

## ODONATOLOGICAL ABSTRACTS

### 1998

- (17201) BUKVIĆ, V., 1998. *Fauna vretenca (Insecta, Odonata) delte Neretve*. – [Dragonfly fauna (Insecta, Odonata) of the Neretva delta, Croatia]. Diplomski rad, Biol. Dept, Univ. Zagreb, 39 pp. (Croat.). – (Author's current address unknown). Based on literature and unpublished material, all known records (36 spp.) are listed and mapped, and some brief comments are provided. The occurrence of 4 spp. needs confirmation. *Calopteryx virgo*, *Ceriagrion tenellum*, *Somatochlora flavomaculata* and *Sympetrum flaveolum* were not previously recorded from the area.

### 1999

- (17202) ANDREEV, A.V., T.D. IZVERSKAYA & S.D. ZHURMINSKI, 1999. Nauchnoe obosnovanie sozdaniya osobo ohranyaemoy territorii "Talmazskie plavni". – [Scientific arguments for special protection of the "Talmazskie Plavni" territory]. *Biodiversity conservation of the Dniester river basin* (Proc. Int. Conf.), pp. 14-17, Biotica, Chisinau, ISBN 9975-78-023-7. (Russ.). – (Biotica, A/ya 570, Chisinau-2043, Moldavia).  
The Reserve is a RAMSAR site, covering several meanders on the Lower Dniester R., Moldavia. *Coenagrion mercuriale* is listed among the noteworthy insect spp. – Note: In the *Plan upravleniya* (= "Management plan"; 2007, Biotica, Chisinau, 73 pp.), reference is made to the occurrence of 23 odon. spp., of which 6 spp. are listed. The Adana oxbow has a particularly high odon. biodiversity.
- (17203) BULET, P., C. HETRU, J.-L. DIMARCQ & D. HOFFMANN, 1999. Antimicrobial peptides in insects: structure and function. *Develop. comp. Immunol.* 23: 329-344. – (Inst. Biol. Mol. & Cellul., 15 rue René Descartes, F-67084 Strasbourg).  
Antimicrobial peptides appear to be ubiquitous and multipotent components of the innate immune defense arsenal used by both prokaryotic and eukaryotic organisms. Insect defensins are cysteine-rich antimicrobial peptides. Various insect defensins have an almost immediate lytic effect on the Gram-positive bacteria; a 1 min exposure to the peptide is sufficient to kill the bacteria. This is observed for all insect defensins, except for *Aeshna* defensin, which kills the Gram-positive bacteria only after several hours of contact (cf. *OA* 8941).
- (17204) GENARO, J.A. & A.E. TEJUCA, 1999. Datos cuantitativos, endemismo y estado actual del conocimiento de los insectos cubanos. *Cocuyo* 8: 24-28. – (Mus. Nac. Hist. Nat., Obispo 61, Esquina Oficios, Plaza de Armas, Habana Vieja-10100, Cuba).  
Approx. 30.7% of Cuban insect spp. are endemic. In Odon., the endemism is tentatively estimated at 6.2%.
- (17205) HUSSAIN, R. & M. RIAZ, 1999. Description of last instar naiads of *Rhyothemis variegata* (Linnaeus) and *Pantala flavescens* (Fabricius) (Libellulidae: Odonata). *Int. J. Agric. Biol.* 1: 145-146. – (First Author: Pest Warning & Quality Control of Pesticides, Pk Pattan, Pakistan).  
Not available for abstracting. Cited in the paper listed in *OA* 16982. The material originates from Pakistan.
- (17206) HUSSAIN, R. & M. RIAZ, 1999. The naiads of *Acisoma panorpoides panorpoides* Rambur

and *Brachythemis contaminata* (Fabricius) (Libellulidae: Odonata). *Int. J. Agric. Biol.* 1: 147-148. – (First Author: Pest Warning & Quality Control of Pesticides, Pk Pattan, Pakistan).

Not available for abstracting. Cited in the paper listed in OA 16982. The material originates from Pakistan.

(17207) PONT, B., J.M. FATON & S. PISSAVIN, 1999. *Protocole de suivi à long terme des peuplements de macrophytes aquatiques et d'odonates comme descripteurs de fonctionnement des hydrosystèmes. Programme-test sur 17 Réserves Naturelles ou Réserves Naturelles Volontaires de France*. Rés. Nat. France, Quetigny, 33 pp. ISBN none. – (Publishers: 3 rue de la forge, B.P. 100, F-21803 Quetigny; – Second Author: Les Garis, F-26120 La Baume Cornillane).

(17208) RAMOS HERNANDEZ, J.M., 1999. Lista preliminar de los odonatos (Insecta: Odonata) de los cayos Caguanes y Palma, provincia de Sancti Spiritus. *Cocuyo* 8: 2-3. – (Apartado Postal 2204, Sancti Spiritus-60100, prov. Sancti Spiritus, Cuba).  
The 2 localities are described and 24 spp. are listed; – Sancti Spiritus prov., Cuba.

(17209) ŠÁCHA, D. & J. ŠIBL, 1999. Dragon-flies (Odonata) of Záhorie region. *Folia faunist. slovakica* 4: 45-53. (Slovak, with Engl. s.). – (First Author: Podtatranského 31, SK-03101 Liptovský Mikuláš).  
A review of the odon. fauna (49 spp.) of the Rudava basin, Slovakia, with reference to species associations as defined by U. Jacob (1969, *Abh. Mus. Tierk. Dresden* 2: 197-239).

(17210) SAWADA, K., 1999. Female sexual receptivity and male copula guarding during prolonged copulation in the damselfly *Ischnura senegalensis* (Odonata: Coenagrionidae). *J. Ethol.* 17: 25-31. – (Kashii High Sch., 2-9-1, Kashii, Higashi-ku, Fukuoka, 813-0011, JA).  
Laboratory experiments were conducted to clarify the relationship between ♀ sexual receptivity and ♂ copula guarding in *I. senegalensis*, a sp. that copulates for several hours. In insectaries, most copulations were initiated early in the morning, and terminated relatively synchronously between 11:00 and 13:00. ♀ ♀ refused ♂ ♂ with wing-flutter display and oviposited alone in the afternoon regardless of

copulation events of that morning. ♀ ♀ could sexually receive ♂ ♂ only in the morning. ♂ ♂ copulated for several hours until 12:00 after which ♀ ♀ could oviposit. To determine whether the long copulations function as ♂ copula guarding or only as sperm displacement, the emerged ♂ ♂ were kept at various densities and permitted to copulate with virgin and mated ♀ ♀ in insectaries. With both virgin and mated ♀ ♀, “social” (not solitary; 2-4 ♂ ♂ / insectary), ♂ ♂ initiated copulations early in the morning and always terminated at around 12:00. However, with virgin and mated ♀ ♀, solitary (1 ♂ / insectary) ♂ ♂ terminated copulations in the morning. In both cases, duration of copulations did not significantly differ between virgin and mated ♀ ♀. Therefore, the long copulation is more likely to function as a ♂ copula guarding than as a sperm displacement, and the duration of copulations is predicted to be shortened when ♂ density is very low.

(17211) VUORI, K.-M., H. LUOTONEN & P. LILJANIEMI, 1999. Benthic macroinvertebrates and aquatic mosses in pristine streams of the Tolvajärvi region, Russian Karelia. *Boreal Envir. Res.* 4: 187-200. – (North Karelia Regional Envir. Cent., P.O. Box 69, FIN-80101 Joensuu).  
The study was conducted in 3 watersheds: the rivers Tolvajoki, Veljakkajoki and Uuksunjoki (Karelia, Russia), 17-21 Sept. 1995. A checklist of 10 odon. taxa (2 spp. not identified) is presented.

## 2000

(17212) KING, R.S., K.T. NUNNERY & C.J. RICHARDSON, 2000. Macroinvertebrate assemblage response to highway crossings in forested wetlands: implications for biological assessment. *Wetlands Ecol. Mngmt* 8: 243-256. – (Duke Wetland Cent., Nicholas Sch. Envir., Box 90333, Durham, NC 27708, USA).  
During June 1996, the responses of macroinvertebrate assemblages to fill-culvert highway crossings were evaluated in 2 bottomland forested wetlands in North Carolina (USA). 6 odon. taxa were collected among highway distance transects and their respective abundances are tabulated. Loss of canopy within at least 40 m of the highway crossings may have been responsible for the highly negative relationship between the highway crossings and *Ischnura* spp. (*I. prognata*, one of the 2 *Ischnura* spp. identified, is not separable from *I. posita* at early instars), is

known to inhabit heavily-canopied swamps and is infrequently collected outside of shaded habitat. This sp. may be sensitive to alterations in forest structure such as the reduced crown closure near the highway crossings. Adult odon. in general are also attracted to lightly-coloured surfaces. While speculative, it seems reasonable that highway traffic could contribute to increased mortality in odon. adults feeding above the light gray, reflecting road surface. Reduced adult survivorship and associated reproduction could reduce abundance of immatures in the surrounding wetlands.

- (17213) MARTIN-PIERA, F., 2000. Estimaciones prácticas de biodiversidad utilizando táxones de alto rango en insectos. *Monografías Tercer Milenio Soc. ent. aragon.* 1: 35-54. (With Engl. s.). — (Depto Biodiv. & Biol. Evolutiva, Mus. Nac. Cien. Natur., José Gutiérrez Abascal 2, ES-28006 Madrid).  
2 fundamental questions are addressed: (1) which function best reflects the relationship between species richness and higher taxon richness, thus presenting the greatest predictive value, and (2) which is the best higher taxon predictor for species richness. In order to answer these questions, the fit of linear, log/log, and exponential functions was checked. 2 predictive variables were used: genus richness and family richness. To ascertain whether the resampling of variables increases the predictive value of the functions, the randomization of samples order was applied to calculate new versions of the linear and exponential functions. All examples were taken from terrestrial arthropodes, those from Odon. are based on the Mexican fauna as presented in the publication listed in *OA* 10978.

## 2002

- (17214) HAUSWIRTH, L. & G.H. LOOS, 2002. Übersicht über die Libellen (Odonata) des Kreises Soest: eine kommentierte Artenliste (Stand: Oktober 2002). *Info ArbGembiol. Umweltschutz*, Soest 25/26: 34-37, references on p. 32. — (Second Author: Heidkamp 32, D-59174 Kamen).  
An annotated list of 47 spp. known to occur in the district of Soest (Northrhineland-Westphalia, Germany). See also *OA* 17216.
- (17215) IZAWA, K., H. FIJITA & Y. ONO, 2002. The odonate fauna in Kinkazan island and Aobayama area, Miyagi prefecture. *Miyagi Univ. Educ.*

*ann. Rep. env. Educ.* 5: 1-9. (Jap., with Engl. title). — (Miyagi Univ. Educ., Aza Aoba 149, Aramaki, Aoba-ku, Senda-shi, 980-0845, JA).

In order to make dragonflies a subject of training in the environmental education programme, a survey of spp. and their flight periods was carried out. Vernacular nomenclature is used only. — For pts 2 & 3, see *ibidem* 6(2003): 39-48 and 7(2004): 21-29, respectively.

- (17216) JOEST, R., 2002. Neue Lebensräume für Libellen: Auswirkungen von Gestaltungsmaßnahmen in Feuchtwiesengebieten und Auenlebensräumen im Kreis Soest auf die Libellenfauna. *Info ArbGem. biol. Umweltschutz*, Soest 25/26: 22-33. — (Am Bahndamm 10, D-59597 Erwitte).  
Since the 1980s, a significant improvement of the odon. fauna and the increase of species diversity were achieved in the district of Soest (Northrhineland-Westphalia, Germany) through land purchase, management of the existing wetlands and through creation of new habitats. In this comprehensive report, the development is shown from 1987 to 2001, the undertaken measures are described in detail, and the perspectives are discussed. — See also *OA* 17214.
- (17217) VASLIN, M., 2002. Reproduction de l'Anax napolitain, Anax parthenope Selys, 1839 en Vendée. *Naturaliste vendéen* 2002(2): 97-98. (With Engl. s.). — (7 ch. de l'Agas, Notre-Dame-de-Monts, France).  
An A. parthenope breeding record (June 2001) from the sand dunes of the Ile de Noirmoutier (Vendée, France).

