

ODONATOLOGICAL ABSTRACTS

2000

- (17800) MIYASHITA, M., 2000. Studies on the conditions of location and restoration of the habitat of the damselfly *Mortonagrion hirosei*. *Proc. annu. Meet. Envir. Syst. Res.* 28: 475-483. (Jap., with Engl. s.). — (Natl. Inst. Envir. Res., JA; postal address not stated).

The sp. occurs from the Kitakamigawa river (Miyagi pref.) to the Tsushima Isls (Nagasaki pref.), Japan. Its habitats are located from the estuary up to a distance of 40 km from the mouth of the river; 4 types were distinguished, viz.: riverside, movable dam, brackish lake, and tidewater control pond. It is suggested that fluctuations in the salinity and water level are among the most important habitat features of the sp.

- (17801) MIYASHITA, M., 2000. Studies on the method for assessment of the habitat of the damselfly *Mortonagrion hirosei*. *Proc. Jpn Soc. civil Engin.* 657: 65-73. (Jap., with Engl. s.). — (Transliteration of Author's address not provided).

The *M. hirosei* population was studied at the Tone Kamome Chashi bridge on the Tonegawa river (Japan). The changes of water level and the salinity were measured. The larvae were recorded only from a pond on a sunken place on the riverside, covered with dead reed leaves. It is suggested that the distribution pattern of this sp. can be used as an excellent tool in the environment assessment.

2001

- (17802) CZECZUGA, B. & A. GODLEWSKA, 2001. Aquatic insects as vectors of aquatic zoosporic fungi parasitic on fishes. *Acta ichthyol. pisciclat.*

31(2): 87-104. (With Pol. s.). — (First Author: Dept Gen. Biol., Medical Univ. Białystok, Kilińskiego 1, PO-15-230 Białystok).

32 aquatic spp. of 6 insect orders were collected in the field (Białystok distr., Poland), killed by decapitation, then transferred into the water originating from 6 trophically different water bodies (limnokenic spring, river, lake, pond) and the mycoflora was examined. In all, 127 zoosporic fungus spp. were found. In *Aeshna grandis*, *Anax imperator* and *Erythromma najas* larvae 32, 12 and 26 fungus spp. were identified, respectively.

- (17803) NGUYEN, V.V., D.H. HOANG, T.K.T. CAO, X.Q. NGUYEN & Y.J. BAE, 2001. Altitudinal distribution of aquatic insects from Tam Dao National Park in northern Vietnam. In: Y.J. Bae, [Ed.], *The 21st century and aquatic entomology in East Asia [Proc. 1st Symp. AESEA]*. pp. 123-133, Korean Soc. Aquat. Ent., Seoul. — (First Author & Ed.: Dept Biol., Seoul Women's Univ., Seoul 139-774, Korea).

The distribution was investigated at 9 sites (alt. 360-1000 m a.s.l.). 26 odon. gen. (no names of spp.) are listed, with the highest richness in the middle-stream reaches. *Aeschnophlebia*, *Davidius*, *Labrogomphus* and *Phaenandrogomphus* were represented in samples at the elevation of 1000 m.

- (17804) SCHMIDT, B.R. & A. AMEZQUITA, 2001. Predator-induced behavioural responses: tadpoles of the neotropical frog *Phyllomedusa tarsius* do not respond to all predators. *Herpetol. J.* 11: 9-15. — (First Author: Zool. Inst., Univ. Basel, Rheinsprung 9, CH-4051 Basel).

Using aeshnid larvae and belostomatid bugs as predators, it was tested whether an induced behav-

journal response is predator-specific and whether the strength is related to the risk of being killed by a predator. Belostomatids killed twice as many tadpoles within 24 h as aeshnids did. Tadpoles reduced their activity in the aeshnid presence by 30%, but did not respond at all to the more dangerous bugs. It is suggested that tadpoles did not respond to belostomatids because these are encountered too rarely for evolution to favour an induced response.

2002

- (17805) DE KNIJF, G., 2002. Libellen (Odonata) in de provincie Antwerpen: een belangrijke taak weggelegd voor het provinciale natuurbeleid. — [Dragonflies (Odonata) in the province of Antwerp: an important task for the provincial nature management]. *Jaarb. Antwerp. Koepel Natuurstud.* 2002: 51-63. (Dutch). — (Inst. Natuurbehoud, Kliniekstraat 25, B-1070 Brussel).

A review is presented of the odon. fauna (60 spp.) of the province based on over 15,000 records. The Antwerpse Oosterkempen is considered odonatol. the richest region of Benelux. The comparison of the 1980-1989 and 1990-2000 periods indicates the decrease of the abundance in 20 spp. (incl. 14 Red List spp.), whereas 20 sp. are stable, and mostly southern spp. show an increase. 4 spp. became extinct in the region.

- (17806) GALLARDO MAYENCO, A., 2002. Macroinvertebrados acuáticos de la red hidrográfica del Campo de Gibraltar: una revisión. *Almoraima* 27: 351-364. — (Inst. Estud. Campogibraltareños, c/o Ed.: Depto de Cultura, Mancomunidad de Municipios del Campo de Gibraltar, Parque Las Acacias s/n, ES-11207 Algeciras/Cádiz).

7 odon. spp. are listed from 4 localities in Campo de Gibraltar, Spain.

- (17807) ROCHA, C.F.D., G.F. DUTRA, D. VRCIBRADIC & V.A. MENEZES, 2002. The terrestrial reptile fauna of the Abrolhos Archipelago: species list and ecological aspects. *Braz. J. Biol.* 62(2): 285-291. (With Port. s.). — (First Author: Depto Ecol., Inst. Biol., Univ. Rio de Janeiro, Rua São Francisco Xavier 524, Maracanã, BR-20550-019 Rio de Janeiro).

The odon. are listed among the diet items of the lizard, *Tropidurus torquatus*, on Abrolchos Archipelago, i.e. a group of 5 islands located ca 70 km of

the southern coast of the state of Bahia, Brazil.

- (17808) STICH, M., E. STICH, W.E. HOLZINGER & C. WIESER, 2002. Zwei bemerkenswerte Libellenfunde in den Karawanken (Insecta: Odonata). *Carinthia* (II) 112: 511-516. (With Engl. s.). — (First Author: Griesgasse 62, A-9170 Ferlach).

Somatochlora arctica is for the first time recorded from Carinthia, Austria (Meerauge in Bodental). The record of *S. meridionalis* from Singerberg nr Ferlach is only the second for this sp. in the province.

- (17809) WORTHEN, W.B., 2002. The structure of larval odonate assemblages in the Enoree river basin of South Carolina. *SEast. Nat.* 1(3): 205-216. — (Biol. Dept, Furman Univ., Greenville, SC 29613, USA).

The larvae were collected at 127 sites in the Enoree river and 9 of its tributaries in the summers of 1999 and 2000. Mean odon. abundance, species richness, and Simpson's diversity were compared across tributaries and the main channel of the Enoree with one-way ANOVA. These indices were significantly lower in Brushy creek, Rocky creek and the Upper Enoree than in the other streams (Tukey multiple comparison test, $p < 0.05$). These 3 streams also differed from the others in species composition (MANOVA $p < 0.0001$), as measured by changes in the relative abundances of the 5 most abundant spp.: *Progomphus obscurus*, *Boyeria vinosa*, *Macromia illinoensis*, *Cordulegaster maculata* and *Ophiogomphus mainensis*. For example, *O. mainensis* was nearly absent from Brushy, Rocky, and the Upper Enoree, but was a significant component of the assemblages in other streams. *C. maculata* was rare in Rocky creek but dominated the Upper Enoree where other spp. were less abundant. Brushy, Rocky, and the Upper Enoree are areas of either rapid residential development or known industrial contamination. The different structure of odon. assemblages in these streams may reflect the impact of these local anthropogenic effects.

2003

- (17810) BIRKIN, E., B. QUIN & A. JELINEK, 2003. Hemiphlebia damselfly / Hemiphlebia mirabilis. *Flora & Fauna Action Statement* 46: 1-5. — (Publishers: Dept Sustainability & Environment, 8 Nicholson St., East Melbourne, Victoria

- 3002, AU).
Its distribution and conservation status are described, and the major conservation objectives and intended management actions are listed. The respective bibliography is appended.
- (17811) CRAMPTON, W.G.R., N.R. LOVEJOY & J.S. ALBERT, 2003. *Gymnotus ucamura*: a new species of neotropical electric fish from the Peruvian Amazon (Ostariophysi: Gymnotidae), with notes on ecology and electric organ discharges. *Zootaxa* 277: 1-18. — (First Author: Fla Mus. Nat. Hist., Univ. Florida, Gainesville, FL 32611-7800, USA).
The odon. larvae are listed in a tab. showing proportional composition of food items in stomachs of the paratypes and museum specimens of the new sp.
- (17812) DYER, M.C., 2003. *Identification and distribution of various species of adult Odonata at Brookhaven National Laboratory*. Prepared in partial fulfilment of the requirements of the Office of Science, DOE Student Undergraduate Laboratory Internship (SULI) Program, Brookhaven Natn. Lab., Upton. 18 pp. — (Envir. & Waste Mngmt Serv. Div., SULI Progr., Univ. Rhode Island, Brookhaven Natn. Lab., Upton, NY 11973, USA).
A commented list of 25 spp.; — Upton, NY, USA.
- (17813) HAAS, F., D. WALOSZEK & R. HARTENBERGER, 2003. *Devonohexapodus bocksbergensis*, a new marine hexapod from the Lower Devonian Hunsrück Slates, and the origin of Atelocerata and Hexapoda. *Organisms Diversity Evolution* 3: 39-54. — (First Author: Staat. Mus. Naturk., Rosenstein 1, D-70191 Stuttgart).
The new arthropod is described from the Lower Emsian nr Bundenbach (W Germany). It is ca 75 mm long, has a small head with large compound eyes and long, filiform antennae, a 3-segm. thorax with 3 pairs of slender legs, and a post-thoracic domain composed of ca 35 limb-bearing segments of which the anteriormost are paired, stout and ventrally-oriented leglets; the 3 ultimate limb-bearing segments bear longer, posteriorly-oriented and apparently specialised appendages. The overall appearance of the animal is reminiscent of Archaeognatha or Odonata.
- (17814) JONES, C.D., 2003. [Ontario] N[atural] H[eritage] I[formation] C[entre] participates in the National Odonata Assessment Workshop. *NHIC NewsL* 8(1): 5-6. — (Box 182, Lakefield, ON, K0L 2H0, CA).
A brief report on the Workshop, with emphasis on the presentations from Ontario. The meeting was held in Winnipeg, and it was part of the General Status of Wild Species in Canada process.
- (17815) MUNOZ-RIVEAUX, S., C. NARANJO-LÓPEZ, G. GARCÉS-GONZÁLEZ, D.D. GONZÁLEZ-LAZO, Y. MUSLE-CORDERO & L. RODRIGUEZ-MONTOYA, 2003. Benthonic macroinvertebrates as bioindicators of water quality. *Revta Chapingo* (Forest. & Ambiente) 9(2): 147-153. (Span., with Engl. s.). — (First Author: Centro Dessarollo Montaña., Limonar de Monte Ruz, C.P. 99500, El Salvador, Guantánamo, Cuba).
A new methodology is designed for the evaluation of water quality in lotic environments in Cuba, using freshwater macroinvertebrate tolerance to pollution. This is defined on a scale, 0-10, odon. having the following indices: Leeseide & Libellulidae: 3, Protoneuridae: 4, Coenagrionidae: 5, Aeshnidae & Gomphidae: 8, and Megapodagrionidae: 9.
- (17816) SCHWARZ-WAUBKE, M., M. SCHWARZ, F. GUSENLEITNER, J. GUSENLEITNER, M. MALICKY, H. MALICKY-RUZICKA & P. VOGTENHUBER, 2003. Insekten-Typen am Biologiezentrum Linz, 1. *Beitr. Naturk. Oberösterreich* 12: 407-450. (With Engl. s.). — (First Author: Eben 21, A-4202 Kirchschlag).
Among the 1765 types listed along with bibliographic references of the respective descriptions, there are 11 odon. types of taxa described by G. Theischinger (some with joint authors).
- (17817) WUST, E., 2003. Die Libellen des Frastanzer Riedes (Insecta: Odonata) (Vorarlberg, Österreich). *Vorarlberg. Naturschau* 13: 195-210. (With Engl. s.). — (Elserweg 3a, A-6714 Nüziders).
The odon. fauna of the Frastanzer Ried (Vorarlberg, W Austria) was surveyed in 1994 (19 spp., 11 autochthonous; *OA* 13857) and 2000-2002 (18 spp., 8 autochthonous). In all., 23 spp. were recorded. The differences between the inventories of the 2 surveys are discussed and habitat protecting measures are advocated.

