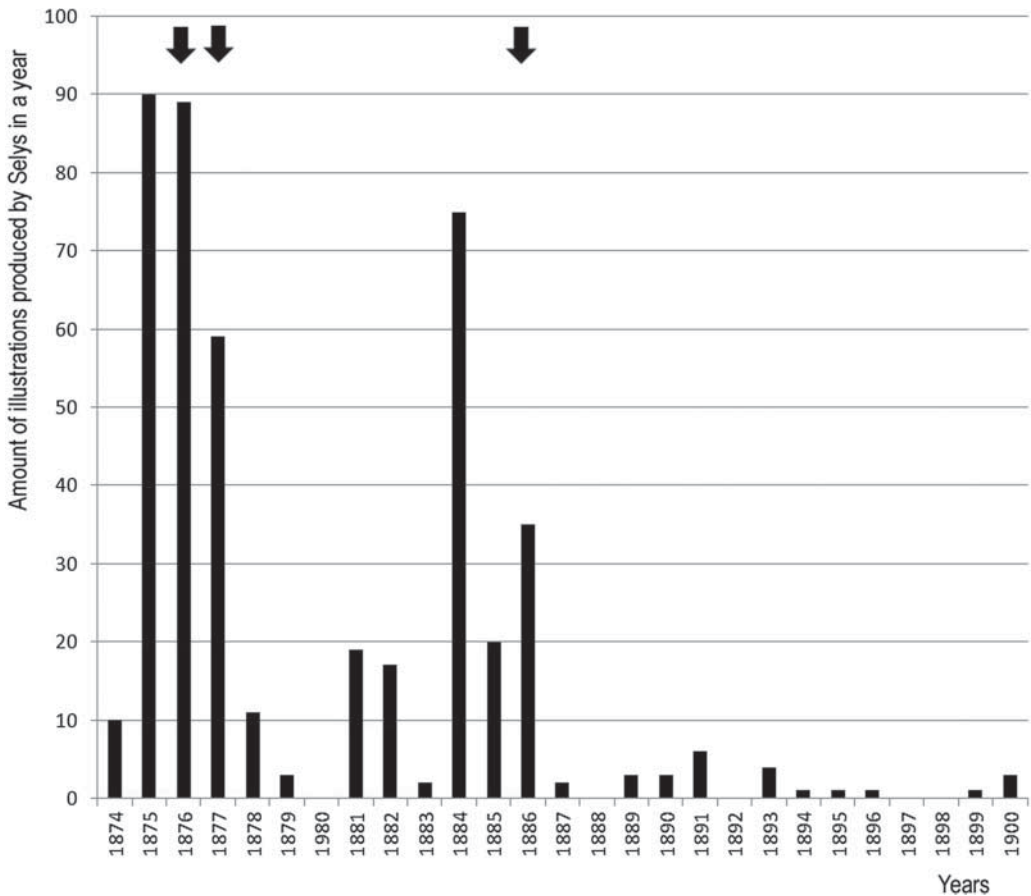


Figure 7. Production of illustrations by Selys in relation to the year of publication of his synopses and his revision in the period 1874–1900. Arrows represent years Selys published his synopses (1876 and 1877) and revision (1886) on Agrionines.

Of the 596 sheets with illustrations 465 had a note of the place where the drawing was made. Also a combination of locations occurs on the sheets. Most illustrations (245) were made at Selys' chateau Longchamps in Waremme, Belgium. This was often abbreviated as Lch. or Lchamps. In his residences in Halloy (95) and Liège (84), both Belgian towns, he also drew and painted. On the bottom right corner of the sheet with the illustrations of *Telagrion fulvellum* (Ag108b) (Figure 9) both Longchamps and Halloy are written. For details of these locations see Wasscher and Dumont (2013). Other locations were mentioned a few times: Vienne (Vienna, Austria) (six), Bruxelles (Brussels, Belgium) (five), Haren (Borgharen, the Netherlands) (four) and Paris (France) (one).

The maximum number of illustrations on a sheet is 49. Most sheets (125) have seven illustrations. The extent of notes on the illustrations varies widely and the notes are mostly written in pencil. Most sheets include from 11 to 50 written words. All text on the sheets with illustrations seems to be written by Selys except for the sheets with illustrations made by Hagen.

Although only four sheets state so explicitly, most of his illustrations seem to be from specimens of Selys' own collection. Lameere (1902) and Calvert (1931) stated that specimens of the Selys' collection were depicted as watercolours. The most important collection Selys referred to was that of his friend Robert McLachlan, who was mentioned 33 times (e.g. *Metacnemis*

valida (Ag270a) (Figure 8) and *Alloneura wallacii* (Ag192b) (Figure 10)). On seven sheets the collection of René Martin was noted. Other collections are recorded a few times: his friend and colleague Hermann Hagen, his son Walthère de Selys Longchamps and Henry Pryer. Selys also painted or drew specimens from collections in museums in Europe. The following European museums are mentioned in the notes: Berlin (Germany), Bremen (Germany), Budapest (Hungary), Copenhagen (Denmark), Dresden (Germany), Gênes/Genua/Genova (Genoa, Italy), Godeffroy Museum in Hamburg (Germany), Halle (Germany), Leyden (Leiden, the Netherlands), London (UK), Madrid (Spain), Natura Artis Magistra in Amsterdam (the Netherlands),



Figure 8. Watercolours of (a) *Metacnemis valida* (Ag270a), currently *Mesocnemis valida* (Hagen in Selys, 1863) and (b) *Metacnemis angusta* (Ag269a), currently *Spesbona angusta* (Selys, 1863), executed by Selys (collection RBINS).



Figure 8. Continued

Paris (France), St Peterburg (Saint Petersburg, Russia) and Vienne (Vienna, Austria). Also specimens from the museum in Calcutta (India) are depicted. The museums are noted on the illustrations in Figures 8 and 9.

The term “type” is written 19 times in the notes either concerning the depicted specimen or concerning another specimen that is to be compared to the illustrated specimen. For example Selys mentions that he drew a type in the note on the watercolour of *Leptagrion croceum* (Ag136a) that reads “type Burm. coll. Hagen” (type Burmeister collection Hagen). In the notes of some sheets “n. sp.” (new species) is suggesting that the depicted specimen is a type. This is written on the sheet with illustrations of *Alloneura wallacii* (Ag192b) that was produced in 1884. Selys described this species in 1886 (see Figure 10 and discussion).



Figure 9. Watercolour of *Telagrion fulvellum*, executed by Selys (Ag 108b, collection RBINS). The female on the right is currently *Dolonagrion fulvellum* (Selys, 1876) but the male depicted on the left is likely a *Telebasis* species.

Information from the text sheets

There are 150 sheets with text concerning the Agrionines in the Selys collection. The text was written mostly in ink or pencil. Some of the text sheets have few words and they are mostly separation sheets with information on the content giving only family or subfamily names (e.g. Figure 3). Other texts have more words and list, for example, all species of a certain group sometimes with added information on the locality of the specimens (e.g. Figure 11). Descriptions of species or comparison with other species are sometimes present. Some text sheets include small notes. Small supplementary drawings in ink accompany four text sheets concerning species

