

## Taxonomic Review of the Korean Zygoptera (Odonata)

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### Abstract

Korean Zygoptera (Odonata) are reviewed and catalogued with synonyms, type and bibliographic information, Korean localities, distribution, and taxonomic remarks. As a result, 35 nominal species belonging to 4 families are included as follows. Calopterygidae: *Calopteryx atrata* Selys, *Calopteryx japonica* Selys, *Matrona basilaris* Selys, and *Mnais pruinosa* Selys; Coenagrionidae: *Aciagrion migratum* (Selys), *Ceriagrion auranticum* Fraser, *Ceriagrion melanurum* Selys, *Ceriagrion nipponicum* Asahina, *Coenagrion concinuum* (Johansson), *Coenagrion ecornutum* (Selys), *Coenagrion hastulatum* (Charpentier), *Coenagrion hylas* (Trybom), *Coenagrion lanceolatum* (Selys), *Enallagma cyathigerum* (Charpentier), *Enallagma deserti* Selys, *Ischnura asiatica* (Brauer), *Ischnura elegans* (Van der Linden), *Ischnura senegalensis* (Rambur), *Mortonagrion selenion* (Ris), *Nehalennia speciosa* (Charpentier), *Paracercion calamorum* (Ris), *Paracercion hieroglyphicum* (Brauer), *Paracercion melanotum* (Selys), *Paracercion plagiosum* (Needham), *Paracercion sieboldii* (Selys), and *Paracercion v-nigrum* (Needham); Platycnemididae: *Copera annulata* (Selys), *Copera tokyoensis* Asahina, and *Platycnemis phyllopoda* Djakonov; Lestidae: *Indolestes peregrinus* (Ris), *Lestes dryas* Kirby, *Lestes japonicus* Selys, *Lestes sponsa* (Hansemann), *Lestes temporalis* Selys, and *Sympecma paedisca* (Eversmann). *Calopteryx cornelia* Selys, *Agriocnemis pygmaea* Rambur, *Platycnemis foliacea sasakii* Asahina, and *Lestes hanllimensis* Kim are inappropriately known Zygoptera species in Korea.

**Key words:** catalogue, damselflies, Korea, taxonomic review, Zygoptera

### Introduction

The suborder Zygoptera (order Odonata), known as damselflies, is an aquatic insect group commonly found in riparian areas and wetlands. The larvae inhabit ponds and the edges of streams among macrophytes. Damselflies, like dragonflies (Anisoptera), are predacious as larvae and adults but are less active. The adults fly close to the water surface.

The adults of Zygoptera can be easily distinguished from the suborder Anisoptera, by the general body shape and wing morphology. Body shape of Zygoptera adults is typically small and slender. The forewings and hindwings are similar in terms of shape, size and venation whereas the hindwings of Anisoptera are postero-basally expanded. Crossveins of the wings are particularly well developed in the Zygopteran family Calopterygidae. The larvae are characterized by a slender body shape and three plate-like gill lamellae on the terminal abdominal segment.

Approximately 2,500 species of Zygoptera in 22 families are included among the 5,000 or so species of world Odonata

fauna belonging to 33 families (Allen *et al.*, 1984). Thirty-five species of Zygoptera belonging to 15 genera and four families have been recorded on the Korean Peninsula with four species only reported from North Korea. The Korean Zygopteran fauna are generally known only from the adult stage, with only 10 species known from both adult and larval stages.

Okamoto (1924) recorded two species of Zygoptera, *Ceriagrion melanurum* and *Calopteryx atrata*, from Korea for the first time. Since then, Doi (1932, 1933, 1935, 1937, 1943), Haku (1937), Kamiyo (1933, 1937), Asahina (1939a, 1939b, 1939c, 1989), Miyazaki (1986), and Eda (1986) investigated Korean Odonata fauna including the Zygoptera. Doi (1937) presented a key to the Korean Odonata adults. Eda (1986) reported Odonata fauna of the Pyongyang area in North Korea, including one new distribution record for Korea.

Cho (1958, 1969) comprehensively reviewed 23 species of Korean Odonata, belonging to four families, and provided descriptions with illustrations. Kong (1988) studied the larvae of South Korean Odonata including 10 species of Zygoptera.

Asahina (1989) reviewed 27 Zygoptera species including 3 unrecorded species to Korea. Lee (1996) published a catalogue of Korean Odonata with his own collection localities and taxonomic and distributional remarks. Bae (1998) published an atlas of "Insects' life in Korea" including Odonata. Kim (1998) published a Korean Odonata atlas with taxonomic and ecological notes and described a new species, *Lestes hanllimensis*. Lee (2001) published a monograph "The dragonflies of Korean Peninsula (Odonata)" and Lee (2006) revised his previous monograph. Yum and Bae (2007) redescribed the larva of *Coperia tokyoensis* using Korean material. Jung (2007) published a Korean Odonata atlas with morphological diagnoses and ecological and distributional notes.

The purpose of this study is to review the Korean Zygoptera based on material, distributional, and literature data available up to the present.

## Materials and Methods

The damselfly material used in this study has been collected throughout South Korea since the 1970s by the authors, co-workers, and students. The material was previously deposited at Korea University and the Aquatic Insect Collection of Seoul Women's University (SWU: 1994-2008) and is currently housed in the Entomological Museum of Korea University (KU). Voucher specimens of Zygoptera collected via national surveys or projects of the Ministry of Environment of Korea, and deposited in KU and the Institute of Biological Resources in Incheon, Korea, were also examined. Adult material was collected by sweep nets. Larval material was collected using hand nets and preserved in 80% ethanol.

The higher classification of Zygoptera and general morphological terminology follows Fraser (1957) and Allen *et al.* (1984). Families follow current phylogenetic classification, and genera and species are arranged alphabetically. Synonymy is based on the "World Catalogue of Odonata (Steinmann, 1997)" with incorporation of recent Korean catalogues such as Lee (2001, 2006). Key references used for the identification of Zygoptera taxa are as follows: Kirby (1890), Okamoto (1924), Okumura and Ishimura (1938), Needham (1930), Chujo (1931), Asahina (1933, 1934, 1956, 1969, 1989), Wu (1935), Barnard (1936), Kinoshita and Asahina (1937), Isimura (1938), Kobayashi (1940), Corbet (1953), Usinger (1963), Ishida (1969, 2005), Johnson and Westfall (1970), Kiauta (1972), Carfi (1974), Cannings and Stuart (1977), Ito *et al.* (1977), Merritt and Cummins (1996), Lien (1980), Garchini (1983), Asahina (1984, 1987), Lieftinck (1984), Ishida and Ishida (1985), Ishida *et al.* (1988), Yoon and Kong (1988), Hong (1991), Tusda (1991), ESK and KSAE (1994), Lee (1996, 2001, 2002, 2006), Okudaira *et al.* (2001), Dumont (2004), and Yum and Bae (2007).

List of taxa, synonyms, type and reference information,

Korean locality records, distributions, and taxonomic remarks are provided. Korean records of each species are based on specimen examined by the authors as well as the Korean locality data in the above references, cited mainly from Cho (1958), Yoon and Kong (1988), Asahina (1989), and Lee (2001).

The abbreviations used in this study are as follows: A (adult), M (male adult), F (female adult), and L (larva); CB (Chungcheongbuk-do), CN (Chungcheongnam-do), GB (Gyeongsangbuk-do), GN (Gyeongsangnam-do), GG (Gyeonggi-do), GW (Gangwon-do), HB (Hamgyeongbuk-do), HN (Hamgyeongnam-do), HH (Hwanghae-do), I (Incheon), JB (Jeollabuk-do), JN (Jeollanam-do), JJ (Jeju-do), PB (Pyeonganbuk-do), PN (Pyeongannam-do), PY (Pyeongyang), S (Seoul), and YG (Yanggang-do); Mt. (Mountain), St. (Stream), R. (River), and Br. (Bridge).

## Taxonomic Accounts

### Suborder Zygoptera 실잠자리아목

#### Family Calopterygidae Selys, 1853 (물잠자리과)

Calopterygidae Selys, 1853: Synopsis des Calopterygines: 6.

**Remarks.** Five species of Calopterygidae, *Calopteryx atrata* Selys, *Calopteryx cornelia* Selys, *Calopteryx japonica* Selys, *Matrona basilaris* Selys, *Mnais pruinosa* Selys have been recorded in Korea (Jung, 2007). *Matrona basilaris* Selys is recorded only from North Korea (Hong, 1991) and *Calopteryx cornelia* Selys is inappropriately known in Korea (Jung, 2010).

#### Genus *Calopteryx* Burmeister, 1839 (물잠자리속)

*Calopteryx* Burmeister, 1839: Handb. Ent., 2: 825.

**Type Species:** *Libellula virgo* Linnaeus, 1758.

**Distribution:** Cosmopolitan.

#### 1. *Calopteryx atrata* Selys, 1858 (검은물잠자리)

*Calopteryx (Calopteryx) atrata* Selys, 1853: Synopsis des Calopterygines: 16 [Type material: M; Type locality: China; Type deposition: Rijksmus. Nat. Hist., Leiden]; Selys and Hagen, 1854: Monogr. Cal.: 48; Schmidt, 1931: Konowia, 10: 177; Asahina, 1955: Ent. Medd., 27(3): 130.

*Calopteryx (Calopteryx) smaragdina* Selys, 1853: Synopsis des Calopterygines: 16 [Type material: M; Type locality: India; Type deposition: British Museum (Nat. Hist.), London]; Selys and Hagen, 1854: Monogr. Cal.: 51; Kirby, 1890: Syn. Cat. Neur.-Odon., London: 99.

*Calopteryx atrata* Selys: Ris, 1916: Odonata Suppl. Ent.: 5: 5 (Korea).

*Vestalis tristis* Navas, 1932: Mus. Heude Notes ent. Chinoise, 8: 8 [Type material: (not given); Type locality: China];

Chao, 1962: Acta Ent. Sinica, Suppl., 11: 27.  
*Vestalaria smaragdina* May, 1935: Senckenbergiana, 17: 207.  
*Calopteryx atratum* Chao, 1962: Acta Ent. Sinica, Suppl., 11: 27.  
*Agrion (Calopteryx) atrata*: Ju, 1969, List Kor. Ins. Pyeongyang: 6 (Korea).

