

**New provincial records of Odonata  
from Thailand mostly based on photographs**

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For those who love and study dragonflies the identification of specimens based on photos is a perpetual headache. We are often unable to provide confident determinations without voucher specimens but are frequently requested to do so. It is true that a good many species may be confidently identified from general appearance but most of these are common and widespread. The more interesting or difficult a group is (that is almost the same) the less suitable it is for such photo-id, and species not yet described obviously, by definition, cannot be identified. Therefore, the potentially most interesting records could also be the least reliable when based only on photographs. Besides, even if a species is easily identified, photographs are often taken at the wrong angle, or use the wrong plane of focus to show key characters such as particular veins or other details. Dragonfly photography has the potential to produce quite a lot of erroneous records if we are incautious in our application of photo-identifications.

At the same time we can no longer disregard this type of information. The ease of digital photography and increasing public interest in Nature on the one hand, and the contraction of natural habitats, with the residue often being confined to national parks, together with the strengthening of Nature protection legislation worldwide on the other hand, result in an increasing number of persons eager to explore Nature but unable to collect

voucher specimens because of either personal ethical concerns or for legal reasons. They are producing a rapidly increasing collection of photographic records of Odonata, affording some data useful to science. This approach is adopted from the birdwatching code of practise, where it works quite well since photographic identification of bird species is in general reasonably reliable. For those adopting this data generated from <dragonfly watching> as a basis for faunistic records, the great challenge is to filter out the noise of unreliable photo-id's. Unfortunately, reliable records still appear to be biased towards widespread, common and photogenic species. Yet they are still data and therefore must be utilised.

Thailand is one of the countries best explored for Odonata in the tropics. The atlas by Hämäläinen & Pinratana (1999), which shows Odonata distribution by provinces, provided a substantial summary of accumulated knowledge and a sound base for further study. A number of publications reported additional species to many provinces. These include a series of papers published since 1999 in issues 16-22 of Malangpo (the Newsletter of the Thai National Office of Societas International Odonatologica): Yeh (1999); Pinratana (2000, 2003); Hämäläinen & Pinratana (2000); Hämäläinen & Yeh (2000); Donnelly (2000); Hämäläinen (2001, 2002a); Dijkstra & Kalkman (2001); Thipaksorn et al. (2001); Chanpaisaeng & Khunwiset (2002 [with some identification errors]); Khunwiset & Chanpaisaeng (2002 [with some identification errors]); Orr (2003); Kosterin & Vikhrev (2008). Another series of papers with faunistic records from Thailand have been published in Aeschna, a journal published by the Odonatological Society of Osaka: Kitagawa & Ichii (1999); Kitagawa & Katatani (2002, 2003, 2005); Katatani et al. (2004); Muraki (2007). In addition there were two papers published in Notulae Odonatologicae (Thipaksorn et al., 2003; Makhun et al., 2011), a large paper by Ferro et al. (2009) and a couple of papers published in Agrion (Kosterin & Vikhrev, 2009); Kosterin et al., 2011). Some new taxonomical solutions and new species of Thai Odonata appeared as well (e.g. Hämäläinen 1999, 2002b, 2003; Yeh, 1999; 2000; Hoess, 2007; Wilson, 2008).

Along with these semi-formal or formal scientific publications, we have the records accumulated on the internet, particularly in the Asia Dragonfly Home Page launched and maintained by E. Gibert (<http://www.asia-dragonfly.net>), a site dedicated to collect photos of Asian Odonata species. Presently this resource includes 8,509 photographs; 2,633 of them taken in Thailand (as at the end of 2011). It is noteworthy that species identifications on the site are the responsibility of the photographers themselves, but these for Thailand have generally been reviewed by N.M., O.K and others,

Here we attempt a summary of those photographic Thai provincial records, which we consider to be reliable, mostly made by prolific contributors to 'Asia dragonfly home page' operating in Thailand, including D.F. (also known as Faz), who in addition has his own dragonfly blog [<http://thaiodonata.blogspot.com>] containing more photos than on [[www.asia-dragonfly.net](http://www.asia-dragonfly.net)], and L.D., who also exhibits more of his photos on his own site [[www.samuibutterflies.com/insect/dragonflies/](http://www.samuibutterflies.com/insect/dragonflies/)] (where the detailed information for photos is not shown but is provided here as provincial records). Their photos may be viewed and checked in the sites mentioned. E.K. is not associated with [www.asia-dragonfly.net](http://www.asia-dragonfly.net), and few of A.G.'s photos are included on that site (many of his records were based on specimens, not photographs). All the photo authors who agreed to contribute to the project are co-authors of this communication, arranged above in alphabetical order. Unfortunately, Mr. Kriangkrai Suwannaphak [[suwannaphak@hotmail.com](mailto:suwannaphak@hotmail.com)] has not answered our invitations and hence regrettably we were unable to list him among coauthors. But since he has published their photos and detailed captions in an open internet source and in view of the great importance of his data we feel we can and should mention them here as well (abbreviating his authorship as K.S.), his contribution and role being the same as those of the listed authors. In the data presented below the photo authors are abbreviated by their initials, occasional records by other photographers are acknowledged. In some cases voucher specimens, as well as reliable visual observations by experienced odonatologists are also noted. Absence of comments for any species record in the list below implies that it is based on photography.

Photos of uncertain identification as well as those showing species already known for relevant provinces were disregarded, but some interesting records are included with a question mark. Reliable new provincial records are enumerated below, but one should take into account the severe limitations of the method of photo-id and retain some caution (especially in case of gomphids). In this connection we should also remember that a published distributional record based on a collected specimen can also be erroneous due to misidentification. The distribution maps in the Atlas by Hämäläinen & Pinratana (1999), to which we are making our additions, contain records compiled from all earlier published papers together with the authors' own (largely unpublished) records. Doubtless there are also identification errors present in the published maps.