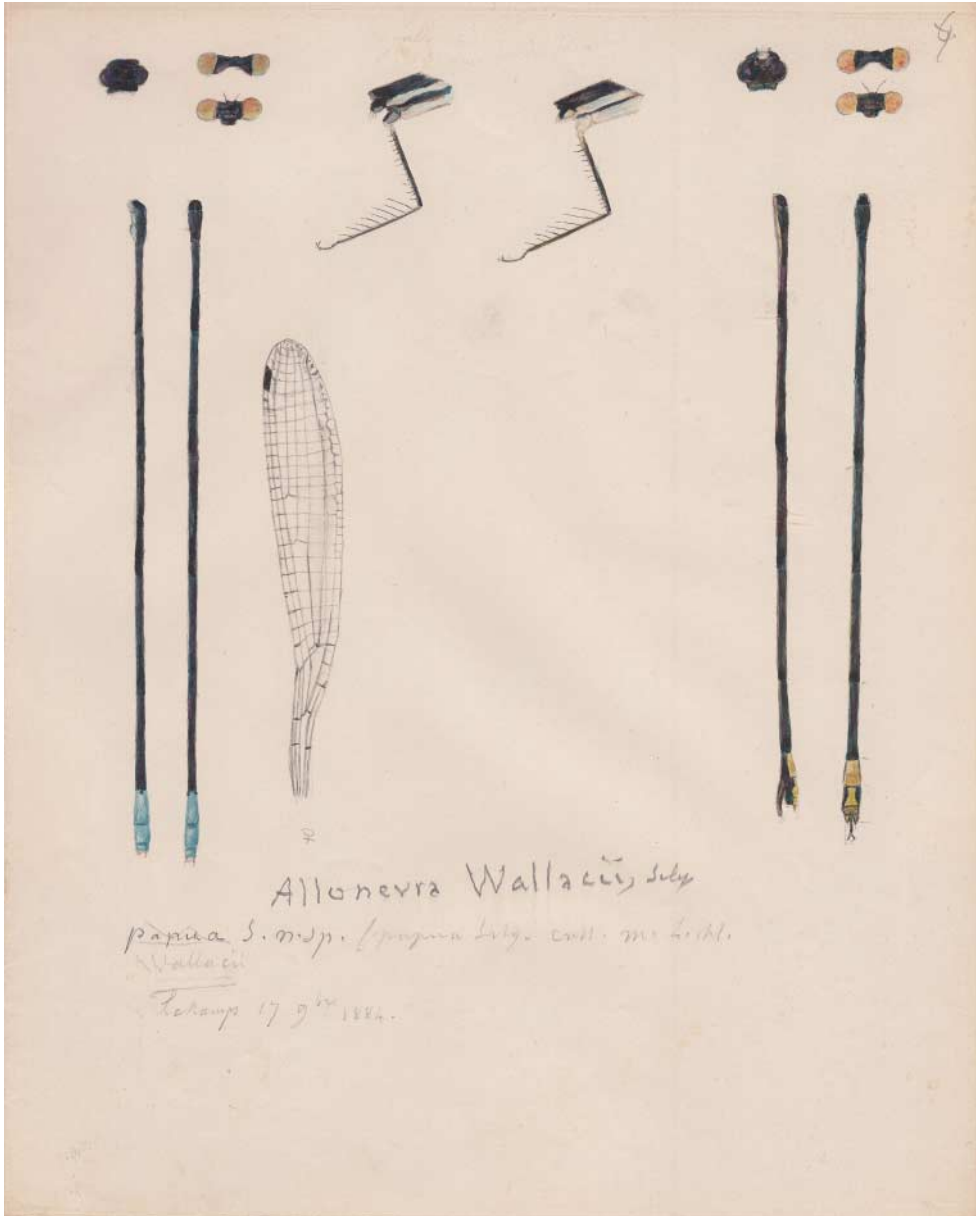


Figure 10. Watercolour of *Alloneura wallacii*, currently *Nososticta wallacii* (Selys, 1886), executed by Selys (Ag192b, collection RBINS). Both the manuscript name *papua* and the current species-group name *wallacii* are annotated.

descriptions. We used the information on the text sheets when in doubt about the spelling of the names or authors written by Selys on the sheets with illustrations.

Locality

The distribution of the localities of the painted or drawn specimens of the Agrionines with a note on locality shows that species from all continents are depicted (Figure 12). The localities, followed by a question mark, are not presented in this figure. Most illustrations are based on

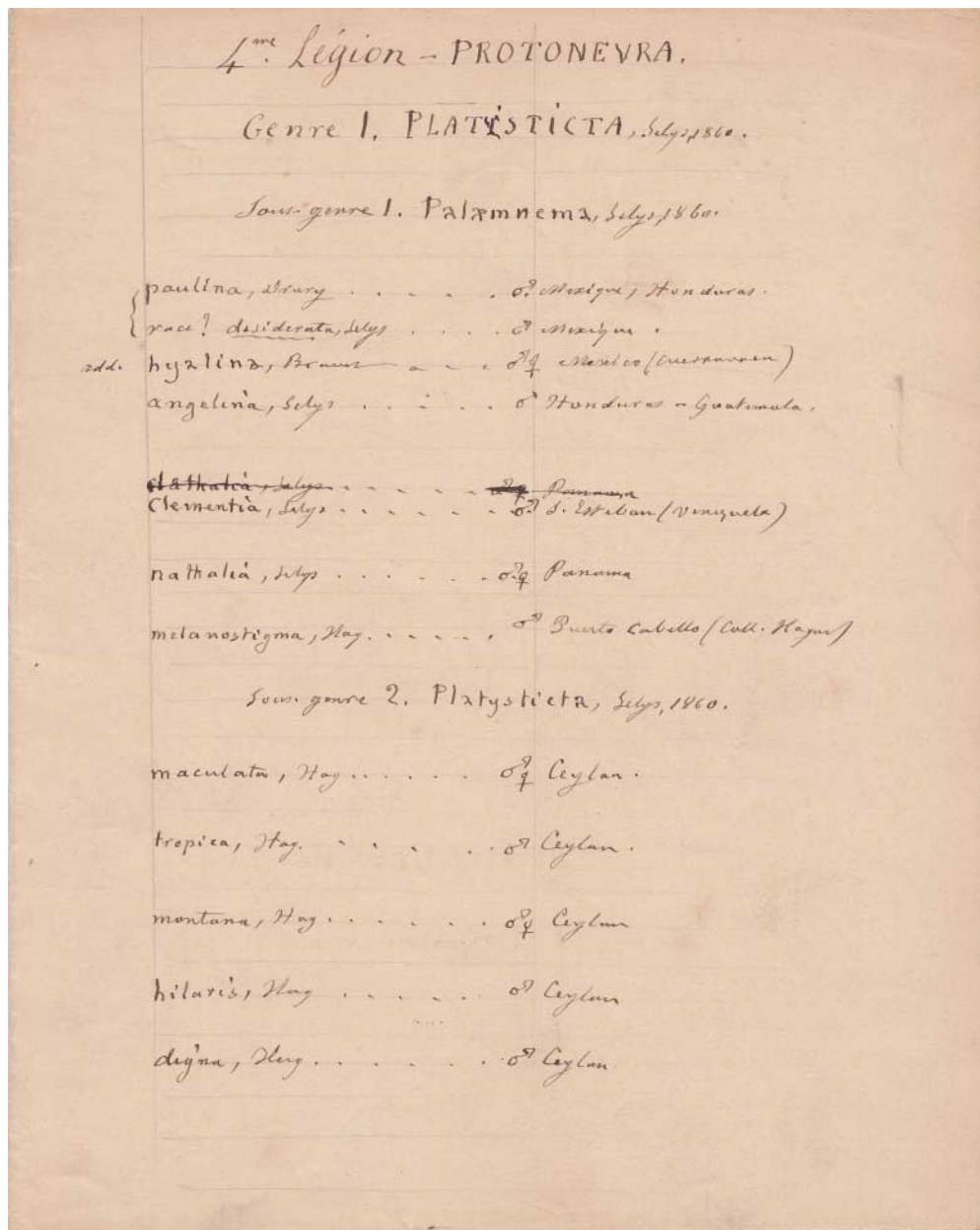


Figure 11. Text sheet with a list containing species names from the sous-genres *Palaemnema* Selys, 1860 and *Platysticta* Selys, 1860 together with information on localities, written by Selys (TAG68, collection RBINS).

Agrionines from Amèrique (America) and Asie (Asia). The illustrated American species originate mostly from South America. The text sheets provide more information on localities than the notes on the sheets with illustrations. Selys did illustrate for example the two African species *Metacnemis valida* (Ag270a) and *Metacnemis angusta* (Ag269a) (Figure 8). He considered them closely related but recently they were placed in different genera, *Mesocnemis* and *Spesbona* respectively (Dijkstra, 2013).



Figure 12. Distribution of the localities per continent for those illustrated specimens of the Agrionines with a note on locality.

Associating Selys' names with current species names

There are 563 sheets with illustrations of one species in the collection. Of these 39 cannot be associated with any currently recognised species name: one illustration has no name (Ag276a probably *Hemiphlebia*), one illustration has a place name and a number instead of a Selys' name (Luzon nr. 590, Ag145b) and 37 illustrations only have Selys' names comparable to genus-group names.

Therefore 524 sheets with illustrations of the Agrionines were available to try and establish an association between the Selys' names on the sheets (comparable to species names or species-group names) and current species names. Using references (see list in material and methods) and expert opinions, 506 illustrations have been associated with currently accepted species names. More information on the expert opinions is given in Appendix 2. This means that 85% of all illustrations of the Agrionines could be associated with a current species name. When restricting the group to the illustrations of the Agrionines with Selys' names comparable to binomial names or species-group names, 97% could be associated. These 506 illustrations associated with a current species name belong to 115 current genera and are placed in nine current families (Table 3). Selys' classification used 65 sous-genres for these species. The current species names together with the associated Selys' names are listed in Appendix 1. Selys' names that differ considerably from the associated current species names have been placed in a different genus, are synonyms, or are manuscript names.

Possible current names are presented for nine Selys' names based on the opinion of experts and references (Table 4) and these names are discussed in more detail in the Appendix 2.

For seven sheets with illustrations no association was established between Selys' names and current species names (Table 5, Appendix 2). These Selys' names are manuscript names and not in use.

Table 3. The number of sheets with illustrations depicting species of current genera and current families.

Current family	Number of current genera	Number of illustrations
Hemiphlebiidae	1	2
Synlestidae	1	2
Lestidae	8	41
Platystictidae	5	19
Hypolestidae	1	1
incertae sedis group 7 (<i>Tatocnemis</i>)	1	2
Isostictidae	3	3
Platynemididae	20	94
Coenagrionidae	75	342

Discussion

Watercolours

In the nineteenth century the illustration of wildlife, plants and animals by producing watercolours was a common practice. The method recorded the appearance of specimens and it gave information about colour that often faded in preserved specimens. The goal of many artists working in natural history art was to achieve accurate depiction rather than artistic merit. Unlike the watercolour collection of Selys, many watercolour collections, representing different animal groups, were published during that period.

