

ODONATOLOGICAL ABSTRACTS

2000

- (17663) DE MOOR, F.C., H.M. BARBER-JAMES, A.D. HARRISON & C.R. LUGO-ORTIZ, 2000. The macroinvertebrates of the Cunene river from the Ruacana Falls to the river mouth and assessment of the conservation status of the river. *Afr. J. Aquat. Sci.* 25: 105-122. – (First Author: Dept Freshw. Invert., Albany Mus., Grahamstown-6139, S. Afr.).
Includes a checklist of 13 odon. taxa (mostly at genus level) from selected sites along the Cunene river, Namibia.

- (17664) MARTIN, R., 2000. Una excursión odonológica al Pirineos de Lérida. *Boln Soc. ent. aragon.* 27: 23-26. (With Engl. s.). – (Avda. Martí Pujol 250, 30 4a, ES-08911 Badalona/Barcelona).
The observations are provided on 11 spp.; – Pyrenees, Catalonia, Spain.

2001

- (17665) ALONSO, L.E., A. ALONSO, T.S. SCHULENBERG & F. DALLMEIER, [Eds], 2001. Biological and social assessments of the Cordillera de Vilcabamba, Peru. *Rapid Assmt Progr. working Paps* 12: 1-296. IBN 1-881173-51-8. – (Conserv. Internationl, Cent. Appl. Biodiv. Sci., Dept Conserv. Biol., 1919 M Street NW, Suite 600, Washington, DC 20036, USA).
[Odonatol. information in]: Acosta, R., M. Hidalgo, E. Castro, N. Salcedo & D. Reyes: Biodiversity assessment of the aquatic systems at the southern Vilcabamba region, Peru (pp. 140-146), – same authors: Number of aquatic invertebrate species per family found in quantitative and qualitative sam-

pling at Lactahuaman and Wayrapata, southern Cordillera de Vilcabamba, Peru (pp. 271-275).

- (17666) MACHADO CABALLERO, J.E., 2001. *Inventario y estudio comparativo de la fauna de Odonata en tres áreas de Honduras*. Tesis Ingeniero Agrónomo. Carrera de ciencia y producción agropecuaria, Zamorano. xi+31 pp. – (Author's address not stated).
The odon. assemblages (84 spp.) of 3 areas in the departments of Atlántida and Francisco Morazán (Honduras) are described, and the odon. faunae of Honduras, Belize, Costa Rica and Nicaragua are briefly analysed and compared.

- (17667) PÉREZ-BOTE, J.-L. & B. LEDESNA CARFO, 2001. Nuevas aportaciones al catálogo odonológico de Extremadura (Odonata). *Boln Soc. ent. aragon.* 29: 97-98. – (Area Biol. Animal, Fac. Cienc., Univ. Extremadura, ES-06071 Badajoz).
A checklist of 47 spp. *Diplacodes lefebvrei* and *Orthetrum nitidinerve* were not known previously from Extremadura, Spain.

- (17668) REEVES, D.M., 2001. Survey for the Giant Dragonflies, *Petalura gigantea* and *Petalura litorea* and the Swordgrass Brown Butterfly, *Tisiphone abeona morrisi*. *Tugon Bypass envir. Impact Statement tech. Pap.* 12 (App. J): 1-9. – (30 Bramston Terrace, Herston, Qld 4006, AU).
The Queensland distribution and ecology of the 2 *Petalura* spp. are outlined. Several areas containing suitable or potential habitats along the proposed bypass are identified and listed in order of importance. Potential impacts are emphasized and the measures to minimize these are proposed. – Queensland, Australia.

- (17669) TORRALBA BURRIAL, A. & F.J. OCHARAN, 2001. Un caso llamativo de supervivencia en *Libellula quadrimaculata* L., 1758 (Odonata: Libellulidae). *Boln Soc. ent. aragon.* 29: 104. (With Engl. s.). – (Depto Biol. Organismos & Sistemas, Univ. Oviedo, ES-33071 Oviedo).
A *L. quadrimaculata* ♂ is reported to have survived in the field during at least 10 days without the right forewing.