2004

- (17818) BOELTER, R.A., 2004. *Predation of native anurans by bullfrogs (Rana catesbeiana: Ranidae) in the South of Brazil*. Diss. Mestrado, Univ. Fed. Santa Maria, Santa Maria, RS. 36 pp. (Port.; main text Engl., with S. Zanini Cechin as joint Author). – (Curso Mestrado Biodiv. Animal, Univ. Fed. Santa Maria, BR-97105-900 Santa Maria, RS). Among the prey types in the *R. catesbeiana* diet, the anurans are most important (over 40% of the Index of Relative Importance), while (among 20 prey types) the odon. occupy the 5th place, with IRI over 7%. The field work was conducted in the Agudo-Nova Palma area, Rio Grande do Sul (Brazil).
- (17819) CLAUSNITZER, V., 2004. Ecology and biogeography of the dendrolimnetic *Coryphagrion grandis* (Odonata). In: S.-W. Breckle, B. Schweizer & A. Fangmeier, [Eds], *Results of worldwide ecological studies*, pp. 243-256, Heimbach, Stuttgart. – (GräfeStr. 17, D-06110 Halle). A study on the ecology of this sp. was undertaken in coastal forests of E Africa. The results are compared with other odon. spp., known to breed in phytotelmata. The ecological and additional morphological and genetic results of this study show, that the monotypic *C. grandis*, which was placed for convenience within the Megapodagriidae, belongs to the otherwise S and Central American Pseudostigmatidae. Although the separation from the neotropical Pseudostigmatidae occurred at least 100 million yr ago, the morphology and biology of *C. grandis* are still very similar to the former. These findings support biogeographical considerations about historical forest distribution in Africa, stability of E African coastal forests and the species loss due to extinctions in W and Central Africa. Since the future of *C. grandis* depends on the survival of the last coastal and lower Eastern Arc forests in E Africa, a short conservation chapter is added.
- (17820) DICKE, M., 2004. From Venice to Fabre: insects in western art. *Proc. Neth. ent. Soc.* 15: 9-14. – (Lab. Ent., Univ. Wageningen, P.O. Box 8031, NL-6700 EH Wageningen). The representation of insects in the works on display was recorded in 180 art museums in Europe and the US. Insects are depicted in 3045 works (14th century to present), odon. are represented in close to 400 pieces of art.
- (17821) GAWRONSKI, A., 2004. New localities of dwarf dragonfly *Nehalennia speciosa* (Odonata: Coenagrionidae) in northern Poland. *Przegl. Przyn.* 15(1/2): 126-127. (Pol., with Engl. s.). – (Author's address not stated). The sp. is reported from 2 localities, viz.: nr Bytow and nr Chojnice (at both sites in *Carex limosa* vegetation).
- (17822) GILBERT, R., 2004. The disjunctive dragonfly: a study of disjunctive method and definitions in contemporary English-language haiku. *Stud. Engl.-Language & Lit.* 47: 1-18. – (Kumamoto Univ., Kumamoto, JA). The J. Kacian's haiku, *I my fingerprints I on the dragonfly I in amber I*, which won Third-Place in the 2003 Kusamakura International Haiku Contest, is considered in great detail. It contains a selection of elements based on an inward poetic aesthetic. In terms of images alone, it is a fine microcosmic *shasei*, but it goes beyond *shasei* and realism, utilizing 4 modes of disjunction, termed here, "perceptual disjunction", "misreading as meaning", "disjunction of semantic expectation" and "linguistic oxymoron". Apparently it has no *kireji* or clearly defined "traditional" juxtaposition of images. In its form, the haiku is strikingly similar to a simple declarative sentence. Here, it is analytically explained what makes this short declaration an excellent haiku.
- (17823) HAHN VON HESSBERG, C.M. & A. GRAJALES QUINTERO, 2004. Importancia del orden Odonata para la producción de peces en ambientes controlados. *Revta electr. Ingeniería Produc. acuicola* 1(1): 1-12 [ISSN 1909-8138]. – (Depto Sist. Produccion, Programa Medicina Veterinaria & Zootecnia, Fac. Cien. Agropecuarias, Univ. Nariño, San Juan de Pasto, Colombia). A calculation is presented of the financial losses caused by *Pantala flavescens* larvae in the *Oreochromis niloticus* pisciculture in Colombia, but it is not clear whether the US or the Colombian currency is used.
- (17824) HAYA, V., 2004. Libélulas, luciérnagas y mariposas: 39 haikús japoneses. *Estud. Asia Africa* 39(3): 711-723. – (Author's address not stated). 13 haiku on dragonflies, fireflies and butterflies, by Japanese poets (17th-20th cent.), in original,

transliteration and Spanish translation. In the introductory section (pp. 711-716), this poetry style is explained.

- (17825) PLASKA, W., 2004. The influence of predators on the forming of species diversity of zoopluston of some water ecosystems of the Lezna-Vlodawa Lakeland. *Teka Kom. Ochr. Kszt. Środ. Przyr.* 1: 180-183. (With Pol. s.). – (Katedra Hydrobiol. & Ictiobiol., Akademia Rolnicza, Akademicka 13, PO-20-950 Lublin).
By counting the occurrence of zooplustonic (associated with water surface) spp. of Collembola, Coleoptera, Diptera and Heteroptera and the co-occurring predator spp. (Odon., fish) in the littoral samples from 2 lakes and 2 retention reservoirs it is concluded that the high pressure of predators goes along with the zoopluston species diversity. The names of the spp. are not provided.
- (17826) SAMWALD, O., 2004. Die Libellenfauna eines rückgebauten Bachlaufes bei Rudersdorf im südlichen Burgenland, Österreich (Odonata). *Joannea zool.* 6: 247-256. (With Engl.s.). – (Überbachgasse 51c/6, A-8280 Fürstenfeld).
24 spp. are recorded from a 750 m restored stretch of the Lahn, nr Rudersdorf, Burgenland, Austria.
- (17827) TORRALBA-BURIAL, A. & F.J. OCHARAN, 2004. Presencia y comportamiento invernal de adultos de *Sympetrum striolatum* en el NE de España (Odonata: Libellulidae). *Boln Asoc. esp. Ent.* 28(3/4): 189-191. – (Depto Biol. Organ. y Sistemas, Univ. Oviedo, ES-33071 Oviedo).
At Hoya de Huesca (Bandaliés, NE Spain) adult *S. striolatum* ♂ were observed in numbers on wing on 26 & 29 Dec., 13 & 21 Jan. and 2 Feb. 2001/2002 (medium air temp. range 5.5-7.0°C). They were territorial and defended the territories, though there were no ♀♀. The phenomenon of winter survival in this sp. is possibly due to the recent climate change. No other odon. spp. were seen at the locality.
- (17828) VAN BUSKIRK, J., J. ASCHWANDEN, I. BUCKELMÜLLER, S. REOLON & S. RÜTTIMAN, 2004. Bold tail coloration protects tadpoles from dragonfly strikes. *Copeia* 2004(3): 599-602. – (First Author: Dept Zool., Melbourne Univ., Victoria-3010, AU).
Some amphibian larvae develop brightly coloured or black tail fins when reared in ponds with predaceous insects. The conspicuous tail has been proposed to lure predator strikes toward the tail and away from the more vulnerable head/body region. This hypothesis was tested by presenting to *Aeshna* larvae model tadpoles that differed only in colouration. The models had either a dark body and pale tail, a dark spot in the middle of the tail, or a dark spot near the tip of the tail. Almost all models with plain tails were struck on the head/body, whereas those with dark spots in the tail were struck significantly more often on the tail. Because living tadpoles survive better when attacked on the tail than on the head, the results show that tail colouration can protect tadpoles from predators at close range.
- (17829) VIDAL-ABARCA, M.R., R. GOMEZ & M.L. SUÁREZ, 2004. Los rios de las regions semi-áridas. *Ecosistemas* 13(1): 16-28. – (Depto Ecol. & Hidrol., Fac. Biol., Univ. Murcia, Campus de Espinardo, ES-30100 Murcia).
A concise synthesis of the known information on morphology, hydrology and ecology of the rivers in the semiarid zone of SE Spain. The odon. are adapted to the habitat peculiarities by their active dispersal. The legal status of *Coenagrion mercuriale* is mentioned.
- (17830) WALKER, I., 2004. The benthic insect fauna of the blackwater forest stream Rio Tarumã-Mirim (Manaus, Amazonas): patterns of population dynamics and their implications for ecosystem stability. *Amazoniana* 17(3/4): 471-480. (With Port. s.). – (INPA, Caixa Postal 478, BR-690.11-970 Manaus, AM).
Only 6 emerged individuals of 2 odon. spp. (Zygoptera, names not stated) were recovered from 351 traps set for 24 h in an area of less than 90 m², while in the work listed in OA 14010 the occurrence of the adults of 31 spp. is documented for this river; – Brazil.

2005

- (17831) GARCIA RUIZ, A., 2005. Importancia de las lagunas temporales para la conservación de la biodiversidad de artrópodos edáficos en zonas agrícolas de Castilla-La Mancha. *Limnetica* 24(1/2): 83-90. (With Engl. s.). – (Depto Didácticas Específicas, Fac. Formación Profesorado & Educación, Univ. Auton. Madrid, ES-28049 Madrid).

The relative abundance and frequency of Odon. in 2 temporary lagoons are (orderwise) stated; – Ciudad Real prov., Spain.

- (17832) GYSSELS, F.G.M. & R. STOKS, 2005. Threat-sensitive responses to predator attack in a damselfly. *Ethology* 111: 411-423. – (Lab. Aquat. Ecol., Univ. Leuven, Bériotstraat 32, B-3000 Leuven).

The threat sensitivity hypothesis predicts that prey species assess and adjust their behaviour flexibly in accordance with the magnitude of the threat imposed by a predator. Here, this hypothesis was tested with regard to escape behaviour and thanatosis (feigning of death to escape predation) in *Ischnura elegans* larvae. The perceived predation threat of the larvae was manipulated by changing 3 factors: lamellae autotomy (an escape strategy where animals sacrifice a body part when grasped by a predator; lamellae present or absent), kairomone type (odours released by predators; control, dragonfly kairomones or fish kairomones), and population of origin (fishpond or fishless pond). It is demonstrated that thanatosis increased survival both when confronted with dragonfly and fish predators. It is shown, for the first time, costs of past autotomy to be predator-dependent: larvae without lamellae suffered higher predation mortality but only in the presence of a dragonfly predator and not in the presence of a fish predator. This is in accordance with the observed reduced escape speed of larvae after autotomy, which may affect escape probability toward dragonfly predators but not to the very fast fish predators. Unexpectedly, kairomone type did not affect the escape response of the larvae. In accordance with the threat sensitivity hypothesis, after an unsuccessful attack, larvae without lamellae had a higher frequency to enter thanatosis than larvae with lamellae and larvae from the fishpond showed longer thanatosis durations than larvae from the fishless pond. Consistent with the hypothesis, the reaction of the larvae to a simulated attack depended jointly on lamellae status and population. In fishless ponds, larvae with lamellae swam away more frequently than larvae without lamellae; in fishponds both groups almost never swam away and relied mostly upon immobility. Given the obvious benefits of adaptively varying escape responses, it is hypothesized, this threat sensitivity to be widespread. It is argued that former inconsistencies between studies with regard to escape behaviour may

have been partly because of such adaptive variation.

- (17833) KAWAKAMI, Y., K. ICHISAWA & K. WATANABE, 2005. A list of the insect collection of Mt Daisen Museum of Nature and History, Tottori, Japan. *Bull. Tottori pref. Mus.* 42: 21-27. (Jap., with Engl. title). – (Tottori Prefectural Mus., Higashimachi 2-124, Tottori, 680-0011, JA).

Includes a list of 19 odon. spp.

- (17834) NICOARA, A., M. NICOARA & F. BIANCHINI, 2005. Diet composition during breeding period in populations of *Bufo viridis*, *Pelobates fuscus* and *Rana esculenta* complex from Ciric river's basin (Iasi, Romania). *Anal. stiint. Univ. Al. I. Cuza* (Biol. anim.) 51: 179-187. – (Authors' postal addresses not stated).

P. fuscus is the sole of the 3 frog spp. that feeds on odon. during its breeding season in the Iasi area. In its stomach contents they represent 3% of the food items.

- (17835) NIEHUIS, M., 2005. Schlupfnachweise zweier bemerkenswerter Libellenarten (*Aeshna affinis* und *Gomphus vulgatissimus*) im Süden von Rheinland-Pfalz (Odonata: Aeshnidae, Gomphidae). *Fauna Flora Rheinland-Pfalz* 10: 1125-1130. – (Abt. Biol., Inst. Naturwiss, Univ. Koblenz, Fortstr. 7, D-76829 Landau).