Table 4. Selys' names associated with possible current species names.

Name according to Selys	Code of the sheet	Possible current species names	Consulted experts
<i>Agriocnemis coelestina</i>	Ag142b	<i>Agriocnemis minima</i> (Selys, 1877)	MH
<i>Alloneura controtern</i>	Ag195a	<i>Nososticta salomonis</i> (Selys, 1886) <i>Nososticta africana</i> (Schmidt, 1944)	DG
<i>Alloneura furcifera simplifcata</i>	Ag195b	<i>Elatoneura</i> spec.	MH KD
<i>Argia incerta</i>	Ag28b	<i>Argia</i> spec.	RG
<i>Lestes beccarii</i>	Ag315a	<i>Austrolestes</i> spec.	GT MH
<i>melanorrhina</i>	Ag298a	<i>Teinobasis</i> spec.	MH
<i>Nesagrion nigristigma</i>	Ag128b	<i>Teinobasis</i> spec.	MH
<i>Telagrion fulvellum</i> male	Ag108b	<i>Telebasis</i> spec.	RG
<i>xanthops</i>	Ag286b	<i>Teinobasis rufithorax</i> (Selys, 1877)	MH MM

Abbreviations of consulted experts: DG, Dirk Gassmann; GT, Gunther Theischinger; KD, KD Dijkstra; MH, Matti Hämäläinen; MM, Milen Marinov; RG, Rosser Garrison.

Table 5. Selys' manuscript names with no association with a current species name.

Name according to Selys	Code of the sheet	Consulted experts
<i>Agriion pyrromelas</i>	Ag84a	HD
<i>Diplostigma mirandum</i>	Ag141a, Ag141b	MH
<i>Lestes albilabris</i>	Ag312a	MH
<i>Platylestes fusconuchalis</i>	Ag8a	MH
<i>Pseudagrion spurium</i>	Ag121a	MH
<i>rufipes</i>	Ag288a	MM DP
<i>Thalassagrion coeruleatum</i>	Ag130a	MH

Abbreviations of consulted experts: DP, Dennis Paulson; HD, Henri Dumont; MH, Matti Hämäläinen; MM, Milen Marinov.

Interpretation and accuracy

Several difficulties arise when studying the illustrations and texts of Selys' watercolour collection. We suggest further study of the images from the original or online source before accepting unequivocally our opinions as to attribution of names.

The notes on the sheets with illustrations indicate that he used them as working documents. Names and sentences were crossed out and replaced by more recent names or new information that had become available. The text on some sheets is indecipherable to us. He added question marks to some species names and localities. Question marks are sometimes added before, between or after the name given by Selys suggesting uncertainty as to a generic and/or species name. The meaning of a question mark between the genus-group and species-group name is perhaps the most difficult to determine. With hindsight some of Selys' doubts seem justified, e.g. *Metacnemis angusta* (AG269a) (Figure 8) with the note "allocnemis?" that was recently transferred to another genus *Spesbona* (Dijkstra, 2013). In contrast *Agriocnemis ?MacLachlani* (Ag153a) has retained the same combination as originally proposed by Selys.

Selys did not always write out the full binomial name on the illustrations and both species-group or genus-group names are sometimes apparently misspelled. On the watercolour Ag252a *Prichocnemis renifera* is written in uppercase beneath the paintings and *Trich. renifera* in lower case. In this case *Trichocnemis renifera* is the correct spelling (see Appendix 2).

Geographical place names are also not always spelled consistently. For example in the case of *Prionocnemis serrata* (Ag239b) "Luzon" is written on the illustration but in the text sheet TAg94 "Luçon" is written after the same species name. Luzon is the correct spelling of an island of the Philippines. The locality Darjeeling in India is variously spelled as Darjeeling (TAg95), Darjeling (TAg138) and Dargeiling (Ag303b). Locality is not always very specific, for example "am. trop?" (Amérique tropique?, tropical America?), written on sheet Ag134b. Localities also, as in this case, are sometimes followed by question marks. Selys did not always write a locality on the illustrations in the watercolour collection. For some species the text sheets give not the locality but the range of the species e.g. "Europe as.min Algeria" (Europe, Asia minor, Algeria) written on TAg144 for *Sympycna fusca*, i.e. *Sympecma fusca* (Vander Linden, 1820). Selys also used French names for some localities that currently have different names or may be part of different countries. For example Selys used "*Nouvelle Hollande*" for Australia. Selys provides more details about localities in his synopses and revision (list of publications in Tables 1 and 2).

There are examples of mistakes in locality. These are probably not due to mistakes made by Selys himself but to incorrect information given to him. The watercolour of *Argia Kurilis* (Ag25b) has a note on locality that is consistent with the text in TAg6: "I. Kurilis". In the synopsis Selys (1865) also wrote "*Patrie: Iles Kuriles*" (country: Kuril Islands). *Argia kurilis* is currently a junior synonym of *Argia vivida* Hagen in Selys, 1865 and its distribution is restricted to North America. Gloyd (1941) argued that the locality Kuril Islands (in Russia) should be considered an error. Selys (1869) described *Hemiphlebia mirabilis* from Port Denison (Queensland), northern Australia. Some serious mislabelling had occurred and it is highly unlikely that it is the type locality according to Tillyard and Fraser (1939). Theischinger & Endersby (2009) suggested the specimen was most likely from coastal Victoria where the species still occurs.

Selys illustrations are not all to scale. This is illustrated by the comparison of the watercolours of *Enallagma boreale* (Ag35ae) and of *Neoneura fulvicollis* (Ag222b) (Figure 2). In his publications Selys provides measurements of abdomen lengths: *Enallagma boreale* male 22.5 mm and female 24 mm (Selys, 1876), *Neoneura fulvicollis* male 31 mm (Selys, 1886). *Enallagma boreale* is considerably smaller than *Neoneura fulvicollis* but is painted larger. Also small drawings of details are not always of the same scale as the larger watercolours on the same sheet, as illustrated by the watercolour of *Telagrion fulvillum* (Ag108b) (Figure 9). Selys sometimes

put information about scale in his notes e.g. “4 fois” (4 times) on the illustration of *Metacnemis angusta* (Ag269a) (Figure 8) and both “6 fois” and “12 fois” in the drawing of *Hemiphlebia mirabilis* (Figure 5). Calvert (1931, p. 6) used the illustrations of Selys to study *Palaemnema* species and stated “the drawings of six species . . . are evidently all on the same scale”. The representations within one genus, executed around the same time, generally seem to be consistent in scale.

The accuracy of Selys in illustrating specimens is not as good as that of Hagen or that of a more recent artist. This is clearly demonstrated when comparing the illustrations of the appendages of the same *Lestes* species, *Lestes barbarus* (Fabricius, 1798) (Figure 13).

Notes on several illustrations indicate that Selys did not have the specimen in hand when he painted it. He wrote “après description” (from description) e.g. in the note “d’après mes descriptions. de Berlin (par Krebs)” (from my descriptions museum of Berlin (by Krebs)) as exemplified by the illustration of *Metacnemis valida* (Ag270a) (Figure 8). He also has made several drawings with missing parts. In the illustration of *Ischnura delicatula* (Ag166b) Selys painted the abdomen in spite of the note “manque” (missing).

Some illustrations are differently coloured from the appearance of species known today. This can be partly explained by the use of faded pinned specimens instead of living specimens while painting. An example concerns Selys’ illustrations of three species of *Aciagrion* given by Oleg Kosterin (personal communication, 22 November 2014). Kosterin noted that *Aciagrion hisopa* (Ag182) was illustrated accurately, including the characteristic black marking on female S9. However Selys painted *A. migratum* (Ag123a) without a black mark on S10 and with pointed appendages while the specimens in Kosterin’s collection have a black mark and bifid appendages.