The provinces below have numbers as in the scheme on pages 16-17 of (Hämäläinen & Pinratana, 1999).

### 1. Mae Hong Son Province

Pai, Mae Nam Pai River, 27-29.01.2008 (A.P.): *Neurobasis chinensis* (♂, ♀); *Libellago lineata* (♂).

### 3. Chiang Rai Province

Chiang Rai suburbs (D.F.): *Ischnura aurora* (♂♂, 21.04.2010)

## 5. Nan Province

A swamp north of Nan, 15.05.2008 (A.P.): *Ceriagrion indochinense* (♂); *Acisoma panorpoides* (♂); *Lathrecista asiatica* (♂); *Potamarcha congener* (♂, 15.05.2008); *Rhyothemis variegata* (♀); *Tetrathemis platyptera* (♂).

A pond within the city of Nan, 20.04.2008 (A.P.): *Ischnura senegalensis* (♂, ♀), *Crocothemis servilia* (♂).

Tha Wang Pha, under a highway bridge, 10.05.2008 (A.P.): *Diplacodes trivialis* (Rambur, 1842) (♂).

A forest near Wiang Sa, 29.05.2008 (A.P.): *Trithemis aurora* (Burmeister, 1839) (♂).

## 11. Sukhotai Province

A pond next to Wat Tra Phang Ngoen, 05.03.2010 (U.R.): *Ischnura aurora* (♂); *Ictinogomphus decoratus* (♂); *Brachydiplax chalybea* (♂); *Brachythemis contaminata* (♂); *Crocothemis servilia* (♂, ♀).

Ramkhamhaeng National Park, 28.12.2010 (E.K.): *Acisoma panorpoides*; *Trithemis aurora*.

Si Satchanalai National Park, 29.12.2010 (E.K.): *Neurobasis chinensis*; *Aristocypha fenestrella*; *Euphaea masoni*; *Euphaea ochracea*; *Heliocypha perforata*; *Libellago lineata*; *Pseudagrion pruinosum*; *Orthetrum chrysis*; *Orthetrum glaucum*; *Orthetrum pruinosum*; *Trithemis aurora*.

In addition to imaginal photos, the following exuvia were collected by E.K. at Sukhotai Historical Park on 27.12.2010 and identified by Richard Seidenbusch: *Brachythemis contaminata* (♂); *Crocothemis servilia* (♂); *Tholymis tillarga* (2 ♂♂); *Trithemis pallidinervis* (♂).

## 12. Phitsanulok Province

Phu Hin Viet Resort, 23.12.2008 (E.K.): *Orthetrum sabina*.

Thueng Salaeng National Park, 29.12.2008 (E.K.): *Vestalis gracilis*; *Heliocypha perforata*; *Pseudagrion rubriceps*; *Copera marginipes*; *Indocnemis orang*; *Neurothemis intermedia*; *Orthetrum pruinosum*; *Potamarcha congener*; *Trithemis festiva*.

Nakhon Tai, 214 m a.s.l., 17°06'13"N, 100°50'28"E, 11.11.2011 (A.K.): *Aciagrion borneense* (♀ collected), *Libellago lineata* (♂ collected), *Copera marginipes* (2 ♂♂ collected), *Crocothemis servilia* (♂ collected), *Neurothemis tullia* (♂, ♀ collected), *Onychothemis testacea* (♂ collected).

## 15. Nakhon Sawan Province

Country Lake + Bung Boraphet, 24-27.12.2010 (E.K.): *Copera vittata*.

## 16. Petchabun Province

Nam Nao National Park, 24.12.2008 (E.K.): *Aciagrion pallidum*; *Diplacodes trivialis*; *Neurothemis intermedia*.

The same place, 25-26.07.2010 (K.S.): *Copera vittata* (♂, ♀); *Coeliccia didyma* (♂, appendages bluish white).

The same place (D.F.): *Aristocypha fenestrella* (♂♂, ♀♀, 15.11.2009); *Aciagrion borneense* (♂♂, ♀♀); *Argiocnemis rubescens* ♀, 15.11.2009); *Ceriagrion cerinorubellum* (♂, 02.07.2011); *Pseudagrion australasiae* (♂♂, ♀♀, 17.10.2010), *Copera vittata* (♂♂, ♀♀, 15.11.2009); *Merogomphus pavici* (♂, 10.2010); *Indothemis limbata* (♂♂, ♀♀); *Rhyothemis plutonia* (♂♂); *Tetrathemis platyptera* (♂♂, 10.2010).

The same place, 20.03.2008 (A.P.): *Diplacodes trivialis* (♂).

The same place (N.M.): *Indolestes anomalus* (2 ♂♂, 1 ♀ collected 09-10.07.2011).

Nam Nao National Park, headquarters, 22.04.2009 (N.M.): *Prodasineura doisuthepensis* (2 ♂♂, 1 ♀ collected), a species described by Hoess (2007) from Chiang Mai Province after publication of the Atlas (Hämäläinen & Pinratana, 1999).

Nam Nao National Park, a river near the headquarters, (D.F.): *Aciagrion pallidum* (♂, 16.10.2010); *Coeliccia chromothorax* (♂♂, ♀♀, 16.10.2010, 15.11.2009); *Coeliccia didyma* (♂♂, appendages blueish white, ♀♀, 16.10.2010, 15.11.2009); *Coeliccia poungyi* (♂♂, ♀♀, 16.10.2008, 15.11.2009); *Prodasineura auricolor* (♂♂, 17.11.2010).