From Rhineland-Palatinate (Germany) are reported *A. affinis* (teneral adult & 3 exuviae: Jockgrim, Germersheim distr., 15 & 23-VI-2005 and *G. vulgatissimus* (teneral adults: Berg/Neue Lauter, 2 & 4-V-2005; Odenbach/Glan, 12-V-2005).

- (17836) SRINIVASULU, B. & C. SRINIVASULU, 2005. Diet of the Black-bearded tomb bat *Taphozous melanopogon* Temminck, 1841 (Chiroptera: Emballonuridae) in India. *Zoo Print J.* 29(8): 1935-1938. – (First Author: Wildl. Biol. Sect., Dept Zool., Osmania Univ., Hyderabad, Andhra Pradesh-500007, India).

The forest bats roosting at Borra caves (Ananthagiri Hills, Andhra Pradesh) and the semi-urban bats mist netted in Ranga Reddy distr. (Andhra Pradesh) were studied. The dietary composition was analyzed from faecal pallets. In the forest the percentage volume (percentage frequency) of Odon. in the diet amounted to 3.66 (33.33), while in the semi-urban individuals these values were 3.7 (76.66). 30 specimens from each habitat type were examined.

- (17837) STOLEN, E.D., 2005. Great egrets gleaning dragonflies. *Fla Fld Naturalist* 33(1): 15-16. — (Dynamac Corp., Mail Code: DYN-2, Kennedy Space Cent., FL 32899 USA).
Although mainly piscivorous, the Great egret (*Ardea alba*) takes a variety of food items incl. dragonflies. In the latter case, its foraging strategy is gleaning, which is described here from a locality in Florida, USA. Thus, the bird's search for dragonflies appears systematical rather than incidental and opportunistic captures during foraging for other prey.
- 2006**
- (17838) CRAVES, J.A., 2006. *Archilestes grandis* (Rambur) (Odonata: Lestidae): new for Michigan. *Gt Lakes Ent.* 39(1/2): 88-90. — (15911 Andover Dr., Dearborn, MI 48120, USA).
In 2005, a population was found in Wayne co., Michigan, USA. The habitat is briefly described.
- (17839) CRAVES, J.A., 2006. First Michigan specimens of *Libellula virbrans* Fabricius (Odonata: Libellulidae). *Gt Lakes Ent.* 39(1/2): 91-93. — (15911 Andover Dr., Dearborn, MI 48120, USA).
In 2005, 2 small populations were found in Wayne co., Michigan, USA. The habitats are described.
- (17840) GONZÁLEZ DE CASTRO, I., 2006. *Estudio del mantenimiento del polimorfismo en larvas de Ischnura graellsii Rambur, 1842 (Odonata: Coenagrionidae)*. Tesis de Licenciatura, Univ. Vigo, Pontevedra. 66 pp. — (c/o Prof. A. Cordero, Depto Ecol. & Biol. Animal, Univ. Vigo, EUET Forestal, Campus Universitario, ES-36005 Pontevedra).
An attempt is made to ascertain whether in *I. graellsii* polymorphism also occurs in the larval stage. Although polymorphism in this sp. has an effect on larval biometrics, a further study is required to clarify the question.
- (17841) GUTIERREZ MORENO, L.C., R.A. BORJAS, M.I. MORENO, M. ALTAMIRANDA & M. LOBO, 2006. *Odonatos. Sistema de áreas protegidas del departamento de Atlántico*. Grupo de investigación en biodiversidad del Caribe Colombiano, Fac. Cien. Básicas, Univ. Atlántico, Barranquilla. vi+43 pp., 3 pls excl.
A comprehensive treatment of the fauna (51 morphospp., i.e. listed mostly on the genus level) of the Atlántico distr., Colombia.
- (17842) HAAS, F., 2006. Evidence from folding and functional lines of wings on inter-ordinal relationships in Pterygota. *Arthr. Syst. Phyl.* 64(2): 149-158. — (Staat. Mus. Naturk., Rosenstein 1, D-70191 Stuttgart).
The odon. wings are not folding; the paper includes a few passing references to the order.
- (17843) INBERGA-PETROVSKA, S. [Sarmite Inberga-Petrovska (?)], 2006. Spāru daudzveidība. *Sabiedriskā monitorināga rokasgrāmata*, pp. B33-B57. (Latvian). [In the copy of the chapter bibliographic data unclear and incomplete]. — (Author's address not provided).
The odon. chapter in a handbook for monitoring and species recording in Latvia, with a list of 62 spp., registration forms and a pictorial key for identification of the adults.
- (17844) JONIAK, T. & P. DOMEK, 2006. Influence of humification on biodiversity of lake benthic macroinvertebrates. *Acta agrophysica* 7(2): 363-368. (With Pol. s.). — (Dept Water Prot., A. Mickiewicz Univ., Drzymaly 24, PO-60 613 Poznan).
The taxonomic composition and abundance of macrozoobenthos in 3 small, humic, postglacial mid-forest lakes in the Drawieński National Park (Poland), each undergoing different stages in the process of humification, are presented. 6 odon. spp. were recorded, most of them from a mesohumic lake.
- (17845) JOOP, G., M.T. SIVA-JOTHY & J. ROLFF, 2006. Female colour polymorphism: gender and the eye of the beholder in damselflies. *Evol. Ecol.* 20: 259-270. — (Third Author: Dept Anim. & Plant Sci., Univ. Sheffield, Western Bank, Sheffield, S10 2TN, UK).
Zygoptera provide a classic example of ♀ colour polymorphism. Usually, one ♀ morph resembles the blue ♂ colour (andromorph) while one, or more, ♀ morphs are seen as typically ♀ (gynomorph). Zygoptera fall in 2 distinct groups with respect to recent developments in mimicry theory: in some spp. ♀♀ are perfect, they match ♂ colouration and black patterning, and in other spp. they are supposed to be imperfect mimics, only matching ♂ colouration. However, the underlying assumption of one ♀ morph looking ♂-like is mostly based on human vision. Therefore the black patterning and colour of the 3 ♀ morphs were investigated here in

- Coenagrion puella, an imperfect mimic, using image analysis. In *C. puella* the blue ♀ morph is perceived as ♂-like. It was found that the black patterning of such ♀♀ cannot be distinguished from the other ♀ morphs, and is clearly different from ♂♂. Furthermore, the blue colour of andromorph ♀♀ differs from the blue colour of ♂♂. Intriguingly, however, the red content did not differ between blue ♂♂ and ♀♀.
- (17846) LUQUE PINO, P. & A. SERRA SORRIBES, 2006. *Macromia splendens* and *Gomphus graslinii*, two new species of Odonata for Catalonia. *Bull Inst. cat. Hist. nat.* 74: 113-116. (Catalonian, with Engl. title). – (First Author: Museu Comarcal de Montsià, ES-43870 Amposta). The breeding of the 2 spp. in Catalonia (Spain) is confirmed, and they are reported from various localities.
- (17847) ŠÁCHA, D., 2006. New data on dragonflies (Odonata) in the Poprad region. *Folia faun. slovac* 11(9): 49-54. (Slovak, with Engl. s.). – (Podtatranského 31, SK-03101 Liptovský Mikuláš). The records are presented of 31 spp. from 10 localities; – Slovakia.
- (17848) SCHULTZ, H., G. JANECEK, M. HESS, H. REUSCH & W. GRAF, 2006. Das Makrozoobenthos des Natura 2000-Gebietes St. Lorenzener Hochmoor (Andertal, Kärnten) unter besonderer Berücksichtigung der Libellenfauna (Insecta: Odonata). *Carinthia* (II) 116: 343-358. (With Engl. s.). – (First Author: Theodor-Kramer-Str. 12/1/14, A-1220 Wien). 9 odon. spp. are reported from Lorenzener Rised Bog in Andertal, Carinthia (Austria). The occurrence of *Leucorrhinia pectoralis* is of particular interest.
- 2007**
- (17849) BELENKOVA, N.I., M.M. DJURTUBAEV & Yu. M. DJURTUBAEV, 2007. The Danube lakes dragonfly larvae (Odonata). *Visn. odes'. nac. Univ.* 12(5): 159-166. (Russ., with Engl. & Ukr. s's). – (Dept Hydrobiol. & Gen. Ecol., Odessa Natn. Univ., Dvoryanskaya 2, UKR-65058 Odessa). The larvae of 16 sp. were represented in samples taken at 45 stations from 5 lakes (Yalpug, Kugurluy, Kotlabuh, Kagul and Kitay) in the Danubian plain (Odessa district, the Ukraine). The information on the distribution of the spp. and data on their abundance and biomass are presented.
- (17850) BERNOTIENE, R. & G. VISINSKIENE, 2007. The diversity of benthic invertebrates in three rivers in Lithuania. *Acta biol. Univ. daugavpil* 7(2): 87-96. – (Inst. Ecol., Vilnius Univ., Akademijos 2, LT-08412 Vilnius). The peculiarities of the fauna and the abundance and biomass of aquatic invertebrates were examined in 3 rivers located in different regions of Lithuania, viz. the Dubysa, the Merkys and the Šventoji. 6 odon. spp. were recorded (Dubysa 5, Merkys 4, Šventoji 3); *Ophiogomphus cecilia* was common in all investigated rivers. A species list is not provided.
- (17851) DA SILVA BERNARDO, C.T., 2007. *Seleção intra-sexual na libélula Homeoura nepos (Zygoptera: Coenagrionidae): conflito sexual e sistema de acasalamento*. Diss. Mestre em Ecologia, Depto Ecol., Inst. Ciên. Biol., Univ. Brasília. v + 54 pp. (Port., with Engl. s.). – (Author's address not stated). Sexual dimorphism, agonistic interactions and the type of association between ♂♂ and their sexual partners are characteristics subjected to selective pressures that determine the type of mating system of a sp. In Odon., 2 types of mating system occur: resource defence polygyny and polygyny through scramble competition. In the latter type, there is no consensus concerning the role of sexual dimorphism, the influence of individual size in agonistic interactions and the type of selective pressures that influence the occurrence of tandem (post copulation guarding). Here, *H. nepos* is used as the model sp. to analyze: (1) type of sexual dimorphism; – (2) effect of environmental temperature, body size and local density of ♂♂, ♂ distance to the shore, and residency upon agonistic interactions; – (3) influence of ♂ and ♀ density at the oviposition site, and the effects of environmental temperature and wind upon tandem duration and upon oviposition events that occur during tandem; – and (4) the effect of ♂ body size on tandem duration. In the sp. analyzed, ♀♀ had longer wings than ♂♂, ♂ density at the sites where interactions occurred influenced agonistic encounters and resident ♂♂ won more fights, supporting the hypothesis of asymmetric contest. Tandem duration was longer when other ♀♀ were