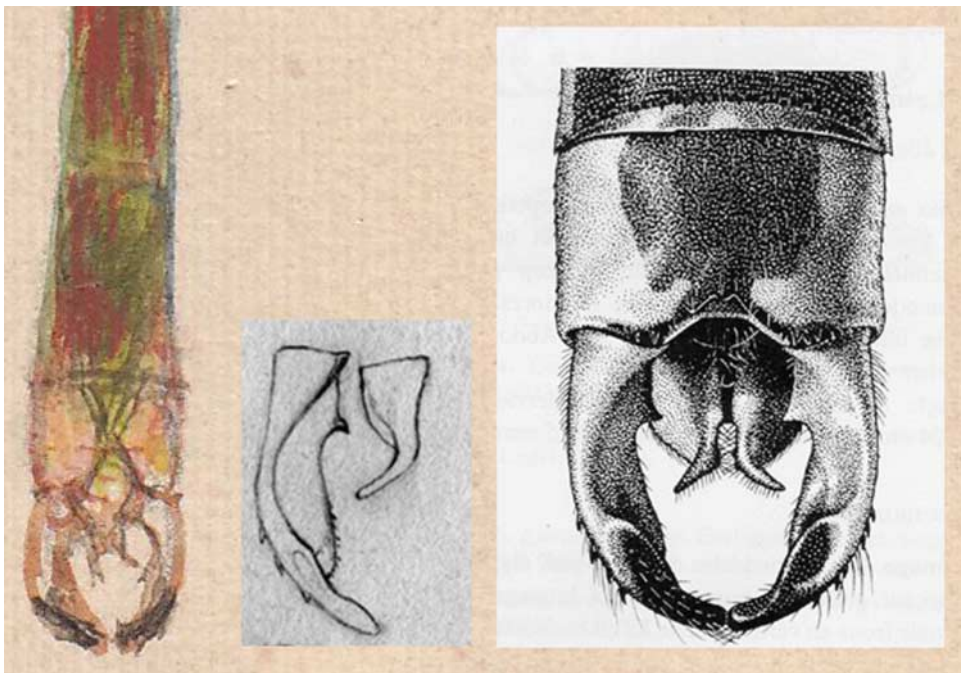


Figure 13. Illustrations of appendages of *Lestes barbarus*, currently *Lestes barbarus* (Fabricius, 1798) in dorsal view. (a) detail of watercolour by Selys (Ag309b); (b) drawing executed by Hagen (Ag62b); (c) more recent drawing by W.C.G. Gertenaar (published in Geijskes & van Tol 1983). Parts a and b are part of the watercolour collection of Selys (collection RBINS).

The inaccuracies in the illustration of *A. approximans* (Ag183b) are the unmarked S10 and the unconnected postocular spots.

Selys places illustrations of a male and a female from different collections together assuming them to be conspecific. For example, in the illustration of *Erythragrion erythrinum* (Ag138b) he painted a male and female but expressed this doubt about the female specimen in the note “♀? 19 juin (ou corallina?)” (♀? 19 June (or corallina?). During a visit to the collection in RBINS, the pinned female specimen was identified by von Ellenrieder and Garrison (2007) as *Telebasis corallina* (Selys, 1876). The case of the Neotropical *Telagrion fulvellum* (Ag108b), which is now *Dolonagrion fulvellum* (Selys, 1876), is a second puzzling example. Captured individuals, photographed by one of us (MW) in Suriname in 2011, all had a dark dorsum on the abdomen and the males had blue spots on segment 7 and 8. Selys mentioned these characters when describing this species in 1876 but these are not present on his painting (Figure 9). He produced this illustration, based on a description of a specimen from the Budapest museum that he made a few weeks earlier. The inconsistency was cleared up by Rosser Garrison (personal communication, 18 April 2015) who examined the watercolour with the name *Telagrion fulvellum*. He observed that the male appendages resemble a *Telebasis* species so the painting of the male is likely based on a specimen of another species.

Type

The term type was not defined until after Selys' death in the report of the International Commission on Zoological Nomenclature (Stiles, 1913), thus the more recent term holotype (referring to the single specimen designated or fixed as the name bearing of a nominal species by the author at the time of description) does not appear on the sheets with illustrations. The custom of identifying an illustrated specimen as a type was not in use during Selys' career as an entomologist. Moreover his primary concern was evidently the visual recording of the species in his collection in preparation for his comprehensive work on the Odonata of the world. Selys' types in the odonate collection of RBINS are also rarely accompanied by type labels written by Selys (personal observations and Garrison personal communication, 11 October 2015). Severin (1905) comments on the Odonata collection received by Musée de Brussel (now RBINS) from Selys' heirs. He estimates that 1200–1300 types (including those of acquired collections) are included in Selys' odonate collection of almost 12,000 specimens. Most of the types in the collection of Selys were depicted as watercolours according to Lameere (1902) so many illustrations in the watercolour collection are expected to be of holotypes or syntypes. The collection of odonate specimens of Selys in the RBINS is documented but not published (Grootaert, personal communication 14 September 2015). This list does not provide details on holotypes or syntypes present. The type material of several species of Odonata in the Selys' collection of RBINS was critically examined by von Ellenrieder & Garrison (2007). The presence of holotypes and syntypes was confirmed for some species and they designated lectotypes.

Associating Selys' species names with current species names

We have succeeded in associating the majority of the names used by Selys in his illustrations with current species names. There are various reasons for not finding associations. In some cases he changed his manuscript names before describing the species. In the watercolour of *Alloneura wallacii* (Ag192b) (Figure 10) currently known as *Nososticta wallacii* (Selys, 1886), the word papua with the note “papua S. n. sp.” (papua Selys new species) is crossed out and “Wallacii” is written underneath. Selys replaced the manuscript name papua with wallacii and published a



Figure 14. Watercolour of *Enallagma nanum*, executed by Selys (Ag 44a, collection RBINS). This illustration is associated by expert opinion with *Enallagma coecum* (Hagen, 1861).

description with the last name. In general Selys used manuscript names that were eventually published in his descriptions, although sometimes he took a long time to publish them. For example seven Japanese odonate species whose manuscript names were listed in 1851 in a letter to the Rijksmuseum van Natuurlijke Historie in Leiden (the Netherlands) were all published with these original names; after 32 years he published the last one, *Libellula eroticum* Selys, 1883, which is currently placed in the genus *Sympetrum* (Wasscher, 2015).

It can also be the result of the fact that the labelled illustrations consist only of the species-group name or a genus-group name. Some manuscript names, used by Selys, can be associated

as in the case of *Teinobasis ruficollis* (Selys, 1877) for *ruficollis* (Ag289b), but for other names further research by specialists including a close examination of targeted watercolours may likely help in determining to which species an unknown illustration belongs. For the suggested possible current species names (Table 4) more detailed taxonomical study is needed to support the identification. Of the seven manuscript names used by Selys, which could not be associated with a current species name (Table 5) there are no specimens in the Selys' collection in RBINS.

The opportunities presented by the watercolour collection

We have not attempted to establish a correct identity for those watercolours bearing unknown manuscript names, as this was not the purpose of our research. But experts can possibly study the watercolours and drawings to identify species in the illustrations and to associate the manuscript names of Selys with current species names. The watercolour collection can provide information making association of newly acquired material to types possible. We present three cases where the watercolour collection may provide additional information.

The illustrations may give a solution to the true identity of *Argiocnemis solitaria* (Selys, 1872) (Ag146a). This is a Data Deficient species on the IUCN Red list (Martens, 2006) and is only known from the illustrated female type specimen from the African island Rodrigues near Mauritius. The species has never been seen again. As two sister species only occur in South-West Asia and Australia (Tsuda, 2000), the female specimen illustrated by Selys could be mislabelled. Research concerning this species is ongoing (personal communication Martens, 4 May 2015).

Alloneura wallacii (Ag192b), described by Selys in 1886, is currently named *Nososticta wallacii*. This species is known only from the holotype and is a Data Deficient species on the IUCN Red list (Kalkman, 2009). The watercolour (Figure 10) can supply more information on the appearance of the species. On the illustration “n.sp.”(new species) and “coll. McLachlan” (collection McLachlan) are noted. The locality is Papua according to the notes on the sheet with illustrations and “Jobi (n Guinee)?” (currently the island Yapen in New Guinea) according to the text sheet (TAg71).

The illustration of *Enallagma nanum* (Ag44a) (Figure 14) could not be associated with a current species name by references. The notes “non publié” and “MSS Hagen” indicate this is a manuscript name. On the corresponding text sheet TAg48 “Cap.” is written. This is usually interpreted as Cape of Good Hope, South Africa. It could not be clearly identified as an African species (Dijkstra, personal communication, 9 September 2015). The illustration matches well with *Enallagma coecum* (Hagen, 1861) that has a type location St Thomas, Virgin Islands (Meurgey personal communication, 25 September 2015). The note “Cap.” seems to be an abbreviation of Capesterre in Guadeloupe. This is a case similar to *Argia concinna* (Rambur, 1842) whose locality was mistakenly placed in Africa due to the note “Cap.” (Meurgey, 2009).

Conclusion

The extensive and beautiful watercolour collection of Selys supports the monumental work on Odonata carried out by Edmond de Selys Longchamps during the nineteenth century. His own publications rarely contain illustrations so his watercolour collection presents an unknown side of Selys. The notes on the illustrations and the text sheets give insight in his way of thinking. We believe our review will encourage odonate researchers to study the digital images of the watercolour collection. The presentation of the watercolours, drawings and notes with information on the RBINS website (<http://virtualcollections.naturalsciences.be/archives>) makes this unpublished information available to all interested in the taxonomy of Odonata. This online presentation together with the two publications on the watercolour collection of Selys, presenting

the Agrionines (this article) and the Calopterygines, Cordulines, Gomphines and Aeschnines (Verspui & Wasscher in prep.) will hopefully inspire further discussion and taxonomical research.