Nam Nao National Park, Helicopter Pad Lake and env. (D.F.): *Argiocnemis nana* (♂♂, 17.10.2010); *Amphiallagma parvum* [formerly *Enallagma parvum*] (♂♂, 17.10.2010); *Ischnura aurora* (♂, ♀); *Anaciaeschna jaspidea* (♀, 11.10.2010); *Palpopleura sexmaculata* (♂♂, ♀♀); *Pseudothemis jorina* (♀♀); *Rhyothemis triangularis* (♂, ♀, 02.07.2011).

A river below Nam Nao National Park (D.F.): *Dysphaea gloriosa* (♂).

Thung Salang Luang National Park, 10.10.2009 (K.S.): *Orthetrum luzonicum* (♂).

4 km N of Nam Nao town, a small natural pond, 30.07.2011 (D.F.): *Idionyx* sp. (?selysi) (♂, ♀) *Onychogomphus* sp. (?duaricus) (♂, ♀); *Phyllothemis eltoni* (♂, ♀).

2 km S of Nam Nao town, a small pond, 30.07.2011 (D.F.): *Onychargia atrocyana* (♂ with a highly pruinose thorax).

8 km S of Nam Nao town, a small farmer pond, 23.07.2011 (D.F.): *Anax indicus* (♂); *Indothemis carnatica* (♂♂, ♀♀).

## 17. Loei Province.

Phu Kradung National Park (D.F.): *Mortonagrion aborensis* (♂).

Phu Kradung top (D.F.): *Potamarcha congener* (♂).

Phu Rua National Park, a forest stream at ca 900-1000 m a.s.l., 04.09.2011 (D.F.): *Noguchiphaea youshikoei* (♂♂, ♀).

Phu Rua, Song Hon Waterfall, deep forest near an upland river, 03.09.2011 (D.F.): *Gynacantha phaeomeria* (♂).

## 24. Khon Kaen Province.

Khon Kaen (D.F.): *Vestalis gracilis* (♂♂, ♀♀); *Lestes concinnus* (♂♂, ♀♀, 11, 17.09.2007); *Lestes elatus* (♂♂, 11.09.2007); *Lestes thoracicus* (♀, 17.09.2007; ♂♂, ♀♀, 06.10.2009, quite a number of individuals appeared for a short period of time around the latter date); *Aciagrion pallidum* (♂♂, 30.11.2008; ♀♀, 14.10.2008); *Aciagrion borneense* (♂♂, 10, 17.10.2008; ♀♀, 08.11.2007, 10.5.2008; 10.10.2008); *Onychargia atrocyana* (♂♂, ♀♀, 10.10.2008); *Pseudagrion rubriceps* (♂♂, ♀♀, 12.10.2007, 14.10.2008); *Copera ciliata* (♂♂, ♀♀, 18.11.2007); *Prodasineura* sp. (nec. *verticalis*) (♂, ♀, 08.11.2010); *Acisoma panorpoides* (♀, 30.11.2008); *Brachydiplax chalybea* (♂♂, 01.12.2007, 14.10.2008); *Brachydiplax farinosa* (♂, 03.12.2007); *Crocothemis servilia* (♂♂, 16-17.11.2007, ♀♀, 01.01.2007); *Diplacodes trivialis* (♂♂, 16-17.11.2007), *Orthetrum glaucum* (♂); *Potamarcha congener* (♂♂, 12.10.2007, 11.10.2008); *Pseudothemis jorina* (♂♂, 14.10.2008); *Rhyothemis phyllis* (♂♂, 14.09.2007, 12.10.2008); *Rhyothemis variegata* (♂♂, ♀♀, 25.09.2007); *Zyxomma petiolatum* (♂♂, ♀♀).

Khon Kaen, the Chi River, (D.F.): *Libellago lineata* (♂♂, ♀♀, 21.10.2008, 30.11.2008); *Ceriagrion indochinense* (♂♂, ♀♀, 17.09.2007, 16.10.2008); *Ceriagrion praetermissum* (♂♂, ♀♀, 16, 19.10.2008); *Paracercion malayanum* [formerly *Cercion malayanum*] (♂♂, ♀, 19, 22.10.2008); *Pseudagrion microcephalum* (♂♂, ♀♀, 08.11.2007, 11, 14, 20.10.2008); *Pseudagrion rubriceps* (♂♂, ♀♀, 14.10.2008); *Prodasineura autumnalis* (♂♂, ♀♀, 17-18, 20.10.2008); *Prodasineura coerulescens* (♂♂, ♀♀, 17.10.2008, 08.10.2010); *Aethriamanta aethra* (♂♂, ♀♀, 14.10.2008); *Brachydiplax farinosa* (♂, 20.10.2008); *Aethriamanta brevipennis* (♂♂, ♀♀, 01.12.2007, 20.09.2008, 14.10.2008; 10.09.2009); *Crocothemis servilia* (♂♂, ♀♀, 09.10.2008); *Diplacodes trivialis* (♂♂, ♀♀, 8, 14, 22.10.2008); *Neurothemis tullia* (♂♂, ♀♀, 02.12.2007, 09.10.2008); *Potamarcha congener* (♂♂, ♀♀, 10, 14, 22.10.2008); *Rhyothemis variegata* (♀, 10.08.2008); *Rhodothemis rufa* (♂♂, ♀♀, ♂); *Urothemis signata* (♂♂, ♀♀, 08.11.2008).

Khon Kaen, a small marsh at the Chi River (D.F.): *Lestes concinnus* (♀, 15.10.2008); *Lestes elatus* (♂♂, ♀♀, 17.10.2008); *Agiocnemis minima* (♂♂, ♀♀, 06.10.2007, 21.02.2009); *Copera chanthaburii* (♂♂, ♀♀, 30.11.2008, 10.10.2009, here locally abundant, kept to deep shade, e.g. under a bridge); *Copera ciliata* (18.11.2007, 10, 15.10.2008, 30.11.2008); *Copera marginipes* (♂♂, ♀♀, 30.11.2008); *Acisoma panorpoides* (♂♂, ♀♀, 21.02.2009).