**Distribution:** Korea, Japan, China, India.

**Korean Records:** GG: Seoul, Mt. Bogae, Mt. Soyo, Mt. Myeongji, Gapyeong, Namyangju, Mt. Hwaya, Mt. Samseong, Gaeseong, Pocheon, Guri, Anyang. GW: Yanggu, Inje, mt. Obong, Chuncheon. CB: Ogcheon, Danyang. CN: Daejeon, Mt. Gyeryong. Buyeo, Geumsan. JB: Mt. Naejang, Jeonju, Gochang, Namwon, Gimje, Wanju. JN: Mt. Baegyong, Mt. Duryun, Hampyeong, Gogseong, Suncheon, Goheung, Jindo, Gwangju, Imsil, Jeonju. GB: Daegu, Sangju, Seodo, Jangcheon, Gunwi. GN: Busan, Geochang, Changnyeong, Uponeup, Mt. Jiri, Gimhae, Sacheon, Miryang, Namhae, Jinhae. JJ: Seogwipo, Namjeju, Andeog-gyegog. PN: Pyeongyang, Gangdong. HH: Jaeryeong.

**Remarks:** Dumont *et al.* (2005) erected a new genus *Atrocalopteryx* to include the type species *Calopteryx atrata* Selys mainly based on a ribosomal DNA sequence analysis and some minor morphological differences such as the absence of pterostigma in both sexes and the detachment of R2 and IR3 together from R4+5.

## 2. *Calopteryx japonica* Selys, 1869 (물잠자리)

*Calopteryx japonica* Selys, 1869: Synopsis des Calopterygines, Add. 2: 3 [Type material: M; Type locality: Japan; Type deposition: Selys's collection]; Doi, 1932, J. Chosen Nat. Hist. Soc., 14: 69 (Mt. Baegyong-san, Mt. Samseong-san, Mt. Unmun-san, Mt. Soyo-san).

*Calopteryx virgo japonica* Selys, 1890, C. R. Soc. Ent. Belg., 4 (8): 118 (Corea).

*Agrion japonica* Kirby, 1890: Syn. Cat. Neur.-Odon., London: 99.

*Calopteryx virgo japonica* Jacobson and Bianki, 1905: Pryam. lozhnos. Ross. Imp.: 797.

*Calopteryx virgo* (Linnaeus): Doi, 1937, Akitu, 1(1): 19 (Guam-sa Jeonbug, Mt. Baegyong-san, Yucheon, Mt. Samseong-san, Mt. Soyo-san); Lee, 2006: 7.

*Agrion cornelis* Selys: Ju, 1969, List Kor. Ins. Pyeongyang: 6 (Korea).

*Agrion virgo* (Linnaeus): Ju, 1969, List Kor. Ins. Pyeongyang: 6 (Korea).

**Distribution:** Korea, Japan, Eastern Siberia, Central and Northern China.

**Korean Records:** GG: Mt. Soyo, Gaeseong, Suwon, Mt. Gwanggyo, Namyangju, Mt. Ungil, Mt. Samseong, Gwangju, Mt. Chunggye, Gwacheon, Mt. Myeongji, Mt. Unag, Gapyeong, Guri, Yangpyeong, Mt. Hwaya. GW: Chuncheon,

Mt. Bangtae, Yeongweol, Jeongseon. CB: Danyang, Jincheon, Jecheon, Mt. Woelag, Mt. Juheul, Chungju. CN: Daejeon, Mt. Gyeryong, Cheongyang. JB: Jinan. JN: Mt. Jiri, Mt. Baegyong, Hampyeong, Gangjin. GB: Mt. Sambang, Mt. Unmun, Mt. Gaya, Gimcheon, Goryeong. GN: Miryang, Changwon, Jinhae, Sancheon, Gimhae.

**Remarks:** Korean population of this species has been recorded under the names of *Calopteryx japonica* Selys, *Calopteryx virgo* (Linnaeus), or a subspecies of *Calopteryx virgo* (Linnaeus), *Calopteryx virgo japonica* Jacobson and Bianki. Lee (2006) listed this species as *Calopteryx virgo* (Linnaeus) based on examinations of specimens from Siberia and Ulan-Altai. Comparison of reference specimens from Europe and Japan as well as other distributional ranges is necessary to correctly determine this species.

## Genus *Matrona* Selys, 1853 (검은날개물잠자리속)

*Calopteryx (Matrona)* Selys, 1853: Synopsis des Calopterygines: 17.

**Type Species:** *Matrona basilaris* Selys, 1853.

**Distribution:** China, Vietnam, Burma, India, Taiwan, Japan.

### 3. *Matrona basilaris* (Selys), 1853 (검은날개물잠자리)

*Calopteryx (Matrona) basilaris* Selys, 1853: Synopsis des Calopterygines: 17 [Type material: M; Type locality: China; Type deposition: Förster's collection]; Selys and Hagen, 1854: Monogr. Cal.: 53.

*Neurobasis (Matrona) basilaris*: Förster, 1897, Ann. Soc. Ent. Belg., 41: 208.

*Matrona basilaris*: Jacobson & Bianki, 1905, Pryam. Lozhnos. Ross. Imp.: 800 (Tibet, Shanghai, Burma); Hong, 1991, Biology, 4: 54-57 (Shinpyeong, Mt. Suyang).

**Distribution:** China, Vietnam, Burma, India.

**Korean Records:** HH: Shinpyeong, Mt. Suyang.

**Remarks:** This species was recorded from North Korea by Hong (1991), but no material is available to verify this identification. This record may be erroneous or misidentification of other *Calopteryx* species because this species is mainly distributed in the subtropical or tropical areas of Asia.

## Genus *Mnais* Selys, 1853 (담색물잠자리속)

*Mnais* Selys, 1853: Synopsis des Calopterygines: 20.

**Type Species:** *Mnais pruinosa* Selys, 1853.

**Distribution:** Burma, China, Japan, Laos, Taiwan.

**Remarks:** This genus includes 16 species distributed throughout the Japanese Archipelago, Taiwan, central and southern China, and mainland Southeast Asia. Most species show a wide range of morphological variations depending on geographical distribution. One species, *Mnais pruinosa* Selys, was recorded in Jeju Island by Doi (1933), but no material

is available to verify its distribution.

**4. *Mnais pruinosa* Selys, 1853** (담색물잠자리)

*Echo (Mnais) pruinosa* Selys, 1853: Synopsis des Calopterygines: 20 [Type material: M; Type locality: Japan; Type deposition: Rijksmus. Nat. Hist., Leiden]; Selys and Hagen, 1854: Monogr. Cal.: 65; Kirby, 1890: Syn. Cat. Neur.-Odon., London: 101; Davies and Tobin, 1984: The Dragonflies of the World, Utrecht, 1: 7.

*Mnais strigata* Selys: Doi, 1933, J. Chosen Nat. Hist. Soc., 15: 94 (Is. Jeju-do).

*Mnais* sp.: Asahina, 1989, Gekkan-Mushi, 220: 15 (Is. Jeju-do).

*Mnais pruinosa* Selys: Lee, 1996, Bull. KACN, 15: 85 (Jeju-do); Lee, 2006: 8.

**Distribution:** Korea, Japan.

**Korean Records:** JJ: Jeju-do.

**Remarks:** Doi (1933) recorded the adults of *Mnais pruinosa* Selys from Jeju-do (Island), Korea. Lee (1996) considered Doi (1933) record is an erroneous report or it may be a temporary vitor. Lee (2006) supported Asahina's (1989) opinion (*Mnais* sp.). No material is available to verify this determination.

**Family Coenagrionidae Kirby, 1890** (실잠자리과)

Coenagrionidae Kirby, 1890: Syn. Cat. Neur.-Odon., London: 119.

**Genus *Aciagrion* Selys, 1891** (작은실잠자리속)

*Aciagrion* Selys, 1891: Ann. Mus. Civ. Stor. Nat. Genova, 30: 509.

**Type Species:** *Agrion (Pseudagrion) hisopa* Selys, 1876.

**Distribution:** Cosmopolitan.

**5. *Aciagrion migratum* (Selys), 1876** (작은실잠자리)

*Agrion (Pseudagrion) migratum* Selys, 1876: Synopsis des Agrionines, Add. 5: 217. [Type material: M; Type locality: Japan; Type deposition: Selys's collection]; Kirby, 1890: Syn. Cat. Neur.-Odon., London: 153; Jacobson and Bianki, 1905: Pryam. lozhnos. Ross. Imp.: 830.

*Aciagrion* sp.: Doi, 1943, Ent. World, 11(110): 170, (Cheongdo).

*Aciagrion migratum* Davies and Tobin, 1984: The Dragonflies of the World, Utrecht, 1: 64.

*Aciagrion migratum* Selys: Asahina, 1989, Gekkan-Mushi, 220: 9-10, (Korea).

**Distribution:** Korea, Japan, China (mainland), Taiwan.

**Korean Records:** GB: Cheongdo. JJ: Namjeju.

**Remarks:** Doi (1943) recorded this species as *Aciagrion* sp. from Cheongdo, Gyeongsangbuk-do, and Asahina (1989)

later determined the specimen as *Aciagrion migratum* Selys.

**Genus *Ceriagrion* Selys, 1876** (노란실잠자리속)

*Ceriagrion* Selys, 1876: Synopsis des Agrionines, Add., 5: 235.

**Type Species:** *Agrion (Pyrrhosoma) cerinorubellum* Brauer, 1865.

**Distribution:** Cosmopolitan excluding the Nearctic and Neotropical regions.

**6. *Ceriagrion auranticum* Fraser, 1922** (새노란실잠자리)

*Ceriagrion auranticum* Fraser, 1922: J. Nat. Hist. Soc. Siam, 4: 236 [Type material: M; Type locality: Bangkok; Type deposition: unknown]; Lee, 2001, Dragon. Kor. Penin.: 48 (Jeollabuk-do, Jeollanam-do, Jeju-do); Lee, 2006: 17.