- abundant in the immediate area and there was also a positive tendency between tandem duration and temperature, which suggests that environmental temperature can contribute to δ permanence in tandem. Oviposition events were more abundant in sites with higher δ density. The wind had no effect on the behaviours evaluated. It is assumed that *H. nepos* presents scramble competition polygyny. Nevertheless, some predictions of this hypothesis concerning post copulatory association were not met, indicating the necessity of more studies on the behaviour of tropical Zygoptera.
- (17852) DUFFY, A., 2007. *Genetic structuring among naturally isolated dune lake populations: a microcosm of evolutionary processes on oceanic islands*. PhD thesis, Queensland Univ Technol. xiii+121 pp. The study was conducted on the perched dune lakes of Fraser Island, Australia. Chapter 5 is titled: "Dispersal among lacustrine habitats in the libellulid dragonfly *Orthetrum boumiera*" (pp. 67-81). 192 individuals were sampled across 6 lakes (surface 2.3-12.2 ha). regions of the mitochondrial genome were targeted and molecular screening methods developed and employed to assess the relative levels of post-colonisation gene flow among lake populations.
- (17853) DYATLOVA, E.S., 2007. Phenology of dragonflies (Insecta: Odonata) in the south-western Ukraine. *Visn. odes'.nac. Univ* 12(5): 167-176. (Ukr., with Engl. & Russ. s's). – (Dept Zool., Odessa Natn. Univ., Dvoryanskaya 2, UKR-65026 Odessa). According to the period they are on the wing, 38 spp. of the SW Ukrainian fauna are divided into 6 groups, viz.: the summer, summer-autumnal, spring, spring-summer-autumnal, spring-summer, and the group of spp. hibernating at the adult stage. Most of the spp. are simultaneously on the wing in the second half of June.
- (17854) FOUMEAU, J. & J. LAMBRECHTS, [Eds], 2007(?) [no date]. *Gemeenten adopteren Limburgse soorten, Actieplan Variabele waterjuffer, gemeente Ham. – [Municipalities adopt species of (Belgian) Limburg. Action plan Coenagrion pulchellum, municipality Ham]*. Provincie Limburg, Hasselt. 107 pp. ISBN none. (Dutch). – Provincie Limburg, Universiteitslaan 1, B-3500 Hasselt). With the objective to provide for the regionally rare or threatened spp. a new chance, the provincial government of Limburg (Belgium) developed the initiative, called "Limburgse soorten", i.e. a kind of a "foster-parents-plan" for the municipalities to adopt one of such spp. So far, 44 municipalities adopted as many locally rare or endangered plant and animal taxa. – See also OA 17860.
- (17855) HAYASHI, M., K. YAMAGUCHI, H. NAKANO, S. TERAOKA & T. KOSHIKAWA, 2007. Records of freshwater invertebrates and vertebrates of irrigation canal in Izumo-heiwa, Shimane prefecture, Japan. *Bull. Hoshizaki Green Found.* 10: 1-18. (Jap., with Engl. s.). – (Hoshizaki Green Foundation, Okinoshima 1659-5, Sono, Izumo Shimane, 691-0076, JA). 19 odon. spp. are listed from 16 sampling sites on the canal and the retention reservoir.
- (17856) HAYS, J.J., R.E. CLOPTON, T.J. COOK & J.L. COOK, 2007. Revision of the genus *Nubenocephalus* and description of *Nubenocephalus secundus* n. sp. (Apicomplexa: Actinocephalidae) parasitizing adults of *Argia sedula* (Odonata: Zygoptera: Coenagrionidae) in the Primitive Texas Big Thicket, U.S.A. *Comp. Parasitol.* 74(2): 286-293. – (Third Author: Dept Biol. Sci., Sam Houston St. Univ., Huntsville, TX 77341, USA). The new gregarine sp. is described from *A. sedula* specimens collected from Harmon Creek, Walker co., Texas.
- (17857) IRUSTA, J.B., 2007. *Ecologia comportamental reproductiva de Diastotops obscura Fabricius (Insecta, Odonata)*. Tese Doutor em Psicobiologia, Univ. Fed. Rio Grande do Norte, Natal/RN. 99 pp. (Port., with Engl. s.). Includes also the reproduction of Author's paper (2006) from *Odonatologica* 35: 289-295, and the reproductions of 2 Author's papers (2007) from *J. Insect Sci.* 7 (no pagination) that were at the time of the defence of dissertation still in the press). – (Sector Psychobiology, Dept Physiol., Univ. Fed. Rio Grande do Norte, C.P. 1511, BR-59072-970 Campus Universitário, Natal/RN). The field work was conducted at the middle stretch of the Pitimbo river (Parnamirim, Rio Grande do Norte, Brazil) during 2002-2004. The description of δ and η strategies are provided with special reference to intra- δ competition for territories and η η , η mate selection, and to the importance of δ

- body size and other secondary characters for their reproductive success. *D. obscura* ♀♀ participate in mate selection by rejecting the non-territorial ♂♂ or substituting their sperm by that of the individuals of a higher status.
- (17858) JESCHKE, J.M. & R. TOLLRIAN, 2007. Prey swarming: which predators become confused and why? *Anim. Behav.* 74: 387-393. – (First Author: Dept Biol. II, Sect. Evol. Ecol. Ludwig-Maximilians Univ., Grosshaderner Str. 2, D-82152 Planegg-Martinsried).
When confronted with a swarm of their prey, many predators become confused and are less successful in their attacks. Despite the general notion that the confusion effect is a major reason for prey swarm formation, it is largely unknown how widespread it is and which predator or prey traits facilitate or impede it. Here, experiments were carried out with odon. larvae / *Daphnia magna*, at various prey densities. In *Aeshna cyanea* a prey swarm triggered a confusion effect (empirical observation in *A. juncea* were similar), whereas in *Libellula depressa* there was no negative correlation between attack efficiency and prey density, though occasionally some of the swarming *Daphnia* were killed but not consumed.
- (17859) JOHN, H., A. GUNTHER, R. REISSMANN, D. TOLKE & H. HEILMEIER, 2007. Bedeutung und Schutz des FFH-Lebensraumtyps „Fließgewässer mit Unterwasservegetation“ im Gebiet der oberen Freiberger Mulde. *Mitt. Naturschutzzinst. Freiberg*. – (First Author: AG Biol./ Okol., Inst. Biowiss., TU Bergakademie Freiberg, Leipzigerstr. 29, D-09599 Freiberg).
In the Freiberger Mulde, situated between Chemnitz and Dresden (Germany), *Calopteryx splendens*, *C. virgo*, *Platynemis pennipes* and *Pyrrhosoma nymphula* directly use the habitats of submersed vegetation, while the latter is (where sparse) indirectly advantageous also to *Ophiogomphus cecilia*.
- (17860) PEUSENS, E. & J. LAMBRECHTS, [Eds], 2007 (?) [no date]. *Gemeenten adopteren Limburgse soorten. Actieplan Bosbeekjuffer, gemeente Maaseik*. – [Municipalities adopt species of (Belgian) Limburg. Action plan *Calopteryx virgo*, municipality Maaseik]. Provincie Limburg, Hasselt. 105 pp. ISBN none. (Dutch). – (Provincie Limburg, Universiteitslaan 1, B-3500 Hasselt).
See also OA 17854.
- (17861) PORT STEPHENS FISHERIES CENTRE, 2007. Threatened species in NSW: Sydney Hawk dragonfly, *Austrocordulia leonardi*. *NSW DPI Primefacts* 184: 1-3. – (Locked Bag 1, Nelson Bay, NSW 2315, AU).
The known distribution, habitat and ecology of the sp. are summarized, the threatening circumstances are outlined and protective measures are suggested; – New South Wales, Australia.
- (17862) SCHNEIDER, D., 2007. Damselflies and dragonflies are the insect “birds of prey”. *Lotus / Newsl. Norfolk Fld Naturalists* 2007(Oct.): 2. – (Norfolk Field Naturalists, P.O. Box 995, Simcoe, ON, N3Y 5B3, CA).
The text of a talk at the Annual General Meeting of the society, including the dragonfly poem of Alfred, Lord Tennyson (1833).
- (17863) SCHORR, M., 2007. Vorläufige Bibliographie der Veröffentlichungen zu den Libellen (Insecta: Odonata) in Deutschland mit Registern zu den Bundesländern und Arten. (Arbeitsstand: 02. Februar 2007). *Dragonfly Res.* 4: 1-246. (With Engl. s.). – (Schulstr. 7/B, D-54314 Zerf).
A bibliography of 3624 works related to the odon. fauna of Germany, crossreferenced to the federal states and species.
- (17864) UEMA, Y. & T. SAGAWA, 2007. A preliminary report on Odonata and such like faunas of Hangando Moor in Mt Hakusan. *Bull. Hakusan Nature Conserv. Cent.* 34: 31-33. (Jap., with Engl. title). – (Hakusan Nature Conserv. Cent., Ishikawa, JA).
6 odon. spp. are listed.

2008

- (17865) BECHLY, G. & W. WICHARD, 2008. Damselfly and dragonfly nymphs in Eocene Baltic amber (Insecta: Odonata), with aspects of their palaeobiology. *Palaeodiversity* 1: 37-73, pls 1-9 incl. (With Germ. s.). – (First Author: Staat. Mus. Naturk., Rosenstein 1, D-70191 Stuttgart).
All 7 previously known Zygoptera larvae from Baltic amber are revised and 8 new specimens are described but not named. Some of these can be attributed to the extant family-group taxa Calopterygidae: Calopteryginae, Hypolestidae: Hypolestini, Megapodagrionidae: Argiolestinae, Synlestidae,

and *Lestida* (= *Lestinoidea* sensu Fraser 1957), while others can only be attributed to different unidentified spp. of the paraphyletic "megapodagrionid" grade. A further new specimen is a rather strange larva, which seems to represent the first genuine Anisoptera larva in amber (probably Aeshnidae). Various taphonomic, palaeoecological and palaeobiological aspects of these amber inclusions are discussed. The relative abundance of zygopteran larvae with sacroid caudal gills suggests the presence of well-oxygenated and fast flowing habitats.

- (17866) BUDEN, D.W., 2008. First records of Odonata from the republic of Nauru. *Micronesica* 40(1/2): 227-232. – (Div. Nat. Sci. & Math., Coll. Micronesia-FSM, P.O. Box 159, Kolonia, Pohnpei-96941, Fed. St. Micronesia).

Ischnura aurora, *Anax guttatus*, *Diplacodes bipunctata*, *Pantala flavescens*, *Tholymis tillarga* and *Tramea transmarina* are brought on record from Nauru, a small (21 km²) rised atoll in the west-central Pacific, approx. 2100 km NE of New Guinea. Breeding is confirmed for all spp.

- (17867) CRAIG, C.N., B.A. REECE & N.C. McINTYRE, 2008. Nestedness in playa odonates as a function of area and surrounding land-use. *Wetlands* 28(4): 995-1003. – (Dept Biol. Sci., Texas Tech Univ., Lubbock, TX 94409, USA).

As degradation of wetlands continues to occur as a result of human activities, it is important to identify aquatic and amphibious species' extinction risks and the relative hospitalities of sites to support intact biotic communities; one such technique involves comparing the nestedness of assemblages as an assay of predictability and stability. The degree of nestedness of odon. communities was measured in the playa wetland complex of the Texas panhandle (data from 23 spp. and 73 playas in the summers of 2003-05) under current conditions as well as 4 simulations of future socioeconomic and climate change. Compared to randomized (null model) assemblages, significant nestedness was found for the system as a whole as well as for each yr separately and for playas within each of the 2 dominant regional forms of land cover (cropland and grassland). Cropland and grassland playas were further split into 3 size categories, based on natural size breaks. Although departures from nestedness (idiosyncrasy) were unrelated to playa size or surrounding land use, larger playas surrounded by cro-

pland displayed lower nestedness than did smaller ones whereas grassland playas showed the opposite pattern. This relationship between playa area and surrounding land-use type showed that there is lower stability in odon. community composition in even large playas if those playas are surrounded by agriculture. Departures from nestedness mainly consisted of unexpected spp. presences rather than absences, with idiosyncratic spp. being larger in total body length and including 2 range extensions. Under simulations of playa losses, community patterns were similar to contemporary data, suggesting that the ephemeral and dynamic nature of playas may already expose the odon. community to selective pressures possible under future land conversion.

- (17868) DE BLOCK, M. & R. STOKS, 2008. Compensatory growth and oxidative stress in a damselfly. *Proc. R. Soc. (B)* 275: 781-785. – (Lab. Aquat. Ecol. & Evol. Biol., Univ. Leuven, Deberiotstraat 32, B-3000 Leuven).

Physiological costs of compensatory growth are poorly understood, yet may be the key components in explaining why growth rates are typically submaximal. Here, the hypothesized direct costs of compensatory growth were tested in terms of oxidative stress. Oxidative stress was assessed in a study where compensatory growth in body mass was generated by exposing *Lestes viridis* larvae to a transient starvation period followed by ad libitum food. Compensatory growth in the larval stage was associated with higher oxidative stress (as measured by induction of superoxide dismutase and catalase) in the adult stage. The results challenge 2 traditional views of life-history theory. first, they indicate that age and mass at metamorphosis not necessarily completely translate larval stress into adult fitness and that the observed physiological cost may explain hidden carry-over effects. Second, they support the notion that costs of compensatory growth may be associated with free-radical-mediated trade-offs and not necessarily with resource-mediated trade-offs.

- (17869) GAMA, G. & F. FRANCIS, 2008. Etude de la biodiversité entomologique d'un milieu humide aménagé: le site du Wachnet, le long du Geer à Waremmé (province de Liège, Belgique). *Faun. Ent.* 61(1/2): 33-42. (With Engl. s.). – (Second Author: Unité Ent. fonctionnelle & évolutive, Fac. Univ. Sci. Agr., Gembloux, Belgium).