Khon Kaen, a small drainage puddle, 04.06.2008 (D.F.): *Orthetrum pruinosum* (♂♂).

Khon Kaen environment, 08.10.2009 (D.F.): *Epopthalmia f. frontalis* (♂).

The Chi River 10 km of Khon Kaen, 05.06.2011 (D.F.): *Ceriagrion olivaceum* (♀);

Phu Wiang National Park (D.F.): *Orolestes octomaculatus* (♂♂, ♀♀, 11, 18.06.2011); *Cratilla lineata* (♂); *Potamarcha congener* (♀); *Rhyothemis plutonia* (♂♂, ♀); *Tetrathemis platyptera* (♀, 10.2010); *Trithemis festiva* (♂♂, ♀♀).

Nam Phong National Park (D.F.): *Lestes elatus* (♂♂).

## 26. Nakhon Ratchasima Province.

Khao Yai National Park, Haew Suwat Falls (U.R.): *Copera vittata* (♂, 20.02.2010); *Prodasineura* sp. (nec. *verticalis*) (♂, ♀, 26.02.2010).

Eco Valley Lodge + Khao Yai National Park, 31.12.2010-05.01.2011 (E.K.): *Aciagrion pallidum*; *Ceriagrion cerinorubellum*; *Onychargia atrocyana*; *Copera ciliata*; *Copera vittata*; *Diplacodes nebulosa*; *Hydrobasileus croceus*.

Khao Yai National Park, a slow flowing river about 900 m a.s.l., 16.07.2011 (D.F.): *Merogomphus parvus* (♂); *Rhyothemis obsolescens* (♂).

Khao Yai National Park, a natural pond and a swampy area in 10 km from Jungle House Resort, 23.04.2011 (D.F.): *Lestes praemorsus* (♂); *Coeliccia kazukoae* (= *C. megumii*) (♂♂, ♀, 22.04.2011); *Agrionoptera insignis* (♀); *Hydrobasileus croceus* (ind.); *Indothemis limbata* (♂♂, ♀, 23.04.2011); *Onychothemis testacea* (♂♂, 23.04.2011); *Rhodothemis rufa* (♂); *Tramea transmarina* (♂).

Khao Yai National Park, open upland pond at about 1000 m a.s.l., 14.08.2011 (D.F.): *Ceriagrion calamineum* (♂).

## 27. Buri Ram Province

Dong Yai, 01.05.2008 (K.S.): *Copera ciliata* (♂); *Rhyothemis plutonia* (♂, 01.06.2008).

## 32. Ubon Ratchathani Province

Khong Jeam, 05.09.2007 (K.S.): *Agiocnemis nana* (♂); *Copera marginipes* (♀), *Prodasineura autumnalis* (♂);

*Brachydiplax farinosa* (♂); *Ceriagrion olivaceum* (♀); *Indothemis carnatica* (♂, ♀).

#### 34. Kanchanaburi Province.

Erewan National Park, 01.05.2011 (R.R.): *Macromia flavocolorata* (♂).

#### 35. Ratchaburi Province.

Kang Som Maew rapids, Sounpung District, (R.R.): *Burmagomphus williamsoni* (♂, 13.04.2010); *Gomphidia kruegeri* (♂♂, 13.04.2010, 15.05.2010); *Megalogomphus* sp. cf. *icterops* (♂♂, 26.06.2010; 16.04.2011), preliminary identification by Matti Hämäläinen and Albert Orr. The male coloration is peculiar in having the green patches on mesepisternum contacting each other rather than divided by a black mid-dorsal stripe, so that the front of the prothorax is entirely green.

Borwee waterfall, Sounpung District (R.R.): *Ceriagrion chaoi* (♂, 13.10.2010); *Macrogomphus kerri* (♂, 15.05.2010); *Macromidia genialis* (♀, 15.05.2010).



Figure 1. *Megalogomphus* sp. cf. *icterops* (Martin, 1902), ♂, Nathon, a small sandy based, shady stream at the edge of secondary forest, Koh Samui island, Surat Thani Province, 22.04.2009, Photo credit: Leslie Day.

Kaojon (Kao-chan) waterfall, Sounpung (Suanphung) District (R.R.): *Onychothemis testacea* (♂, 19.04.2010); *Tyriobapta torrida* (♀, 08.04.2011).

Thaiprachan National Park (R.R.): *Gynacantha phaeomeria* (♂, 08.04.2011, 10.07.2011); *Tetracanthagyna waterhousei* (♀, 08.04.2011); *Heliogomphus selysi* (♂, 11.06.2011); *Leptogomphus gestroi* (♂, 25.06.2011); *Macrogomphus kerri* (♂, 05.06.2011); *Orthetrum pruinosum* (♂, 29.10.2009); *Tetrathemis platyptera* (♂, ♀, 10.06.2010).

Khouy-Kokmoo stream, Sounpung District (R.R.): *Gynacantha phaeomeria* (♂, 28.05.2011); *Asiagomphus xanthenatus* (♂, 15.05.2011).

### 36. Phetchaburi Province.

Kaeng Krachang National Park, 02.10.2011 (U.R.): *Copera vittata* (♂); *Prodasineura laidlawii* (♂); *Heliocypha biforata* (♂); *Orthetrum glaucum* (♂).

The same place, 13.06.2010 (K.S.): *Euphaea masoni* (♂); *Rhinagrion viridatum* (= *R. mima* auct., see Kalkman & Villanueva, 2011) (♀).