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Appendix 1. List of illustrated species of Agrionines in the watercolour collection of Selys that are associated with a current species name

Current species, current genus and current family name are listed. For each current species name the author and the year of description is recorded. In square brackets the associated name written by Selys on the illustrations (Selys' name) and if necessary the abbreviation of the consulted expert is added. For references concerning associations see material and methods. Selys' names are spelled in the way it was written on the original illustrations. Selys' names are written, as is customary for current species names, with only a capital letter at the beginning of the generic name. Generic names were abbreviated when possible, also in Selys' names. Variety names or race names are not in this list. For the sequence of the family names Dijkstra, Kalkman, et al. (2013) is followed.

Hemiphlebiidae: *Hemiphlebia* *H. mirabilis* Selys, 1868 [id.]

Synlestidae: *Megalestes* *M. major* Selys, 1862 [id.]

Lestidae: *Archilestes* *A. grandis* (Rambur, 1842) [id.]; *Austrolestes* *A. analis* (Rambur, 1842) [*Lestes analis*], *A. annulosus* (Selys, 1862) [*Lestes annulosa*], *A. cingulatus* (Burmeister, 1839) [*Lestes cingulata*], *A. colenonis* (White, 1846) [*Lestes colenonis*], *A. io* (Selys, 1862) [*Lestes io*], *A. leda* (Selys, 1862) [*Lestes leda*], *A. psyche* (Hagen in Selys, 1862)

[*Lestes psyche*]; **Chalcolestes** *C. viridis* (Vander Linden, 1825) [*Lestes viridis*]; **Indolestes** *I. bilineatus* (Selys, 1891) [*Platylestes bilineata*; MH], *I. birmanus* (Selys, 1891) [*Lestes birmana*], *I. cyaneus* (Selys, 1862) [*Lestes cyanea*], *I. divinus* (Hagen in Selys, 1862) [*Lestes divisa*], *I. gracilis* (Hagen in Selys, 1862) [*Lestes gracilis*]; **Lestes** *L. barbarus* (Fabricius, 1798) [*L. barbara*], *L. concinnus* Hagen, 1862 [*L. fuscata*; MH], *L. dryas* Kirby, 1890 [*L. nympha*], *L. elatus* Hagen in Selys, 1862 [*L. elata*], *L. japonicus* Selys, 1883 [*L. japonica*], *L. macrostigma* (Eversman, 1836) [id.], *L. nodalis* Selys, 1891 [id.], *L. ochracea* Selys, 1862 [*L. olivacea*; KD], *L. pallidus* Rambur, 1842 [*L. pallida*], *L. pallidus* Rambur, 1842 [*L. sellata*], *L. praemorsus* Hagen in Selys, 1862 [*L. praemorsa*], *L. sponsa* (Hansemann, 1823) [id.], *L. temporalis* Selys, 1883 [id.], *L. umbrinus* Selys, 1891 [*L. umbrina*], *L. virens* (Charpentier, 1825) [id.], *L. viridulus* Rambur, 1842 [*L. viridula*]; **Orolestes** *O. selysi* McLachlan, 1895 [*Melanolestes fuscipennis*; MH], *O. selysi* McLachlan, 1895 [*Melanolestes trinitatis*; MH], *O. wallacei* (Kirby, 1889) [*Melanolestes sublimbata*; RD]; **Platylestes** *P. platystylus* (Rambur, 1842) [*P. platystyla*], *P. platystylus* (Rambur, 1842) [*Platylestes platystyla*]; **Sympnecta** *S. fusca* (Van der Linden, 1820) [*Sympneca fusca*], *S. paedisca* (Brauer, 1877) [*Sympneca annulata*], *S. paedisca* (Brauer, 1877) [*Sympneca paedisca*]

Platystictidae: **Ceylonosticta** *C. digna* (Hagen in Selys, 1860) [*Platysticta digna*], *C. hilaris* (Hagen in Selys, 1860) [*Platysticta hilaris*], *C. montana* (Hagen in Selys, 1860) [*Platysticta montana*], *C. tropica* (Hagen in Selys, 1860) [*Platysticta tropica*]; **Drepanosticta** *D. auriculata* Selys, 1878 [*Platysticta auriculata*], *D. bicornuta* (Selys, 1878) [*Platysticta bicornuta*], *D. halterata* (Brauer, 1868) [*Platysticta halterata*], *D. lestoides* (Brauer, 1868) [*Platysticta lestoides*], *D. quadrata* (Selys, 1860) [*Platysticta quadrata*], *D. rufostigma* (Selys, 1886) [*Platysticta rufostigma*]; **Palaemnema** *P. angelina* Selys, 1860 [id.], *P. clementia* Selys, 1886 [id.], *P. desiderata* Selys, 1886 [id.], *P. melanostigma* Hagen in Selys, 1860 [id.], *P. nathalia* Selys, 1886 [*Palaemnema nathalia*], *P. paulina* (Drury, 1773) [id.]; **Platysticta** *P. maculata* Hagen in Selys, 1860 [id.]; **Protosticta** *P. simplicinervis* Selys, 1885 [id.]

Hypolestidae: **Hypolestes** *H. trinitatis* (Gundlach, 1888) [id.]

Incertae sedis group 7 Calopterygoidea Tatocnemidae: **Tatocnemis** *T. malgassica* Kirby, 1889 [*T. malgassica*¹], *T. malgassica* Kirby, 1889 [*Tatocnemis malgassica*]

Isostictidae: **Isosticta** *I. spinipes* Selys, 1885 [id.]; **Rhanosticta** *R. simplex* (Martin, 1901) [*Isosticta simplex*]; **Selysioneura** *S. cervicornu* Förster, 1900 [id.]

Platycnemididae: **Allocnemis** *A. flavipennis* (Selys, 1863) [*Chlorocnemis flavipennis*], *A. leucosticta* Selys, 1863 [id.], *A. nigripes* (Selys, 1886) [*Chlorocnemis nigripes*], *A. subnodalis* (Selys, 1886) [*Disparoneura subnodalis*]; **Caconeura** *C. gomphoides* (Rambur, 1842) [*Disparoneura gomphoides*]; **Calicnemia** *C. chromothorax* (Selys, 1891) [*Calicnemia erythromelas*], *C. erythromelas* (Selys, 1891) [*Calicnemia erythromelas*], *C. eximia* (Selys, 1863) [*Calicnemia atkinsoni*], *C. eximia* (Selys, 1863) [*Calicnemia eximia*], *C. miniata* (Selys, 1886) [*Calicnemia miniata*], *C. pulverulans* (Selys, 1886) [*Calicnemia pulverulans*]; **Chlorocnemis** *C. elongata* (Hagen in Selys, 1863) [id.]; **Coeliccia** *C. borneensis* (Selys, 1886) [*Trichocnemis borneensis*], *C. didyma* (Selys, 1863) [*Trichocnemis didyma*], *C. membranipes* (Rambur, 1842) [*Trichocnemis membranipes*], *C. membranipes* (Rambur, 1842) [*Trichocnemis silenta*], *C. octogesima* (Selys, 1863) [*Trichocnemis octogesima*], *C. renifera* (Selys, 1886) [*Prichocnemis renifera*¹]; **Copera** *C. imbricata* (Hagen in Selys, 1863) [*Ps. imbricata*²], *C. marginipes* (Rambur, 1842) [*Psilocnemis marginipes*], *C. rufipes* (Selys, 1886) [*Allocnemis rufipes*], *C. vittata* (Selys, 1863) [*Psilocnemis vittata*]; **Disparoneura** *D. quadrimaculata* (Rambur, 1842) [id.]; **Elatoneura** *E. analis* (Selys, 1860) [*Disparoneura analis*], *E. atkinsoni* (Selys, 1886) [*Disparoneura atkinsoni*], *E. aurantiaca* (Selys, 1886) [*Disparoneura aurantiaca*], *E. caesia* (Hagen in Selys, 1860) [*Disparoneura coesia*¹], *E. centralis* (Hagen in Selys, 1860) [*Disparoneura centralis*], *E. frenulata* (Hagen in Selys, 1860) [*Disparoneura froenulata*¹], *E. glauca* (Selys, 1860) [*Disparoneura glauca*], *E. glauca* (Selys, 1860) [*Disparoneura mutata*], *E. pruinosa* (Selys, 1886) [*Alloneura pruinosa*; JV], *E. tenax* (Hagen in Selys, 1860) [*Disparoneura tenax*], *E. vittata* (Selys, 1886) [*Alloneura martini*; MH&KD], *E. vittata* (Selys, 1886) [*Disparoneura vittata*]; **Idiocnemis** *I. bidentata* Selys, 1878 [id.], *I. inornata* Selys, 1878 [id.]; **Igneocnemis** *I. atropurpurea* (Brauer, 1868) [*Prionocnemis atropurpurea*], *I. flammea* (Selys, 1882) [*Prionocnemis flammea*], *I. haematopus* (Selys, 1882) [*Prionocnemis haematopus*¹], *I. ignea* (Brauer, 1868) [*Prionocnemis ignea*]; **Mesocnemis** *M. robusta* (Selys, 1886) [*Metacnemis robusta*], *M. valida* (Hagen in Selys, 1863) [*Metacnemis valida*]; **Nososticta** *N. circumscripta* (Selys, 1886) [*Alloneura circumscripta*], *N. erythroprocta* (Selys, 1886) [*Alloneura erythroprocta*], *N. exul* (Selys, 1886) [*Alloneura exul*], *N. flavipennis* (Selys, 1886) [*Alloneura moluccensis*], *N. insignis* (Selys, 1886) [*Alloneura insignis*], *N. moluccensis* (Selys, 1886) [*Alloneura moluccensis*], *N. plagiata* (Selys, 1886) [*Alloneura plagiata*], *N. salomonis* (Selys, 1886) [*Alloneura salomonis*], *N. selysii* (Förster, 1896) [*Alloneura selysii*¹], *N. selysii* (Förster, 1896) [*Alloneura selysii*], *N. solida* Hagen in Selys, 1860 [id.], *N. wallacii* (Selys, 1886) [*Alloneura wallacii*; JV]; **Phylloneura** *P. westermanni* (Hagen in Selys, 1860) [*Disparoneura westermanni*]; **Platycnemis** *P. acutipennis* Selys, 1841 [id.], *P. acutipennis* Selys, 1841 [*P. subdilata*], *P. dealbata* Selys in Selys & Hagen, 1850 [*P. latipes*], *P. foliaceae* Selys, 1886 [id.], *P. latipes* Rambur, 1842 [id.], *P. pennipes* (Pallas, 1771) [id.], *P. pennipes* (Pallas, 1771) [id.], *P. prodasineura *P. collaris* (Selys, 1860) [*Disparoneura collaris*], *P. dorsalis* (Selys, 1860) [*Alloneura dorsalis*], *P. gracillima* (Selys, 1886) [*Alloneura gracillima*¹], *P. hyperythra* (Selys, 1886) [*Alloneura hyperythra*], *P. integra* (Selys, 1882) [*Disparoneura integra*], *P. interrupta* (Selys, 1860) [*Disparoneura interrupta*], *P. lansbergei* (Selys, 1886) [*Alloneura lansbergei*], *P. notostigma* (Selys, 1860) [*Disparoneura notostigma*], *P. obsoleta* (Selys, 1882) [*Disparoneura obsoleta*], *P. verticalis* (Selys, 1860) [*Disparoneura humeralis*], *P. verticalis* (Selys, 1860) [*Disparoneura verticalis*]; **Proplatycnemis** *P. alatipes* (McLachlan, 1872) [*Platycnemis alatipes*], *P. hova* (Martin, 1908) [*Platycnemis hova*]; **Pseudocopera** *P. annulata* (Selys, 1863) [*Psilocnemis annulata*], *P. ciliata* (Selys, 1863) [*Psilocnemis ciliata*]; **Risioicnemis** *R. appendiculata* (Brauer, 1868) [*Prionocnemis appendiculata*], *R. erythura* (Brauer, 1868) [*Prionocnemis erythura*], *R. serrata**