- 13 odon. spp. are reported from 8 ecologically different sites at Wachnet in Waremme (Liège prov., Belgium).
- (17870) GARDINER, T. & A. VAUGHAN, 2008. Responses of ground flora and insect assemblages to tree felling and soil scraping as an initial step to heathland restoration at Norton Heath Common, Essex, England. *Conservation Evidence* 5: 95-100. – (First Author: 2 Beech Rd, Rivenhall, Witham, Essex, CM8 3PF, UK).
There was a noticeable increase in the number of odon. spp. recorded in the heathland restoration area (although none are heathland indicator spp.): 3 spp. were using the restoration area in the first yr after restoration and 6 in the second.
- (17871) HECKMAN, C.W., 2008. *Encyclopedia of South American aquatic insects: Odonata-Zygoptera. Illustrated keys to known families, genera, and species in South America*. Springer Science, Dordrecht. viii+691 pp. Hardcover (16.5 × 24.5 cm). ISBN 978-1-4020-8175-0; – e-ISBN 978-1-4020-8176-7. Price: UK £ 181.- net.
The companion volume to that described in *OA* 16465.
- (17872) HERCUT, R., D. CUPSA, S. PURTAN & B. BALOG, 2008. Studies upon the structure of the macrozoobenthic invertebrate communities in three habitats from Arginesti surroundings (Mehedenti co., Romania). *Bihorean Biologist* 2: 14-20. (Rom., with Engl. s.). – (Catedra Biol., Fac. Stiinte, Univ. Oradea, Universitatii 1, RO-410087 Oradea).
Aeshna isosceles is reported from 2 of the ponds studied; – Romania.
- (17873) HERCUT, R., S. PURTAN & B. BALOG, 2008. Contributions to the study of the macrozoobenthic invertebrate communities from two habitats in Dobrudja (Romania). *Bihorean Biologist* 2: 21-26. (Rom., with Engl. s.). – (Catedra Biol., Fac. Stiinte, Univ. Oradea, Universitatii 1, RO-410087 Oradea).
5 odon. spp. and their abundance are reported from 3 semipermanent ponds in the counties of Tulcea and Constanta; – Romania.
- (17874) JANSKY, V. & S. DAVID, 2008. Occurrence of the dragonfly *Cordulegaster heros* ssp. *heros* (Odonata: Cordulegastridae) in Slovakia. *Acta rer. nature. Mus. natn. Slov.* 54: 61-68. (Slovak, with Engl. s.). – (First Author: Prirodovedné múzeum, Vajanského nábr. 2, P.O. Box 13, SK-81006 Bratislava-16).
C. heros is currently known from 27 localities in Slovakia. Its distribution is reviewed.
- (17875) MAES, D., A. ANSELIN, K. DECLEER, G. DE KNIJF & V. FICHEFET, 2008. Insecten en klimaatswijziging in België. – [Insects and climate change in Belgium]. *Natuur Focus* 7(3): 107-111. (Dutch). – (First Author: Inst. Natuur & Bosonderzoek, Kliniekstraat 25, B-1070 Brussel).
The consequences for the Belgian fauna of butterflies, grasshoppers and odon. are explored along 3 theoretical options, if the current climate change is to progress. It is concluded that all 3 options are likely to trigger a significant biodiversity decrease in all 3 orders.
- (17876) McMUNN, M., 2008. *Oviposition preference in the Dark-Winged Damselfly (Calopteryx maculate)*. Joint project for Evolution and Natural History, Univ. Michigan, Ann Arbor. 13 pp. – (c/o S. Pruet Jones, Dept Biol., Univ. Michigan, Ann Arbor, MI 48109, USA).
Artificial odon. territories were created using several leaves of *Sparganium americanum* fixed in place in a river at known flow rates for 48 h. On each leaf the eggs were counted and the algal coverage was measured. It was found that *C. maculate* oviposits more frequently in areas of intermediate flow rate, approx. 0.2-0.4 m/s, where algal coverage was more common. It is suggested that oviposition choice is not affected by the presence of algae and that there is a relatively narrow window of optimum flow rate for oviposition.
- (17877) NG, Y.F., H.S. YONG, R.A. DOW & M. HÄMÄLÄINEN, 2008. Dragonflies (Insecta: Odonata) from the Maliau Basin, Sabah, Malaysia. *J. Sci. Tech. Tropica* 4(1): 13-18. – (Last Author: Sunnankalliontie 13, FIN-02760 Espoo).
An annotated list of 15 spp. is presented. It is based on a limited collecting period, 18-23 Apr. 2006.
- (17878) NIKOLAEVA, N.E., 2008. A new construction of an underwater light trap and its use for catching of hydrobionts. *Zool. Zh.* 87(9): 1134-1136. (Russ., with Engl. s.). – (Dept Zool., Tver St. Univ., RUS-170002 Tver).

- A detailed and illustrated technical description of the facility. Odon. are listed among the taxa in collecting of which the trap is particularly effective.
- (17879) PERCSY, C. & N. PERCSY, 2008. La réserve naturelle de Gentissart (Villers-la-Ville, Brabant Wallon): colonisation d'une ancienne sablière par les odonates et autres insectes. *Naturalistes belg.* 89(2/3): 34-56. (With Engl. s.). – (First Author: Ch. du Bon Air 12, B-1380 Ohain).
Based on a long-term odon. survey (1997-2007) at the old sand quarry (surface 26 ha) of Gentissart (Belgium), 27 spp. are listed and their local occurrence annotated.
- (17880) POLHEMUS, D.A., J. MICHALSKI & S.J. RICHARDS, 2008. *Pseudagrion fumipennis*, a remarkable new species of damselfly from New Guinea (Odonata: Zygoptera: Coenagrionidae). *Tijdschr. Ent.* 151: 51-56. – (First Author: Dept Nat. Sci., Bishop Mus., 1525 Bernice St., Honolulu, HI 96817, USA).
The new sp. is described and illustrated from widely separated localities in the lowlands of New Guinea and immediately adjacent islands. Holotype ♂: Papua New Guinea, Gulf prov., Sapoi river, 29-XI-1996; deposited in Aust. Mus. Nat. Hist., Sydney. Structurally it is most similar to *P. farinicolle* from New Guinea and *P. ustum* from Sulawesi.
- (17881) POTT, C., C.C. LABANDEIRA, M. KRINGS & H. KERP, 2008. Fossil insect eggs and ovipositional damage on bennettitalean leaf cuticles from the Carnian (Upper Triassic) of Austria. *J. Paleont.* 82(4): 778-789. – (First Author: Forschungsstelle Paläobot., Geol.-Paläont. Inst., Univ. Münster, Hindenburgplatz 57, D-48143 Münster).
2 types of evidence for insect ovipositional activity (i.e., actual egg chorions and ovipositional damage) occur on Nilssoniopteris (bennettitalean foliage) leaf cuticles from the Carnian of Austria (Lunz Formation, ca 100 km W of Vienna) and provide a rare direct insight into insect egg morphology and oviposition in the Late Triassic. The egg chorions have exclusively been found on *N. haidingeri* leaves, where they are attached to the outer surface of the abaxial cuticle; one specimen suggests that the eggs were arranged in circles. It is impossible at present to determine the affinities of the eggs. Ovipositional damage occurs on *N. angustior* leaves in the form of lenticular egg impressions surrounded by a narrow, elevated margin. The impressions are visible on the ad- and abaxial cuticle, and coincide when both cuticles are superimposed, which indicates that the eggs producing these impressions were injected into the interior of the leaf. Producers of eggs that may have caused these damages are perhaps odon. The restricted occurrence of the 2 types of ovipositional activity suggests that some kind of host specificity existed, perhaps related to specific preferences in larval diet.
- (17882) PRYKE, J.S., 2008. *Conservation of the invertebrate fauna of the Cape Peninsula*. PhD thesis, Fac. Sci., Stellenbosch Univ., Matieland/SA. xii+262 pp. (With Afrikaans s.). – (c/o Prof. Dr M.J. Samways, Dept Conserv. Ecol., Univ. Stellenbosch, P. Bag X1, Matieland-7602, Sth Afr.)
The Cape Peninsula (S Afr.) is regarded as a centre of endemism for many invertebrate groups, incl. Odon. (cf. M.J. Samways, 2006, *Odonatologica* 35: 341-368). Previously 22 odon. spp. had been recorded from the Cape. Here, in the Appendix, recent data are listed for 19 spp., incl. *Azuragrion nigridorsum* and *Trithemis dorsalis* that are new for the Cape. The 2 spp. were both found next to artificial dams, suggesting the records are not due to sampling effort but represent rather the actual range extensions due to anthropogenic influence.
- (17883) RIVERA-USME, J.J., D.L. CAMACHO-PINZÓN & A. BOTERO-BOTERO, 2008. Numeric structure of the aquatic entomologic fauna in eight streams of the department of Quindío, Colombia. *Acta biol. colomb.* 13(2): 133-146. (Span., with Engl. s.). – (Carrera 7, No. 12-55, La Tabaida, Quindío, Colombia).
The paper deals with a quantitative review of the aquatic insect fauna in the streams of La Tabaida and Calarcá. Samples contained 216 odon. specimens; the taxa are mostly genus-wise listed. Notes on their habitat preferences are provided.
- (17884) SMEENGE, H., 2008. *Natuurherstelplan Gorssele Heide*. – [*Nature restoration schedule for Gorssele Heide*], Ministerie van Landbouw, Natuur en Voedselkwaliteit, The Hague. 43 pp. (Dutch).
An odonatol. important former military training ground (heath) area, Gelderland prov., the Netherlands.

- (17885) **SRYGLEY, R.B. & R. DUDLEY, 2008.** Optimal strategies for insects migrating in the flight boundary layer: mechanisms and consequences. *Integr. comp. Biol.* 48(1): 119-133. – (USDA-Agric. Res. Serv., 1500 N Central Ave, Sidney, MT 59270, USA). Directed aerial displacement requires that a volant organism's airspeed exceeds ambient wind speed. For biologically relevant altitudes, wind speed increases exponentially with increased height above the ground. Thus, dispersal of most insects is influenced by atmospheric conditions. However, insects that fly close to the Earth's surface displace within the flight boundary layer where insect airspeeds are relatively high. Over the past 17 yr, the present Authors have studied boundary-layer insects by following individuals as they migrate across the Caribbean Sea and the Panama Canal. Although most migrants evade either drought or cold, nymphalid and pierid butterflies migrate across Panama near the onset of the rainy season. Dragonflies of the genus *Pantala* migrate in Oct. concurrently with frontal weather systems. Migrating the furthest and thereby being the most difficult to study, the diurnal moth *Urania fulgens* migrates between Central and South America. Migratory butterflies and dragonflies are capable of directed movement towards a preferred compass direction in variable winds, whereas the moths drift with winds over water. Butterflies orient using both global and local cues. Consistent with optimal migration theory, butterflies and dragonflies adjust their flight speeds in ways that maximize migratory distance travelled per unit fuel, whereas the moths do not. Moreover, only butterflies adjust their flight speed in relation to endogenous fat reserves. It is likely that these insects use optic flow to gauge their speed and drift, and thus must migrate where sufficient detail in the Earth's surface is visible to them. The abilities of butterflies and dragonflies to adjust their airspeed over water indicate sophisticated control and guidance systems pertaining to migration.
- (17886) **STRAND, L. & M. FRANZEN, 2008.** *Basin-ventering av trollsländor i Skåne 2006*. Länsstyrelsen i Skåne Län, Malmö. 52 pp. ISBN 978-91-86079-23-0. (Swed.). – (Orders to: Miljöafdelningen, Länsstyrelsen i Skåne Län, S-205 15 Malmö). A report on the 2006 survey of the occurrence of *Aeshna viridis*, *Leucorrhinia albifrons*, *L. caudalis* and *L. pectoralis* in Skåne, Sweden. Also included are notes on *Aeshna isosceles* and *Anax imperator*.
- (17887) **WHITEMAN, N.K. & R.W. SITES, 2008.** Aquatic insects as umbrella species for ecosystem protection in Death Valley National Park. *J. Insect Conserv.* 12: 499-509. – (First Author: Dept Organismic & Evol. Biol., Mus. Comp. Zool., Harvard Univ., 26 Oxford St., Cambridge, MA 02138, USA). Under the US Endangered Species Act, critical habitat for listed spp. is also protected. This paper deals with the Heteroptera, but a list of the 7 currently protected or proposed candidate odon. spp. is also included.
- (17888) **YAKUBOVICH, V.S., 2008.** To the fauna of dragonflies (Insecta, Odonata) of the Lower Amur region. *AI Kurentsov's annu. mem. Meet.* 19: 96-102. (Russ., with Engl. s.). – (Inst. Water & Ecol. Problems, FEB RAS, Kim Yu Chen 65, RUS-680063 Khabarovsk). A checklist of the 53 spp. hitherto known from the region (with new records of some of these) is given, and a biogeographic analysis of the fauna is provided.
- (17889) **YOSHIMURA, M., 2008.** Longitudinal patterns of benthic invertebrates along a stream in the temperate forest in Japan: in relation to humans and tributaries. *Insect Conserv. & Div.* 1: 95-107 – (Forest Prod. Res. Inst., Nagaikyutaro 68, Momoyama, Fushimi, Kyoto, 612-0855, JA). In order to clarify the influence of human residence on benthic invertebrate assemblages, seasonal and site differences among benthic samples collected from a 15-km stretch of the Kuroson stream (the Shimanto river watershed, Shikoku) and their relation with land use were examined. The abundance of *Calopteryx*, *Davidius*, *Epiophlebia* and *Lanthus* at each sampling site is stated and a statistical analysis is provided. Species names are not given.