The same place, 02.04.2011 (Jeremy Gatten): *Heliocypha biforata* (♂).

The same place, 19.04.2011 (Len Worthington): *Camacinia gigantea* (♂).

The same place (R.R.): *Heliaeshna uninervulata* (♂, 03.04.2010), *Burmagomphus williamsoni* (♀, 05.06.2010); *Gomphidictinus perakensis* (♂♂, 12.05.2010, 03.11.2010); *Merogomphus parvus* (♂♂, 14.04.2010, 12.05.2010).

Kardungla waterfall, Nonyaplong District, 28.02.2010 (R.R.): *Rhinocypha pelops* (♂); *Protosticta curiosa* (♂).

Maeprajan Reserve dam, 19.11.2009 (R.R.): *Tramea transmarina* (♂).

### 37. Prachuap Khiri Khan Province

Forest stream below Pala-U Waterfall, 07.02.2011 (U.R.): *Ischnura aurora* (♂); *Paracercion malayanum* (♂).

Pala-Uoo (a different spelling of the above name) Waterfall, 08.05.2011 (R.R.): *Onychogomphus castor* (♂).

### 45. Nakhon Nayok Province

Khao Yai National Park, 24.06.2009 (K.S.): *Merogomphus parvus* (♂).

Khao Yai National Park, a forested stream between the information centre and waterfall, 10.08.2003 (E.G.): *Lestes platystyus* (♂).

Uncertain locality, 03.08.2006 (Porpol): *Agriocnemis minima* (♂).

### 52. Samut Sakhon Province

Banalksong village, Banphaeo District, 10.02.2011 (R.R.): *Ischnura aurora* (♂, 06.09.2009); *Pseudagrion microcephalum* (♂, 05.11.2009); *Pseudagrion rubriceps* (♂, 06.10.2009); *Copera ciliata* (♀, 25.03.2010); *Gynacantha subinterrupta* (♂, 28.11.2009); *Aethriamanta aethra* (♂, 05.10.2011; ♀, 07.10.2011); *Macrodiplax cora* (♂, 14.03.2011; ♀, 20.04.2010); *Orthetrum sabina* (♂, 14.10.2009); *Potamarcha congener* (♀, 05.02.2011); *Rhyothemis variegata* (gynochromic ♀, 20.04.2010).

The pond in Laksong Songserm Vithaya school. Banlaksong, Banphaeo District, 08.20.2009 (R.R.): *Agriocnemis femina* (♀).

Ban Pak Khlong Khuean Khak, Moo 3, Laksong, Banphaeo District (R.R.): *Brachydiplax chalybea* (♂, 04.10.2009); *Rhyothemis phyllis* (14.10.2009).

D7 canal, Banphaeo District, 23.05.2010 (R.R.): *Paracercion malayanum* (♂, ♀).

Watlaksong school, Banphaeo District, 17.06.2010, also found in 03.2010 and 05.2010 (R.R.): *Podolestes coomansi* (♂♂).

Thairathwithaya 9th School, Banphaeo District, 17.03.2010 (R.R.): *Podolestes coomansi* (♂♂).

### 53. Prachin Buri Province

Midsized lake in farmland E of Prachin Buri, 20.02.2010 (U.R.): *Pseudagrion williamsoni* (♂♂, ♀); *Acisoma panorpoides* (♂); *Diplacodes nebulosa* (♂); *Neurothemis fluctuans* (♂); *Rhyothemis variegata* (♂, ♀, gynochromic); *Urothemis signata* (♂).

Khao Yai National Park, Khao Ito Fall and Water Reserve, 20.02.2010 (U.R.): *Diplacodes nebulosa* (♂, ♀); *Pseudothemis jorina* (♂).

The same place, 24.02.2010 (U.R.): *Ictinogomphus decoratus* (♂); *Brachythemis contaminata* (♂, ♀); *Neurothemis fluctuans* (♂); *Rhyothemis phyllis* (♂, ♀); *Trithemis pallidinervis* (♂).

Khao Yai National Park (K.S.): *Vestalis gracilis* (♂, 20.08.2009); *Euphaea masoni* (♂, 20.08.2009); *Ictinogomphus decoratus* (♂, 11.09.2010), *Orthetrum chrysis* (♂, 11.09.2010); *Pseudothemis jorina* (♂, 27.07.2010); *Rhyothemis plutonia* (♂, 01.06.2008).

### 54. Chachoengsao Province

Uncertain locality (K.S.): *Brachythemis contaminata* (♂♂, 25.06.2005), *Cratilla lineata* (♂, 24-25.06.2005).

### 57. Chanthaburi Province

Khao Soi Dao Wildlife Sanctuary, ponds at the entrance, 12.11.2010 (D.F.): *Paracercion dyeri* [formerly *Cercion dyeri*] (♂♂, ♀, 23.04.2011).

Khao Khrating National Park, a pond (D.F.): *Ischnura aurora* (♂).

Some locality and date (D.F.): *Indothemis orang* (♂); *Paracercion malayanum* (♂).

### 58. Trat Province

Uncertain locality (K.S.): *Ictinogomphus decoratus* (♂, 01.05.2007); *Diplacodes nebulosa* (♂, 22.10.2008; ♀, 18.12.2007); *Rhodothemis rufa* (♂, 22.10.2008); *Urothemis signata* (♂, 19.12.2007).

“Near the river”, 19.05.2005 (K.S.): *Cratilla lineata* (♂).

Ko Chang island (K.S.): *Coeliccia yamasakii* (♂, 25.03.2009; ♀, 24.03.2009); *Prodasineura* sp. (nec. *verticalis*) (♂♂, ♀♀, 24.03.2009, 17.06.2009); *Orthetrum pruinosum* (♂, 23.03.2009); *Tetrathemis platyptera* (♂, 11.10.2010).