## 2003

- (17218) KLAVINS, M., V. RODINOV & I. DRUVIETIS, 2003. Aquatic chemistry and humic substances in bog lakes in Latvia. *Boreal Environ. Res.* 8: 113-123. — (Dept Envir. Sci., Univ. Latvia, Raina Bulv. 19, LV-1586 Riga).  
Chemical composition of 19 bog lakes was studied, its peculiarities and the influence on community structure are analysed. Depending on their chemistry, bog lakes can be split into 2 groups, viz.: dystrophic and dyseutrophic. Since humic substances influence nutrient availability, pH and oxygen regime, and limit light availability, they have a major impact on community structure. The abundance

of benthic spp. decreases in the following order: Chironomidae > Trichoptera > Odonata > Coleoptera.

- (17219) SCHLÜTER, T., 2003. Fossil insects in Gondwana: localities and palaeodiversity trends. *Acta zool. cracov.* 46(Suppl.): 345-371. — (Last known address: UNESCO, Nairobi Office, P.O. Box 30592 Nairobi, Kenya).

The faunal history of insects in the various fragments of Gondwana is presented. The first part of the paper summarizes the current knowledge of its insect-bearing localities, particularly their stratigraphy and fossil content, emphasizing the record of the higher systematic groups. The second part discusses some trends of their palaeobiodiversity as evidenced from the above mentioned sites. Generally, the knowledge of the fossil Gondwanan insect faunae is still much lower than that of the Laurasian ones, but has considerably increased over the last decade. Altogether about 85 localities are known from Gondwana, with a maximum of sites in Permian and a minimum in Jurassic times. Best represented is South America. Fossil insects of Gondwana are probably less known than those of Laurasia, due to inadequate exploration rather than unfavourable conditions for the formation of deposits.

- (17220) SOARES, C.M., C. HAYASHI & A. REIDEL, 2003. Predation of *Prochilodus lineatus* (Valenciennes, 1836) post-larvae by dragonfly (*Pantala Fabricius*, 1798 [recte Hagen, 1861]) fry in different development phases. *Acta Scient.* (biol. Sci.), Maringá 25(1): 95-100. (Port., with Engl. s.). — (First Author: Depto Biol., Univ. Estud. Maringá, Av. Colombo 5790, BR-87020-900 Maringá).

The predation of larval *Pantala* sp. (apparently *P. flavescens*) on *P. lineatus* post-larvae (Pisces, Characiformes: Prochilodontidae) was statistically examined in the laboratory. The numbers of the consumed fish increased with the increased size of dragonfly larvae.

## 2004

- (17221) DA MOTTA, R.L. & V. SANCHES UIEDA, 2004. Dieta de duas espécies de peixes do Ribeirão do Atalho, Itatinga, SP. *Revta bras. Zool.* 6(2): 191-205. (Port., with Engl. s.). — (Depto Zool., Inst. Biocienç., Univ. Estadual Paulista, C.P.

510, BR-18618-000 Botucatu, SP).

The odon. were identified in the diet of the fish, *Characidium schuberti* (Crenuchidae), from Ribeirão do Atalho (Itatinga, São Paulo), Brazil.

## 2005

- (17222) DOHOGNE, R., 2005. Observation originale de la cordulie à corps fin, *Oxygastra curtisii* (Dale, 1834) (Odonata: Corduliidae) en Limousin et dans l'Indre. *Epops* 65: 53-55. — (Author's address not stated).

3 sightings (June 2004) of *O. curtisii* are reported from the marsh of Pontauer (Châtre-Langlin), on the dépt l'Indre/Limousin border, France.

- (17223) KOSTERIN, O.E. & V.V. DUBATOLOV, 2005. A dragonfly (Odonata) collection from the Bolshekhokhtsirskii Nature Reserve (Khabarovskii krai, Russia). *Zhivot. Mir Dal'. Vost.* 2005(5): 9-14. (With Russ. s.). — (First Author: Inst. Cytol. & Genet., SD RAS, Lavrentieva 10, RUS-630090 Novosibirsk).

Annotated list of 25 spp. The record of *Sympetrum infuscatum* is of particular regional interest. A note on the morphology of the local *Cordulia aenea* is provided.

- (17224) MALIKOVA, E.I., 2005. The Odonata collected by Mr H.D. Dulkeit in the Ussuriisk vicinities in 1924 from the exposition of Zoological Museum of Moscow University. *Zhivot. Mir Dal'. Vost.* 2005(5): 5-8. (Russ., with Engl. s.). — (Dept Zool., Blagoveshchensk St. Pedag. Univ., Lenina 104, RUS-675000 Blagoveshchensk).

A list of 16 spp., with locality data and collection dates.

- (17225) MALKMUS, R., 2005. Libellen an den Bergbächen des Mount Kinabalu. *Natur Mus., Sencenkenberg* 2005(1): 6-15. — (Schulstr. 4, D-97859 Wiesthal).

An overview of the odon. fauna (60 spp.) of Mt Kinabalu (Sabah, N. Borneo), with notes on habitats and habits.

- (17226) OZONO, A. & Y. SAKURATANI, 2005. The Odonata fauna in Nara prefecture, western Honshu, Japan in 1998-2003. *Mem. Fac. Agric. Kinki Univ.* 38: 71-155. (Jap., with Engl. s.). (Dept Agric., Kinki Univ., Nakamachi Nara, 631-8505,

JA).

91 spp. are listed and their prefectural distribution is mapped. Locality data and capture dates are listed for all records. The characteristics of the fauna and those of natural environments in Nara prefecture are discussed.

- (17227) VAN HIJUM, E., 2005. Friese namen van libellen. – [Frisian dragonfly names]. *Twirre* 16(4): 142-147. (Dutch). – (Buorren 8, NL-8721 GP Warns).

In 1981, J. Boersma (It wylde wrimelt, Fryske Akad., Ljouwert) constructed dragonfly nomenclature in Frisian language. It has some shortcomings and errors, therefore a revised list of names for spp. occurring in Friesland (the Netherlands) is needed. Here, the alternative names are proposed and comments on these are invited.

## 2006

- (17228) DE BOER, E.P., 2006. Libellenrijk Fryslân. – [Dragonfly kingdom of Friesland]. *Twirre* 17(4): 110-123. (Dutch). – (Stokkershagen 1, NL-8406 GA Tijnje).

A checklist of the 55 spp. hitherto known from the province of Friesland, the Netherlands (incl. 3 spp. that are here recorded for the first time), with comprehensive annotations on the rare or otherwise interesting taxa.

- (17229) HUMALA, A.E., 2006. On the insect fauna of "Kivach" nature reserve. *Trudy karel. nauch. Cent. RAN* 2006(10): 153-159. (Russ., with Engl. s.). – (Author's address not stated).

Includes a list of 23 odon. spp., with annotations on habitats, adult phenology and abundance. *Orthetrum cancellatum* is for the first time recorded from Karelia, Russia.

- (17230) OSENIMSKIY, B.I., 2006. Kratkie itogi inventarizacii fauny zapovednika "Yagorlyk" (1993 god). – [A short report on the results of the 1993 inventory of the fauna of the "Yagorlyk" reserve]. In: I.D. Trombitsky & T.D. Sharapovskaya, [Eds], *The Yagorlik reserve*, pp. 28-36, Eco-TIRAS, Tiraspol. ISBN 978-9975-9665-3-5. (Russ.). – (Author's address not stated).

The Reserve is situated in the Dniester R. valley, Moldova. 5 odon. spp. are listed along with the annotations on their habitats and abundance.

## 2007

- (17231) BLANKE, A., 2007. *The dragonfly assemblage of Santa Teresa: patterns of behaviour and habitat use in a tropical environment*. DiplArb., Math.-Naturw. Fak., Univ. Bonn, Bonn. 124 pp. (With Germ. s.). – (Author: A. Koenig Res. Inst. & Mus., Adenauerallee 160, D-53113 Bonn).

The study area is located in the coastal Atlantic Forest of Espirito Santo, Brazil. 4 adjacent odon. communities were examined with respect to the factors that determine the behaviour of the respective spp. It is shown that in areas with identical climate, the diel activity pattern of some spp. is strongly influenced by the microhabitat. Theories, postulating a relationship between body size and the interspecific variation in behaviour, failed to explain the pronounced behavioural variation within the same sp. In fact, all spp. behaved differently in different areas. Some behavioural differences were significant, leading to the assumption that different habitat structure sometimes prevails over the body size. A large perceptive horizon, ascribed to the larger spp., seems to demand a flexible behaviour, enabling the sp. to adapt to as many habitats as possible. Spp. with a narrow perceptive horizon, i.e. the generalists, are also able to colonize numerous areas, since their requirements as to the environment allow a wider spectrum of habitats. A stricter and perch-oriented behaviour pattern seems to be characteristic of these spp.

- (17232) BOBIČ, Ž. & K. MARKAČ HROVATIN, 2007. *Ohranimo Pohorje! – [Let us conserve the Pohorje mountains!]*. Zavod za varstvo okolja, Mestna občina Maribor, Maribor. 20 pp., fold. map incl. ISBN none. (Slovene).

The booklet is directed at the local population, school youth and at the visitors of Pohorje, Slovenia. It provides a very brief description of the geography, ecological systems and plant and animal life of the area, with emphasis on its conservation and protection, and includes a reference to 4 locally characteristic odon. spp. (vernacular nomenclature only).

- (17233) BOUWMAN, J., S. BAKKER, P. DE BOER, E. VAN HIJUM & G. HYLKEMA, 2007. *Beheerplan De Wyldemerk 2008-2012*. – [Management schedule for the Wildemerk, 2008-2012]. *Vlinderstichting Rapp*. 2007.034: 1-15. (Dutch). – (Third

Author: Stokkershagen 1, NL-8406 GA Tijnje). De Wyldemerk (Surface 31 ha), located in the province of Friesland, is the first dragonfly reserve in the Netherlands. Here, a management plan is presented for 10 of its ponds and other wetland areas. See also *OA* 17235.