**Distribution:** Korea, Japan, Central China.

**Korean Records:** JB: Gochang. JN: Gokseong, Hampyeong, Jangseong. JJ: Namjeju.

**Remarks:** Lee (2001, 2006) considered the specimens previously known as *Ceriagrion nipponicum* Asahina by Miyazaki (1986) and Asahina (1989) are *Ceriagrion auranticum* Fraser. Lee (2001) additionally recorded *Ceriagrion auranticum* Fraser from southwestern Korea (Jeollabuk-do and Jeollanam-do). Jung (2007) considered *Ceriagrion auranticum* Fraser is distributed only in Jeju-do, whereas *Ceriagrion nipponicum* Asahina occur in central and southern Korean peninsula.

**7. *Ceriagrion melanurum* Selys, 1876** (노란실잠자리)

*Agrion (Ceriagrion) coromandelianum* race *melanurum* Selys, 1876: Synopsis des Agrionines, Add. 5: 239 [Type material: M; Type locality: Japan; Type deposition: Selys's collection].

*Ceriagrion melanurum* (Selys): Kirby, 1890: Syn. Cat. Neur.-Odon., London: 154; Laidlaw, 1919: Rec. Indian Mus., 16: 191; Sjostedt, 1933: Ark. Zool., Uppsala, 25A(5): 20; Okamoto, 1924: Bull. Agr. Exp. Stn. Gov. -Gen. Chosen 1(2): 52 (Quelpart Is.=Jeju-Is.).

**Distribution:** Korea, Japan, China (Szechuen, Fukien), Taiwan, Sumatra.

**Korean Records:** GG: Toegyewon, Seodaemun, Is. Ganghwa, Incheon, Namyangju, Mt. Cheonma, Suwon, Anseong. GW: Inje, Yangyang. CN: Daejeon, Boryeong. JB: Gunsan, Jeongeub, Gochang. JN: Is. Wando, Mokpo, Gogseong. GB: Gimcheon, Woegwan, Ulju, Gyeongsan, Chupung-ryeong, Pohang. GN: Mt. Jiri, Jinju. JJ: Bukjeju, Seogwipo, jeju. PN: Pyeongyang. HN: Bocheon.

**Remarks:** Larva of *C. melanurum* is characterized by lamellae which are abruptly tapered in distal margin and possess apexes with a short, sharply pointed tip.

**8. *Ceriagrion nipponicum*** Asahina, 1967

(연분홍실잠자리)

*Ceriagrion nipponicum* Asahina, 1967: [Type material: M; Type locality: Japan; Type deposition: unknown]; Davies and Tobin, *The Dragonflies of the World*, Utrecht 1: 81; Miyazaki, 1986: Tombo, 29(3, 4): 67 (Sanworri=Sanweol-ri); Asahina, 1989: 10.

**Distribution:** Korea, Japan, China (Central).

**Korean Records:** JB: Gochang. JN: Gogseong, R. Hwangryong, Hampyeong, Gwangsan, Hampyeong. JJ: Bukjeju, Namjeju.

**Genus *Coenagrion* Kirby, 1890** (실잠자리속)

*Coenagrion* Kirby, 1890: Syn. Cat. Neur. -Odon., London: 148.

**Type Species:** *Libellula puella* Linnaeus, 1758.

**Distribution:** Cosmopolitan.

**9. *Coenagrion concinnum*** (Johansson), 1859

(참실잠자리)

*Agrion concinnum* Johansson, 1859: Odon. Suede 7: 106. [Type material: M; Type locality: Sweden; Type deposition: unknown]; Kirby, 1890: Syn. Cat. Neur. -Odon., London: 148; Jacobson and Bianki, 1905: Pryam. lozhnos. Ross. Imp.: 819; Davies and Tobin, 1984: *The Dragonflies of the World*, Utrecht, 1: 59; Asahina, 1989: Gekkan-Mushi 220: 12 (Ganggye, Taereung, Bukgyesu, Daetaeg).

*Agrion convalescens* Bartenef: Asahina, 1939, Kontyu 13(5, 6): 198 (Kokai=Ganggye); Cho, 1958: 355 (Bukgyesu, Daetag, Jungam, Taereung).

*Coenagrion convalescens* (Bartenef): Amateur Ent. Soc. Korea, 1986, Corentoman 2(3, 4): 10 (Korea); Kim, 1998: 60.

*Coenagrion johanssoni* (Wallengren): Tsuda, 1991: Dist. List World Odonata, Osaka: 29 (Korea); Lee, 1996: 79 [catalogue, distribution: GG]; Jung, 2007: 176.

*Coenagrion concinnum* (Johansson): Lee, 2001: Dragon. Kor. Penin.: 33 (Korea); Lee, 2006: 14.

**Distribution:** Korea, China, Russia, Siberia, Scandinavia (except Denmark).

**Korean Records:** CB: Danyang. GN: Gimhae, Jinhae. JB: Mt. Naejang, Gimje, Wanju. JN: Goheung, Imsil.

**Remarks:** *Agrion concinnum* Johansson, 1859, was a junior homonym of *Agrion concinnum* Rambur, 1842, which was recombined as *Agrion concinna* (Rambur) by Selys in 1865. As the senior homonym *Agrion concinnum* Rambur was recombined, the name *Agrion concinnum* Johansson was automatically revalidated. *Agrion concinnum* Johansson, 1859, was later recombined as *Coenagrion concinnum* (Johansson) by Kirby in 1890. *Agrion johanssoni* Wallengren, 1894

[=*Coenagrion johanssoni* (Wallengren)], is a junior synonym of *Coenagrion concinnum* (Johansson), 1859 (Steinmann, 1997).

**10. *Coenagrion ecornutum*** (Selys), 1872 (시골실잠자리)

*Agrion ecornutum* Selys, 1872: Ann. Soc. Ent. Belg., 15: 22 [Type material: M; Type locality: Amur; Type deposition: Selys's collection]; Selys, 1876: Synopsis des Agrionines, Add. 5: 168; Jacobson and Bianki, 1905: Pryam. lozhnos. Ross. Imp.: 824; Schmidt, 1938, Sit. Acad. Wiss. Wine 1 (147): 146, (Korea); Asahina, 1958: Insecta Matsum. 22: 64. *Coenagrion exornatum* [misprint] (Selys): Kirby, 1890: Syn. Cat. Neur. -Odon., London: 150.

*Coenagrion ecornutum* (Selys): Davies and Tobin, 1984: *The Dragonflies of the World*, Utrecht 1: 59; Hamada and Inoue, 1985, *Dragonflies Jap.* 2: 162 (Korea).

**Distribution:** Korea, Japan, China (Eastern-Northern), East Russia, Siberia, Amur, Sakhalin.

**Korean Records:** GG: Namyangju, Mt. Cheonma. GW: Chuncheon. PB: Ganggye. HB: Cheongjin. HN: Bocheon, Onsupeong, Unheung.

**Remarks:** This species is distributed in northern area of Northeast Asia.

**11. *Coenagrion hastulatum*** (Charpentier), 1825

(북방청띠실잠자리)

*Agrion hastulatum* Charpentier, 1825: Hor. Ent., Paris: 20. [Type material: M; Type locality: Lapland; Type deposition: unknown]; Selys, 1876: Synopsis des Agrionines, Add. 5: 150; Jacobson and Bianki, 1905: Pryam. lozhnos. Ross. Imp.: 820; Nielsen, 1940: Mem. Soc. ent. Ital., 19: 241; Belyshev, 1961: Fragm. Faun. Warszawa 9(4): 40; Asahina, 1989, Gekkan-Mushi 220: 11 (Daetaeg).

*Coenagrion hastulatum* (Charpentier): Kirby, 1890: Syn. Cat. Neur.-Odon., London: 149; Fraser, 1956: R. Ent. Soc. Lond. 1(10): 29; Steinmann, 1984: Fauna Hung., 160: 22; Lee, 1996, Bull. KACN, 15: 80 (Daetaeg).

**Distribution:** Europe (Russia, Italy, Austria, Belgium, Switzerland, Czechoslovakia, German, Denmark, Spain, Finland, France, United Kingdom, Hungary, Luxembourg, Netherlands, Norway, Poland, Romania, Sweden, Turkey).

**Korean Records:** HB: Daetaek.

**Remarks:** This species was reported by Asahina (1989) from Daetaek, Hamgyeongbuk-do, but no more collecting data are available.

**12. *Coenagrion hylas*** (Trybom), 1889 (큰실잠자리)

*Agrion hylas* Trybom, 1889: Bih. Svensk. Vet. Akad. Handl., 15(4): 12 [Type material: M; Type locality: Jenisei; Type deposition: Nat. Riksmus., Stockholm]; Jacobson and Bianki, 1905: Pryam. lozhnos. Ross. Imp.: 819; Doi, 1943,

Ent. World 11(110): 170 (Buksan); Cho, 1958: 356 (Buksan); Lieftinck, 1964: Tijdschr. Ent. 107: 159.  
*Agrion ? freyi* Bilek, 1955: Nachr. Bay. Ent., 3(10): 98 [Type material: F; Type locality: Zwingsee; Type deposition: Zool. Samml. Bayer. Staat. Munchen]; Bilek, 1956: Nachr. Bay. Ent., 4(9): 1; Lieftinck, 1964: Tijdschr. Ent., 107: 159.  
*Coenagrion hylas ussurense* Belyshev, 1956: The Dragonflies of Siberia 3: 196 [Type material: M; Type locality: Russia; Type deposition: unknown]; Steinmann, 1984: Fauna Hung., 160: 25.  
*Coenagrion hylas* (Trybom): Amateur Ent. Soc. Korea, 1986: Corentoman 2(2, 3): 10 (Korea).

**Distribution:** Japan, China (Manchuria), Sakhalin, Siberia, Mongolia, Western Asia, Germany (Alps).

**Korean Records:** HN: Bugin. GG: Deogamsan.

**Remarks:** This species is distributed in the northern areas of Northeast Asia including northern Japan, Manchuria, Sakhalin, Siberia, and Mongolia. Doi (1943) reported this species from Mt. Buksan, Hamgyeongnam-do, North Korea, and Lee (1996) reported this from Deokamsan (Mt.), Gyeonggi-do.