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- (17890) **ALTAMIRANDA SAAVEDRA, M., 2009.** Actualización de registros del orden Odonata del Museo Entomológico Francisco Luis Gallego. *Boln Mus. ent. Gallego* 1(3): 6-18. – (Mus. Ent. Francisco Luis Gallego, Aptdo Aéreo 3840, Medellín, Colombia). A checklist, with locality data of ca 600 (out of the 1180) identified Colombian Odon. specimens in the collection of the Museum.

- (17891) BECKEMEYER, R.J., 2009. Kinematics of a territorial defense maneuver by the dragonfly *Pachydiplax longipennis* (Odonata: Anisoptera: Libellulidae). *Trans. Kans. Acad. Sci.* 112(3/4): 169-180. — (957 Perry Ave, Wichita, KS 67203-3141, USA).

A high speed (1000 frame/s) video segment, 0.367 seconds long, showing a territorial ♂ responding in the field to a challenge from a conspecific ♂, reveals that the defender used a high rate yaw-turn to position itself to drive off the challenger. In-phase flapping of the fore- and hindwings was used during the yaw turn and in the following pursuit of the challenger. During the right yawing turn, the dragonfly flapped its right wings to a more negative stroke amplitude than its left wings on the first 2 downstrokes (1st downstroke: -65° right wing, -45° left wing; 2nd downstroke: -90° right wing, -50° left wing). Upstroke amplitudes were the same for both wings throughout the yaw turn. The 135° yaw turn was executed, in 3 wing beats (0.085 s) and in about 6/10ths of a body length of horizontal travel, at an average yaw rate of 1590°/s, and a peak turn rate of 3000°/s. This rapid yawing rotation was accompanied by a significant deceleration in flight path speed, which dropped from 30 to 7 body lengths per second (1.1 m/s to 0.3 m/s) as the dragonfly yawed through 90° in the first half of the yaw turn. The wingbeat frequency dropped from 41.7 Hz at the beginning of the yaw turn to 33.3 Hz at the end. The horizontal and vertical flight velocity components both reached zero near the completion of the yaw turn, during the upstroke portion of the third wing beat. Within 1/10th of a second after completing the yaw turn, the defender had reached speeds of 8 body lengths per second (0.3 m/s) upward and 14 body lengths per second (0.55 m/s) horizontally, and was accelerating along its flight path at approximately 150 body lengths per second² (5.5 m/s²) in its pursuit of the challenger.

- (17892) BERNARD, R., P BUCZYNSKI, G. TOŃCZYK & J. WENDZONKA, 2009. *A distribution atlas of dragonflies (Odonata) in Poland*. Bogucki Wydawnictwo Naukowe, Poznan. 256 pp. ISBN 978-83-61320-54-8. Hardcover (22.0 × 30.0 cm). (Bilingual: Pol./Engl.). — (Publishers: Górna Wilda 90, PO-61-576 Poznań).
This is by far the most perfect Atlas of a European region yet published. It is based not solely on the assessment of (published and unpublished) histori-

cal and recent records but, above all, on thorough analytical work, which resulted in a significant contribution to our understanding of the European odon. biogeography. — The distribution of each sp. is presented in 2 maps, viz. a basic UTM grid map (records) and a map of the area of occupancy. Special chapters are devoted to the geographical background, outline of odonol. studies in Poland (1781 to present), biogeographical description of odon. fauna, species in decline and those in expansion, updated Red List, etc. The odonol. literature related to the present territory of Poland consists of over 700 works, 543 of which contain original data on odon. occurrence. The bibliography is divided in 5 sections: "References", "Source literature" (1825 to present), "MSc theses and PhD dissertations", "Internet sources", and "Unpublished works and expert evaluations". — The style is concise and throughout refreshing. The book is of a significant extralimital importance, the bilinguality makes it easily accessible to the non-polish readers. — A corrective note: with reference to, e.g. *OA 15754*, it was recently shown persuasively that Hagen's New World *Enallagma annexum* is not conspecific with *E. cyathigerum*, therefore the latter is a palearctic rather than a holarctic sp., though the N American taxon has been for long time considered as a junior synonym of *E. cyathigerum*.

- (17893) BUCZYNSKI, P. & P. JEDRYCZAK, 2009. On the occurrence of *Orthetrum brunneum* (Fonscolombe, 1837) (Odonata: Libellulidae) in the Polish part of the South Baltic Sea coast region. *Wiad. ent.* 28(3): 141-147. (Pol., with Engl. s.). — (First Author: Dept. Zool., UMCS, Akademicka 19, PO-20-033 Lublin).

The sp. is for the first time reported from an area above 54°N in Poland, situated ca 1.5° of latitude N of the hitherto known localities. The localities in N Poland and the distribution of *O. brunneum* in the northern part of central Europe are discussed.

- (17894) [CANNINGS, R.A.] McCREA, E., 2009. Press release: *Robert Cannings receives national award from Alliance of Natural History Museums of Canada*. Alliance Nat. Hist. Mus. Canada, Ottawa. 4 pp., incl. recipient's address upon the receipt of the award. — (c/o Dr R.A. Cannings, Roy. Brit. Columbia Mus., 675 Belleville St., Victoria, BC, V8W 9W2, CA).
Bruce Naylor Award, 27-X-2009. A short appre-

- ciation of his scientific (largely odonatol.) work is provided.
- (17895) CANO-VILLEGAS, F.J. & M.A. CONESA-GARCIA, 2009. Confirmation of the presence of *Lestes macrostigma* (Eversmann, 1836) (Odonata, Lestidae) in the "Laguna de Fuente de Piedra" Natural Reserve (Malaga, South Spain). *Boletín Asoc. esp. Ent.* 33(1/2): 91-99. (With Span. s.). — (First Author: Montemayor 4, 1^o-2, ES-14003 Córdoba). Fresh records are presented for 14 spp. in the Reserve. The *L. macrostigma* occurrence is highlighted, since during the past 14 yr this sp. has not been seen in Andalusia (Spain).
- (17896) CHEREVATOV, V.F., 2009. [Interesting invertebrate fauna of the European Bison Reserve "Zubrovicya"]. *Mater. nauk. Konf. "Stan i bioriznomanittya ekosistem Shac'kogo nacional'nogo prirodnoho parku*, pp. 120-121. Spolom, l'viv. (Ukr.). — (Author's address not stated). *Calopteryx virgo* is listed from the Reserve, situated in the Chernivecka distr., the Ukraine.
- (17897) CHIN, K.S. & P.D. TAYLOR, 2009. Interactive effects of distance and matrix on the movements of a peatland dragonfly. *Ecography* 32: 715-722. — (Dept Biol., Acadia Univ., 24 University Ave, Wolfville, NS, B4P 2R6, CA). A mark-release-recapture survey of *Leucorrhinia hudsonica* was conducted in 2002 and 2003 in a harvested forest landscape in western Newfoundland, Canada. The odds of an individual ♂ moving between peatlands was influenced by both the distance between peatlands and the type of intervening habitat (the matrix). Specifically, at meso scales (> 700 m) there was a positive effect of the amount of cut matrix between peatlands on the odds of moving, but at fine scales (< 700 m) there was the opposite effect; proportionally fewer individuals moved between peatlands. The odds of moving out of a peatland decreased as the surface area of water in the peatland increased. Multi-state mark-recapture models showed that the daily probability of a ♂ moving between any 2 peatlands was 1.9% in 2002 and 6.9% in 2003 (n = 1527 and 1280 marked individuals, respectively). The results suggest that additional empirical studies that directly measure patterns of movement with respect to landscape structure at multiple spatial scales in other taxa and situations are needed in order to uncover other possible non-linear changes in behaviour.
- (17898) CORAM, R.A. & A. NEL, 2009. A new petalurid dragonfly from the Lower Cretaceous of southern England (Odonata: Petalurida: ?Cretapetaluridae). *Palaeodiversity* 2: 205-208. (With Germ. s.). — (Second Author: Entomologie, Mus. Natn. Hist. Nat., 45 rue Buffon, F-75005 Paris). *Anglopetalura magnifica* gen. n., sp. n. is described and illustrated from the Duriston Formation, Upper Berriasian of Duriston Bay, Dorset, UK. Holotype (♂ hindwing): Maidstone Mus. & Art Gallery, Kent, UK.
- (17899) COSTA, J.M. & T.C. SANTOS, 2009. Description of the larva of *Orthemis schmidti* (Odonata, Libellulidae). *Iheringia (Zool.)* 99(2): 129-131. (With Port. s.). — (Depto Ent., Mus. Nac., UFRJ, Quinta da Boa Vista, São Cristovão, BR-20940-040 Rio de Janeiro, RJ). The larva is described and illustrated for the first time based on 4 ♂ and 1 ♀ larvae and on a ♂ exuviae from Maranhão (NE Brazil). Diagnostic characters, separating it from the known congeners, are stated and some notes on the habitat are provided.
- (17900) DARAZ, B., 2009. Dragonflies (Odonata) of the Przemyśl Foothills and adjacent areas along the San river. *Wiad ent.* 28(1): 5-32. (Pol., with Engl. s.). — (Kościelna 41, PO-35-505 Rzeszów). A comprehensive treatment of the fauna (54 spp.); — SE Poland.
- (17901) DELIRY, C., 2009. *Bibliographie d'odonatologie Provençale (Provence, Alpes, Côte-d'Azur)*. www.deliry.com, synthèse Pdf Internet, version 2 (1er juin 2009). 13 pp. 168 titles, covering the period 1837-2000; — France.
- (17902) DIOMANDE, D., Y.K. BONY, E.O. EDIA, K.F. KONAN & G. GOURÈNE, 2009. Diversité des macroinvertébrés benthiques de la rivière Agnèby (Côte d'Ivoire; Afrique de l'Ouest). *Europ. J. scient. Res.* 35(3): 368-377 (With Engl. s.). — (Lab. Envir. & Biol. Aquat., Univ. Abobo-Adjamé, 02, B.P. 801, Abidjan-02, Ivory Coast). 6 odon. taxa are reported from the middle stream of the Agnèby, Ivory Coast.

- (17903) [DOMMANGET, J.-L.], 2009. *Liste et statuts des odonates de la région Île-de-France*. Soc. fr. Odonatol. www.libellules.org – pdf, version 15 May 2009, 3 pp. – (7 rue Lamartine, F-78390 Bois-d'Arcy).
An annotated list of 58 spp; – France.
- (17904) FERRO, M.L., R.W. SITES & A. VITHEE-PRADIT, 2009. Contributions to the faunistics of Odonata in Thailand. *Insecta Mundi* 0104: 1-24. – (First Author: Dept Ent., Louisiana St. Arthrop. Mus., LSU Agric. Cent., Baton Rouge, LA 70803, USA).
Distribution and habitat information are provided for 1578 specimens (127 spp.) from 134 (49 lentic, 85 lotic) sites throughout Thailand. Of the spp. collected, 25 were represented by a single specimen and 40 were collected from a single location.
- (17905) GU NADARRACH ALBANNACH (publisher; authorship anonymous), 2009. *The dragonfly / An tarbh-nathrach*. Scottish Natural Heritage. 24 pp. <http://www.snh.org.uk/> (Gaelic).
General, with a list of Gaelic names of 30 spp. recorded from Scotland. A Gaelic/Engl. glossary for explanation of the meaning of the names is also provided.
- (17906) GYSELS, J. & H. PULS, 2009. Beekschaaftenrijder en bosbeekjuffer in de provincie Antwerpen (1995-2008). – [Aquarius najas (Hemiptera) and Calopteryx virgo in the province of Antwerp (1995-2008)]. *Antenne* 3(1): 4 pp. (Dutch). – (Authors' postal addresses not stated).
As apparent from a recent survey, the Calopteryx virgo populations are increasing in the province of Antwerp, Belgium. The Aa in Turnhout and the Laarse Beek in Brasschaat are examples of streams re-populated after many yr of absence of this sp.
- (17907) HACET, N. & N. AKTAC, 2009. Contribution to the knowledge of Odonata fauna of southern Marmara region of Turkey. *Türk. ent. Derg.* 33(3): 171-178. (With Turk. s.). – (Dept Biol., Fac. Arts & Sci., Trakya Univ., TR-22030 Edirne).
A commented list of 17 spp. For the first time Libellula fulva is recorded from the region.
- (17908) HONKAVAARA, J., M.J. RANTALA & J. SUHONEN, 2009. Mating status, immune defence, and multi-parasite burden in the damselfly *Coenagrion armatum*. *Entomologia exp. appl.* 132: 165-171. – (Sect. Ecol., Dept Biol., Univ. Turku, FIN-20014 Turku).
Immunity and reproductive effort are both physiologically costly and often a trade-off between these functions has been shown. In studies with Zygoptera, parasite load has been associated with fitness costs, such as reductions in mating success, δ condition, and survival. Although each individual may be simultaneously infected by various parasite spp., most studies have concentrated on the effects of a single parasite taxon. Here, natural ecto- and endoparasite infection levels in δ *C. armatum* are examined in relation to their mating status, fat reserves, and ability to further mount an immune response measured as encapsulation of an experimentally introduced foreign object. Encapsulation response was lower for mated (paired) δ δ than for single δ δ and declined with increasing water mite abundance. Mated δ δ had fewer water mites than single δ δ . δ weight or fat reserves did not explain variation in encapsulation response. The number of gregarine gut parasites was not related to the level of encapsulation response and did not differ between mated and single δ δ . However, there was a negative correlation between mite abundance and gregarine load. The data suggest that current mite infection may compromise a δ 's resistance against further infections by pathogens and parasites, and there may be a trade-off between reproductive effort and encapsulation response in δ *C. armatum*.
- (17909) *INTERNATIONAL JOURNAL OF ODONATOLOGY* (ISSN 1388-7890), Vol. 12, No. 2, P.S. Corbet memorial issue (1 Dec. 2009).
Orr, A.G.: Reproductive behaviour of Libellago semiopaca on a Bornean rainforest stream (Odonata: Chlorocyphidae) (pp. 157-180, pls 1-2 excl.); – *Wildermuth, H.*: Season and temperature dependent location of mating territories in Somatochlora flavomaculata in a heterogeneous environment (Odonata: Cordulidae) (pp. 181-193, pl. 3 excl.); – *Hilfert-Rüppell, D. & G. Rüppell*: Males do not catch up with females in pursuing flight in Calopteryx splendens (Odonata: Calopterygidae) (pp. 195-203, pl. 4 excl.); – *Gorb, S., K. Tynkkynen & J.S. Kottaho*: Crystalline wax coverage of the imaginal cuticle in Calopteryx splendens (Odonata: Calopterygidae) (pp. 205-221); – *van der Poorten, N.*: Libellago corbeti sp. nov. from Sri Lanka (Odonata: Chlorocyphidae) (pp. 223-230, pl. 5 excl.); –