(Hagen in Selys, 1863) [*Prionocnemis cornuta*], *R. serrata* (Hagen in Selys, 1863) [*Prionocnemis serrata*]; *Spesbona S. angusta* (Selys, 1863) [*Metacnemis angusta*]; *Stenocnemis S. pachystigma* (Selys, 1886) [*Allocnemis pachystigma*]

Coenagrionidae: *Acanthagrion A. apicale* Selys, 1876 [id.], *A. gracile* (Rambur, 1842) [id.], *A. gracile* (Rambur, 1842) [*A. gralie*¹], *A. lancea* Selys, 1876 [*A. gracile*], *A. temporale* Selys, 1876 [id.], *A. truncatum* Selys, 1876 [id.], *A. vidua* Selys, 1876 [*A. gracile*]; *Aceratobasis A. macilentata* (Rambur, 1842) [*Leptobasis macilentata*]; *Aciagrion A. approximans* (Selys, 1876) [id.], *A. hisopa* (Selys, 1876) [id.], *A. migratum* (Selys, 1876) [*Pseudagrion migratum*], *A. pallidum* Selys, 1891 [id.]; *Aeolagrion A. dorsale* (Burmeister, 1839) [*Leptagrion dorsale*], *A. inca* (Selys, 1876) [*Leptagrion inca*]; *Africallagma A. glaucum* (Burmeister, 1839) [*Enallagma gabonense*], *A. inca* (Selys, 1876) [*Enallagma obliteratum*]; *Agriocnemis A. carmelita* Selys, 1877 [id.], *A. exilis* (Selys, 1872) [id.], *A. exsudans* Selys, 1877 [id.], *A. femina* (Brauer, 1868) [*A. incisa*], *A. femina* (Brauer, 1868) [*A. materna*], *A. lacteola* Selys, 1877 [id.], *A. maclachlani* Selys, 1877 [id.], *A. minima* Selys, 1877 [id.], *A. pygmaea* (Rambur, 1842) [*A. pygmaea*¹], *A. pygmaea* (Rambur, 1842) [*A. pygmoea*¹], *A. pygmaea* (Rambur, 1842) [*australis*²; MH]; *Amazonaura A. ephippigera* (Selys, 1886) [*Protoneura ephippigera*]; *Amphiagrion A. abbreviatum* (Selys, 1876) [id.], *A. saucium* (Burmeister, 1839) [id.]; *Amphiallagma A. parvum* (Selys, 1876) [*Enallagma parvum*]; *Amphicnemis A. wallacii* Selys, 1863 [*A. wallacii*]; *Anisagrion A. inornatum* (Selys, 1876) [*Leptagrion inornatum*], *A. saucium* (Burmeister, 1839) [*Leptagrion rufum*], *A. truncatipenne* Calvert 1902 [*A. anisopterum*; RG], *A. truncatipenne* Calvert 1902 [*A. rufum*; RG]; *Antiagrion A. blanchardi* (Selys, 1876) [*Erythromma blanchardi*], *A. gayi* (Selys, 1876) [*Erythromma gayi*]; *Apanisagrion A. lais* (Brauer in Selys, 1876) [*Nehalennia lais*¹]; *Archibasis A. melanocyana* (Selys, 1877) [*Stenobasis melanocyana*], *A. oscillans* (Selys, 1877) [*Stenobasis oscillans*]; *Argia A. agrioides* Calvert, 1895 [id.], *A. albistigma* Hagen in Selys, 1865 [id.], *A. apicalis* (Say, 1840) [id.], *A. bipunctulata* (Hagen, 1861) [*A. bipunctata*¹], *A. calida* (Hagen, 1861) [id.], *A. clausenii* Selys, 1865 [*A. clauseni*¹], *A. collata* Selys, 1865 [id.], *A. concinna* (Rambur, 1842) [id.], *A. croceipennis* Selys, 1865 [id.], *A. cupraurea* Calvert, 1901 [id.]; JV], *A. cuprea* (Hagen, 1861) [id.], *A. difficilis* Selys, 1865 [id.], *A. elliptica* Selys, 1865 [id.], *A. extranea* (Hagen, 1861) [id.], *A. fissa* Selys, 1865 [id.], *A. fumigata* Hagen in Selys, 1865 [id.], *A. fumipennis* (Burmeister, 1839) [id.], *A. fumipennis* (Burmeister, 1839) [*A. violacea*], *A. funcki* (Selys, 1854) [*Hyponeura funcki*], *A. funebris* (Hagen, 1861) [id.], *A. huancina* Förster, 1914 [*A. lateralis*], *A. immunda* (Hagen, 1861) [id.], *A. impura* Rambur, 1842 [id.], *A. inculta* Hagen in Selys, 1865 [id.], *A. infumata* Selys, 1865 [id.], *A. insipida* Hagen in Selys, 1865 [id.], *A. jocososa* Hagen in Selys, 1865 [id.], *A. lacrimans* (Hagen, 1861) [*A. lacrymans*¹], *A. lilacina* Selys, 1865 [id.], *A. lugens* (Hagen, 1861) [*Hyponeura extensa*; RG], *A. lugens* (Hagen, 1861) [*Hyponeura lugens*], *A. medullaris* Hagen in Selys, 1865 [*A. medularis*], *A. modesta* Selys, 1865 [id.], *A. moesta* (Hagen, 1861) [id.], *A. moesta* (Hagen, 1861) [*A. putrida*], *A. mollis* Hagen in Selys, 1865 [id.], *A. oculata* Hagen in Selys, 1865 [id.], *A. oenea* Hagen in Selys, 1865 [id.], *A. orichalcea* Hagen in Selys, 1865 [id.], *A. pulla* Hagen in Selys, 1865 [id.], *A. reclusa* Selys, 1865 [id.], *A. sedula* (Hagen, 1861) [id.], *A. serva* Hagen in Selys, 1865 [id.], *A. sordida* Hagen in Selys, 1865 [*A. dimissa*], *A. sordida* Hagen in Selys, 1865 [id.], *A. thespis* Hagen in Selys, 1865 [id.], *A. tibialis* (Rambur, 1842) [id.], *A. tinctipennis* Selys, 1865 [id.], *A. translata* Hagen in Selys, 1865 [id.], *A. variabilis* Selys, 1865 [id.], *A. vivida* Hagen in Selys, 1865 [*A. kurilis*], *A. vivida* Hagen in Selys, 1865 [id.]; *Argiocnemis A. rubescens* Selys, 1877 [*A. lunulata*], *A. rubescens* Selys, 1877 [*Argiocnemis nigricans*], *A. rubescens* Selys, 1877 [*Argiocnemis rubeola*], *A. rubescens* Selys, 1877 [id.], *A. solitaria* (Selys, 1872) [id.]; *Austroagrion A. cyane* Selys, 1876 [*Pseudagrion cyane*]; *Azuragrion A. nigradorsum* (Selys, 1876) [*Enallagma nigradorsum*]; *Calvertagrion C. minutissimum* (Selys, 1876) [*Agrion minutissimum*]; *Cercion C. malayanum* (Selys, 1876) [*Enallagma malayanum*]; *Ceriagrion C. glabrum* (Burmeister, 1839) [id.], *C. aeruginosum* (Brauer, 1869) [*C. fulvum*; MH], *C. azureum* (Selys, 1891) [*Pseudagrion azureum*], *C. cerinorubellum* (Brauer, 1865) [id.], *C. coromandelianum* (Fabricius, 1798) [id.], *C. melanurum* Selys, 1876 [id.], *C. tenellum* (Sultzzer, 1776) [*Pyrrhosoma tenellum*]; *Chromagrion C. conditum* (Hagen in Selys, 1876) [*Erythromma conditum*]; *Coenagrionocnemis C. insularis* Selys, 1872 [*Pseudagrion insulare*], *C. rufipes* (Rambur, 1842) [*Pseudagrion rufipes* MH&KD]; *Coenagrion C. armatum* (Charpentier, 1840) [*Agrion armatum*], *C. caerulescens* (Fonscolombe, 1838) [*Agrion caerulescens*], *C. ecornutum* (Selys, 1872) [*Agrion ecornutum*], *C. glaciale* (Selys, 1872) [*Agrion glaciale*], *C. hastulatum* (Charpentier, 1825) [*Agrion hastulatum*], *C. interrogatum* (Hagen in Selys, 1876) [*Agrion interrogatum*], *C. johanssoni* (Wallengren, 1894) [*Agrion concinnum*], *C. lanceolatum* (Selys, 1872) [*Agrion lanceolatum*], *C. lunulatum* (Charpentier, 1840) [*Agrion lunulatum*], *C. melanoproctum* (Selys, 1876) [*Agrion melanoproctum*], *C. mercuriale* (Charpentier, 1840) [*Agrion hermeticum*], *C. mercuriale* (Charpentier, 1840) [*Agrion mercuriale*], *C. ornatum* (Selys, 1850) [*Agrion ornatum*], *C. puella* (Linnaeus, 1758) [*Agrion puella*], *C. pulchellum* (Van der Linden, 1825) [*Agrion pulchellum*], *C. resolutum* (Hagen in Selys, 1876) [*Agrion resolutum*], *C. scitulum* (Rambur, 1842) [*Agrion scitulum*]; *Cyanallagma C. interruptum* (Selys, 1876) [*Acanthagrion interruptum*], *C. nigrinuchale* (Selys, 1876) [*Acanthagrion nigrinuchale*], *C. trimaculatum* (Selys, 1876) [*Acanthagrion trimaculatum*]; *Diceratobasis D. macrogaster* (Selys in Sagra, 1857) [*Leptobasis macrogaster*]; *Dolonagrion D. fulvellum* (Selys, 1876) [*Telagrion fulvellum*]; *Enallagma E. annexum* (Hagen, 1861) [id.], *E. aspersum* (Hagen, 1861) [*Enallagma aspersum*], *E. boreale* Selys, 1875 [id.], *E. circulatum* (Selys, 1883) [*Agrion circulatum*; MH&AS], *E. civile* (Hagen, 1861) [id.], *E. coecum* (Hagen, 1861) [*E. cardenium*], *E. coecum* (Hagen, 1861) [id.], *E. coecum* (Hagen, 1861) [*E. nanum*; FM], *E. cyathigerum* (Charpentier, 1840) [*E. cyatigerum*¹], *E. cyathigerum* (Charpentier, 1840) [*E. robustum*], *E. deserti* Selys, 1871 [id.], *E. divagans* Selys, 1876 [id.], *E. doubledayi* (Selys, 1850) [id.], *E. durum* (Hagen, 1861) [id.], *E. ebrium* (Hagen, 1861) [id.], *E. exsulans* (Hagen, 1861) [*E. exulans*¹], *E. hageni* (Walsh, 1863) [id.], *E. pollutum* (Hagen, 1861) [id.], *E. praevarum* (Hagen, 1861) [id.], *E. semicirculare* Selys, 1876 [id.], *E. signatum* (Hagen, 1861) [id.], *E. travium* Selys, 1876 [id.]; *Epipleoneura E. capilliformis* (Selys, 1886) [*Protoneura capilliformis*], *E. humeralis* (Selys, 1886) [*Protoneura humeralis*]; *Erythromma E. humerale* Selys, 1887 [id.], *E. lindenii* (Selys, 1840) [*Agrion lindenii*], *E. najas* (Hansemann, 1823) [id.], *E. viridulum* (Charpentier, 1840) [id.]; *Forcepseoneura F. sancta* (Hagen in Selys, 1860) [*Protoneura sancta*]; *Hesperagrion H. heterodoxum* (Selys, 1876) [*Amphiagrion flavescens*], *H. heterodoxum* (Selys, 1876) [*Amphiagrion heterodoxum*]; *Homeoura H. chelifera* (Selys, 1876) [*Acanthagrion cheliferrum*], *H. nepos* (Selys,