**13. *Coenagrion lanceolatum* (Selys), 1872**  
(북방실잠자리)

*Agrion lanceolatum* Selys, 1872: Ann. Soc. Ent. Belg. 15: 43 [Type material: M; Type locality: Amur; Type deposition: Selys' collection]; Jacobson and Bianki, 1905: Pryam. Iozhnos. Ross. Imp.: 824; Doi, 1943, Ent. World 11(110): 170 (Jungam).  
*Coenagrion lanceolatum* (Selys): Kirby, 1890: Syn. Cat. Neur.-Odon., London: 150; Davies and Tobin, 1984: The Dragonflies of the World, Utrecht, 1: 60; Hamade and Inoue, 1985: Dragonflies Jap. 2: 162 (Korea).

**Distribution:** Korea, Japan, China (Manchuria), Sakhalin, Eastern Siberia, Central Asia.

**Korean Records:** GG: Seongnam, Namyangju. GW: Seolagsan, Chuncheon. PB: Jungam. HB: Daetaeg. HN: Bocheon, Naegog, Onsupyeong.

**Remarks:** This species was reported by Doi (1943) and Asahina (1989) from Jungam, Pyeonganbuk-do and Daetaek, Hamgyeongbuk-do, North Korea.

**Genus *Enallagma* Charpentier, 1840** (알락실잠자리속)  
*Enallagma* Charpentier, 1840: Libell. Europ. Lipsiae: 21

**Type Species:** *Agrion cyathigerum* Charpentier, 1840.  
**Distribution:** Cosmopolitan excluding Australia.

**14. *Enallagma cyathigerum* (Charpentier), 1840**  
(알락실잠자리)

*Agrion cyathigerum* Charpentier, 1840: Monogr. Libell. Europ. Lipsiae: 163 [Type material: M; Type locality: Silesia;

Type deposition: Mus. Nation. Hist. Nat., Paris]; Asahina, 1939: Kontyu 13(5, 6): 198 (Santien=Samjiyeon).

*Agrion charpentieri* Selys, 1840: Monogr. Libell. eur. Paris: 214 [Type material: M; Type locality: France. Type deposition: Mus. Nation. Hist. Nat., Paris]; Selys, 1876: Synopsis des Agrionines, Add. 5: 86.

*Agrion pulchrum* Hagen, 1840: Syn. Libell. Eur.: 80 [Type material: F]; Selys, 1876: Synopsis des Agrionines, Add. 5: 86.

*Agrion annexum* Hagen, 1861: Syn. Neur. N. Amer., Washington: 87 [Type material: M; Type locality: Sitka; Type deposition: Mus. Naturk., Berlin]; Selys, 1876: Synopsis des Agrionines, Add. 5: 86.

*Agrion (Enallagma) cyathigerum* Charpentier: Selys, 1876: Synopsis des Agrionines, Add. 5: 86.

*Enallagma cyathigerum* (Charpentier): Kirby, 1890: Syn. Cat. Neur.-Odon., London: 145; Muttkowski, 1910: Bull. Publ. Mus. Milwaukee 1(1): 57; Laidlaw, 1919: Laidlaw, Rec. Indian Mus. 16: 183; Nielsen, 1940: Mem. Soc. ent. ital. 19: 240; Akramovski, 1948: Zool. Zborn., Moscow 5: 153; Morera, 1950: Inst. Esp. Ent., Madrid: 90; Santock *et al.*, 1955: Agra Univ. J. Res., 4, suppl.: 748; Fraser, 1956: R. Ent. Soc. London 1(10): 32; Steinmann, 1984: Fauna Hung. 160: 35.

*Enallagma annexum* Kirby, 1890: Syn. Cat. Neur.-Odon., London: 146.

*Enallagma cyathigerum cyathigerum* (Charpentier): Jacobson and Bianki, 1905: Pryam. Iozhnos. Ross. Imp: 817; Tsuda, 1991, Dist. List World Odonata, Osaka: 31 (Korea).

*Agrion annexum* Muttkowski, 1910. Bull. Publ. Mus. Milwaukee, 1(1): 57.

*Enallagma cyathigerum* var. *rotundatum* Bartenef, 1929: Zool. Anz., 85: 63 (Male from Caucasus).

*Enallagma cyathigerum* f. *nigriprothorax* Le Roi, 1984: 1914 - loc. cit. Davies and Tobin, The Dragonflies of the World, Utrecht, 1: 68.

*Enallagma cyathigerum* (Charpentier) subsp.: Asahina, 1989, Gekkan-Mushi 220: 12 (Samjiyeon).

**Distribution:** Asia (Korea, Russia, Northern China), Europe (Italy, Eurasia, Austria, Belgium, Bulgaria, Switzerland, Czechoslovakia, German, Denmark, Algeria, Spain, Finland, France, United Kingdom, Hungary, Ireland, Liechtenstein, Luxembourg, Morocco, Netherlands, Norway, Poland, Portugal, Romania, Sweden, Turkey, Yugoslavia), North America (Canada: British Columbia, USA, Alaska, Mexico), India.

**Korean Records:** HB: Samjiyeon, Daetaeg.

**Remarks:** This species was first recorded by Asahina (1939) from Samjiyeon and Daetaek, Hamgyeongbuk-do in North Korea. There are no distribution records from South Korea.

**15. *Enallagma deserti* Selys, 1871** (북알락실잠자리)  
*Agrion deserti* Selys, 1871: Ann. Soc. Ent. Belg., 14: 19

[Type material: F; Type locality: Algeria; Type deposition: Selys's Collection].

*Agrion (Enallagma) deserti* Selys, 1876: Synopsis des Agrionines, Add. 5: 93.

*Enallagma deserti* (Selys): Kirby, 1890: Syn. Cat. Neur.-Odon., London: 146; Ris, 1928: Ent.; Ju, 1993: Rep. Mt. Baegdusan, Pyeongyang: 256, (Bocheon, Onsupyeong).

*Enallagma deserti deserti* (Selys): Asahina, 1949: Insecta Matsum., 17: 34.

**Distribution:** North Korea, widely distributed in northern temperate regions.

**Korean Records:** HN: Bocheon, Onsupyeong.

**Remarks:** This species was recorded from North Korea by Ju (1993).

**Genus *Ischnura* Charpentier, 1840** (아시아실잠자리속)

*Ischnura* Charpentier, 1840: Libell. Europ. Lipsiae: 20.

**Type Species:** not designated.

**Distribution:** Cosmopolitan.

**16. *Ischnura asiatica*** (Brauer, 1865) (아시아실잠자리)

*Agrion (Ischnura) asiaticum* Brauer, 1865: Verh. Zool.-Bot. Ges. Wien., 15: 509 [Material: M (Not given); Type locality: China; Type deposition: perhaps in Naturhist].

*Agrion (Ischnura) orientalis* Selys, 1876: Synopsis des Agrionines, Add. 5: 36 [Material: M; Type locality: Japan; Type deposition: in Selys's collection].

*Micronympha asiatica* (Brauer): Kirby, 1890: Syn. Cat. Neur.-Odon., London: 143.

*Micronympha orientalis* (Selys): Kirby, 1890: Syn. Cat. Neur.-Odon., London: 143.

*Ischnura asiatica* (Brauer): Jacobson and Bianiki, 1905: Pryam. Iozhnos. Ross. Imp.: 813; Ris, 1916: Suppl. Ent. Berlin, 5: 19; Schmidt, 1931: Konowia, 10(3): 184; Sjostedt, 1933: Ark. Zool. Uppsala, 25(A) (5): 20; Asahina, 1939: Kontyu 13(5, 6): 197 (Kokei=Ganggyeong, Kodirei=Huchiryong, Kokai=Ganggye, Kaizyo=Gaseong).

*Ischnura lobata* Needham, 1930: Zool. Sinica, (A) 11: 280 [Material: M; Type locality: China; Type deposition: British Museum (Nat. Hist.), London]; Schmidt, 1931: Konowia 10(3): 184 [proposed synonymy with *asiatica* (Brauer, 1865)].

*Ischnura formosana* Chujo, 1931: Trans. Nat. Hist. Soc. Formosa, 21(112): 47; Schmidt, 1931: Konowia, 10(3): 184 [proposed synonymy with *asiatica* (Brauer, 1865)].

*Agrion quadriggerum* Selys: Doi, 1932, J. Chosen Nat. Hist. Soc., 14: 69 (Yucheon).

**Distribution:** Korea, Manchuria, Japan, China (Mainland, Shanghai, Hong Kong), Taiwan, Russia (Maritime Province of Siberia).

**Korean Records:** S: Mt. Gwanag, Mt. Daemon, Mt. Dobong, Mt. Bukhan, Gangnam, Mapo, Seongbug, Nowon, Gangdong. I: Gyeyang, Seogu, Mt. Hobong, Is. Baegryeong, Mt. Seolseong. U: Mr. Jeongjog, Ulju. GG: Seongnam, Paju, Wangsong, Dongducheon, Mt. Soyo, Pocheon, Mt. Jugeum, Suwon, St. Gogryeong, Yeongsan, Myeongpa, Ganghwa, Gwangju, Yangpyeong, Gwacheon, Gapyeong, Uiwang, Mt. Cheonggye, Mt. Suri, Yongjusa, Guri, Uijeongbu, Pyeongtaeg, Paldang, Mt. Cheonma, Gimchon, Neungnae, Namyangju, Yangju, Anyang, Yeoncheon, Gaeseong, Ansan, Jangheung. GW: Samcheog, Cheolwon, Hwajinpo, Gyeongpoho, Gangchon, Goseong, Donghae, Gangneung, Goyang, Yangyang, Hwacheon, Mt. Maegun, Mt. Bangtae, Mt. Daeam, Yanggu, Dongmyeon-jeosuji, Mt. Gwangdeog, Mt. Gariwang, Chuncheon, Mr. Obong, Sogcho, Daegwanryeong. CB: Cheongju, Goesan, Mt. Joryeong, Danyang, Yeongdong, Mt. Geumsu, Okcheon. CN: Mt. Seongju, Ganggyeong, Bonggeunsa, Daejeon, Naju, Nonsan, Mt. Gyeryong, Is. Anmyeon, Buyeo, Bokgeum-jeosuji, Cheonan, Yesan, Hongseong, Geumsan, Seosan. JB: Jeonju, Gochang, Gunsan, Gimje, Wanju. JN: Hampyeong, Sinan, Jinridae-jeosuji, Gwangsan, Gwangju, Gwangyang, Is. Daeheuksan, Suncheon, Gurye, Yeongam, Gokseong, Is. Jindo, Is. Wando, Is. Hongdo, Goheung, Mokgyo-jeosuji. GB: Seongju, Yeoungnam University, Mt. Palgong, Gimcheon, Is. Ulneung, Mungyeong, Sangju. GN: Miryang, Ulju, Gimhae, Mosan, Jinhae, Goseong, Mt. Jeogul, Uiryeong, Jinju, Gyeongsang University, Jangchongsa, Changnyeong, Uponeup, Hadong, Mt. Emyeon, Daebyeong-jeosuji, Mt. Mangil, Haman, Daesongri-neup, Jillal-neup, Jinju, Mt. Jeongjok, Busan, Mt. Geumo, Habu-jeosuji, Mt. Jeongsu, Sacheon, Deoksansa, St. Simcheon, Mt. Jiri, Sancheon, Mt. Seoksan, Is. Geoje, Mt. Sanseong, Geochang, Changnyeong.