- (17234) BRIED, J.T., D.H. BROOK & G.N. ERVIN, 2007. Umbrella potential of plants and dragonflies for wetland conservation: a quantitative case study using the umbrella index. *J. appl. Ecol.* 44: 833-842. – (Dept Biol. Sci., Mississippi St. Univ., P.O. Box GY, MS 39762, USA). Shortcuts to measuring biodiversity enable prioritization of conservation effort in the face of limited time, personnel and funding. The conservation umbrella approach focuses management effort according to individual species that may confer protection to a larger community. This approach can help guide the management agenda towards attainable goals by maximizing conservation returns per unit effort. The development of the umbrella index has shown promise in identifying umbrella species in terrestrial ecosystems but has received little attention with respect to the management of wetland ecosystems. – The umbrella index was used to assess the umbrella potential of vascular plants and odon. from 15 wetland impoundments in northern Mississippi, USA. The presence of adult odon. was determined by repeated visual surveys and plants lists were compiled from 50 plots per site. – Umbrella schemes, or the sites occupied by top umbrella sp. missed large numbers of beneficiary spp. and occurrences. With one exception, umbrella schemes failed to optimize conservation returns relative to randomized schemes in both assemblages. Also, umbrella schemes approximately equalled the performance of non-umbrella schemes both overall and for spp. with a low rate of occurrence. Low occurrence rates in both assemblages may have hindered umbrella index performance because the index assumes that species with moderate occurrence rates have the most umbrella potential. – Cross-taxon analyses (Mantel tests and McNemar tests) suggested transferability of plant and odon. umbrella schemes, and non-random association between the plants and odon. in these wetlands. – Despite the questionable performance of umbrella schemes in this study, the use of a quantitative ecological tool such as the umbrella index instead of political or popularity criteria is strongly recommended for future selection of umbrella spp. The results of cross-taxon analyses supported growing evidence for spatial and functional relationships between wetland macrophytes and adult odon. It is suggested that the most easily measured assemblage can be used to set priorities for wetland conservation planning in circumstances where human resources are constrained.
- (17235) [DE BOER, E.P.] Anonymous, 2007. *Wandelen in De Wyldemerk*. – [Walking in the Wildemerk]. De Vlinderstichting, Wageningen. 4 pp. (brochure). – (Available from the Publishers: P.O. Box 506, NL-5700 AM Wageningen). General information for the visitors of the first Netherlands dragonfly reserve. See *OA* 17233.
- (17236) DE BOER, E.P., 2007. *De Groene Glazemaker Aeshna viridis in Fryslân: jaarverslag 3e fase 2006*. – [Annual report 2006 on *Aeshna viridis* in Friesland]. Landschapsbeheer Friesland, Beetsterzwaag. 22 pp. (Dutch). – (Author: Stokkershagen 1, NL-8406 GA Tijnje). Subsequent to the 2004 and 2005 surveys of the occurrence of *A. viridis* in Friesland (the Netherlands) and of its (also potential) habitats, an analysis is presented here of the situation at various habitats, and the requirements for conservation and habitat management are generally and site-wise specified.
- (17237) DE BOER, E.P., 2007. *De Oostelijke witsnuitlibel in Friesland 2005-2006*. – [*Leucorrhinia albifrons* in Friesland, 2005-2006]. Landschapsbeheer Friesland, Beetsterzwaag. 47 pp. (Dutch). – (Author: Stokkershagen 1, NL-8406 GA Tijnje). A monographic treatment of the recent occurrence, ecology and habitat management of *L. albifrons* in Friesland, The Netherlands.
- (17238) GLIGORVIĆ, B., V. PEŠIĆ & A. ZEKOVIĆ, 2007. A contribution to the knowledge of the dragonflies (Odonata) of the river Zeta (Montenegro). *Natura montenegrina* 6: 73-89. (With Montenegrin/Serbian s.). – (Dept Biol., Fac. Sci., Univ. Montenegro, Cetinjski put b.b., ME-81000 Podgorica). The records are provided of 27 spp. *Lestes barbarus*, *Aeshna affinis* and *Gomphus vulgatissimus* are erroneously stated as being new for the fauna of Montenegro (see *OA* 16968).
- (17239) GUO, T.W., 2007. *Design and prototype of a*

*hovering ornithopter based on dragonfly flight*. B.Sci. thesis, Dept Mechanical Engin., Massachusetts Inst. Technol. 31 pp. – (Author's current address unknown).

Hovering is normally achieved using a horizontal wing path to create lift; bees, wasps and helicopters use this technique. Dragonflies hover using a unique method, by flapping along an inclined stroke plane. This seems to create a higher efficiency than is possible for normal hovering. The aim of the present project was to build a mechanical model to mimic the aerodynamic properties and hovering notion of odon. Through the design and evaluation of this model, it was possible to evaluate the mechanical feasibility of reproducing the wing path using single motor control and establish whether the difference in stroke plane is advantageous for the dragonfly *Aeshnidae* sp. By adjusting the initial angle of attack of the ornithopter's wings, one can artificially recreate varying stroke planes. A comparison of the resultant lift generated from different stroke planes showed that greater lift forces were generated with non-zero stroke planes as demonstrated in normal hovering.

- (17240) KALNINS, M., 2007. Protected aquatic insects of Latvia: *Leucorrhinia pectoralis* (Charpentier, 1825) (Odonata: Libellulidae). *Latv. Ent.* 44: 26-32. (With Latvian s.). – Nature Prot. Bd, Eksporta iela 5, LV-1010 Riga).

All published and previously unpublished data from institutional and private collections up to 2007 are listed and the known distribution is mapped using a 5 × 5 km squares grid. In Latvia, *L. pectoralis* is recorded from 98 squares, concentrated mainly in the central and northern parts of the country. The majority of the localities are either natural eutrophic lakes with Magnopotamion- or Hydrocharition-type of vegetation (21 records) or oxbow lakes (44). Other habitats are: hard oligo-mesotrophic lakes with benthic *Chara* vegetation (3 localities), natural dystrophic lakes and ponds in active raised bogs or transition mires (15), dystrophic water bodies (11), ponds (2) and oligotrophic to mesotrophic standing waters with *Littorelletea uniflorae* and/or *Isoëtanojuncetea* vegetation (3).

- (17241) KOLAR PLANINŠIČ, V. & J. LEBEZ LOZ-EJ, [Eds], 2007. *Life III: Narava v Sloveniji*. – [*Life III: Nature in Slovenia*]. Ministrstvo za okolje in prostor, Ljubljana. ISBN 978-961-6392-54-9. (Slovene,

with Engl. s's). – (Publishers: Dunajska 48, SI-1000 Ljubljana).

The following, concisely described projects include also references to the Odon.: *Galičič, M. & T. Djokić*: Natura 2000 in Slovenia: management models and information system (pp. 117-128, 148-151); – *Globevnik, L.*: Conservation of biodiversity of the Mura river in Slovenia (pp. 129-134).

- (17242) MALIKOVA, E.I., 2007. The dragonflies (Insecta, Odonata) of the Lazovsky State Nature Reserve and its vicinities (Primorsky Krai, Russia). *Zhivot. Mir Dal'. Vost.* 2007(6): 13-18. (Russ., with Engl. s.). – (Dept Zool., Blagoveshchensk St. Pedagog. Univ., Lenina 104, RUS-675000 Blagoveshchensk).

38 spp. are reported from the Reserve, including *Nehalennia speciosa*, *Trigomphus citimus* and *Macromia amphigena fraenata*. Structural features of *T. c. citimus* are illustrated.

- (17243) PIERSANTI, S., M. REBORA & E. GAINO, 2007. The influence of prey size and movement on predation by the larva of *Libellula depressa* (Odonata, Libellulidae). *Riv. Idrobiol.* 43: 159-164. (With Ital. s.). – (Dipto Biol. Cellul. & Ambient., Univ. Perugia, Via Elce di Sotto 1, I-06123 Perugia).

The influence of prey size and movement on predation was investigated in experimental conditions in the 3 last larval instars (F-2, F-1, F-0). Different larval stages of the mayfly *Cloeon dipterum*, from 3 mm to 9 mm in length, were used as prey model. In the swimming behaviour of *C. dipterum* 2 modes can be distinguished: a continuous slow swimming and a fast swimming by jerk. In absence of swimming, the immobile mayflies were distinguished from those rapidly moving some part of their body (cerci, tracheobranchiae, antennae, etc.). *L. depressa* larvae prefer small prey that rapidly move only some part of their body. Swimming mayflies are also attacked while the immobile ones are almost ignored. These results are probably related with the main role of the mechanoreception in prey detection by the larvae of *L. depressa* and with the "sit and wait" predation mode of these insects. The concave shape of the labium could explain the preference of *L. depressa* larvae for small prey.

- (17244) PROKOPOV, G.A. & L.A. KHROKALO, 2007. *Sravnitel'nyy analiz vidovykh kompleksov*

strekoz fiziko-geografičkih oblastey Kryma. — [Comparative analysis of dragonfly species complexes in physico-geographical regions of Crimea]. *Zapovedniki Kryma*, Simferopol' 2: 152-164. (Russ.).

— (First Author: Tavricheskiy Univ., Prospekt Vernadskogo 4, UKR-35007 Simferopol).

The history of odonatol. investigations of the Crimean fauna (the Ukraine) is traced from 1771 and a commented list of 57 spp. is provided. Their occurrence in the 7 geographical districts is marked. A comprehensive regional bibliography is appended.

- (17245) SAGE, W., 2007. ZGB-Exkursion in Kroatien vom 30.04-06.05.2005: Artenliste der festgestellten Reptilien, Amphibien, Schmetterlinge, Insekten und Spinnentiere. *Mitt. zool. Ges. Braunau* 9(3): 215-220. — (Seibersdorfer Str. 88 a, D-84375 Kirchdorf/Inn).

*Crocotthemis erythraea* and *Orthetrum albistylum* are recorded from, respectively, Pag Island and "Vranasee", Croatia.

- (17246) TOMS, R.B., 2007. Rooting the phylogenetic tree for winged insects: independent adaptations to terrestrial life. *Afr. Invert.* 48(1): 203-211. — (Indigenous Knowledge Systems, Transvaal Mus., Northern Flagship Instn, P.O. Box 413, Pretoria-0001, Sth Afr.).

Although numerous papers have been published on insect phylogeny using a great variety of techniques, there is no consensus on the nature of the first winged insects, the ancestors of holometabolous insects or the causes for the origin of metamorphosis. This discord has resulted in the lack of secure foundations within entomological theory. However, several recent publications provide key information which may help to resolve some of the long-standing disputes. Some biologists have argued that the first winged insects might have been amphibiotic rather than terrestrial and that metamorphosis might have originated as an adaptation to amphibiotic life. Thus entomological theory may now be passing through a paradigm shift where, for the first time, the phylogenetic tree for all insects may be firmly rooted.

- (17247) YAKUBOVICH, V.S., 2007. New data on odonate fauna (Insecta, Odonata) of Lower Amur valley. *Zhivot. Mir Dal'. Vost.* 2007(6): 10-12. (Russ., with Engl. s.). — (Inst. Water & Ecol. Prob-

lems, FEB RAS, Kim Yu Chen 65, RUS-680063 Khabarovsk).

19 spp. collected in 2006-2007 are listed. For the Lower Amur (Far East, Russia) the breeding is recorded of *Shaogomphus schmidti*, *Anisogomphus maacki* and *Macromia amphigena fraenata*.

- (17248) YALCIN-OZDILEK, S. & K. SOLAK, 2007. The feeding of European eel, *Anguilla anguilla* L. in the river Asi, Turkey. *Electronic J. Ichthyol.* 1: 26-34. — (First Author: Educ. Fac., Cannakale Onsekiz Mart Univ., Anafartalar Campus, TR-17100 Cannakale).

In the Orontes (= Asi) R., Turkey, the cyprinid fish are the main item in the eel diet. The Trichoptera and Odon. larvae were found in, respectively, 63.49 and 5.56% of stomachs, representing 4.18 and 6.65% of the weight of the consumed food. While fish were consumed during the rainy season and mostly by eels longer than 40 cm, insect larvae and other invertebrates were preyed upon mostly in the hot dry season.

## 2008

- (17249) BARTOLOZZI, L., F. CIANFERONE, F. FABIANO, G. MAZZA, S. ROCCHI, P. TERZANI & F. ZINETTI, 2008. Osservazioni sulla entomofauna della Piana fiorentina. *Atti Convegno "Un piano per la piana"*, Univ. Firenze, pp. 1-14. — (Mus. Stor. Nat. "La Specola", Univ. Firenze, Via Romana 17, I-50125 Firenze).
- Includes an annotated checklist of 24 odon. spp. and an analysis of the biogeographical composition of the odon. fauna of Piana di Firenze, Italy.

- (17250) BEDJANIČ, M., 2008. Favna kačjih pastirjen občine Dol pri Ljubljani (Insecta: Odonata). — [Dragonfly fauna of the community Dol pri Ljubljani (Insecta: Odonata)]. *Zborn. Obč. Dol pri Ljubljani* 1: 260-279. (Slovene). — (Kolodvorska 21/b, SI-2310 Slovenska Bistrica).

A commented review of 22 spp., recorded (2005-2006) from 30 localities on the territory of the community (central Slovenia). The occurrence of *Gomphus vulgatissimus*, *Ophiogomphus cecilia*, *Cordulegaster bidentata* and *C. heros* is of some regional interest.