- Villanueva, R.J.T.*: Two new Risioenemis species from northern Sierra Madre, Luzon, Philippines (Odonata, Platycnemididae) (pp. 231-236); – *Dijkstra, K.-D.B. & M. Matushkina*: Kindred spirits: 'Brachythemis leucosticta', Africa's most familiar dragonfly, consists of two species (Odonata: Libellulidae) (pp. 237-256); – *Purse, B.V. & D.J. Thompson*: Oviposition site selection by *Coenagrion mercuriale* (Odonata: Coenagrionidae) (pp. 257-273); – *Watts, P.C.*: Characteristics of microsatellite loci in Odonata (pp. 275-286); – *Suhling, F., A. Martens & E. Marais*: How to enter a desert: patterns of Odonata colonisation of arid Namibia (pp. 287-308); – *Tenessen, K.*: *Aeolagrion philippi* sp. nov. from Bolivia, and a review of the genus *Aeolagrion* (Odonata: Coenagrionidae) (pp. 309-322); – *Costa, J.M., T.C. Santos & L.O.I. de Souza*: *Cyanallagma corbeti* sp. nov. from Brazil (Odonata: Coenagrionidae) (pp. 323-329); – *Machado, A.B.M.*: *Tukanobasis* gen. nov., with the description of *T. corbeti* sp. nov. from the Amazonian region of Brazil (Odonata: Coenagrionidae) (pp. 331-336); – *Carvalho, A.L., A.P. Pinto & N. Ferreira-Jr.*: *Castoraeschna corbeti* sp. nov. from Floresta Nacional de Carajás, Pará state, Brazil (Odonata: Aeshnidae) (pp. 337-346, pl. 6 excl.); – *von Ellenrieder, N.*: Five new species of *Orthemis* from South America (Odonata: Libellulidae) (pp. 347-381, pl. 7 excl.); – *Samraoui, B.*: Seasonal ecology of Algerian Lestidae (Odonata) (pp. 383-394); – *Lorenzo-Carballe, M.O., C.B. Beatty, C. Utzeri, V. Vieira & A. Cordero-Rivera*: Parthenogenetic *Ischnura hastata* revisited: present status and notes on population ecology and behaviour (Odonata: Coenagrionidae) (pp.395-411, pl. 8 excl.); – *Ferrera-Romero, M., J. Márquez-Rodríguez & A. Ruiz-García*: Implications of anthropogenetic disturbance factors on the Odonata assemblage in a Mediterranean fluvial system (pp. 413-428).
- (17910) KALKMAN, V.J., H. VAN MASTRIGT & S.J. RICHARDS, 2009. First records of dragonflies (Odonata) from the Foja Mountains, Papua province, Indonesia. *Suara Serangge Papua* 4(1): 14-19. (With Bahasa Indonesian s.). – (First Author: Naturalis, P.O. Box 9517, NL-2300 RA Leiden). A commented list of 21 taxa, 6 of which identified to the gen. level only, including an undescribed *Argiolestes* sp.
- (17911) KÜ, 2009. *Artenliste Schweiz: Libellen (Odonata). 1997-2008*. Bundesamt für Umwelt, Schweiz. Eidgenossenschaft. 4 pp. Ref.: 800 225.2 Z3 Artenliste Schweiz Libellen 1997-2008.doc. (Trilingual: Germ./Fr./Engl.). Annotated checklist.
- (17912) KUKALOVA-PECK, J., 2009. Carboniferous protodonatoid dragonfly nymphs and the synapomorphies of Odonatoptera and Ephemeroptera (Insecta: Palaeoptera). *Palaeodiversity* 2: 169-198. (With Germ. s.). – (Dept Earth Sci., Carleton Univ., Ottawa, ON, K1S 5B6, CA). 3 fossil protodonatoid dragonfly larvae are described from the middle Pennsylvanian (Moscovian) of Mazon reek, Illinois: *Dragonympha srokai* gen. n., sp. n. (Meganisoptera), a large, nearly complete young larva with an extended labial mask and uplifted wing pads; *Alanympha richardsoni* gen. n., sp. n. (Meganisoptera), a larval forewing with 2 articular plates attached to it, and *Carbonympha herdinai* gen. n., sp. n. (Eomeganisoptera), a detached larval forewing. Plesiomorphic states in *Dragonympha* indicate homologies unresolved in modern Odonata. The segmented head bears 3rd tergum ventrally invaginated. The extended labial mask still shows limb segments. The prothorax bears a pair of winglets. The short wing pads are fully articulated, twisted, uplifted and streamlined with body. The mesothoracic anepisternum is placed between acrotergite and prescutum. The abdominal leglets form long, segmented, serial gill filaments. In the ontogenesis of modern dragonflies, the wing and articulation disc occurs just above subcoxal pleuron and far from tergum. Wing sclerites are arranged in 8 rows protecting 8 blood pathways running towards 8 wing veins. The sistergroup of Odonatoptera has not yet been convincingly resolved with computer cladistic approaches. Reasons are examined and discussed. More accurate, evolution-based character evaluations are shown with examples. The role of a correct model of the pan-arthropod limb and the origin of insect wing is discussed. Groundplan characters in dragonflies and mayflies are compared in their Paleozoic and modern states, their obscurity is clarified and complex synapomorphies are proposed. Palaeoptera is confirmed as a monophyletic group and the following sistergroup relationships are suggested: Pterygota = Palaeoptera + Neoptera; Palaeoptera = Palaeodictyopteroidea + Hydropalaeoptera; Hydropalaeoptera = Odonatoptera + Ephemeroptera.

- (17913) LE DU, P., M. COCHU & F. GULLY, 2009. Compte-rendu sortie entomo du 15 août aux marais de Magoar (Glomel VU73): Odonates. *Lett. Réseau Naturalistes Costarmoricains* 2009: 2. – (Authors' addresses not stated).
15 spp. are recorded from the Reserve and its vicinity; – Brittany, France.
- (17914) LOZANO, F., J. MUZON & S. TORRES, 2009. Description of the final instar larva of *Homoura lindneri* (Ris, 1928) and redescription of the larva of *H. chelifera* (Selys, 1876) (Odonata: Coenagrionidae). *Zootaxa* 2231: 47-54. (With Span. s.). – (Inst. Limnol. "R.A. Ringuelet", C.C. 712, AR-1900 La Plata).
The descriptions and illustrations of the 2 spp. are based on reared specimens from Argentina. A generic diagnosis is provided, as well as a key to the larvae of the most common genera of Coenagrionidae occurring in Argentina. – See also *OA* 17932.
- (17915) [MALÉ], 2009. Die Meister der Langstrecke. *Fressnapf J.* 14 (Oct.): 8. – (Author's name and address unknown).
A casual note on migratory flights of *Pantala flavescens*, in a pet-store magazine.
- (17916) MATUSHKINA, N.A., E.K. GUGA, D.D. BUY & D.A. LIMARENKO, 2009. Dragonflies (Insecta, Odonata) of the Udai river part of the Sulava river ecological corridor (central Ukraine): a preliminary checklist. *Zapovidna Sprava v Ukraini* 15(1): 70-71. – (Dept Zool., Fac. Biol., Kiev Natn. Univ., Volodymirska 64, UKR-01033 Kyiv).
14 spp. are listed from 7 localities in Poltava region, Pyriatyn district.
- (17917) MEURGEY, F., 2009. The Odonata of Grenada (Lesser Antilles). *Herminier nat. Hist. Soc. Contr. Odonatol.* 1: 1-35. – (Mus. Hist. Nat., 12 rue Voltaire, F-44000 Nantes).
A survey report (1-14 May 2009), listing 19 spp. Biogeographically, the odon. fauna of Grenada is a mix between the Caribbean and S American fauna, with 3 spp. originating from S America (not shared with other islands) and *Argia concinna* is a Caribbean endemic.
- (17918) MILLÁN-JIMÉNEZ, C., 2009. Insectos acuáticos del humedal Timbique en el corregimiento del Bolo-Palmira (Valle del Cauca, Colombia). *Boln Mus. Ent. Univ. Valle* 10(1): 30-36. (With Engl. s.). – (Depto Biol., Univ. Valle, Calle 13 No. 100-00, Sede Meléndez Cali, 25360 Cali, Colombia).
Sampling of aquatic insects associated with the Timbique wetland (Palmira, Valle del Cauca, Colombia) was conducted between May 2008 and Jan. 2009. Coenagrionid, aeshnid and libellulid larvae are reported, but specific names are not stated.
- (17919) MUZON, J., 2009. Estado actual del conocimiento del orden Odonata en la Patagonia. *Revta Soc. ent. argent.* 68(1/2): 163-167. (With Engl. s.). – (Inst. Limnol. "R.A. Ringuelet", CC 712, AR-1900 La Plata).
A commented and updated list of the Patagonian fauna (36 spp., 18 gen.), Argentina. Approx. 60% of the spp. and 40% of the gen. are endemic. An analysis of the main distribution pattern is provided. – See also *OA* 10301.
- (17920) NAGEL, L., T. ROBB & M.R. FORBES, 2009. Parasite-mediated selection amidst marked inter-annual variation in mite parasitism and damselfly life history traits. *Ecoscience* 16(2): 265-270. (With Fr. s.). – (Dept Biol., Carleton Univ., Ottawa, ON, K1S 5B6, CA).
Parasite-mediated selection in host populations is thought to vary in magnitude temporally. Here, variation in life history traits that are known or suspected to influence fitness was monitored in a *Lestes disjunctus* population, parasitized by larval water mites. Mite prevalence and intensity varied considerably over 5 yr and was often higher in ♀♀. Prevalence and intensity were highest in the years when the *Lestes* emergence periods were early and of short duration, which also corresponded to emerging at larger sizes. Mites appeared to exert negative effects on apparent survival in some years only, and only for ♀♀, suggesting that parasite-mediated selection on Zygoptera is variable and dependent on other factors such as emergence times, weather, and sex and body size of hosts.
- (17921) NEL, A., G. BECHLY, X. DELCLOS & D.-Y. HUANG, 2009. New and poorly known Mesozoic damsel-dragonflies (Odonata: Isophlebioidea: Campterochlebiidae, Isophlebiidae). *Palaeodiversity* 2: 209-232. (With Germ. s.). – (First Author: Entomologie, Mus. Natn. Hist. Nat., 45 rue de Buffon, F-75005 Paris).