**Remarks:** This is the most widespread and abundant demselfly in Korea.

**17. *Ischnura elegans*** (Van der Linden), 1820

(북방아시아실잠자리)

*Agrion elegans* Van der Linden, 1823: Opusc. Scil, 4: 104 [Type material: M; Type locality: Italy: Bologna; Type deposition: Mus. Naturk., Berlin].

*Agrion papilla* Hansemann, 1823: Wiedem. Zool. Mag., 2(1), 156.

*Agrion tuberculatum* Charpentier, 1825: Hor. Ent.: 21 [Type material: F; Type locality: Germany; Type deposition: Halle Museum].

*Agrion ezonatum* Stephens, 1836: Ill. Brit. Ent. Mand., 5: 72 [Type material: M; Type locality: England; Type deposition: British Museum (Nat. Hist.)].

*Agrion rufescens* Stephens, 1836: Ill. Brit. Ent. Mand., 5: 72.

*Agrion aglae* Fonscolombe, 1838: Ann. Soc. ent. France, 567 [Type material: M; Type locality: France; Type deposition: Mus. Nat. Hist., Paris].

*Agrion hastulatum* Bufmeister, 1839: Handbuch. Ent., 2: 820.

*Agrion rubens* Evans, 1845: Brit. Lib.:14.  
*Agrion (Ischnura) elegans* Van der Linden: Selys, 1876: Synopsis des Agrionines, Add. 5: 33.  
*Ischnura elegans* (Van der Linden): Selys, 1887: Ann. Soc. ent. Belg., 31: 65; Anders, 1928: Mem. Soc. R. ent. Egypt., 3(1): 25; Needham and Gyger, 1939: Philipp. J. Sci., 70(3): 289; Nielsen, 1940: Mem. Soc. ent. ital., 19: 239; Morera, 1950: Inst. Esp. Ent. Madrid, 92; Fraser, 1956: R. Ent. Soc. London, 1(10): 31; Miyazaki, 1986: Tombo 29(3, 4): 67 (Kyongho=Gyeongho).  
*Micronympha elegans* (Van der Linden): Kirby, 1890: Syn. Cat. Neur. -Odon., London: 142.  
*Ischnura elegans* var. *infuscans* Killington, 1924: Entomologist 57: 278.  
*Ischnura elegans* var. *obsoleta* Killington, 1924: Entomologist 57: 278.  
*Agrion excels* Rostock, 1884: 1885 - loc. cit. Davies and Tobin, The Dragonflies of the World, Utrecht 1: 72.  
*Agrion exigua* Rostock, 1884: 1885 - loc. cit. Davies and Tobin, The Dragonflies of the World, Utrecht, 1: 72.  
*Agrion magna* Rostock, 1884: 1885 - loc. cit. Davies and Tobin, The Dragonflies of the World, Utrecht, 1: 73.  
*Ishnuta elegans* f. *infuscans* Campion, 1984: 1905 - loc. cit. Davies and Tobin, The Dragonflies of the World, Utrecht, 1: 73.  
*Ischnura elegans elegans* (Van der Linden): Zhu, 1989: Notul. Odonatol. 3(3): 47.

**Distribution:** Asia (Korea, Japan, Northern China, India, Nepal), Europe (Russia, Italy, Austria, Belgium, Bulgaria, Switzerland, Czechoslovakia, Germany, Denmark, Algeria, Spain, Finland, France, United Kingdom, Greece, Ireland, Liechtenstein, Luxembourg, Netherlands, Norway, Romania, Sweden).

**Korean Records:** GG: Is. Baekryeong, Gyeyang, Gangwha, Paju, Yangju, Uijeongu. GW: Gangneung, Hwajinpo. CB: Yeongdong. CN: Taean. GB: Gyeongsan, Sangju. GN: Gimhae, Geochang. JB: Mt. Naejang, Gimje, Wanju. JN: Goheung, Imsil, Hanpyeong.

**Remarks:** *Ischnura elegans* (Van der Linden) is mainly distributed temperate areas of the Palearctic region, whereas *Ischnura senegalensis* Martin is widespread in the tropical and subtropical areas of Southeast Asia, although its distributional range is much wider.

**18. *Ischnura senegalensis*** (Rambur), 1842  
(푸른아시아실잠자리)

*Agrion senegalense* Rambur, 1842: Hist. nat. Ins. Neuropt: 276 [Type material: M; Type locality: Senegal]  
*Agrion (Ischnura) senegalense* Selys, 1876: Synopsis des Agrionines, Add. 5: 29.  
*Micronympha senegalensis* Kirby, 1890: Syn. Cat. Neur. -Odon., London: 141.

*Micronympha senegalensis* Kirby, 1896: ann. Mag. nat. Hist., (7) 2: 244.

*Ischnura senegalensis* Martin, 1901: Mem. Soc. zool. France, 14: 246; Fraser, 1924: Rec. Indian Mus., 26: 489; Ris, 1927: Zool. Meded., Leiden, 10(1): 21; Anders, 1928: Mem. Soc. R. ent. Egypt., 3(1): 25; Schmidt, 1934: Arch. Hydrob. Suppl., 13: 339; Longfield, 1936: Trans. R. ent. Soc. London, 85: 471; Lieftinck, 1936: Revue Suisse Zool., 43(5): 136; Needham and Gyger, 1939: Philipp. J. Sci., 70(3): 289; Fraser, 1949: Trans. R. ent. Soc. London; 100: 138; Lieftinck, 1954: Treubia, 22 Suppl.: 74; Brinck, 1955: South African animal Life, 2: 196; Tinhey, 1962: Publ. cult. Comp. Diam. Angala, 59: 197.

**Distribution:** Asia (Korea, Japan, China, Russian Far East, Taiwan, Thailand, Philippines, Vietnam, Malaysia, Indonesia, India, Pakistan), Africa.

**Korean Records:** D: Daejeon. JB: Wanju, Gochang, Gunsan, Jeonju. JN: Gwangyang, Mokpo, Yecheon, Jindo, Haenam, Hampyeong. GN: Jinhae, Jinju, Geoje, Geochang, Tongyeong, Hadong. JJ: Bukjeju, Namjeju, Seogwipo, St. Dogeun. HN: Hyesan.

**Remarks:** Ju (1993) and Hong (1991) reported this species from Mt. Baekdu and Jangan-ri, respectively. These records, however, could be erroneous because this species is distributed in the tropical and subtropical areas and found only in the southern part of the Korean peninsula and Jeju.

**Genus *Mortonagrion* Fraser, 1920** (황등색실잠자리속)  
*Mortonagrion* Fraser, 1920: J. Bombaynat. Hist. Soc., 27: 147.

**Type Species:** *Mortonagrion varralli* Fraser, 1920.

**Distribution:** Korea, Japan, Australasian and Oriental region.

**19. *Mortonagrion selenion*** (Ris), 1916 (황등색실잠자리)  
*Agrionemis selenion* Ris, 1916: Suppl. ent., Berlin, 5: 26 [Type material: M; Type locality: Japan; Type deposition: Naturhist. Riksmus., Stockholm]; Doi, 1943, Ent. World 1(110): 169 (Taeneung, Changdong).

*Mortonagrion selenion* (Ris): Ris, 1930: Ark. Zool. Uppsala 21A(31): 14; Asahina, 1950: Ico. Ins. Jap. Hokuryukan, Tokyo: 146 (Korea).

**Distribution:** Korea, Japan, Taiwan, China (Central), Far East Russia.

**Korean Records:** S: Nowon, Dobong, Dongdaemun. GG: Yangju, Suwon, Anyang. GW: Gangneung. HN: Hamheung.

**Genus *Nehalennia* Selys, 1850** (청동실잠자리속)  
*Nehalennia* Selys, 1850: Revue des Odonates, Paris: 172.

**Type Species:** *Agrion speciosum* Charpentier, 1840.



**Distribution:** Nearctic, Neotropical, and Palearctic regions.

**20. *Nehalennia speciosa*** (Charpentier), 1840

(청동실잠자리)

*Agrion (Ischnura) speciosum* Charpentier, 1840: Lebell. Europ., Lipsiae: 151 [Type locality: Germany].

*Agrion sopia* Selys (nec Selys, 1876), 1840: Monogr. Lebell. eutop. Paris: 213.

*Agrion (Nehalennia) speciosum* (Charpentier): Selys and Hagen, 1850: Revue des Odonates, Paris: 173.

*Agrion (Nehalennia) speciosa* (Charpentier): Selys, 1876: Synopsis des Agrionines, Add. 5: 128.

*Nehalennia speciosa* (Charpentier): Kirby, 1890: syn. Cat. Neur.-Odon., London: 147; Jacobson and Bianki, 1905: Pryan. lozhnos. Ross. imp.: 827; Hoffmann, 1960: Archives 27: 223; Doi, 1943, Ent. World 11(110): 170 (Daetaeg).

**Distribution:** Northeast Asia (Korea, Japan, Sakhalin, Usuri, Siberia, Kamchatka), Europe (Italy, Austria, Belgium, Bulgaria, Switzerland, Czechoslovakia, German, Finland, France, Hungary, Luxembourg, Netherlands, Poland, Romania, Sweden).

**Korean Records:** HB: Daetaeg.

**Remarks:** This species was reported by Doi (1943) from Daetaek, Hamgyengbuk-do and by Lee (1996) from Yongneup, Gangwon-do. This species is distributed in northern Japan, Sakhalin, and Siberia.