2002

- (17670) DE HARO, J.J., 2002. Guida de campo de la entomologia en Internet, 3: Odonata. *Boln Soc. ent. aragon.* 30: 205-207. – (jjdeharo@terra.es).
A list of 36 websites.
- (17671) RUCHIN, A.B. & M.K. RYZHOV, 2002. On the diet of the Marsh Frog (*Rana ridibunda*) in the Sura and Moksha watershed, Mordovia. *Adv. amphib. Res. former Soviet Un.* 7: 197-205. (With Russ. s.). – (Dept Biol., Mordovian St. Univ., Bolshevitskaya ul., Saransk-430000, Russia).
Ca 200 spp. were found in the diet, incl. adult *Calopteryx virgo* and *Lestes dryas*, and larval *Aeshna*, *Anax*, *Gomphus* and *Libellula* spp. The arthropods prevailed, but among the food items there were also 2 fish and 6 frog spp., and even 4 mammalian taxa.
- (17672) TABER, B., 2002. Spring dragonfly (Odonata) and butterfly (Lepidoptera) fallout at the Chesapeake Bay bridge-tunnel. *Banisteria* 19: 26-27. – (Coastal Virginia Wildlife Observatory, P.O. Box 912, Eastville, VA 23347, USA).
A report on a fallout (mass grounding), on 27-V-2000, at 1530-1630 h, of *Anax junius* (estimated % of total: 25), *Erythemis simplicicollis* (25), *Gomphaeschna furcillata* (10), *Pachydiplax longipennis* (10), *Libellula vibrans* (10), *Epiaschna heros* (10), *Celithemis eponina* (5), *Perithemis tenera* (5) and *Tamea* sp. (<1); – Virginia, USA. As far as it could be identified, most spp. were represented by both sexes. A thunderstorm was rapidly approaching. The temperature was ca 32°C and humidity near 100%. Winds were moderate from the E and had been strong, from the E, off the ocean, for the previous 2 days.

2003

- (17673) MARTINS TEIXEIRA, D. & J.B. NACINOVIC, 2003. Food of Roseate Spoonbill, *Ajaia ajaja* (Linnaeus, 1758) in central Brazil Ciconiiformes, Threskiornithidae. *Arqs Mus. nac. Rio de J.* 61(1): 49-54. (Port., with Engl. s.). – (Depto Vertebrados, Mus. Nac., UFRJ, Quinta da Boa Vista, São Cristóvão, BR-20940-040 Rio de Janeiro, RJ).
The odon. larvae were found in the stomach of 5 out of the 20 spoonbills examined from Bananal island, state of Tocantins.
- (17674) PROKONOV, G.A., 2003. Presnovodnaya fauna basseyna r. Chernoy. [Freshwater fauna of the Chernaya river basin]. *Vopr. Razvitiya Kryma* 15: 151-174. (Russ.). – (Author's address not stated).
Calopteryx taurica, *Gomphus vulgatissimus* and *Onychogomphus forcipatus* are recorded from the Chernaya river, Crimea, the Ukraine.
- (17675) ZEPPELINI FILHO, D., [...] & A.C. MARQUES, 2003. Faunistic survey of sandstone caves from Altinópolis region, São Paulo state, Brazil. *Papéis avuls. Zool. S Paulo* 43(5): 93-99. (With Port. s.). – (Last Author: Depto Zool., Inst. Biocien., Univ. S. Paulo, C.P. 11401, BR-05422-970 São Paulo).
Not further identified Libellulidae are listed from Duas Bocas cave, High Paraná River Basin Domain, northern São Paulo state. The cave has 2 large entrances that allow indirect light in its large gallery, and a narrow streamlet tunnel.

2004

- (17676) ESBERARD, C.E.L. & H.G. BERGALLO, 2004. Biological aspects of *Tonatia bidens* (Spix) in Rio de Janeiro state, southeastern Brazil (Mammalia, Chiroptera, Phyllostomidae). *Revta bras. Zool.* 21(2): 253-259. (Port., with Engl. s.). – (Depto Ecol., Univ. Estado Rio de Janeiro, Rua São Francisco Xavier 524, BR-20559-900 Rio de Janeiro, RJ).
The odon. are listed among the prey items of 76 bat individuals examined; spp. are not stated.
- (17677) HUYSENTRUYT, F., D. ADRIAENS, G.G. TEUGELS, S. DEVAERE, A. HERREL, W. VERRAES & P. AERTS, 2004. Diet composition in relation to morphology in some African aguiform clariid catfishes. *Belg. J. Zool.* 134(1): 25-30. –

(First Author: Vert. Morph., Univ. Gent, Ledeganckstraat 35, B-9000 Gent).