- (17251) BEDJANIČ, M., 2008. *Okoljsko poročilo za načrt ureditve Kobilarne Lipca. Končno poročilo.* —

- [*Environmental report for the restructuring of the Lipica Stud Farm. Final report*]. Prepared for the Scient. Res. Cent., Slovenian Academy of Sciences and Arts, Ljubljana. 27 pp. (Slovene). — (Kolo-dvorska 21/b, SI-2310 Slovenska Bistrica).
- This is the concluding report on the work reported in *OA* 17176. 17 odon. spp. are listed for the Stud Farm area, including the vulnerable *Coenagrion scitulum*.
- (17252) BORON, M., J. MIROSLAWSKI & J. KWAPULIŃSKI, 2008. Using insects (damselflies: *Coenagrion puella*) as biomarkers of environmental pollution. *Abstr. 10th Symp. Trace Elements in the Environment*, Koszalin-Mielno, pp. 45-46. (Pol., with Engl. title). — (First Author: Katedra Inżynierii Środowiska i Higieny Pracy, Wyższa Szkoła Zarządzania Ochrona Pracy, Bankowa 8, Katowice, Poland).
- The concentrations of Cu, Cr, Cd, Fe, Mn, Ni, Pb and Zn were analysed in *C. puella* (from Silesia and Wigry Lake, NE Poland), in the respective water and in the sediments. A correlation was found between the occurrence of selected metals in dragonflies and in the environment. The sole exception was Cr that in dragonflies does not occur.
- (17253) *BRACHYTRON* (ISSN 1386-3460), Vol. 11, No. 2 (Aug. 2008). (Dutch, with Engl. s's). — (Editor: R. Ketelaar, Wilslaan 27, NL-6708 RW Wageningen).
- Bouwman, J.H., V.J. Kalkman, G. Abbingh, E.P. de Boer, R.P.G. Geraeds, D. Groenendijk, R. Ketelaar, R. Manger & T. Termaat*: An update of the distribution of dragonflies in the Netherlands (pp. 103-198).
- (17254) CORBET, P.S., 2008. Foreword. *In*: H. Wildermuth, *Die Falkenlibellen Europas Corduliidae*, p. 5, Westarp Wissenschaften, Hohenwarsleben. (Engl.). — (Author deceased). See *OA* 17294.
- (17255) COSTA, J.M. & A.B.M. MACHADO, 2008. Two new species of *Neocordulia* Selys, 1882 from southern Brazil (Anisoptera: Corduliidae). *Lundiana* 8(2): 143-146. — (First Author: Depto Ent., Mus. Nac., Univ. Fed. Rio de J., BR-20940-040 Rio de Janeiro, R.J.).
- N. fiorentini* sp. n. (holotype ♂: Rio Grande do Sul, São Francisco de Paula, 19-XI-1994) and *N. gaucha* sp. n. (holotype ♂: Rio Grande do Sul, Soledade, Arroio do Naná, 18-XII-1995) are described and illustrated. From the congeners they differ mainly in the shape of anal appendages, sternal protuberance of abd. segm. 8, and in sternum of abd. segm. 9.
- (17256) [DE SELYS LONGCHAMPS, S.] BOOGAARD, F., 2008. Buitenechtelijke dochter vertelt hoe Albert II haar verstootte. *Utrechts Nieuwsblad* (Utrecht Oost) 3(187): 15, issue of 10 Apr.). (Dutch).
- A biographic note on baroness Sybille de Selys Longchamps, a direct descendant (in the 5th generation) of the odonatologist M.-E. de Selys Longchamps. He had several sons, some of his grandchildren were biologists, working at the Univ. of Liège.
- (17257) DYATLOVA, E.S. & V.J. KALKMAN, 2008. Massive migration of *Aeshna mixta* and *Symphetrum meridionale* in the Ukrainian Danube delta (Odonata-Anisoptera: Aeshnidae, Libellulidae). *Ent. Ber., Amst.* 68(5): 188-190. (With Dutch s.). — (First Author: Dept Zool., Fac. Biol., Odessa Natn. Univ., Dvoryanskaya 2, UKR-65026 Odessa).
- In the afternoon of 18-VIII-2006, a migration of the 2 spp. was seen on the beach near Taranova kot, ca 16 km NE of Vylkove. Ca 40.000 *A. mixta* and 30-50.000 *S. meridionale* individuals were involved. In *A. mixta*, 89% of the resting individuals and 69% of those taken randomly in flight were ♂ ♂. A possible explanation for this sex ratio is discussed.
- (17258) EDA, S., 2008. Odonata. *In*: Y. Harashima & K. Marimoto, [Eds], *Iconographia insectorum japonicorum colore naturali edita*, Vol. 3, pp. 23-64, col. pls 7-28 excl. Hukuryukan, Tokyo. ISBN 978-4-8326-0827-6. Price: ¥ 25.000.-- net. (Jap., with Latin title & taxonomic nomenclature). — (Publishers: 3-8-14 Takanawa, Minato-ku, Tokyo, JA).
- In the 1950 edn of this monumental photographic standard work, the odon. were treated by S. Asahina (see his autobiography and bibliography in *Odonatologica* 13/2: 215-232 and 193-213, resp.; 1984). In the light of the very significant increase of our knowledge on the odon. fauna of Japan during the past decades, the updating required a major effort; the work was concluded by the present Author splendidly: 52 spp. were added and 57 specimen photographs are new. The traditional style and scope of the descriptions are retained, but the nomenclature and systematics are revised and up-

dated, where required. With over 200 spp. treated (including also at least 1 photograph of a specimen of each), the work can be used as a quick preliminary identification tool for most (but not for all) spp., and above all, it gives a quick and reliable review of the Japanese fauna.

- (17259) GARRE, A., J. MUZON & D.M. ARDO-HAIN, 2008. Description of the final instar larvae of *Erythrodiplax atroterminata* Ris and *E. corallina* (Brauer) (Odonata: Libellulidae). *Zootaxa* 1896: 45-50. — (Inst. Limnol. "Dr R.A. Ringuelet", C.C. 712, AR-1900 La Plata).  
The 2 spp. are described and illustrated based on reared specimens from Argentina. An analysis of the known congeneric larvae from Argentina is provided.
- (17260) GIACOMINI, H.C. & P. DE MARCO, Jr, 2008. Larval ecomorphology of 13 Libellulidae (Anisoptera, Odonata) of the Middle Rio Doce Valley, Minas Gerais, Brazil. *Braz. J. Biol.* 68(1): 211-219. (With Port. s.). — (First Author: Depto Ecol., Campus de Rio Claro, Univ. Estad. Paulista, Av. 24-A, 1515, BR-13506-900 Rio Claro, SP).  
In the lakes of the study area, 2 groups of larval Libellulidae are distinguished by preferences of habitat use: one uses mainly aquatic macrophytes and the other uses the bottom substrate. The goal of this work was to verify if there is a morphological distinction between the 2 groups of spp. 13 body measures were taken from the larvae and analyzed. No difference was found between the 2 groups of spp. regarding the body size, but shape differences were observed for 2 morphological variables. The spp. that use mainly macrophytes tend to have larger relative measures of the labium and smaller measures of the abdomen width. Advantages in resource obtainment and in vulnerability to predation are probably the explanations for the morphological divergence between these larval groups.
- (17261) INTERNATIONAL JOURNAL OF ODONATOLOGY (ISSN 1388-7890), Vol. 11, No. 2 (1 Oct. 2008).  
*Hassall, C. & D.J. Thompson*: The effects of environmental warming on Odonata: a review (pp. 131-153); — *Corbet, P.S. & M.L. May*: Fliers and perchers among Odonata: dichotomy or multidimensional continuum? A provisional reappraisal (pp. 155-171); — *Garrison, R.W. & N. von Ellenrieder*: Dolonagrion nov. gen. for *Telagrion fulvellum* from South America (Odonata: Coenagrionidae) (pp. 173-183); — *Kalkman, V.J.*: Taxonomy, behaviour, and habitat of *Mesopodagrion* and *Sinocnemis* (Odonata: Megapodagrionidae) (pp. 185-193, pls 1-2 excl.); — *Müller, O.*: Larval habitats and life history of the Crete Island endemic *Boyeria cretensis* (Odonata: Aeshnidae) (pp. 195-207); — *Pritchard, G.*: The life history of a temperate zone dragonfly living at the edge of its range with comments on the colonization of high latitudes by neotropical genera of Zygoptera (Odonata) (pp. 209-223); — *Sahlén, G., S. Haase & F. Suhling*: Morphology of dragonfly larvae along a habitat gradient: interactions with feeding behaviour and growth (Odonata: Libellulidae) (pp. 225-240); — *Theischinger, G.*: *Austroaeschna ingrid* sp. nov. from Victoria, Australia (Odonata: Telephlebiidae) (pp. 241-247, pl. 3 excl.); — *von Ellenrieder, N. & R.W. Garrison*: The genus *Oligoclada* in Argentina, with description of *O. rubribasalis* sp. nov. (Odonata: Libellulidae) (pp. 249-260, pl. 4 excl.); — *Wildermuth, H.*: Habitat requirements of *Orthetrum coerulescens* and management of secondary habitat in a highly man-modified landscape (Odonata: Libellulidae) (pp. 261-276).
- (17262) [The 18th] INTERNATIONAL SYMPOSIUM OF ODONATOLOGY, Nagpur, India, 2008. 2 anonymous articles in the local dailies, viz.: (1) "Scientists should conduct research on dragonfly species", *Hitavada*, issue of 6 Nov. (presents a brief summary of the addresses in the Opening Session by *B. Majumdar, S.N. Pathan* and *K. Inoue*, and a col. phot. of the chair [Drs D.B. Tembhare, B. Majumdar, S.N. Pathan, K. Inoue, D. Christian and J.R. Andrew]; — and (2) "Meet on dragonflies ends with conservation call", *Times of India*, issue of 10 Nov. (presents a brief summary of the talks by *D.B. Tembhare* and *R.J. Andrew* in the Closing Session, lists the numbers and kinds of oral-, poster-, audio-visual- and other presentations and achievements of the Symposium, and includes a phot. of the chair during the Closing Session [Drs R.J. Andrew, W. Zessin and D.B. Tembhare]).
- (17263) KADOYA, T., S.-i. SUDA, Y. TSUBAKI & I. WASHITANI, 2008. The sensitivity of dragonflies to landscape structure differs between life-history groups. *Landscape Ecol.* 23: 149-158. — (First Author: Dept Ecosyst. Stud., Inst. Agric.

& Life Sci., Univ. Tokyo, 1-1-1 Yayoi, Bunkyo-ku, Tokyo, 113-8657, JA).

Contrasting life-history strategies of long versus short pre-reproductive phases are known in adult Odon. of temperate regions. Because the long-phase spp. spend a longer time in terrestrial habitats such as grasslands or woodlands during their pre-reproductive phase, it was hypothesized that long-phase spp. would be more sensitive to landscape structure than short-phase spp. To test this hypothesis, periodic censuses of adult odon. were conducted at small man-made ponds in the Ibaraki pref., Japan. The 2 functional groups were compared in terms of the degree to which species occurrence depended on landscape structure. The difference among the 2 groups was not significant, but the occurrence of long-phase spp. tended to depend on landscape structure. The long-phase spp. responded to landscape structure at larger spatial scales and showed stronger spatial autocorrelation in their occurrence among sampling ponds than the short-phase spp.

- (17264) KALNINS, M., 2008. Protected aquatic insects of Latvia: *Leucorrhinia albifrons* (Burmeister, 1839) and *L. caudalis* (Charpentier, 1840) (Odonata: Libellulidae). *Latv. Ent.* 45: 5-13. (With Latvian s.). — (Nature Prot. Bd, Eksporta iela 5, LV-1010 Riga).

All published and previously unpublished data from institutional and private collections up to 2007 are listed and the known distribution of the 2 spp. is mapped using a 5 × 5 km squares grid. In Latvia, *L. albifrons* is recorded from 96 and *L. caudalis* from 80 squares, concentrated mainly in the central and northern parts of the country. The respective types of habitats are stated for each sp.

- (17265) KITANOVA, D., V. SLAVEVSKA STAMENKOVIC, V. KOSTOV & M. MARINOV, 2008. Contribution to the knowledge of dragonfly fauna of the Bregalnitsa river, Macedonia (Insecta: Odonata). *Natura montenegrina* 7(2): 169-180. — (Second Author: Inst. Biol., Fac. Nat. Sci. & Mathem., P.O. Box 162, MK-1000 Skopje).