- The diagnoses of the families Campterothlebiidae and Isothlebiidae are emended. *Campterothlebia elegans* Bode, 1905, type of the Campterothlebiidae, and *Sinitzia sophiae* Pritykina, 2006 are redescribed. The latter is transferred from the Isothlebiidae into the Campterothlebiidae sit. nov. 2 new campterothlebiids are described: *Pritykinia rasnitsyni* gen. n., sp. n. (Lowermost Cretaceous of Russia) and *Qibinlina sinica* gen. n., sp. n. (Middle Jurassic of China). 3 new isothlebiids are described: *Walleria magnifica* gen. n., sp. n. (Upper Jurassic of Kazakhstan), *Parawalleria mongolica* gen. n. sp. n. and *Parawalleria incompleta* sp. n. (Upper Jurassic of Mongolia).
- (17922) NEL, A. & D.-y. HUANG, 2009. First Chinese Cymatophlebiidae from the Middle Jurassic of Inner Mongolia (Odonata: Anisoptera: Aeshnoptera). *Palaeodiversity* 2: 199-204. (With Germ. s.). – (First Author: Entomologie, Mus. Natn. Hist. Nat., 45 rue Buffon, F-75005 Paris). *Sinacymatophlebia mongolica* gen. n., sp. n., the oldest and the first Chinese record of the Mesozoic aeshnopteran dragonfly family Cymatophlebiidae, is described from the Jiulongshan Formation of Inner Mongolia. Holotype ♂: print and counterprint of almost complete hindwing, part of forewing and trunk with the 4 basal abdominal segments; deposited at Nanjing Institute of Geology and Palaeontology, Nanjing.
- (17923) NGIAM, R.W.-J., 2009. The record of *Archibasis rebecca* Kemp, 1989 in Singapore (Odonata: Zygoptera: Coenagrionidae). *Nature Singapore* 2: 449-452. – (Natn. Biodiv. Cent., Natn Parks Bd, 1 Cluny Rd, Singapore-259569). The first published record from Singapore (1 ♂, small sandy stream in Central Catchment Nature Reserve, 22-V-2009). The specimen is described and an unpublished Singapore specimen in RMNH (Leiden), collected by M.A. Liefstinck, is mentioned.
- (17924) OBER, S.V. & A.H. STANICZEK, 2009. A new genus and species of coenagrionid damselflies (Insecta, Odonata, Zygoptera, Coenagrionidae) from Vanuatu. *Zoosystema* 31(3): 485-497. (With Fr. s.). – (Abt. Ent., Staat. Mus. Naturk. Stuttgart, Rosenstein 1, D-70191 Stuttgart). *Vanuatubasis santoensis* gen. n., sp. n. is described and illustrated. Holotype ♂: Vanuatu, Sanma prov., Espiritu Santo. Penaoru river, 13-XI-2006; deposited in SMNS. *Nesobasis bidens* Kimmins and *N. malekulana* Kimmins are transferred to the new genus.
- (17925) OLTHOFF, M. & E. SCHMIDT, 2009. Die Libellen (Insecta, Odonata) des Truppenübungsplatzes Haltern-Borkenberge (Kreise Coesfeld und Recklinghausen). *Abh. westf. Mus. Naturk.* 71(3): 223-261. (With Engl. s.). – (Second Author: Coesfelder Str. 230, D-48249 Dülmen). 44 spp. are recorded from the Haltern-Borkenberge Military Training Area (surface ca 1800 ha), SW of the city of Münster (NW Germany). They are categorized in ecological groups and discussed in detail.
- (17926) PALACINO-RODRIQUEZ, F., 2009. Dragonflies (Odonata: Anisoptera) in the collection of the Instituto de Ciencias Naturales, Universidad Nacional de Colombia. *Bohn Mus. Ent. Univ. Valle* 10(1): 37-41. (With Span. s.). – (Inst. Cienc. Nat., Univ. Nacn. Colombia, Bogotá-7495, Colombia). The collection at Bogotá holds ca 2900 odon. specimens (53% of which are Anisoptera), collected since 1940 across 27 departments of the country. The 91 anisopteran spp. are here listed along with the alt. range of the localities and the distribution across the departments. The presence of *Uracis siemensi*, *U. infumata* and *Zenithoptera viola* in Colombia is confirmed.
- (17927) PEREZ GUTIERREZ, L.A., 2009. Crisis de la taxonomía en la odonología colombiana. *Bohn Mus. ent. Gallego* 1(3): 4-5. – (Author's postal address not stated). An Editorial, with emphasis on the required priorities in the odonotol. research in Colombia (ca 350 recorded spp., ca 600 potentially expected spp.).
- (17928) REMSBURG, A.J. & M.G. TURNER, 2009. Aquatic and terrestrial drivers of dragonfly (Odonata) assemblages within and among north-temperate lakes. *Jl N. Am. benthol. Soc.* 28(1): 44-56. – (First Author: Biodiv. Cent., Unity Coll., Unity, ME 04988, USA). The physical structure of vegetation influences diversity, interactions, movement and thermoregulation of animals. Vegetation structure might be a good indicator of habitat requirements of generalist predators, such as Odon., and thereby affect species diversity. Odon. use aquatic and terrestrial habi-

- tats during larval and adult life stages, respectively, but the relative importance of vegetation in these habitats is poorly understood. Here, a comparison is made how aquatic and riparian habitat variables affected odon. larvae from 41 sites (each 30 m in shoreline length) on 17 lakes in northern Wisconsin, USA. Principal components analyses was used to reduce multiple habitat variables to 2 lake-level axes (lake size and development, lake wetlands and predators), 2 site-level littoral axes (littoral macrophytes, littoral muckiness), and 2 site-level riparian axes (riparian structural complexity, riparian tall wetland plants). Most (61.6%) of the variance in larval species richness occurred at the site level. Density of the most abundant fam., Gomphidae, was positively related to riparian tall wetland plants, whereas species richness was positively correlated with abundance of littoral macrophytes (on the basis of multiple linear regression with an information theoretic approach). Surveys in 18 paired littoral microsites in 9 lakes indicated that larvae from the clasper and sprawler behavioural guilds were most abundant in microsites with submerged macrophytes. However, predation risk, assessed by tethering larvae in patches of submerged macrophytes, did not differ between habitats with and without macrophytes. It was tested whether shoreline plants affected recruitment from the adult stage by comparing adult odon. behaviours in response to 2 riparian vegetation treatments. Adult Zygoptera abundance was higher where potted wetland plants were placed than at manicured lawns without tall vegetation. The results indicate that odon. larvae might be influenced by vegetation structure in both aquatic and riparian habitats and demonstrate how animals with complex life histories link aquatic and terrestrial communities.
- (17929) SCHMIDT, E., 2009. Am Beispiel Karpfenzucht im Teichgut Hausdülmen: Artenvielfalt durch Fischkultur. *Naturzeit im Münsterland* 6(11): 14-15. – (Coesfelder Str. 230, D-48249 Dülmen). The specific, man-controlled environmental conditions required for carp-breeding ponds in Münsterland (NW Germany) are described. They are responsible for high biodiversity in these habitats. In particular, they trigger the occurrence of southern odon. spp., among which *Sympetrum depressiusculum* is the most noteworthy. – See also E.G. Schmidt, 2008, *Notul. odonatol.* 7: 5-10.
- (17930) [SCHMIDT, E.G.] MANNINGHAUS, R., 2009. Ein ökologisches Kleinod: das Teichgut Hausdülmen ist einzigartig in Nordrhein-Westfalen. *Dülmen Streiflichter* 16(506): 1, 3. – (c/o Prof. Dr E. Schmidt, Coesfelder Str. 230, D-48249 Dülmen). With Prof. Eb. Schmidt in the Teichgut Hausdülmen, a wetland area nr Dülmen (NW Germany), with highlights of the local fauna. The effects of carp breeding on odon. community are emphasized. In the article, published in a local house-to-house advertisement periodical, 2 field portraits of E.S. are also included.
- (17931) SUHLING, F., A. MARTENS, K.G. LEIPELT, C. SCHÜTTE & B. HOPPE-DOMINIK, 2009. Libellen Braunschweigs: Verbreitungsmuster und Bestandstrends der Libellenfauna einer Grossstadt (Odonata). *Braunschweig naturk. Schr.* 8(2): 449-476. (With Engl. s.). – (First Author: Inst. Geoökol., Abt. Umweltsystemanalyse, Langer Kamp 19c, D-38106 Braunschweig). During 1980-2009, 51 spp. were recorded in the city area of Braunschweig (Germany). With a data base of 4405 records from 180 localities and relatively continuous field work throughout this period, distribution patterns as well as long-term trends in the occurrence of spp. were analysed. For several spp. distinct trends of decline (*Coenagrion pulchellum*, *Ischnura pumilio*, *Sympetrum danae*, *S. pedemontanum*) or increase (*Sympetma fusca*, *Gomphus vulgatissimus*, *Ophiogomphus cecilia*, *Orthetrum brunneum*, *O. coerulescens*) could be detected and related to local habitat variation and general population trends. The diversity of the Braunschweig odon. fauna can be explained by the presence of pond systems in the urban periphery and by the presence of 2 rivers and their floodplain remnants: both habitat types were improved by restoration and conservation measures.
- (17932) TENNESSEN, K.J., 2009. Description of the final instar nymph of *Homeoura nepos* (Selys, 1876) (Odonata: Coenagrionidae). *Zootaxa* 2286: 65-68. – (125 N Oxford St., Wautoma, WI 54982, USA). The description of *H. nepos* larva by P.P. Calvert (1948, *Bolm Mus. nac. Rio de J.* [Zool.] 887: 1-34) was based on a single immature specimen from São Paulo, Brazil which lacked gills. The larvae of *H. chelifera* and *H. lindneri* were described by F. Lozano et al. (see *OA* 17914), who considered Cal-

vert's *H. nepos* description doubtful. Here, description and illustrations of *H. nepos* reared specimens from Bolivia are provided. The structural features of the 3 spp. are compared, whereas *H. obrieni* and *H. sobrina* larvae remain unknown.

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- (17933) DAMM, S., K.-D.B. DIJKSTRA & N. HADRY, 2010. Red drifters and dark residents: the phylogeny and ecology of a Plio-Pleistocene dragonfly radiation reflects Africa's changing environment (Odonata, Libellulidae, *Trithemis*). *Mol. Phylogen. Evol.* 54: 870-882. — (Second Author: Naturalis, P.O. Box 9517, NL-2300 RA Leiden). In the last few million years, tropical Africa has experienced pronounced climatic shifts with progressive aridification. Such changes must have had a great impact on freshwater biota, such as Odon. With about 40 spp., *Trithemis* dominates dragonfly communities across Africa, from rain-pools to streams, deserts to rainforests, and lowlands to highlands. Red-bodied spp. tend to favour exposed, standing and often temporary waters, have strong dispersal capacities, and some of the largest geographic ranges in the genus. Those in cooler habitats, like forest streams, are generally dark-bodied and more sedentary. Here, molecular analyses of ND1, 16S, and ITS (ITS1, 5.8S, and ITS2) is combined with morphological, ecological and geographical data for 81% of known *Trithemis* spp., including 3 Asian and 2 Madagascan endemics. Using molecular clock analyses, the genus's origin was estimated 6-9 Mya, with multiple lineages arising suddenly around 4 Mya. Open stagnant habitats were inferred to be ancestral and the rise of *Trithemis* may have coincided with savanna-expansion in the late Miocene. The adaptation of red spp. to more ephemeral conditions leads to large ranges and limited radiation within those lineages. By contrast, 3 clades of dark spp. radiated in the Plio-Pleistocene, each within distinct ecological confines: (1) lowland streams, (2) highland streams, and (3) swampy habitats on alternating sides of the Congo-Zambezi watershed divide; together giving rise to the majority of species diversity in the genus. During *Trithemis* evolution, multiple shifts from open to more forested habitats and from standing to running waters occurred. Allopatry by habitat fragmentation may be the dominant force in speciation, but possibly genetic divergence across habitat gradients was also involved. The study demonstrates the importance of combining ecological and phylogenetic data to understand the origin of biological diversity under great environmental change.
- (17934) DOW, R.A., 2010. Two new Platystictidae (Odonata, Zygoptera) from Sarawak, Malaysian Borneo. *Zootaxa* 2412: 63-68. — (Naturalis, P.O. Box 9517, NL-2300 RA Leiden). *Drepanosticta sbong* sp. n. (holotype ♂: Malaysia, Sarawak, Kapit div., Sungai Sbung, 11-II-2008) and *Protosticta tubau* sp. n. (holotype ♂: Malaysia, Sarawak, Bintulu div., Planted Forest zone, Tubau area, block E2K, 16-VII-2009) are described and illustrated. The types are to be deposited in RMNH, Leiden.
- (17935) KALKMAN, V.J., J.-P. BOUDOT, R. BERNARD, K.-J. CONZE, G. DE KNIJF, E. DYATLOVA, S. FERREIRA, M. JOVIĆ, J. OTT, E. RISERVATO & G. SAHLÉN, 2010. *European Red List of dragonflies*. Publication Office of the European Union, Luxembourg. viii+28 pp. ISBN 978-92-79-14153-9. DOI: 10.2779/84650. Available from: Publication Office of the European Union, <http://bookshop.europa.eu>; and from IUCN Publication Services, www.iucn.org/publications.