1876] [*Agrion nepos*]; **Idioneura** *I. ancilla* Selys, 1860 [id.]; **Inpabasis** *I. rosea* (Selys, 1877) [*Leptobasis rosea*]; **Ichnura** *I. asiatica* (Brauer, 1865) [id.], *I. aurora* (Brauer, 1865) [*I. delicata*], *I. aurora* (Brauer, 1865) [*I. delicatum*], *I. aurora* (Brauer, 1865) [*I. spinicauda*], *I. capreolus* (Hagen, 1861) [*Ceratura capreola*], *I. cervula* Selys, 1876 [id.], *I. demorsa* (Hagen, 1861) [id.], *I. denticollis* (Burmeister, 1839) [*Nehalennia denticollis*], *I. elegans* (Vander Linden, 1820) [id.], *I. fluviatilis* Selys, 1876 [*I. bizonata*], *I. fluviatilis* Selys, 1876 [id.], *I. genei* (Rambur, 1842) [id.], *I. graellsii* (Rambur, 1842) [id.], *I. hastata* (Say, 1839) [*Anomalagrion hastatum*], *I. heterosticta* (Burmeister, 1839) [id.], *I. perparva* (McLachlan in Selys, 1876) [id.], *I. posita* (Hagen, 1861) [*Nehalennia posita*], *I. prognata* (Hagen, 1861) [*I. prognatha*¹], *I. pumilio* (Charpentier, 1825) [id.], *I. ramburii* (Selys in Sagra, 1857) [*I. defixa*], *I. ramburii* (Selys in Sagra, 1857) [id.], *I. rufostigma* Selys, 1876 [id.], *I. senegalensis* (Rambur, 1842) [*Enallagma brevispina*], *I. senegalensis* (Rambur, 1842) [id.], *I. taitensis* Selys, 1876 [*I. taitensis*¹], *I. verticalis* (Say, 1839) [*Amphiagrion amphion*], *I. verticalis* (Say, 1839) [id.]; **Leptagrion** *L. andromache* Hagen in Selys, 1876 [id.], *L. croceum* (Burmeister, 1839) [id.], *L. elongatum* Selys, 1876 [id.], *L. macrum* (Burmeister, 1839) [*Argiagrion leoninum*], *L. macrum* (Burmeister, 1839) [id.], *L. macrum* (Burmeister, 1839) [*Telebasis leonia*; MH], *L. porrectum* Selys, 1876 [id.]; **Leptobasis** *L. vacillans* Hagen in Selys, 1877 [id.], *vacillans* Hagen in Selys, 1877 [*vacillans*²; MH&MW]; **Leptocnemis** *L. cyanops* (Selys, 1869) [*Hemicnemis bilineata*], *L. cyanops* (Selys, 1869) [*Hemicnemis cyanops*]; **Luzonabasis** *L. glauca* (Brauer, 1868) [*Telebasis glauca*]; **Melanobasis** *M. flavilabris* (Selys, 1891) [*Nesagrion flavilabris*; MH]; **Mesamphiagrion** *M. laterale* (Selys, 1876) [*Acanthagrion laterale*]; **Metaleptobasis** *M. bicornis* (Selys, 1877) [*Leptobasis bicornis*], *M. dicerias* (Selys, 1877) [*Leptobasis dicerias*], *M. quadricornis* (Selys, 1877) [*Leptobasis quadricornis*]; **Microneura** *M. caligata* Hagen in Selys, 1886 [id.]; **Minagrion** *M. mecistogastrum* (Selys, 1876) [*Telagrion mecistogastrum*], *M. waltheri* (Selys, 1876) [*Agrion waltheri*]; **Nehalennia** *N. irene* (Hagen, 1861) [id.], *N. minuta* (Selys in Sagra, 1857) [*Enallagma aduncum*], *N. minuta* (Selys in Sagra, 1857) [*N. sophia*], *N. speciosa* (Charpentier, 1840) [id.]; **Neoerythromma** *N. cultellatum* (Hagen in Selys, 1876) [*Enallagma cultellatum*]; **Neoneura** *N. bilinearis* Selys, 1860 [id.], *N. carnatica* Hagen in Selys, 1886 [id.], *N. fulvicollis* Selys, 1886 [id.], *N. maria* (Scudder, 1860) [id.], *N. rubriventris* Selys, 1860 [*N. rubdiventris*¹], *N. rufithorax* Selys, 1886 [id.], *N. sylvatica* Hagen in Selys, 1886 [id.], *N. waltheri* Selys, 1886 [id.]; **Nesobasis** *N. angulicollis* Tillyard, 1924 [*Pseudagrion obsoletum*; MM], *N. erythroptus* Selys, 1891 [*Nesagrion erythroptus*; MH], *N. longistyla* (Selys, 1891) [*Nesagrion longistylum*; MH], *N. telegastrum* Selys, 1891 [*Nesagrion telegastrum*; MH]; **Onychargia** *O. atrocyana* Selys, 1865 [*Heterargia atrocyana*; MH], *O. atrocyana* Selys, 1865 [*Heterargia vittigera*; MH]; **Oreiallagma** *O. prothoracicum* (Kimmins, 1945) [*Telagrion prothoracicum*; MH]; **Oxyagrion** *O. basale* Selys, 1876 [id.], *O. brevistigma* Selys, 1876 [id.], *O. haematinum* Selys, 1876 [id.], *O. microstigma* Selys, 1876 [id.], *O. mintopsis* Selys, 1876 [id.], *O. pavidum* (Hagen in Selys, 1876) [id.], *O. rubidum* (Rambur, 1842) [id.], *O. rubidum* (Rambur, 1842) [*O. rufulum*], *O. terminale* Selys, 1876 [id.]; **Oxyallagma** *O. dissidens* (Selys, 1876) [*Oxyagrion dissidens*]; **Palaiargia** *P. optata* (Hagen in Selys, 1865) [*Heterargia optata*; MH], *P. rubropunctata* Selys, 1878 [*Heterargia flavovittata*; MH], *P. rubropunctata* Selys, 1878 [*Heterargia rubropunctata*; MH]; **Papuagrion** *P. flavithorax* (Selys, 1878) [*Pseudagrion flavithorax*], *P. magnanimum* (Selys, 1876) [*Pseudagrion magnanimum*], *P. occipetale* (Selys, 1877) [*Stenobasis occipitalis*]; **Paracercion** *P. hieroglyphicum* (Brauer, 