12 spp. are brought on record; 6 of these were found breeding in the middle and lower courses of the river, the other spp. were evidenced in the adjacent bogs and in a rice field.

- (17266) KRIŽNAR, M., 2008. Prvi slovenski fosilni kačji pastir. — [The first Slovenian fossil dragon-

fly]. *Novice Društ. Prijat. Fosilov Mineralov Slovenije* 38: 29. (Slovene). — (Ul. Lojzeta Hrovata 8, SI-4000 Kranj).

A brief note on the discovery and description of *Sloveniatrum robici* (see OA 17083).

- (17267) LIBELLULA. Zeitschrift der Gesellschaft deutschsprachiger Odonatologen, GdO (ISSN 0723-6514), Vol 27, No. 1/2 (15 July 2008). With Engl. s's). — (c/o Mrs G. Peitzner, Hamfelderdedder 7 a, D-21039 Börnsen).

*Schweighofer, W.*: Syntopes Vorkommen von *Cordulegaster boltonii* und *C. heros* an einem Bach im westlichen Niederösterreich (Odonata: Cordulegasteridae) (pp. 1-32); — *Glitz, D.*: Erstnachweis von *Coenagrion scitulum* in Rheinland-Pfalz (Odonata: Coenagrionidae) (pp. 33-37); — *Monnerat, C.*: Neufund einer Population von *Nehalennia speciosa* in der Westschweiz (Odonata: Coenagrionidae) (pp. 39-51); — *Martens, A., H. Schiess, B. Kunz & H. Wildermuth*: *Onychogomphus uncatius* in Deutschland: die historischen Funde am Hochrhein (Odonata: Gomphidae) (pp. 53-61); — *Westermann, K.*: Auswirkungen von Hochwassern auf die Emergenzraten von Libellen an Fließgewässern des Oberrheinischen Tieflandes (Odonata) (pp. 63-88); — *Reinhardt, K.*: Der Beitrag von Eduard May (1905-1956) zur Libellenkunde (Odonata) (pp. 89-110); — *Holuša, O.*: *Trithemis kirbyi* in Sardinien: Erstnachweis für Europa (Odonata: Libellulidae) (pp. 111-115); — *Ober, S. V.*: First record of *Pantala flavescens* for the western Balkans (Odonata: Libellulidae) (pp. 117-121; Herceg Novi, Montenegro); — *Malkmus, R. & T. Ruf*: Herbstaktive Libellen in Südportugal (Odonata) (pp. 123-132); — *Ebejer, M. J., G. Degabriele & A. Sciberras*: An annotated checklist of Odonata of the Maltese Islands, with evidence for a recent influx of species (pp. 133-145).

- (17268) LIECKWEG, T., 2008. Die Libellenfauna der Ostfriesischen Inseln (Odonata): Dokumentation des aktuellen Artenbestandes anhand von Literaturdaten. *Schr.Reihe NatnPark nieders. Wattenmeer* 11: 141-144. (With Engl. s.). — (Inst. Biol. u. Umweltw., Fak. V, Univ. Oldenburg, D-26111 Oldenburg).

The East Frisian dune isls off the German North Sea coast, with their 350 limnic and 200 brackish ponds, harbour 39 odon. spp., 26 of which are currently considered indigenous to the isls. The

favoured breeding waters are freshwater ponds in grey dune sites and in wet dune slacks, but slightly brackish waters of less than 15‰ salinity are tolerated by 15 spp. An annotated checklist is provided and the particularly interesting spp. are pointed out.

- (17269) MACAGNO, A.L.M., G. BOANO, C. PALESTRINI, M. STASSI & A. ROLANDO, 2008. Movement and demographics of *Libellula fulva* (Odonata, Libellulidae). *Environ. Ent.* 37(5): 1145-1153. – (First Author; Dipto Biol. Anim. e Uomo, Univ. Torino, Via Accademia Albertina 13, I-10123 Torino).

Many capture-recapture studies on adult dragonflies have found  $\delta$ -biased sex ratios. However, few have estimated survivorship of  $\delta$   $\delta$  and  $\eta$   $\eta$  separately from data on frequency of recaptures in the field. Even when daily survival and capture probabilities are estimated separately, controversies can arise on whether sex biases in local survival are to be attributed to mortality or permanent emigration from the study site. The knowledge of  $\delta$  and  $\eta$  movements, assessed on an appropriate scale (i.e., within and outside the breeding site), can help address this issue. In this paper, a 4-yr capture-recapture study of *L. fulva* populations in NW Italy is performed. Cormack-Jolly-Seber models were used to get unbiased estimates of demographic parameters (daily survival and capture probabilities, sex ratio, mean life span, and population size). Movement parameters were measured directly by georeferencing encounters. Moderate differences in survival, with  $\delta$   $\delta$  surviving better than  $\eta$   $\eta$ , were found in one population and not in the other, suggesting that these differences are not an inherent characteristic of the sp. In the population with lower  $\eta$  survival,  $\eta$   $\eta$  were not more vagile than  $\delta$   $\delta$ , thus indicating their lower survival was caused by actual mortality rather than to emigration. In the population with no survival differences between  $\delta$   $\delta$  and  $\eta$   $\eta$ , marked  $\delta$   $\delta$  outnumbered  $\eta$   $\eta$ , but estimated sex ratios were  $\approx$ 1:1 or  $\eta$ -biased. Therefore, raw field data were misleading because they led to underestimates of the more elusive sex and overestimates of the more detectable one ( $\delta$   $\delta$ ). Survival and movement differences detected in the 2 populations are discussed in the framework of local environmental and demographic factors.

- (17270) MALANGPO. Newsletter of the Thai Na-

tional Office of SIO, Bangkok (ISSN 1381-5245), No. 22 (June 2008). – (Orders to the Eds of Odonatologica, P.O. Box 124, NL-5854 ZJ Bergen/LB).

Kosterin, O.E. & N.E. Vikhrev: Odonatological field notes of two January trips to south-eastern Thailand in 2005 and 2006 (pp. 221-236).

- (17271) MARCONI, A. & F. TERZANI, 2008. Odonati raccolti nella République Démocratique du Congo da M. Spadone (Odonata). *Onychium* 6: 48-53. (With Fr. & Engl. s's). – (Mus. Stor. Nat. "La Specola", Univ. Firenze, Via Romana 17, I-50125 Firenze).

A commented list of 14 spp. from the Bas-Congo province, of which *Sapho orichalcea*, *Elatoneura centrafricana*, *Pseudagrion epiphonematicum*, *Gynacantha vesiculata*, *Lokia corydoni* and *Orthetrum c. chrysostigma* are new for the fauna of the Democratic Republic of Congo. Structural features of *P. epiphonematicum*, *P. kibalense*, *P. serrulatum* and *L. corydoni* are illustrated.

- (17272) McCauley, S.J., C.J. DAVIS, R.A. RELYEA, K.L. YUREWICZ, D.K. SKELLY & E.E. WERNER, 2008. Metacommunity patterns in larval odonates. *Oecologia* 158: 329-342. – (First Author: Dept Ecol. & Evol. Biol., Univ. Michigan, Ann Arbor, MI 48109-1048, USA).

The growth of metacommunity ecology as a sub-discipline has increased interest in how processes at different spatial scales structure communities. However, there is still a significant knowledge gap with respect to relating the action of niche- and dispersal-assembly mechanisms to observed species distributions across gradients. Surveys of the larval Anisoptera community in 57 lakes and ponds in SE Michigan were used to evaluate hypotheses about the processes regulating community structure in this system. The roles of both niche- and dispersal-assembly processes were considered in determining patterns of species richness and composition across a habitat gradient involving changes in the extent of habitat permanence, canopy cover, area, and top predator type. Observed richness patterns and spp. distributions in this system were compared to patterns predicted by 4 general community models: spp. sorting related to adaptive trade-offs, a developmental constraints hypothesis, dispersal assembly, and a neutral community assemblage. The results supported neither the developmental constraints nor the neutral assemblage models. Observed pat-

terms of richness and species distributions were consistent with patterns expected when adaptive tradeoffs and dispersal-assembly mechanisms affect community structure. Adaptive trade-offs appeared to be important in limiting the distributions of spp. which segregate across the habitat gradient. However, dispersal was important in shaping the distributions of spp. that utilize habitats with a broad range of hydroperiods and alternative top predator types. The results also suggest that the relative importance of these mechanisms may change across this habitat gradient and that a metacommunity perspective which incorporates both niche- and dispersal-assembly processes is necessary to understand how communities are organized.

- (17273) *MERCURIALE*. Zeitschrift der Schutzgemeinschaft Libellen in Baden-Württemberg (ISSN 1618-9124), No. 7 (May 2008). — (c/o Ms U. Stephen, Im Westergarten 12, D-79241 Ihringen). *Riexinger, W.-D.*: Die Libellen im Stadtkreis Heilbronn (pp. 1-3); — *Salcher, M.*: Bestandsänderungen von *Aeshna isosceles*, *Anax parthenope* und *Libellula fulva* an Gewässern im Landkreis Konstanz (pp. 4-7); — Beobachtungen zur Ausbreitungsfähigkeit von *Ceriatagrion tenellum* auf den Bodanrück (pp. 8-11); — *Westermann, K. & F. Weihrauch*: Eindeutige Indizien für eine bivoltine Entwicklung von *Anax imperator* in einigen Gewässern Süddeutschlands (pp. 12-17); — *Schiel, F.-J.*: Starker Einfluss von *Sympetrum fonscolombii* im Jahr 2007 (pp. 17-28); — *Hunger, H.*: Auffallend viele frühe Libellenbeobachtungen im Jahr 2007: 30 Arten früher als jemals zuvor in Baden-Württemberg gesichtet (pp. 28-38); — *Kronenbitter, J.*: Ungewöhnliches Eiablageverhalten beim Kleinen Granatauge (*Erythromma viridulum*) (pp. 39-41); — *Feldwieser, G.*: Aus meinem Kuriositätenkabinett (pp. 42-43; unusual photographs of various spp.); — *Müller, J.*: Mantis frisst *Anax parthenope* (p. 43; a photograph from Camargue, France); — *Vereinsnachrichten* (pp. 44-55).
- (17274) *MINNESOTA ODONATA GAZETTE* (ISSN none), Vol. 1, No. 2 (Summer 2008). Published by the Minnesota Odonata Survey Project, MOSP; edited by K. Mead, 6388 Lax Lake Rd, Finland, MN 55603, USA. *Mead, K.*: The 2008 dragonfly season has begun! (p. 1); — *Heidel, K.*: Do baskettails play basketball? (pp. 2, 6); — *Anonymous*: Dragonflies throughout the season (pp. 3-4); — SNF field trips in NE MN (p. 4); — Large bug collection defeated by the University of Minnesota odonate cataloguing team (p. 5).
- (17275) MUZON, J., N. VON ELLENRIEDER, P. PESSACQ, F. LOZANO, A. GARRÉ, J. LAMBRUSCHINI, L. RAMOS & M.S. WEIGEL MUÑOZ, 2008. Odonata from Iberá Wetlands (Corrientes Argentinal): preliminary inventory and biodiversity. *Revta Soc. ent. argent.* 67(1/2): 59-67. (With Span. s.). — (First Author: Inst. Limnol. "Dr R.A. Ringuelet", CC 712, AR-1900 La Plata). Different kinds of environment were surveyed at 7 localities, and 75 spp. are listed. Of these, 10 spp. are new for Argentina, incl. 4 spp. that are still undescribed. The Iberá Wetland system has low endemicity and a close faunal relationship with the Paraná basin.
- (17276) NOVELO-GUTIERREZ, R., 2008. Description of the larva of *Paraphlebia zoe* Selys in Hagen, 1861 (Odonata: Megapodagrionidae). *Zootaxa* 1876: 29-34. (With Span. s.). — (Depto Ent., Inst. Ecol., A.C., Apartado Postal 63, MX-91070 Xalapa, Veracruz). This is the first description of a *Paraphlebia* larva. It is compared to all other known neotropical megapodagrionid larvae, from which it can be distinguished by the following combination of characters: antenna shorter than length of head, second antennomere the longest, prementum slightly wider than long, ♂ gonapophyses absent, gills strongly inflated with a thick caudal filament. The larva inhabits seepages, and the description and illustrations are based on specimens from various Mexican localities.
- (17277) RIJPKEMA, B., 2008. *Ontdek vlinders en libellen: op pad in 25 bijzondere gebieden*. — [Discover butterflies and dragonflies: on the way in 25 special areas]. KNNV Uitgeverij, Zeist. 104 pp. Softcover (15.5 × 22.0 cm). ISBN 978-90-5011-272-7. Price: € 14.95 net. (Dutch, with vernacular nomenclature only). 25 attractive and ecologically different areas were selected randomly throughout the Netherlands, and some of the conspicuous local odon. and butterfly spp. are stated. Some information on biology, conservation etc. is dispersed through various chapters. The objective of the book is probably to trigger reader's interest in (one of) the 2 insect groups. — For a review, by R.E. Kooi, see *Ent. Ber., Amst.* 68/5: 190-191, 2008.