**Genus *Paracercion* Weekers and Dumont, 2004**

(등줄실잠자리속)

*Paracercion* Weeders and Dumont, 2004: Odonatologica, 33(2): 181-188.

**Type Species:** *Agrion hieroglyphicum* Brauer, 1865.

**Distribution:** Palearctic.

**Remarks:** Weekers and Dumont (2004) erected the genus *Paracercion* (type: *Agrion hieroglyphicum* Brauer) based on a molecular analysis. Lee (2006) moved four Korean species previously classified under *Cercion* Navas to *Paracercion*.

**21. *Paracercion calamorum*** (Ris), 1916 (등검은실잠자리)

*Agrion calamorum* Ris, 1916: Suppl. Ent. 5: 32 [Type material: M; Type locality: China; Type deposition: Ris' collection]; Schmidt, 1931: Konowia 10(3): 183; Doi, 1943, Ent. World, 11(110): 171 (Yucheon, Juan, Taeneung).

*Cercion calamorum* (Ris): Davies and Tobin, 1984: The Dragonflies of the World, Utrecht, 1: 58; Asahina, 1950, Ico. Ins. Jap. Hokuryukan, Tokyo: 139 (Korea).

*Cercion calamorum calamorum* (Ris): Hamada and Inoue, 1985, Dragonflies Jap. 2: 158-159 (Korea).

*Paracercion calamorum* (Ris): Lee, 2006: 12.

**Distribution:** Korea, Japan, China (Central-Northern), India.

**Korean Records:** GG: Uiwang, Anseong, Guri, Incheon, Is. Baegryeong, Juan, Nowon, Namyangju, Pocheon, St. Gyeongan, Haansamni-jeosuji, Yangpyeong. CB: Ogcheon, Chungju. CN: Buyeo, Yeongi, Hongseong, Is. Anmyeon, Daejeon, Yesan, Cheonan, St. Tandong. JB: Gunsan, Jeonju, Gimje, Buan, Gochang. JN: Suncheon, Gogseong, Hampyeong, Gwangju, Damyang, Gurye. GB: Is. Ulleung, Ulju. GN: Changnyeong, Goseong, Hadong, Haman, Hapcheon, Jinju, Miryang, Sacheon, Sancheong, Uiryeong. HN: Hyesan, Bocheon. JJ: Andeog-gyegog, Bukjeju, St. Dogeun.

**22. *Paracercion hieroglyphicum*** (Brauer), 1865

(등줄실잠자리)

*Agrion hieroglyphicum* Brauer, 1865: Verh. Zool.-Bot. Ges., Wien, 15: 510 [Type material: M; Type locality: China (Hong-Kong); Type deposition: not given]; Jacobson and Bianki, 1905: Pryan. lozhnos. Ross. Imp.: 824; Schmidt, 1931: Konowia, 10(3): 183; Doi, 1943, Ent. World, 11(110): 171, (Is. Jeju-do, Is. Wan-do, Milyang, Yucheon, Daegu, Jochiwon, Chungju, vic. Seoul, Taeneung, Wonju).

*Agrion (Agrion) lineolatum* Selys, 1876: Synopsis des Agrionines, Add. 5: 172 [Type material: M; Type locality: Japan; Type deposition: Nation. Hist. Mus., Paris].

*Coenagrion hieroglyphicum* (Brauer): Kirby, 1890: Syn. Cat. Neur.-Odon., London: 150; Ishida, 1969, Ins. Life Jap. 2: 43 (Korea).

*Cercion hieroglyphicum* (Brauer): Asahina, 1950, Ico. Ins. Jap. Hokuryukan, Tokyo: 139 (Korea); Asahina, 1965: Kontyu 33(4): 495.

*Paracercion hieroglyphicum* (Brauer): Lee, 2006: 12.

**Distribution:** East Asia (Korea, Japan, China, Hong Kong).

**Korean Records:** S: Nowon. I: Is. Yeongjong. GG: Mt. Soyo, Namyangju, St. Gyeongan, Uiwang, Gapyeong, St. Anseong, Pocheon. GW: Wonju, Gangneung, Chuncheon, Hwojinpo. CB: Chungju. CN: Boggeum-jeosuji, Hongseong, Jochiwon, Is. Anmyeon. JN: Gogseong, Gwangju, Wando, Hampyeong, Gurye. GB: Daegu, Gyeongsan. GN: Miryang, Busan, Namhae, Jillal-neup, Sacheon, Jinju, Jangjae-soryuji, Changnyeong, Changwon, Hadong, Haman, Daesongri-neup, Hapcheon. JJ: Bukjeju. PN: Pyeongyang. HN: Hamheung, Baegam.

**23. *Paracercion melanotum*** (Selys), 1876

(작은등줄실잠자리)

*Agrion (Enallagma) melanotum* Selys, 1876: Synopsis des Agrionines, Add., 5: 121 [Type material: M; Type locality: China; Type deposition: Selys's collection].

*Coenagrion trilineatum* Navas, 1933: Mus. Heude Notes ent. Chinoise, 9: 5.

*Coenagrion admirationis* Navas, 1933: Mus. Heude Notes ent. Chinoise, 9: 6.

*Cercion sexlineatum* Selys: Lee, 2002, J. Kore. Biota, 7: 296 (Is. Jeju-do).

*Cercion melanotum* (Selys): Lee, 2006, Dragon. Kor. Penin., 10.

**Distribution:** Korea, China.

**Korean Records:** JJ: Jeju-do.

**Remarks:** This species was recorded from Jeju-do by Lee (2002) and listed later as *Cercion melanotum* (Selys) by Lee (2006). No other Korean data are available.

**24. *Paracercion plagiosum*** (Needham), 1930  
(큰등줄실잠자리)

*Coenagrion plagiosum* Needham, 1930: Zool. Sinica, (A) 11: 268 [Type locality: China; Type deposition: unknown]; Asahina, 1989, Gekkan-Mushi, 220: 11 (Mt. Jangsu-san).

*Cercion plagiosum* (Needham): Davies and Tobin, 1984: The Dragonflies of the World, Utrecht 1: 58; Lee, 2001: Dragon. Kor. Penin.: 31 (Baegseog-ji Gunsan-si).

*Paracercion plagiosum* (Needham): Lee, 2006: 13.

**Distribution:** Korea, Japan (Honshu), China (Central-Northern).

**Korean Records:** JB: Gunsan. HH: Jangsusan.

**Remarks:** This is a rare species in Korea reported only from Jangsu-san, North Korea (Asahina, 1989) and Gunsan, Jeollabuk-do (Lee, 2001).

**25. *Paracercion sieboldii*** (Selys), 1876 (왕등줄실잠자리)

*Agrion sieboldii* Selys, 1876: Synopsis des Agrionines, Add. 5: 171 [Type material: F; Type locality: Japan; Type deposition: Selys' collection]; Ris, 1916: Suppl. Ent. Berlin, 5: 33; Doi, 1932: J. Chosen Nat. Hist. Soc. 14: 69 (Seoul, Ansan).

*Coenagrion sieboldii* (Selys): Kirby, 1890: Syn. Cat. Neur.-Odon., London: 150.

*Agrion sautery* Ris, 1916: Suppl. ent. Berlin, 5: 34 [Type material: M; Type locality: Japan; Type deposition: Deutsch. Ent. Inst.].

*Cercion sieboldii* (Selys): Davies and Tobin, 1984: The Dragonflies of the World, Utrecht 1: 58.

*Paracercion sieboldii* (Selys): Jung, 2007: Odonata of Korea, p. 196 (Hoengseong-gun).

**Distribution:** Korea, Japan, Taiwan.

**Korean Records:** S: Seoul, GG: Gyeonggi-do, GN: Gyeong-sangnam-do.

**Remarks:** This species was reported from Seoul and Ansan by Doi (1932) under the name of *Agrion sieboldii*. Doi (1943), however, did not include this species in his checklist of Korean Odonata. Later, Jung (2007) reported one male adult of this species from Hoengseong, Gangwon-do.

**26. *Paracercion v-nigrum*** (Needham), 1930 (왕실잠자리)

*Coenagrion v-nigrum* Needham, 1930: Zool. Sinica, (A) 11:

269 [Type material: M; Type locality: Szechwan; Type deposition: unknown].

*Coenagrion barbatum* Needham, 1930: Zool. Sinica, (A) 11: 270 [Type material: M; Type locality: Szechwan; Type deposition: unknown]; Asahina, 1956: Ent. Medd., 27(4-5): 219.

*Agrion sieboldii* Selys: Doi, 1932, J. Chosen Nat. Hist. Soc., 14: 69 (Mt. Ansan, Seoul).

*Agrion v-nigrum*: Doi, 1943, Ent. World 11(110): 170-171 (Taeneung, Anyang, Chungju).

*Cercion v-nigrum* Asahina, 1956: Ent. Medd. 27(4-5): 219; Lee, 2001, Dragon. Kor. Penin., 30 (Korea).

*Leucorrhinia intermedia*: Lee, 2001, Dragon. Kor. Penin.: 126 (North Korea).

*Paracercion v-nigrum* (Needham): Lee, 2006: 13.

**Distribution:** Korea, China, Siberia.

**Korean Records:** S: Cheongnyangni, Ansan, Nowon. GG: Gaeseong, Anyang, Yeoncheon, Gapyeong, Mt. Myeongji, Yangju. GW: Gangneung. CB: Chungju, Ogcheon. CN: Is. Anmyeon. JB: Gunsan. GN: Haman, Geochang, Sacheon, Jinju, Changnyeong, Upo-neup, Hapcheon, Gimhae.

**Family Platycnemididae Tillyard and Fraser, 1938**

(방울실잠자리과)

Platycnemididae Tillyard, 1938: Ausstr. Zool., 9: 164.

**Distribution:** Palearctic, Oriental, and Afrotropical Regions including Madagascar.

**Genus *Copera* Kirby, 1890** (자실잠자리속)

*Copera* Kirby, 1890: Syn. Cat. Neur.-Odon., London: 129.