1865) [*Agrion hieroglyphicum*], *P. hieroglyphicum* (Brauer, 1865) [*Agrion lineolatum*; JV], *P. hieroglyphicum* (Brauer, 1865) [*Nehalennia atrinuchalis*], *P. melanotum* (Selys, 1876) [*Enallagma melanotum*], *P. sieboldii* (Selys, 1876) [*Agrion annulatum*; MH], *P. sieboldii* (Selys, 1876) [*Agrion sieboldii*], *P. sieboldii* (Selys, 1876) [*sieboldii*¹⁻²]; **Pericnemis** *P. lestoides* Brauer, 1868 [*Amphicnemis lestoides*], *P. stictica* Hagen in Selys, 1863 [id.]; **Peristicta** *P. forceps* Hagen in Selys, 1860 [id.]; **Phasmoneura** *P. exigua* (Selys, 1886) [*Protonaura exigua*]; **Phoenicagrion** *P. flammeum* (Selys, 1876) [*Leptagrion flammeum*]; **Proischnura** *P. subfurcatum* (Selys, 1876) [*Enallagma subfurcatum*]; **Proneura** *P. prolongata* Selys, 1889 [id.]; **Protoneura** *P. aurantica* Selys, 1886 [id.], *P. capillaris* (Rambur, 1842) [id.], *P. paucinervis* Selys, 1886 [id.], *P. tenuis* Selys, 1860 [id.]; **Psaironeura** *P. tenuissima* (Selys, 1886) [*Protonaura tenuissima*]; **Pseudagrion** *P. angolense* Selys, 1876 [id.], *P. aureofrons* (Tillyard, 1906) [*P. chrysops*; MH], *P. australasiae* Selys, 1876 [id.], *P. coriaceum* Selys, 1876 [id.], *P. crocops* Selys, 1876 [*Pseudagrion crocops*²], *P. crocops* Selys, 1878 [id.], *P. crocops* Selys, 1876 [*Pseudagrion semicolon*²], *P. decorum* (Rambur, 1842) [id.], *P. furcigerum* (Rambur, 1842) [id.], *P. glaucescens* Selys, 1876 [id.], *P. hypermelas* Selys, 1876 [id.], *P. kersteni* (Gerstäcker, 1869) [*P. praetextatum*], *P. melanicterum* Selys, 1876 [id.], *P. microcephalum* (Rambur, 1842) [id.], *P. rubicum* Selys, 1876 [id.], *P. pilidorsum* (Brauer, 1868) [id.], *P. pruinosum* (Burmeister, 1839) [id.], *P. punctum* (Rambur, 1842) [*Agrion punctum*], *P. rubriceps* Selys, 1876 [id.], *P. spermatum* Selys, 1881 [id.], *P. syriacum* Selys, 1887 [id.], *P. torridum* Selys, 1876 [id.], *P. ustum* Selys, 1876 [id.]; **Pyrrhosoma** *P. nymphula* (Sultz, 1776) [*P. minium*]; **Sangabasis** *S. furcata* (Brauer, 1868) [*Amphicnemis furcata*]; **Teinobasis** *T. fatakula* Marinov & Donnelly, 2013 [*atrinuchalis*²; MM], *T. filiformis* (Brauer, 1868) [*Telebasis filiformis*], *T. filum* (Brauer, 1868) [*Telebasis filum*], *T. helvola* Liefstinck, 1930 [*melanops*²; MH], *T. laglaizei* (Selys, 1878) [*Telebasis laglaizei*¹], *T. lorquini* (Selys, 1877) [*combusta*²; MH&JV], *T. lorquini* (Selys, 1877) [*lorquini*²; MH], *T. pretiosa* (Selys, 1877) [*Telebasis pretiosa*], *T. prothoracica* (Selys, 1877) [*prothoracica*²; MH], *T. recurva* (Selys, 1877) [*Telebasis recurva*], *T. ruficollis* (Selys, 1877) [*ruficollis*²; MH], *T. rufithorax* (Selys, 1877) [*rufithorax*²; MH], *T. superba* (Hagen in Selys, 1877) [*Telebasis eximia*], *T. superba* (Hagen in Selys, 1877) [*Telebasis superba*]; **Telagrion** *T. longum* Selys, 1876 [id.]; **Telebasis** *T. coccinea* (Selys, 1876) [*Erythrargion coccineum*], *T. corallina* (Selys, 1876) [*Erythrargion corallinum*], *T. dominicana* (Selys in Sagra, 1857) [*Erythrargion dominicanum*], *T. erythrina* (Selys, 1876) [*Erythrargion erythrinum*], *T. filiola* (Perty, 1834) [*Erythrargion filiola*], *T. obsoleta* (Selys, 1876) [*Leptagrion obsoletum*], *T. salva* (Hagen, 1861) [*Erythrargion salvum*], *T. vulneratum* (Hagen, 1861) [*Erythrargion vulneratum*]; **Tuberulobasis** *T. inversa* Selys, 1876 [*Telagrion inversum*]; **Xanthagrion** *X. erythronurum* Selys, 1876 [id.]; **Xanthocnemis** *X. sobrina* (McLachlan, 1873) [*Xanthagrion sobrinum*], *X. zealandica* (McLachlan, 1873) [*Xanthagrion antipodum*; JV], *X. zealandica* (McLachlan, 1873) [*Xanthagrion zealandicum*¹]; **Xiphagrion** *X. cyanomelas* Selys, 1876 [id.]; **Zonagrion** *Z. exclamationis* (Selys, 1876) [*Agrion exclamationis*]

Abbreviations for consulted experts: AS, Akihiko Sasamoto; FM, François Meurgey; JV, Jan van Tol; KD, KD Dijkstra; MH, Matti Hämäläinen; MM, Milen Marinov; MW, Marcel Wasscher; RD, Rory Dow; RG, Rosser Garrison.

Notes

¹Selys' names spelled differently than current species names. Small changes in the name-endings of the species-group names (-i, -ii, -a, -us, -um, -is, -e) are not indicated.

²Selys' names that are not binomial names and are comparable to species-group names.

id. No difference between Selys' names and current species names.

Appendix 2

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