- (17278) RUPPELL, G. & D. HILFERT-RUPPELL, 2008. Fliegende Spinnennetze: Erfolgsmodell Libelle. *Biol. unserer Zeit* 38: 116-125. — (An der Wasserfurche 32, D-38162 Cremlingen-Destedt). The thermal adaptations in the European Calopteryx, Ischnura and (some) Anisoptera are pointed out and their role in biology and evolutionary success are outlined.
- (17279) TANG, H.B., 2008. A new record of *Heli-aeschna uninervulata* Martin (Odonata: Gynacanthini: Aeshnidae) in Singapore. *Nature Singapore* 1: 1-3. — (Blk 442, Sin Ming Ave 18-423, Singapore-570442).  
1 ♀, stagnant pond nr Central Catchment Nature Reserve, 12-IV-2008. Based on 16 photographs, taken during oviposition, structural features and the venation are described.
- (17280) TENNESSEN, K.J., 2008. Gynandromorphs in the genera *Ophiogomphus* Selys, 1854 and *Ischnura* Charpentier, 1840 (Odonata: Gomphidae, Coenagrionidae). *Insecta Mundi* 37: 1-3. — (P.O. Box 585, Wautoma, WI 54982, USA).  
A gynandromorph of *O. smithi* from Wisconsin and a gynandromorph of *I. hastata* from Alabama are described and illustrated. The specimens appear to be bilateral in that they display mostly left/right separation of ♂ and ♀ characters.
- (17281) TERMAAT, T. & J. BOUWMAN, 2008. Libellen, vliegende juwelen, 2. Libellen in het landschap. — [Dragonflies, flying jewels, 2. Dragonflies in the landscape]. *Limburgs Landschap* 35(2): 13-15. (Dutch). — (c/o De Vlinderstichting, P.O. Box 506, NL-6700 AM Wageningen).  
The biodiversity depends on the availability of appropriate habitats. In the province of Limburg, the Netherlands, the vens and small streams are of particular importance for the diversity of dragonfly life. The dependance of various spp. on such habitats is outlined.
- (17282) TERZANI, F. & B. CARLETTI, 2008. Odonatofauna toscana: il punto sulle attuali conoscenze della distribuzione regionale (Italia centrale) (Odonata). *Onychium* 6: 2-24. (With Engl. s.). — (First Author: Mus. Stor. Nat. "La Specola", Univ. Firenze, Via Romana 17, I-50125 Firenze).  
The distribution of 59 spp. across the 15 hydrographic districts of Tuscany (Italy) is tabulated and mapped. Their occurrence at the 200 m altitude intervals and their flight periods are also indicated.
- (17283) TERZANI, F. & A. MARCONI, 2008. Odonati della "Riserva naturale de Tchimpounga" (République du Congo) (Odonata). *Onychium* 6: 43-47. (With Fr. & Engl. s's). — (Mus. Stor. Nat. "La Specola", Univ. Firenze, Via Romana 17, I-50125 Firenze).  
A commented list of 16 spp. from the Reserve. *Aethiothemis palustris* and *Lokia erythromelas* were not previously recorded from the Republic of Congo. The ♂ terminalia of *Pseudagrion aguessei*, ♂ secondary genitalia of *L. erythromelas* and structural features of *Orthetrum icteromelas cinctifrons* are illustrated.
- (17284) TERZANI, F. & F. ZINETTI, 2008. Odonati raccolti in alcune aree protette della provincia di Arezzo (Toscana) (Odonata). *Onychium* 6: 25-42. (With Engl. s.). — (Mus. Stor. Nat. "La Specola", Univ. Firenze, Via Romana 17, I-50125 Firenze).  
The records are presented of 37 spp. from 8 nature reserves in the province of Arezzo (Tuscany, Italy). *Sympetma fusca*, *Coenagrion mercuriale castellani*, *C. scitulum*, *Ischnura pumilio*, *Oxygastra curtisii* and *Sympetrum depressiusculum* are among the noteworthy taxa.
- (17285) THEISCHINGER, G., 2008. Notable range extensions of dragonflies in New South Wales: more species in Victoria? *Victorian Ent.* 38(4): 59-65. — (NSW Dept Envir. & Climate Change, P.O. Box 29, Lidcombe, NSW 1825, AU).  
In the work described in *OA* 14558 it is stated that *Griseargiolestes griseus*, *Petalura gigantea*, *Austroaeschna obscura* and *Cordulephya montana* were recently collected only a few km from the New South Wales/Victoria border (Australia). None of these was in the meantime recorded from Victoria, though it is but a matter of time until this will happen. Since 2003, records of *Pseudagrion ignifer* and *Acanthaeschna victoria* have become available from SE New South Wales. They make the occurrence of these 2 spp. in Victoria more likely. The records that extend the known distribution of *P. ignifer* markedly further to the S, and a previously ignored record of *A. victoria* from Victoria are discussed. Finally, details are given of a 17 yr old *Griseargiolestes eboracus* record from Victoria, whose occurrence in Victoria and taxonomic status were recently ques-

tioned. Some characters useful for detection of the 3 spp. are discussed and illustrated.

- (17286) TYNKKYNNEN, K., A. GRAPPUTO, J.S. KOTIANO, M.J. RANTALA, S. VÄÄNÄNEN & J. SUHONEN, 2008. Hybridization in Calopteryx damselflies: the role of males. *Anim. Behav.* 75: 1431-1439. – (First Author: Dept Biol. & Environ. Sci., Univ. Jyväskylä, P.O. Box 35, FIN-40014 Jyväskylä).  
 ♀♀ are often considered responsible for hybridization between 2 spp. because usually they are the choosier sex and their cooperation is needed for successful copulation. However, ♂♂ can also be responsible for hybridization, for example in spp. in which ♂♂ are able to force copulation. Here, the pattern of hybridization was studied in 2 congeneric spp., *C. splendens* and *C. virgo*, and evidence is provided that F1 hybrids between the 2 spp. occur in the wild. According to mitochondrial DNA analysis, hybridization is reciprocal: 5 of 7 hybrids were sired by *C. splendens* and 2 by *C. virgo* ♂♂. An experiment was conducted that revealed that ♂♂ of both spp. have surprisingly poor premating reproductive isolation in that they accept heterospecific ♀♀, but *C. splendens* ♂♂ were less discriminating against con- and heterospecific ♂♂ than were *C. virgo* ♂♂. Moreover, the data on the number of hybrids sired by either sp. in the wild are congruent with the results of the discrimination experiment, supporting the conclusion that ♂♂ may be responsible for the hybridization. The results suggest that the ♂♂ role in hybridization studies should no longer be neglected.
- (17287) VAN STRAALLEN, N.M., 2008. Nico van Straalen kruipt in de huid van ... de waterjuffer. – [Nico van Straalen puts himself in the damselfly shoes]. *Ent. Ber., Amst.* 68(4): 117. (Dutch). – (Author's postal address not stated).  
 A damselfly, apparently *Ischnura elegans*, tells the story of his life. – (*Abstractor's Note*: The most famous and absolutely classical autobiography of a dragonfly is that by P.P. Calvert, 1948, *Turtlox News* 26/9: 214-217.)
- (17288) VARGAS, A., R. MITTAL & H. DONG, 2008. A computational study of the aerodynamic performance of a dragonfly wing section in gliding flight. *Bioinsp. Biomim.* 3, 13 pp. DOI 10.1088/1748-3182/3/2/026004. – (Dept Mech. & Aerospace Engin., George Washington Univ., Washington, DC 20052, USA).  
 A comprehensive computational fluid-dynamics-based study of a pleated wing section based on the wing of *Aeshna cyanea* has been performed at ultra-low Reynolds numbers corresponding to the gliding flight of these dragonflies. In addition to the pleated wing, simulations have also been carried out for its smoothed counterpart (called the 'profiled' airfoil) and a flat plate in order to better understand the aerodynamic performance of the pleated wing. The simulations employ a sharp interface Cartesian-grid-based immersed boundary method, and a detailed critical assessment of the computed results was performed giving a high measure of confidence in the fidelity of the current simulations. The simulations demonstrate that the pleated airfoil produces comparable and at times higher lift than the profiled airfoil, with a drag comparable to that of its profiled counterpart. The higher lift and moderate drag associated with the pleated airfoil lead to an aerodynamic performance that is at least equivalent to and sometimes better than the profiled airfoil. The primary cause for the reduction in the overall drag of the pleated airfoil is the negative shear drag produced by the recirculation zones which form within the pleats. The current numerical simulations therefore clearly demonstrate that the pleated wing is an ingenious design of nature, which at times surpasses the aerodynamic performance of a more conventional smooth airfoil as well as that of a flat plate. For this reason, the pleated airfoil is an excellent candidate for a fixed wing micro-aerial vehicle design.
- (17289) VINKO, D. & M. PLANKL, 2008. *Contribution to the knowledge of the dragonfly (Insecta, Odonata) fauna of Mljet island (Dalmatia, southern Croatia) and comparison of Mljet with selected Croatian areas.* Individualna Naloga, Anim. Ecol., Univ. Ljubljana. 18 pp. (Slovene, with Engl. title). – (c/o Dept Biol., Univ. Ljubljana, Večna pot 111, SI-1000 Ljubljana).  
 Based on own field work (26 Apr.-3 May 2008) and literature, 21 spp. are listed for the island. The list is compared with those of the Croatian islands of Cres (16 spp.), Lastovo (7), Korčula (8) and Brač (15) and of peninsula Pelješac (17 spp.). – A thorough work, with an exhaustive regional bibliography.
- (17290) VON ELLENRIEDER, N., 2008. Revalida-

tion of *Argentagrion* and redefinition of *Homeoura*, with the description of *H. obrieni* n. sp. (Odonata: Coenagrionidae). *Revta Soc. Ent. argent.* 67(1/2): 81-106. (With Span. s.). – (Inst. Bio y Geo Cien., Mus. Cien. Nat., Univ. Nac. Salta, Mendoza 2, AR-4400 Salta).

*Argentagrion* Fraser, currently considered a synonym of *Homeoura* Kennedy, is revalidated; both gen. are rediagnosed and their spp. illustrated, keyed and mapped. *Ischnura sobrina* Schmidt is transferred to *Homeoura*, and *H. obrieni* sp. n. (holotype ♂: Colombia, Bolívar Parlermo, 19-I-1917; deposited in UMMZ) is described, resulting in 5 spp. being included in *Homeoura*: *H. chelifera* (Selys), *H. lindneri* (Ris), *H. nepos* (Selys), *H. obrieni* sp. nov. and *H. sobrina* (Schmidt) comb. nov. and 2 in *Argentagrion*: *A. ambiguum* (Ris) and *A. silviae* Bulla.