The same place (D.F.): *Rhinagrion viridatum* (♂♂, ♀); *Coeliccia yamasakii* (♂♂, ♀♀); *Prodasineura* sp. (nec. *verticalis*) (♂♂, ♀♀).

Koh Chang Island, 12.103 N, 102.275 E (N.V.): *Aciagrion borneense* (♂ photo 12.12.2011); *Agriocnemis pygmaea* (♂ collected by light 07.12.2011); *Crocothemis servilia* (♂ collected by light 10.12.2011).

Koh Chang Island, 12.076 N, 102.287 E (N.V.): *Aciagrion borneense* (2 ♂♂ collected 08.12.2011; ♂ photo 15.12.2011); *Agriocnemis pygmaea* (2 ♀♀ collected 13.12.2011); *Pseudagrion australasiae* (♂ photo 15.12.2011); *Coeliccia yamasakii* (♀ collected, tandem observed 08.12.2011); *Copera vittata* (♂, ♀ collected 08.12.2011); *Crocothemis servilia* (♂ photo 15.12.2011); *Diplacodes nebulosa* (♂ collected 08.12.2011); *Neurothemis fulvia* (♂ photo 13.12.2011; ♀ collected 15.12.2011); *Orthetrum sabina* (♀ photo 15.12.2011); *Trithemis aurora* (2 ♂ collected 13.12.2011).

Koh Chang Island, 12.115 N, 102.299 E (N.V.): *Aciagrion borneense* (♂ photo 10.12.2010, ♀ collected 9.12.2010); *Coeliccia yamasakii* (♂, ♀ collected, ♂ photo 11.12.2011).

## 59. Chumphon Province

Uncertain locality, 27.09.2010 (K.S.): *Devadatta argyoides* (♂).

## 60. Ranong Province

Khlong Nakha Wildlife Reserve, Khlong Bangmun stream, 9-11.04.2000 (M.H.): *Megalogomphus* sp. cf. *icterops* (♂, photograph only).

Suwan Siri Waterfall, Amphoe La-Un, 20.08.2009 (L.D.): *Merogomphus parvus* (♀).

Ngao Waterfall, Amphoe Ranong, 17.08.2009 (L.D.): *Brachydiplax chalybea* (♂).

Khao Phra Narai Waterfall, Amphoe Kapoe, 16.08.2009 (L.D.): *Brachythemis contaminata* (♂).

Uncertain locality, 26.09.2010 (K.S.): *Onychargia atrocyana* (♀).

## 61. Surat Thani Province

Khao Sok National Park, Sok River, 08°54'44.10" N, 98°30'45.10" E (A.G.): *Devadatta argyoides* (♂ collected 05.04.2009); *Dysphaea dimidiata* (♂♂, ♀♀ visual observation, as very common, 18-19, 22-23.03.2008, 31.03.2009, 01, 03, 05.04.2009, ♂ collected 22.02.2001; ♂ photographed 18.04.2008); *Libellago aurantica* (♂ collected 21.02.2001, ♂♂, ♀♀ photographed 18.03.2008, 31.03.2009); *Rhinagrion viridatum* (♂♂, ♀♀ visual observation 31.03.2009, 01, 03.04.2009) *Ischnura senegalensis* (♂♂, ♀♀ visual observation at a small riverside pond 31.03.2009, 01, 03, 05.04.2009); *Coeliccia albicauda* (♀ collected 01.04.2009); *Cratilla metallica* (♂♂, ♀♀ visual observation 18-19, 22-23.03.2008, 31.03.2009, 01, 03, 05.04.2009); *Neurothemis fulvia* (♂ visual observation 03, 05.04.2009); *Orthetrum chrysis* (♂♂, ♀♀ visual observation 18-19, 22-23.03.2008, 31.03.2009, 01, 03, 05.04.2009); *Orthetrum luzonicum* (♂, 23.03.2008); *Onychothemis culminicola* (♂♂, ♀♀ visual observation 18-19, 22-23.03.2008, 31.03.2009, 01, 03, 05.04.2009); *Tholymis tillarga* (♂ collected 22.02.2001); *Trithemis festiva* (♂♂, ♀♀ visual observation 18-19, 22-23.03.2008, 31.03.2009, 01, 03, 05.04.2009).

Khao Sok National Park, Sok River tributary, 22.02.2001 (A.G.): *Vestalis anne* (♂, ♀ collected).

Khao Sok National Park, Bang Laen River, 08°55'15" N, 98°31'45" E, 21.02.2001 (A.G.): *Echo modesta* (2 ♂♂, 1 ♀ collected); *Vestalis anne* (♀ collected); *Dysphaea dimidiata* (♂ collected); *Sieboldius japonicus* (♂ collected).

Khao Sok National Park, valley of a small river falling to the reserve, 08°55'15" N, 98°31'45" E, 27.12.2009 (N.V.): *Coeliccia albicauda* (2 ♂♂ photographed and collected, ♀ photographed in a tandem).

Dat Fa Waterfall, Amphoe Ban Na San, 08.03.2010 (L.D.): *Rhinocypha pelops* (♀).

Mueang Thuat Waterfall, 11.02.2011 (L.D.): *Agriocnemis rubescens* (♂, ♀); *Calicnemia imitans* (♂); *Drepanosticta ?sharpi* (♀).

Ban Por, Koh Samui (L.D.): *Aciagrion borneense* (♂, ♀, 04.01.2009); *Aciagrion pallidum* (♂); *Tramea transmarina* (♂, 03.01.2009).