**Type Species:** *Platycnemis marginipes* Rambur, 1842.

**Distribution:** Korea, Japan, Oriental region.

**27. *Copera annulata*** (Selys), 1863 (자실잠자리)

*Psilocnemis (Psilocnemis) annulata* Selys, 1863: Synopsis des Agrionines, Add. 4: 28 [Type material: M; Type locality: Shanghai; Type deposition: Selys's Collection].

*Psilocnemis (Psilocnemis) ciliata* Selys, 1863: Synopsis des Agrionines, Add. 4: 29 [Type material: F; Type locality: Malacca; Type deposition: Selys's Collection].

*Psilocnemis subannulata* Selys, 1886: Mem. Cour. Acad. Belg., 38: 125 [Type material: M; Type locality: India; Type deposition: Selys's Collection].

*Psilocnemis annulata* race *ciliate* Selys, 1886: Mem. Cour. Acad. Belg., 38: 125.

*Copera annulata annulata* (Selys): Kirby, 1886: Syn. Cat. Neur.-Odon., London: 129; Ris, 1916: suppl. ent. Berlin, 5: 17; Ris, 1927: Zool. Meded., Leiden 10(1): 17; Schmidt, 1931: Konowia, 10(3): 183; Lieftinck, 1934: Treubia 14 (4): 393.

*Copera subannulata* (Selys): Kirby, 1890: syn. Cat. Neur.-Odon., London: 129.

*Psilocnemis annulata* Selys: Jacobson and Bianki, 1905: Pryam. lozhnos. Ross. imp. 832; Ishida, 1996, Mono. Odo. Larver Jap., 185 (Korea).

*Tseudocopera arachnoids* Fraser, 1922: Mem. Dept. -Agric. India, 7: 56 [Type material: M; Type locality: Assam; Type deposition: British Museum, London; Kimmins, 1966: Bull. Brit. Mus. nat. Hist. 18: 179.

*Copera annulata* (Selys): Doi, 1943, Ent. World 11(110): 169 (Taeneung, Changdong); Lee, 2006: 19.

**Distribution:** Korea, Japan, China (Central, Western), Taiwan, India, Malaysia.

**Korean Records:** S: Nowon, Dobong. GG: Namyangju.

**Remarks:** Larva of this species is often confused with *Platycnemis phyllopoda*.

**28. *Copera tokyoensis*** Asahina, 1948 (큰차실잠자리)

*Copera tokyoensis* Asahina, 1948: Mushi 18: 103 [Type material: M; Type locality: Japan; Type deposition: Asahina's Collection]; Asahina, 1989, Gekkan-Mushi 220: 13 (Seoul: Cheongnyangni).

**Distribution:** Korea, China, Japan.

**Korean Records:** S: Cheongryang-ri. GG: Gwangmyeong. JB: Gunsan. GN: Hapcheon.

**Remarks:** This species was first reported from Cheongryang-ri, Seoul by Asahina (1989).

**Genus *Platycnemis* Charpentier, 1840** (방울실잠자리속)

*Platycnemis* Charpentier, 1840: Libell. Europ. Lipsiae: 21.

**Type Species:** *Agrion lacteum* Charpentier, 1825.

**Distribution:** Afrotropical and Palearctic regions.

**29. *Platycnemis phyllopoda*** Djakonov, 1926

(방울실잠자리)

*Platycnemis phyllopoda* Djakonov, 1926: Rev. Russ. Ent., 20: 231 [Type material: M (not given); Type locality: Ussuri]; Ris, Ark. Zool. Uppsala, 21A(31): 29; Asahina, 1939c: 197 (Yusen=Yucheon; Seido=Cheongdo); Doi, 1943: 169.

*Platycnemis ulmifolia* Ris, 1930: Ark. Zool. Uppsala, 21A(31): 26 [Type material: M; Type locality: China; Type deposition: Naturhist. Riksmus., Stockholm].

*Copera mariginipes* Rambur: Doi, 1932: 69 (Seoul, Pyeongyang, Mt. Samseongsan, Cheongdo, Yucheon).

*Platycnemis hummeli* Sjostedt, 1933: Ark. Zool. Uppsala, 25A(5): 19 [Type material: M; Type locality: Szechwan; Type deposition: Naturhist. Riksmus., Stockholm].

*Copera foliacea* Selys: Doi, 1937: 20 (Seoul, Pyeongyang, Mt. Samseongsan, Cheongdo, Yucheon).

**Distribution:** Korea, Japan, Manchuria, Ussuri.

**Korean Records:** S: Mt. Bukhan. I: Is. Weolmido (Is.), Mt. Seolseong. GG: Anyang, Mt. Samseong, Guri, Namyangju, Yangpyeong, Yeoncheon, Gwangju, Haansamni-jeosuji, Mt. Deokam, Pocheon, Gapyeong, Suwon. GW: Mt. Chiak, Mt. Odae, Inje, Yanggu, Chuncheon, Mt. Bangtae. CB: Okcheon, Cheongju. CN: Nonsan, Daejeon, Buyeo, Mt. Gyer-yong. JB: Deokjin, Gochang, Gimje, Jeonju, Buan. JN: Gokseong, Yeonggwang, Hampyeong, Gwangju. GB: Cheongdo. GN: Miryang, Busan, Haman, Geoje, Hapcheon, Mt. Jiri. JJ: Mt. Halla, Bukjeju, Namjeju, Seogwipo.

**Remarks:** This species was reported in Cheongdo, Yucheon, Samseongsan (Mt.), Pyeongyang, and Seoul by Doi (1932) under the name of *Copera mariginipes* Rambur, but Doi (1937) revised the name as *Copera foliacea* Selys using the same material. Asahina (1939c) again revised the name as *Platycnemis phyllopoda* Djakonov using the same material and Doi (1943) later followed this identification. Cho (1958) repeated this identification.

**Family Lestidae Needham, 1903** (청실잠자리과)

Lestidae Needham, 1903: Bull. 68 N.Y. State Mus.: 216.

**Distribution:** Cosmopolitan.

**Genus *Indolestes* Fraser, 1922** (가는실잠자리속)

*Indolestes* Fraser, 1922: Mem. Dept. Agric. India, 7: 57.

**Type Species:** *Indolestes indicus* Fraser, 1922.

**Distribution:** Oriental, Palearctic, and Australasian region.

**30. *Indolestes peregrinus*** (Ris), 1916 (가는실잠자리)

*Lestes gracilis peregrinus* Ris, 1916: Suppl. Ent. Berlin, 5: 15 [Type material: Japan; Type locality: Japan; Type deposition: Ris' collection].

*Ceylonolestes gracilis* Hagen: Doi, 1943, Ent. World, 11(110): 168 (Mt. Unmun-san).

*Ceylonolestes gracilis peregrinus* (Ris): Asahina, 1948: Shin Konchu, 1(9): 340; Asahina, 1965: Odonata. Ico. Ins. Jap. Hokuryukan, Tokyo, Colore Naturali Edita, 3: 218; Ishida, 1969: Ins. Life Jap., 2: 55 (Korea).

*Ceylonolestes gracilis peregrina* (Ris): Asahina, 1950: Odonata. Ico. Ins. Jap. Hokuryukan, Tokyo: 43 (Korea); Asahina, 1956: 55; Asahina 1958: 55.

*Lestes (Indolestes) peregrinus* Ris: Lieftinck, 1960: Nova Guinea, (Zool.), 8: 141.

*Lestes extranea* Needham, 1930: Zool. Sinica, 11: 233.

*Lestes gracilis extraneus* Needham: Schmidt, 1931: Konowia, 10: 178.

*Ceylonolestes gracilis extraneus* (Needham): Asahina, 1956: Ent. Medd., 27: 218.

*Lestes (Indolestes) extraneus* Needham: Lieftinck, 1960: Nova Guinea, (Zool.), 8: 141.

*Indolestes extranea* (Needham): Chao, 1962: I. Ibid., 11 (Suppl.): 27-28.

*Lestes montelli* Navas, 1935: Notes Ent. Chinoise, 2: 90-91.

*Indolestes peregrinus* (Ris): Hamada and Inoue, 1985: Dragonflies Jap., 2: 173 (Korea); Lee, 2006: 10.

*Indolestes gracilis* (Hagen): Lee, 2001, Dragon. Kor. Penin., 19 (Korea).

**Distribution:** Korea, Japan, China.

**Korean Records:** S: Segumjeong, Mt. Cheonggye, Seongbuk, Hongneung, Mt. Umyeon. U: Mt. Jeongjok, Mt. Gaji, Ulju. GG: Mt. Jugeum, Mt. Cheonma, Icheon, Pocheon. GW: Daegwanryeong, Mt. Chiak, Yeongwol. JB: Mt. Deokyu, Namwon, Mt. Cheonhwang. JN: Gokseong. GB: Mt. Nae-yeon, Gyeongsan. GN: Mt. Yeonhwa, Mt. Odu, Masan, Mt. Waryong, Sancheong, Yangsan, Jinju, Haman, Mt. Baekun, Mt. Gaya, Hapcheon, Mt. Mangil. JJ: Namjeju.

**Remarks:** Needham (1930) described *Lestes extranea* without referring to *Lestes gracilis peregrinus* Ris known from Japan. The Chinese and Korean specimens, including those recorded by Asahina (1956, 1969), have more or less reduced markings on the body, but as there is no essential difference in morphology. It seems reasonable to include them in a single species, *Indolestes peregrinus* (Ris).

**Genus *Lestes* Leach, 1815** (청실잠자리속)

*Lestes* Leach, 1815: in Brewster's Edinb. Encycl., 9(1): 137.

**Type Species:** *Agrion barbara* Fabricius, 1798.

**Distribution:** Cosmopolitan.

**31. *Lestes dryas* Kirby, 1890** (북청실잠자리)

*Lestes dryas* Kirby, 1890: Syn. Cat. Neur. -Odon., London: 160; Cowley, 1935: entomologist, 68: 155; akramovski, 1948: Zool. Zborn., Moscow, 5: 148; Morera, 1950: Inst. Esp. ent., Madrid: 78; Fraser, 1956: R. Ent. Soc. London, 1(10): 33; Asahina, 1958: Insecta matsum., 22: 64; Hoffmann, 1960: Archives, 27: 222; Belyshev, 1961: Fragm. Faun. Warszawa, 9(4): 37; Benedek, 1962: Reichenbachia, 11(17): 185; Steinmann, 1984: Fauna Hung., 160: 41; Ju, 1993: Lep. Mt. Baegdu-san, Pyeongyang: 256 (Onsupyeong).