- (17291) VON ELLENRIEDER, N. & R.W. GARRISON, 2008. A redefinition of *Telagrion* Selys and *Aceratobasis* Kennedy stat. rev. and the description of *Schistolobus* gen. nov. for *Telagrion boliviense* Daigle (Odonata: Coenagrionidae). *Trans. Am. Ent. Soc.* 134(1/2): 1-22. – (First Author: Inst. Bio y Geo Cien., Mus. Cien. Nat., Univ. Nac. Salta, Mendoza 2, AR-4400 Salta).

The spp. currently included in *Telagrion* Selys are found to belong to 3 different gen.: *Telagrion* s. s., monotypic, including only the type sp. *T. longum* Selys, *Schistolobus* gen. n., also monotypic, including *Telagrion boliviense* Daigle, and *Aceratobasis* Kennedy, resurrected to include *Metaleptobasis cornicauda* Calvert (type sp.), *Agrion macilentum* Rambur, *Telagrion mourei* Santos and *T. nathaliae* Lencioni. Synonymic lists, diagnoses, illustrations and distribution maps for the 3 gen. and a key for spp. of *Aceratobasis* are provided.

- (17292) VON ELLENRIEDER, N. & R.W. GARRISON, 2008. *Drepanoneura* gen. nov. for *Epipleoneura letitia* and *Protoneura peruviansis*, with descriptions of eight new Protoneuridae from South America (Odonata: Protoneuridae). *Zootaxa* 1842: 1-34. (With span. s.). – (Second author: Plant Pest Diagnostic Br., California Dept Food & Agric., 3294 Meadowview Rd, Sacramento, CA 95832-1448, USA).

*Drepanoneura* gen. n. (type sp.; *D. loutoni* sp. n.) is described to include *Epipleoneura letitia* Donnelly, *Protoneura peruviansis* Fraser, and 6 new

congeneric spp. from S America: *D. donnellyi*, *D. flinti*, *D. janirae*, *D. loutoni*, *D. muzoni*, and *D. tennesseni*. *Drepanoneura* is similar to *Epipleoneura* and *Epipotoneura* in venational characters, but differs from them in morphology of ♂ cercus, genital ligula, ♀ pronotum, and epiproct. A new sp. of *Epipleoneura* from Venezuela, *E. demarmelsi*, and a new sp. of *Epipotoneura* from Brazil, *E. machadoi*, are described and diagnostic illustrations for the poorly known *Epipotoneura nehalennia* Williamson are also presented. A generic characterization, diagnoses, and keys for spp. of *Drepanoneura* are provided, as well as diagnostic illustrations and distribution maps for all involved spp.

- (17293) VON ELLENRIEDER, N. & R.W. GARRISON, 2008. *Oreiallagma* gen. nov. with a redefinition of *Cyanallagma* Kennedy 1928 and *Mesamphiagrion* Kennedy 1920, and the description of *M. dunklei* sp. nov. and *M. ecuatoriale* sp. nov. from Ecuador (Odonata: Coenagrionidae). *Zootaxa* 1805: 1-51. – (First Author: Inst. Bio y Geo Cien., Mus. Cien. Nat., Univ. Nac. Salta, Mendoza 2, AR-4400 Salta).

The genus *Cyanallagma* is reevaluated. It currently includes 15 spp. Another 5 spp. that share diagnostic characters with some of them but are currently placed within *Leptagrion* Selys, 1876, *Mesamphiagrion*, and *Telagrion* Selys, 1876 are also addressed. A new genus, *Oreiallagma*, is described to include 5 spp. originally placed in *Acanthagrion* Selys, 1876, *Cyanallagma*, and *Telagrion*, viz.: *O. thelakterion* (De Marmels, 1997) (type sp.), *O. acutum* (Ris, 1918), *O. oreas* (Ris, 1918), *O. prothoracicum* (Kimmins, 1945), and *O. quadricolor* (Ris, 1918). The last stadium larva of *O. quadricolor* is described. The remaining spp. currently included in *Cyanallagma* are allocated to 2 separate gen.: *Cyanallagma* s. s. and *Mesamphiagrion*. *Cyanallagma* s. s. comprises southern S American spp. including the type sp., *C. interruptum* (Selys, 1876). *Mesamphiagrion* Kennedy, 1920 includes a cluster of spp. from NW S America that are considered congeneric with the type sp. *M. occultum* (Ris, 1918). *M. dunklei* sp. n. and *M. ecuatoriale* from Ecuador are described and *Argia hebdomatica* Navás, 1934 is found to be a junior synonym of *M. ovigerum* (Calvert, 1909). Synonymic lists, diagnoses, illustrations, keys and distribution maps for the genera are provided.

- (17294) WILDERMUTH, H., 2008. *Die Falkenlibel-*

*len Europas Corduliidae*. Westarp Wissenschaften, Hohenwarsleben. 496 pp., col. pls 1-16 excl. [Neue Brehm Bücherei 653]. Hardcover (15.0 × 20.7 cm); ISBN 3-89432-896-7. Price € 59.95 net. With Engl. foreword by P.S. Corbet. — (Publishers: Kirchstr. 5, D-39326 Hohenwarsleben).

This is the 6th volume in the series of monograph-son the European odon. families (see *OA* 6147, 10878, 11311, 11584 and 15878). The information presented comprises a comprehensive synopsis of observations published by other workers, integrated and enlarged by author's own research in the field and laboratory, and organized into 10 main chapters titled: "Was sind Falkenlibellen?" (pp. 10-45), "Von Ei zur Prolarve" (pp. 46-69), "Leben unter Wasser: das Larvenstadium" (pp. 70-110), "Vom Wasser- zum Landleben: Metamorphose und Emergenz" (pp. 111-115), "Imaginallieben" (pp. 136-177), "Haben Falkenlibellen Falkenaugen?" (pp. 178-210), "Fortpflanzung" (pp. 211-259), "Falkenlibellen in Raum und Zeit" (pp. 260-291), "Gefährdung und Schutz der Falkenlibellen" (pp. 292-312), "Europas Falkenlibellen: die Arten" (pp. 313-439: *Cordulia aenea*, *Epithea bimaculata*, *Macromia splendens*, *Oxygastra curtisii*, *Somatochlora alpestris*, *S. arctica*, *S. borisi*, *S. flavomaculata*, *S. metallica*, *S. meridionalis*, *S. sahlbergi*, *S. graeseri*, *Rupicapracornucercus andreasi* sp. n. *ubia*). The author is well known for the excellence of his research and lucidity of his writings; the present monograph is a sublime work both as to the style and the depth and scope of presentation. The 140 line drawings, all original, enhance the lucidity of the text. In Abstractor's opinion this is by far the best book on European dragonflies so far published. — For the sake of general availability, the description of the new, though dubious sp. would be better placed in a scientific periodical of large circulation. It is based on a dead and partly damaged specimen that was subsequently completely destroyed and lost, hence there is no holotype and the description does not fall under the Code. Nevertheless, the description and the discussion are very persuasive and a search for a living specimen is warmly recommended and not considered hopeless. — Last but not least: the comprehensive bibliography of ca 1500 titles (pp. 442-492) is in itself an important document.

(17295) *WILLIAMSONIA*. Newsletter of the Michigan Odonata Survey (ISSN none). Vol. 12, No. 1 (Spring/Summer 2008; precise date not stated). —

(c/o Dr M.F. O'Brien, Insect Div., Mus. Zool., Univ. Michigan, Ann Arbor, MI 48109-1079, USA).

*O'Brien, M.*: From the MOS Coordinator (pp. 1, 2); — *Anonymous*: 2007 Michigan collection records in database (pp. 1, 2); — *Craves, J. & D. O'Brien*: First state record: *Erythrodiplax umbrata* (p. 3); — *O'Brien, M.*: The 2007 BioBlitz (pp. 4-7); — *Craves, J.*: Andromorphic female *Ischnura verticalis* (p. 8); — Request for information: *Stylurus plagiatus* habitat (p. 9); — *O'Brien, M.*: GLOM 2008: review (pp. 10-13); — *Tennessee, K.*: A casue of wing wear in dragonflies (p. 14).

(17296) WILSON, K., 2008. Lovec na kačje pastirje. *National geographic Junior* 48: 12-15. [Slovenian edn]. — (18 Chatsworth Rd, Brighton, BN1 5DB, UK).

Slovenian edn of the article listed in *OA* 16262.

(17297) YAKUBOVICH, V.S., E.I. MALIKOVA & A. Yu. BARMA, 2008. K faune strekoz (Odonata) GPZ "Bastak". — [On dragonfly (Odonata) fauna of the State Nature Reserve "Bastak"]. *Prir. Zapov. "Bastak"* 5: 17-22. (Russ.). — (First Author: Inst. Water & Ecol. Problems, FEB RAS, Kim Yu Chen 65, RUS-680063 Khabarovsk).

Annotated review of the 27 spp. so far recorded from the Reserve (Blagoveshchensk, Far East, Russia).

(17298) ZALOHAR, J., T. HITIJ & M. KRIZNAR, 2008. Žuželke užete v kamen: fosilne žuželke Tunjiškega gričevja. — [Insects caught in stone: fossil insects of the Tunjice Hills]. *Gea, Ljubljana* 18(12): 64-65. (Slovene). — (First Author: Dept Geol., Univ. Ljubljana, Aškerčeva 12, SI-1000 Ljubljana).

Includes a paragraph on *Sloveniatrum robici*, as described in the paper listed in *OA* 17083.

(17299) ZAWAL, A. & E.S. DYATLOVA, 2008. Parasitizing on damselflies (Odonata: Coenagrionidae) by water mite (Acari: Hydrachnidia) larvae from Odessa province (southwestern Ukraine). *Natura montenegrina* 7(3): 453-462. — (Second Author: Dept Zool., Fac. Biol., Odessa Natn. Univ., Dvoryanskaya 2, UKR-65026 Odessa).

*Coenagrion pulchellum*, *Erythromma najas*, *Ischnura elegans* and *I. pumilio* were found with the parasitic *Arrenurus cuspidator*, *A. maculatur*, *A. tricuspido*, *Hydryphantea octoporus*, and with the