Ban Tai Ponds, Koh Samui (L.D.): *Agriocnemis minima* (♂, ♀, 29.12.2008); *Brachydiplax sobrina* (♂, 7.11.2009).

Santi Thani estate, Ban Tai, Koh Samui (L.D.): *Macromia cupricincta* (♂, 28.10.2009), *Orthetrum glaucum* (♂, 15.10.2008)

Chaweng Lake, Koh Samui, 7.11.2009 (L.D.): *Ceriagrion cerinorubellum* (♂).

A small pond, Soi 5, Maenam, Koh Samui, 12.12.2008 (L.D.): *Ischnura senegalensis* (♂, ♀).

Song Ruea Waterfall, Koh Samui (L.D.): *Rhinagrion viridatum* (♂, 04.01.2009; ♀, 9.02.2009); *Onychargia atrocyana* (♂, ♀, 12.12.2009); *Coeliccia albicauda* (♂, 15.12.2009); *Indaeschna grubaueri* (♂, 17.01.2009); *Merogomphus parvus* (♂, 27.06.2008), *Orthetrum luzonicum* (♂, 16.02.2009); *Orthetrum testaceum* (♂, 24.01.2009); *Rhyothemis*

*triangularis* (♀, 31.08.2007); *Trithemis festiva* (♂, 15.10.2008).  
 Koh Samui Island, Hin Lad Waterfall Path (L.D.): *Coeliccia didyma* (♂, 17.01.2009); *Protosticta ?curiosa* (♀, 03.03.2010); *Anax guttatus* (♂, 20.09.2007); *Gynacantha basiguttata* (♀, 14.03.2011); *Gynacantha subinterrupta* (♂, 01.12.2009); *Indaeschna grubaueri* (♀, 17.01.2009); *Hydrobasileus croceus* (♀, 29.02.2011); *Tetrathemis irregularis hyalina* (♂, 26.07.2009); *Tholymis tillarga* (♀, 08.03.2009).  
 Bo Phut Pond, Koh Samui (L.D.): *Copera vittata* (♂, 14.12.2008); *Aethriamanta aethra* (♂, ♀, 07.02.2009).  
 A small stream behind Nathon, Koh Samui, 28.06.2009 (L.D.): *Cratilla lineata* (♀).  
 Nathon Pond, Koh Samui, 24.12.2008 (L.D.): *Lathrecista asiatica* (♂); *Neurothemis fulvia* (♂); *Orthetrum chrysis* (♂); *Potamarcha congener* (♂, ♀).  
 Koh Samui Island, Nathon, a small sandy based, shady stream at the edge of secondary forest (L.D.): *Megalogomphus* sp. cf. *icterops* (♂, 22.04.2009) Fig. 3, the characters as mentioned above; *Paragomphus capricornis* (♂, 15.20.2008); Wanorn Waterfall, Koh Samui, 11.02.2009 (L.D.): *Pseudothemis jorina* (♂).  
 Mangrove area next to Koh Samui Airport (L.D.): *Rhyothemis phyllis* (♀, 03.12.2007); *Rhyothemis variegata* (gynochromic ♀, 05.01.2009).  
 Koh Samui Island, Bank Rak, 30.01.2009 (L.D.): *Macrodiplax cora* (♂).  
 Koh Samui Island, Baan Lipa Noi, Wanorn Waterfall, (L.D.): *Macrogomphus parallelogramma albardae* (♂, 13.06.2009); *Microgomphus chelififer* (♂, ♀, 20.06.2009); *Camacinia gigantea* (♂, ♀, 13.09.2011, at a new lily pond).  
 Koh Samui Island, Central hills (500 m), 02.02.2010 (L.D.): *Aciagrion borneense* (♀).  
 Koh Phangan, 12.02.2009 (Dan Barta): *Paragomphus capricornis* (♂).  
 The same place, 10.10.2011 (L.D.): *Cratilla metallica*; *Tyriobapta torrida*.