*Lestes uncatatus* Kirby, 1890: synl. Cat. Neur. -Odon., London: 160; Cowley, 1935: entomologist, 68: 155.

*Lestes uncatatus* morpha *skaloni* Belyshev and Gagina, 1960: Fragm. Faun. Warszawa, 8: 173.

**Distribution:** Korea, Japan, Russia, China.

**Korean Records:** HN: Onsupeong.

**Remarks:** This species was recently reported from North Korea. It is known to live in ponds with emerged hydrophytes and floating-leaved hydrophytes. No other information is available.

**32. *Lestes japonicus* Selys, 1883** (좁청실잠자리)

*Lestes (Lestes) japonicus* Selys, 1883: Ann. Soc. ent. Belg., 27: 130 [Type material: M; Type locality: Japan; Type deposition: R. Mus., Brussels].

*Lestes japonica* Selys: Doi, 1943, Ent. World, 11(110): 168 (Taeneung); Cho, 1958: Hum. Sci. Korea Univ., 3: 48 (Taeneung).

**Distribution:** Korea, Japan, China.

**Korean Records:** S: Nowon. CN: Boryeong, Is. Anmyeon. JB: Gochang, Gunsan. GB: Yeongcheon, Yeongcheon. GN: Jinyang, Haman, Daesongri-neup, Jillal-neup. HN: Bocheon.

**33. *Lestes sponsa* (Hansemann), 1823** (청실잠자리)

*Agrion sponsa* Hansemann, 1823: Wiede. Zool. Mag., 2(1): 159 [Type material: M; Type locality: Germany].

*Agrion forcipula* Charpentier, 1825: Horae Ent., Paris: 6 [Type material: M; Type locality: Europe; Type deposition: Halle Museum]; Selys, 1862: Synopsis des Agrionines, Add. 2: 17.

*Lestes sponsa* (Hansemann): Selys, 1840: Monogr. Libell. europ., Paris: 140; Selys and Hagen, 1850: Revue des Odonates, Paris: 154; Kirby, 1890: Syn. Cat. Neur. Odon., London: 160; Doi, 1936, J. Chosen Nat. Hist. Soc., 21: 106, (Seoul); Nielsen, 1940: Mem. Soc. ent. ital., 19: 238; Akramovski, 1948: Zool. Zborn., Moscow, 5: 149; Morera, 1950: Inst. Esp. Ent., Madrid: 77; Fraser, 1956: R. Ent. Soc. London, 1(10): 33; Asahina, 1958: Insecta matsum., 22: 65; Hoffmann, 1960: Archives, 27: 223; Benedek, 1968: Reichenbachia, 11(17): 185; Steinmann, 1984: Fauna Hung., 160: 41.

*Agrion (Anapetes) forcipula* Charpentier: Charpentier, 1840: Libell. Europ. Lipsiae: 24.

*Agrion spectrum* Kolenati, 1856: Bull. Mosc., 29(4): 501 [Type material: M; Type locality: Russia]; Selys, 1862: Synopsis des Agrionines, Add. 2: 17.

*Lestes (Lestes) sponsa* (Hansemann): Selys, 1862: Synopsis des Agrionines, Add. 2: 17.

*Anapetes forcipula* (Charpentier): Cowley, 1934: Entomologist, 67: 250.

**Distribution:** Korea, Japan, Europe (Russia, Italy, Afghanistan, Austria, Belgium, Bulgaria, Switzerland, China, Czechoslovakia, German, Denmark, Algeria, Spain, Finland, France, United Kingdom, Greece, Hungary, Iran, Ireland, Liechtenstein, Luxembourg, Netherlands, Norway, Poland, Romania, Sweden, Tunisia, Turkey).

**Korean Records:** GG: Seoul. HB: Samjiyeon, Gwangmo-bong, Bukgyesu, Daetaek. HN: Yeongha, Hyesan, Bocheon.

**34. *Lestes temporalis* Selys, 1883** (큰청실잠자리)

*Lestes temporalis* Selys, 1883: Ann. Soc. Ent. Belg., 27: 129 [Type material: M; Type locality: Japan; Type deposition: R. Mus., Brussels].

Selys's Collection]; Jacobson and Bianki, 1905: Pryam. lozhnos. Ross. imp.: 808; Ris, 1916: Supple. ent. Berlin, 5: 11; Belyshev, 1973: The Dragonflies of Siberia, 1(2): 511; Lee, 2002: J. Kor. Biota, 7: 205-207 (Seolag, Gyeonggi-do).

**Distribution:** Korea, Japan, Russia.

**Korean Records:** GG: Seolag. GN: Jirisan.

**Genus *Sympecma* Burmeister, 1839** (목은실잠자리속)  
*Sympecma* Burmeister, 1839: Handb. Ent., 2: 824.

**Type Species:** *Agrion phallatum* Charpentier, 1825.

**Distribution:** Palearctic region.

**Remarks:** This genus comprises three known species which occur throughout Europe and Asia. Only one species is recorded in Korea.

- 35. *Sympecma paedisca*** (Brauer), 1877 (목은실잠자리)  
*Agrion paedisca* Eversmann, 1836: Bull. Mosc., 9: 247 [Type material: M; Type locality: South Russia; Type deposition: unknown, perhaps undesigned in Zool. Inst. Mus. Acad. Scil, St. Petersburg].  
*Sympecma paedisca* (Eversmann): Brauer, 1880: Verh. Zool.-Bot. Ges. Wien., 30: 231; Fudakowski, 1930: Fragm. Faun. Mus. Zool. Polon., 1: 193; Davids and Tobin, 1984: The Dragonflies of the World, Utrecht, 1: 38; Asahina, 1939: Kontyu, 13(5, 6): 197 (Ranan=Nanam, Keizantim=Hyesanjin, Kaizyo=Gaeseong, Kokai=Ganggye).  
*Sympecma fusca* Linden: Doi, 1932, J. Chosen Nat. Hist. Soc., 14: 69 (Pyeongyang, Mt. Jeongbang-san, Baeg-bong, Mt. Samseong-san, Cheongdo, Yucheon).  
*Sympecma paedisca paedisca* (Eversmann): Hamada and Inoue, 1985: Dragonflies Jap., 2: 172 (Korea).  
*Sympecma striata* st. *Quentin*: Tsuda, 1991, Dist. List World Odonata, Osaka: 64 (Korea).  
*Psilocnemis annulata* Selys: Ishida, 1996, Mono. Odo. Larver Jap.: 172 (Korea).

**Distribution:** Korea, Japan, China (Northern), Russia, Mongolia, Europe (Italy, Austria, Switzerland, Czechoslovakia, German, France, Hungary, Netherlands).

**Korean Records:** S: Seodaemun. D: Galseong. GG: Anyang, Yangpyeong, Incheon, Gochang, Yongin, Mt. Cheonma, Paju, Mt. Chungnae, Pocheon, Gaeseong, Namyangju, Mt. Aengmu, Mt. Myeongji, Ganghwa. GW: Inje, Yanggu, Hoen-gseong, Yangju, Hwacheon, Mt. Deolun, Mt. Seolak, Chuncheon, Yeongweol, Mt. Chiak, Mt. Daeam, Jeongseon, Mt. Odae, Hongcheon, Mt. Palbong, Baegbong. CB: Mt. Sokri, Okcheon, Cheongju. CN: Mt. Hodang. JB: Muju. JN: Jindo. GB: Mt. Juwang, Mt. Hwanghak, Cheongdo, Dongchun. GN: Mt. Sanseong, Mt. Jiri, Mt. Naemyeon, Sancheong, Jinju, Hadong, Mt. Imyeong, Mt. Hwangmae. PB: Jungganjin,

Ganggye. PN: Pyeongyang. HB: Juheul, Yeonsang, Nanam. HN: Bocheon, Hyesanjin. HH: Mt. Jeongbang.

## Inappropriately Known Zygoptera Species in Korea

- 36. *Calopteryx cornelia*** Selys, 1853 (일본물잠자리)  
*Calopteryx cornelia* Selys, 1853: Bull. Acad. r. Belg. 20 (Annexe): 15; Lee, 2001: 13; Jung, 2007: 170.  
*Agrion cornelis* (Selys): Ju, 1969: 6.

**Remarks:** This species was listed in the North Korean Odonata checklist by Ju (1969) and Lee (2001) and Jung (2007) cited the checklist. Jung (2010) excluded this species from the Korean Odonata fauna. This species is known endemic to Japan.

- 37. *Agriocnemis pygmaea*** Rambur, 1842 (꼬마실잠자리)  
*Agriocnemis pygmaea* Rambur, 1842: Histoire naturelle des insectes. Névroptères. Roret. Paris, p. 278; Kim, 1998: 20 (misidentification)

**Remarks:** This tiny damselfly (adult body length 9-15 mm) is distributed in tropical and subtropical Oriental region and Australia. Its Korean distribution has not been verified by any authors. We exclude this species from the Korean Odonata fauna.

- 38. *Platycnemis foliacea sasakii*** Asahina, 1949 (방패실잠자리)  
*Platycnemis foliacea sasakii* Asahina: Cho, 1969: 896; Ju, 1969: 7; Komiya, 1971: 65; Kong, 1988: 217; Jung, 2007: 255.  
*Platycnemis foliacea* Selys: Hong, 1991: 54; Kim, 1998: 68.

**Remarks:** Cho (1969) recorded this species from Korea with description and illustration, but did not provide material or locality data. This species has often been confused with *Platycnemis phyllopoda* Djakonov (see Remarks in *Platycnemis phyllopoda* Djakonov, above), but no collecting material data have been provided by the authors. Jung (2010) excluded this species from the Korean Odonata fauna. This subspecies is known endemic to Japan.

- 39. *Lestes hanllimensis*** Kim, 1998 (한림청실잠자리)  
*Lestes hanllimensis* Kim, 1998: 80 [Holotype: Male, Jeollabuk-do, Okku, Hanllim Lake].

**Remarks:** This species is not morphologically distinguished from other congeners such as *L. temporalis* Selys. This species is regarded as *nomen dubium*.

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