2009

- hitherto undescribed larvae of 2 other *Arrenurus* spp. So far, the Hydrophantidae were only known as parasites on Diptera. The *Arrenurus* larvae were attached to the ventral side of the odon. body, those of Hydrophantes mainly to the lateral side.
- (17300) ZAWAL, A. & R. JASKUŁA, 2008. First data for parasitising on *Sympetrum meridionale* (Selys) by *Arrenurus* (Acari: Hydrachnidia) larvae from Montenegro. *Natura montenegrina* 7(3): 354-359. – (First Author: Dept Invert. Zool. & Limnol., Univ. Szczecin, Waska 13, PO-71-415 Szczecin). 6 *S. meridionale* ♂♂ from Velika Plaza (Montenegro) were found with 158 *A. papillator* larvae, attached to the wings, mostly to Cu1 and M4 veins.
- (17301) ZHANG, B., D. REN & H. PANG, 2008. *Telmaeshna paradoxica* gen. et sp. nov., a new fossil dragonfly (Insecta: Odonata: Anisoptera) from the Yixian formation, Liaoning, China. *Zootaxa* 1681: 62-68. – (First Author: Coll. Life Sci., Capital Normal Univ., Beijing-100037, China). The new sp. is described from the Upper Jurassic to Lower Cretaceous Yixian formation, near Chaomidian village, Beipiao city, Liaoning prov., China. It is included in the Anisoptera: Aeshnoptera: Aeshnomorpha: Panaeshnida, on the basis of the following characters: strongly elongated pterostigma; well-defined anal loop and Rspl; undulated RP2, RP3/4 and MA; divided hypertriangle and discoidal triangle; and prolonged gaff. It cannot be assigned to any described extant or extinct fam. of Panaeshnida, but it is refrained from erecting a new fam. to accommodate it until more features (forewing, body characters) are known. Consequently, this new genus is provisionally retained as family uncertain. Its phylogenetic relationships within Anisoptera are discussed.
- (17302) ZHOU, X. & W.-b. ZHOU, 2008. A new species of the genus *Megalestes* (Odonata: Chlorolestidae) from China. *Entomotaxonomia* 30(1): 1-3. (Chin., with Engl. s.). – (Dept Ent., Zhejiang Mus. Nat. Hist., Choukong 71, Hangzhou-310012, China). *M. palaceus* sp. n. is described, illustrated and compared with *M. distans* and *M. huii*. Holotype ♂: China, Guizhou prov., Leigung Mts, Xiaodanjiang, 20-IX-2005.
- (17303) *AGRION, WDA*. Newsletter of the Worldwide Dragonfly Association (ISSN 1476-2552), Vol. 13, No. 1 (Jan. 2009). – (c/o L. Averill, 49 James Rd, Kidderminster, Worcester, DY10 2TR, UK). *Wilson, K.*: Editorial (p. 2); – *Pritchard, G.*: President's message (p. 3); – *Jödicke, R., B. Kunz & A. Wijker*: A further step in the differentiation between *Sympetrum arenicolor* and *S. sinaticum*: photo documentation in the field (pp. 4-7); – *Cheong, L.F., H.B. Tang & W.J. Ngiam*: New records for Singapore dragonflies (pp. 8-13); – *Taylor, J.*: Egg-laying observations in the Pilbara region of NW Australia (pp. 14-15); – *Kalkman, V & K.-D.B. Dijkstra*: Databasing the world (p. 16); – *Enderby, I.*: The Australian Odonata database (pp. 16-17); – *Marinov, M.*: Odonata database of New Zealand and South Pacific islands (pp. 17-18); – *Kalkman, V. & J.-P. Boudot*: Europe: a jigsaw puzzle of databases (pp. 18-19); – *Kipping, J., K.-D.B. Dijkstra, V. Clausnitzer, F. Suhling & K. Schütte*: Odonata database of Africa (pp. 20-23); – *Dow, R. & V. Kalkman*: The Liefinck database, mapping the odonates of Malesia (pp. 24-25); – *Abbott, J.C.*: OdonataCentral: the North American Odonata database (pp. 25-27); – *Wasscher, M. & J. van 't Bosch*: Database of Suriname dragonflies (pp. 27-28); – *Wilson, K.*: Dragonfly giants (pp. 29-31).
- (17304) *ECHO*. Communicating about Odonata of tropical Asia. (ISSN none), No. 6 (Jan. 2009; published in *Agrion, WDA* 13/1). Editor V. Kalkman (Naturalis, P.O. Box 9517, NL-2300 RA Leiden). *Seidenschwarz, F.*: Damsel fly project on Cebu island in the Philippines (p. 1); – *Dow, R.*: Work on Sarawak odonates continued (p. 1); – *Choong, C.-Y.*: Work on dragonflies of Peninsular Malaysia by Universiti Kabangsaan Malaysia (p. 2); – *Villanueva, R.*: Activities of Reagan Villanueva with a list of species recorded from Balut island, Philippines (p. 2); – *Kalkman, V.*: The Geelvinkbaai island and the Star Mountains revisited (p. 2); – *Hämäläinen, M., M. Bedjanič & N. van der Poorten*: *Libellago indica* (Fraser, 1928) deleted from the list of Sri Lankan Odonata (Chlorocyphidae) (pp. 3-5); – *Hämäläinen, M.*: What is the enigmatic chlorocyphid *Rhinocypha stygia* Förster, 1897 from Mt Kinabalu, Borneo? (pp. 6-9).
- (17305) FRANKER, M.E., 2009. The effect of prior

experience on a prey's current perceived risk. *Oecologia* 158: 765-774. — (Dept Ecol. & Evol. Biol., Univ. Michigan, 830 North University, Ann Arbor, MI 48109-1048, USA).

The prior experience of prey may influence how they assess the level of predation risk associated with an information source. Here, the results are presented from a set of experiments that demonstrate how the prior experience of green frog (*Rana clamitans*) tadpoles can influence their risk assessment during exposure to the chemical cue of predatory larval dragonflies (*Anax* spp.) consuming conspecific tadpoles. At the short-term scale, green frog tadpoles perceived a higher level of risk when consecutive cue exposures overlapped, but only when the total chemical cue concentration was weak. Weaker chemical cue concentrations may be less reliable than stronger cue concentrations, and overlapping cue exposures may increase the degree of certainty that tadpoles have in their perceived risk. When consecutive cue exposures did not overlap, tadpoles assessed the risk associated with each cue exposure independently. Predator-conditioned tadpoles responded longer during exposure to the *Anax* chemical cue than nonconditioned tadpoles, which suggests that a tadpole's long-term experience eventually does influence its risk assessment. In general, the results suggest that a prey's prior experience may influence its current perceived risk by influencing either the degree of certainty in or the level of its perceived risk. Understanding how the prior experience of prey influences their current risk assessment requires that the rate of decay of the value of prior experience should be identified at 2 timescales as an indicator of the current level of predation risk.

(17306) GHAHARI, H., M. TABARI, H. SAKENIN, H. OSTOVAN & S. IMANI, 2009. Odonata (Insecta) from northern Iran, with comments on their presence in rice fields. *Munis Ent. Zool.* 4(1): 148-154. — (Lat Author: Dept Ent., Sci. & Res. Br., Islamic Azad Univ., Tehran, Iran).

The records of 30 spp. are listed from rice fields and other sites in Mazandaran prov., N Iran.

(17307) KIAUTA, B., 2009. Dragonflies (Odonata) in the works of I.A. Scopoli revisited. *Idrijski Razgl.* 53(1/2): 57-60. (Slovene, with Engl. s.). — (P.O. Box 124, NL-5854 ZJ Bergen (L).

An attempt is made at a taxonomic identification

of the odon. inventory in Scopoli's 1763 (*Entomologia carniolica*, Trattner, Vindobonae) and 1772 (*Annus hist.-nat.* 5) works. Based on an analysis of the text and the respective illustrations, 14 spp. could be identified, viz.: *Calopteryx splendens*, *C. virgo*, *Lestes sponsa*, *Sympecma fusca*, *Coenagrion puella*, *Ischnura elegans*, *Pyrrhosoma nymphula*, *Cordulegaster heros*, *Libellula depressa*, *L. fulva*, *L. quadrimaculata*, *Orthetrum brunneum*, *O. coerulescens* and *Sympetrum flaveolum*. Due to the shortcomings in descriptions, a reliable identification of several other spp. could not be provided. In his *Introductio ad historiam naturalem* (1777, Gerle, Praga), Scopoli was the first to clearly recognize the peculiar features of dragonflies as a separate group, though the latter was separated and named as Odonata not until 1793 by J.C. Fabricius. In the same work, Scopoli used the spelling "Aeschna" for the Fabrician genus *Aeshna*, introducing therewith an orthographic error into the odonatological literature.

(17308) SAGA TOMBO KENKYUKAI, [Publisher], 2009. [*Dragonfly calendar 2009*]. Saga Tombo Kenkyukai, Saga. (Jap., with taxonomic nomenclature). — (c/o Prof. Dr K. Higashi, Chifu 3062-1, Kinryo-machi, Saga 849-0905, JA).

An attractive monthly wall calendar, with a dragonfly photograph for each month; 21 photographs are added. Some of them are interesting documents on the behaviour of the represented spp.

(17309) TOLLETT, V.D., E.L. BENVENUTTI, L.A. DEER & T.M. RICE, 2009. Differential toxicity to Cd, Pb, and Cu in dragonfly larvae (Insecta: Odonata). *Archs envir. Contam. Toxicol.* 56: 77-84. — (Last Author: Dept Biol. Sci., Univ. Sth Alabama, Mobile, AL 36688, USA).

*Pachydiplax longipennis* and *Erythemis simplicicollis* larvae were exposed to equimolar concentrations of cadmium, lead and copper in 7-day survival tests. They were tolerant of high concentrations of Cd and Pb, as no significant decrease in survival was observed at exposures as high as 0.893 and 2.232 mM, respectively. In contrast, larvae were more sensitive to Cu exposure, demonstrating significantly decreased survival at exposures as low as 2.360 mM. In whole animal samples, larvae accumulated very high concentrations (> 1000 µg/g dry weight) of all 3 metals in an exposure-related manner. Much of this accumulation could probably be attributed

to adsorption or accumulation of metal within the exoskeleton, because odon. larvae are known to sequester metals into their material. The results were generally consistent with previous observations, indicating that odon. are tolerant to metal exposures. It is suggested that odon. larvae can be useful toxicological model organisms.

- (17310) TRIGAL, C., F.F. GARCIA-CRIADO & C. FERNÁNDEZ-ALÁEZ, 2009. Towards a multimetric index for ecological assessment of Mediterranean flatland ponds: the use of macroinvertebrates as bioindicators. *Hydrobiologia* 618: 109-123. — (First Author: Dept Envir. Assmnt, Swedish Univ. Agric. Sci., P.O. Box 750, S-7050 Uppsala). 55 macroinvertebrae metrics were tested for their response to pond condition in 41 ponds of NW Spain to develop a preliminary multimetric index for ecological assessment of Mediterranean flatland ponds. Stressor specific response of individual attributes to eutrophication and habitat alteration was also investigated to identify differences in the responses of metrics to single stressors and elucidate how this might affect the performance of the final index. Several combinations were tested using discrimination efficiency. (25th percentile of slightly impaired sites for metrics decreasing with perturbation and 75th percentile of slightly impaired sites for metrics increasing with perturbation) and Mann-Whitney U-test with Bonferroni adjustment ( $P < 0.001$ ). The final index comprised five measures (generic richness of Chironominae, generic richness of Dytiscidae + Odonata + Tanytopodinae, realtive richness of Chironomidae, % Macropelopini and Shannon index) and discriminated between acceptable (good) and unacceptable (moderate) conditions with more than 86 % efficiency. Moreover, all the 5 measures included in the final index showed unidirectional responses to eutrophication, decreasing as eutrophication increased. In contrast, the effect of habitat alteration was less clear, especially in ponds in best available conditions where a vegetation belt of shrubs and trees prevented growing of macrophytic vegetation on shores and consequently associated fauna. Interestingly, none of the functional groups (e.g. % predators and % collector-gatherers) were sensitive to degradation.
- (17311) YAMANAKA, T., K. TANAKA, K. HAMASAKI, Y. NAKATANI, N. IWASAKI, D.S. SPRAGUE & O.N. BJØRNSTAD, 2009. Evaluating the relative importance of patch quality and connectivity in a damselfly metapopulation from a one-season survey. *Oikos* 118: 67-76. — (First Author: Biodiv. Div., Natn. Inst. Agro-Environ. Sci., 3-1-3 Kannondai, Tsukuba, 305-8604, JA). The area-and-isolation paradigm, which has been the primary focus of metapopulation research, may not hold in some animal metapopulations if within-patch preference is more important than patch area or connectivity. Recently, regression analyses were used to evaluate the effect of patch connectivity and various patch qualities including area. However, their relative importance is not easy to determine, because patch qualities and connectivity are often spatially autocorrelated. In this paper, an attempt is made to evaluate the relative importance of within-patch quality, patch connectivity and spatial autocorrelation using variation partitioning methods from community ecology. 3 regression models are constructed withinpatch quality. PCNM (principal coordinates of neighbor matrices) and patch connectivity based on a one-season survey of a Copera annulata metapopulation. The contribution of within-patch quality was larger than that of connectivity. There was a prominent effect of patch area. It is concluded that the area-and-isolation paradigm is not applicable to this C. annulata metapopulation. The spatial autocorrelation extracted by PCNM had the largest contribution; it contained almost all of the variation of connectivity and overlapped with variation explained by within-patch quality. Connectivity corresponded most closely to medium-scale spatial structure captured by PCNM (ca 640 m). The mean effective dispersal scale was estimated to be 53 m. Within-patch quality, debris accumulation and vegetation cover in the pond corresponded with the medium and small (ca 201 m) spatial scales from PCNM, though the cause of this correspondence could not clearly be explained. It is believed that this method will contribute to quick and effective evaluation of spatial and non-spatial aspects of metapopulation.