## 62. Phang Nga Province

Sri Phang Nga National Park, Ton Ton Toei Waterfall, 08°59'52-58" N, 98°27'39-44" (A.G.): *Rhinocypha pelops* (2 ♂♂, 1 ♀ collected, ♂ photographed 16.03.2008); *Vestalis anne* (3 ♂♂, 2 ♀♀ collected 4.11.04.2009).  
 Khao Lak, Pakweeb village, PakWip Stream downstream waterfall, 08°44'41.17" N, 98°16'35.06" E, 24.03.2008, 14.03.2008 (A.G.): *Vestalis anne* (♂ collected); *Archibasis viola* (♂ collected), a new record for Thailand.  
 Khao Lak, Ban Bang Khaya Nai, a flooded pit, 08°43'57" N, 98°14'30" E (A.G.): *Lestes praemorsus* (♂ collected 9.04.2009); *Pseudagrion microcephalum* (♂, ♀ collected 11.04.2009); *Anax guttatus* (visual observation 24.03.2008, 9-11.04.2009); *Hydobasileus croceus* (♂ collected 14.04.2009, visual observation 24.03.2008, 9-11.04.2009); *Rhyothemis phyllis* (photos 24.03.2008, ♀ collected 14.04.2009).  
 Khao Lak, Ban Bang Khaya Nai, Palm Galleria, 08°43'37,62" N, 98°13'38,10" E, 12.03.2008 (A.G.): *Agriocnemis pygmaea* (♂ collected 12.03.2008 as attracted by light); *Anax guttatus* (visual observation at a garden pond, 14-15.03.2008, 9, 11.04.2009); *Tholymis tillarga* (4 ♂♂ collected 17, 21.03.2008, 11.04.2009 as attracted by light); *Zyxomma petiolatum* (visual observation at garden ponds and pools, 13-25.03.2008, 30.3.-15.4.2009).  
 Khao Lak, Bang Niang, street to Chong Fa waterfall, a tributary of Ban Niang River, 8°40'17.06" N, 98°15'53.23" (A.G.): *Vestalis amethystina* (♂ collected 14.02.2001); *Vestalis anne* (3 ♂♂, 3 ♀♀ collected 13-14.02.2001).  
 Khao Lak, Bang Niang, street to Chong Fa waterfall, a pond, 8°40'17.06" N, 98°15'53.23", 13.02.2001 (A.G.): *Brachygonia oculata* (♂ collected); *Orchithemis pulcherrima* (♂ collected).  
 5 km NE Khok Kloi, a primary forest on a hill slope at a tiny stream at Khao Khuan Kha Mt., 08°18'04.48" N, 98°20'08.80" E, 23.02.2009 (O.K.): *Vestalis anne* (♂ photographed and collected, ♀ visual observation).  
 Khao Lak env. (Jürgen Ruddek): *Pseudagrion microcephalum* (♂♂, ♀♀ photo and visual observations 23-24, 27.07.2011), *Anax guttatus* (♂♂ visual observations 30.7.2011, 03.08.2011), *Potamarcha congener* (♂♂ photo and visual observations 23-24.07.2011, 03.08.2011), *Rhyothemis phyllis* (♂♂ photo and visual observations 25,27.07.2011, 03.08.2011), *Tholymis tillarga* (♂♂ photo and visual observations 26-29.07.2011), *Urothemis signata* (♂♂ photo and visual observations 30.7.2011, 03.08.2011).  
 A large shallow roadside pond 5.8 km S of Khok Kloi, 8°13'31.1" N, 98°17'55.8" E, 23.02.2009 (O.K.): *Urothemis signata* (♂♂, photographed and collected); *Rhyothemis phyllis* (♂♂ visual observation).

## 63. Phuket Province

Khao Phra Thaeo National Park, secondary rainforest, 03.01.2004 (René Manger): *Cratilla lineata* (♀).

## 65. Nakhon Si Thammarat

Ai Khiao Waterfall, Amphoe Phrom Khiri, 06.02.2010 (L.D.): *Gomphidia abbotti* (♂).  
 Yong Waterfall, Amphoe Thung Song, 08.02.2010 (L.D.): *Orthetrum luzonicum* (♂).  
 Near Khanom, 22.02.2010 (L.D.): *Rhyothemis plutonia* (♀).  
 Krung Shing Waterfall, 29.04.2007 (K.S.): *Lyriothemis biappendiculata* (♂).

## 67. Trang Province.



Unspecified locality (Wongpakorn Kaoian): *Libellago stigmatizans* (♂, ♀, 30.03.2009); *Lyriothemis mortoni* (♂, ♀, 20.07.2009); *Camacinia gigantea* (♂, 30.05.2009).

#### 74. Mukdahan Province

Mukdahan National Park, a stream at the entrance, 21.20.2010 (D.F.): *Agriocnemis nana* (♂♂, ♀♀).

#### 76. Sa Kaeo Province

Pang Sida National Park (K.S.): *Vestalis gracilis* (♂♂, 24.06.2007, 31.08.2010, 12.06.2011); *Rhinagrion viridatum* (♂, 17.04.2008); *Coeliccia kazukoae* (= *C. megumii*) (♂♂, 31.05.2007, 17.04.2008, 31.08.2010, 01.09.2010, 12.06.2011, ♀, 31.08.2010); *Copera vittata* (♂♂, 24.06.2007, 17.04.2008); *Protosticta* sp. (? *khaosoidaoensis*) (♂, 12.06.2011); *Prodasineura* sp. (nec. *verticalis*) (♂, 17.04.2008); *Cratilla lineata* (♀, 31.08.2010); *Neurothemis intermedia* (♂♂, 24.06.2004, 26.08.2006); *Orchithemis pulcherrima* (♂, 17.04.2008).

The same place (D.F.): *Vestalis gracilis* (♂♂, ♀♀); *Aciagrion pallidum* (♀, 12.11.2010); *Coeliccia kazukoae* (= *C. megumii*) (♂).

#### Discussion

With the provincial records accumulated, updated maps would provide a more complete picture of dragonfly distribution, changing from scattered provincial patches to contiguously filled areas as expected, namely (i) the entire country, (ii) only the North, (iii) only the peninsula, (iv) only the continent, (v) along the Burmese border and (vi) continental south-east. This indicates that despite the natural habitats being in a state of continued rapid deterioration from human activity, it is still possible to map the natural distribution of Odonata species, although nowadays the actual habitats are fragmented, especially those of stream dwelling species. At present they are mostly confined to national parks and 'waterfalls', both fortunately quite numerous in Thailand. Along with our nearing a reconstruction of this 'true' distribution, the idea of provincial recording is losing its scientific justification, being rather a general concept which leaves scope for a more precise recording, databasing and mapping, especially valuable in view of our ravages on Nature.

We record two species new for Thailand. A species photographed in Ranong and Ratchaburi Provinces and Koh Samui (Surat Thani Province) is preliminarily identified as *Megalogomphus* sp. cf. *icterops* (Martin, 1902). In its colour pattern it differs slightly from *M. icterops*, a species known to range in other parts of Sundaland and at least once found in the Peninsular Malaysia (Orr, 2005). In the Thai specimens the green colour on the front of the pterothorax is not similarly divided by black as in *M. icterops*. Since no specimens of the Thai form has yet been collected, it is not possible to judge its correct taxonomic status. The other species new for Thailand is *Archibasis viola* Lieftink, 1949. This record is based on reliably identified voucher specimens. Two more new national records made by D.F. and N.M. will be published separately and are not included here.

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