Whereas *Channallabes apus* and *Gymnallabes alvarezi* show a special preference for coleopterans, the Index of Relative Importance (IRI) of odon. in the diet of these 2 spp. that have an extreme anguilliform body shape and are also characterized by an extreme hypertrophy of the jaw closing muscles, amount only to 2.01 and 0.96%, respectively.

- (17678) YAMAMOTO PIRES, M.M., L.A. DE SOUZA & Y. TERADA, 2004. Floral biology of *Croton urucurana* Baill. (Euphorbiaceae) that occurs in riparian vegetation of Porto Rico Island, Porto Rico, Paraná, Brazil. *Acta Sci. (Biol.)*, Maringá 26(2): 209-215. (Port., with Engl. s.). – (First Author: Univ. Estad. Paraná, Fafipa, Avenida Gabriel Esperidião s/n, Caixa Postal 306, BR-87703-000 Paranavai, Paraná).

This pioneer, monoecious tree has small, yellow-greenish, unisexual flowers, lasting 3 days and opening at about 11 p.m. The flowers are visited by Diptera, Hemiptera, Hymenoptera, Lepidoptera and Odon.

2005

- (17679) DE BRITO-Jr, L., F.J. PEGADO ABILIO & T. WATANABE, 2005. Insetos aquáticos do açude São José dos Cordeiros (semi-árido Paraibano) com ênfase em Chironomidae. *Ent. Vecta.* 12(2): 149-157. (Port., with Engl. s.). – (Depto Metodol. Educação, Univ. Fed. Paraiba, Rua Maria Rosa Padilha 84, Edif. Aeroville, Ap. 210, Bairro Bessa, BR-58037-260 João Pessoa, PB).

Gomphidae and Libellulidae are familywise reported from the São José dos Cordeiros retention basin, Paraiba, Brazil. The decrease in the Gomphidae abundance was correlated with the increase of organic matter in the sediment.

- (17680) GONÇALVES DA COSTA, B.E., 2005. *Science in Brazilian press during the post-war years: the case of the supplement 'Ciência para todos' (1948-1953)*. M.Sci. thesis, Univ. Fed. Rio de Janeiro. 203 pp. (Port., with Engl. s.).

The story of this supplement that was appearing in the Brazilian newspaper, *A Manhã*, is reconstructed and its importance for the history of science in Brazil is outlined. A brief biographic note and the appreciation of N. Dias dos Santos's work are in-

cluded. – See also OA 7353.

- (17681) KEPPNER, E.J. & L.A. KEPPNER, 2005. *Some dragonflies and damselflies (nsecta: Odonata) from Bay county, Florida*. St Andrew Bay Environmental Study Team. ii+11 pp., tabs I & IV, figs 1-12 & 4 pls excl. – (Authors' address not stated). For Bay co. and the surrounding counties 110 spp. are listed; 30 of these were not previously reported from Bay co, Florida (USA).

- (17682) KILIMANN, N. & M. TOMEK, 2005. Die Libellen des Waldteichgeländes in Oberhausen. *Electron. Pubs biol. Stn W Ruhrgeb.* 1.0(2005): 1-6. – (First Author: Vinckestr. 91, D-44623 Herne). An annotated list of 26 spp. recorded from a wetland NW of Oberhausen (Germany), with additional notes on some of them.

- (17683) OERTLI, B., D. AUDERSET JOYE, E. CASTELLA, R. JUGE, A. LEHMANN & J.-B. LACHAVANNE, 2005. PLOCH: a standardized method for sampling and assessing the biodiversity in ponds. *Aquat. Conserv. Mar. Freshw. Ecosyst.* 15: 665-679. – (First Author: Dept Nat. Mngmt, Univ. Appl. Sci. W. Switzerland, 150 rte Présinge, CH-1254 Jussy).

A standardized method is developed for sampling and assessing the species richness of ponds. Experience accumulated in previous studies, together with data gathered from 80 Swiss ponds provided the basis of the proposed method. Adult Odon. are among the 5 groups chosen as complementary representatives of pond life.

- (17684) PEGADO ABILIO, F.J., A.A. FONSECA-GESSNER, T. WATANABE & R. LUGUINHO LEITE, 2005. *Chironomus gr. decorus* (Diptera: Chironomidae) e outros insetos aquáticos de um açude temporário do semi-árido Paraibano, Brasil. *Ent. Vecta.* 12(2): 233-242. (Port., with Engl. s.). – (First Author: Depto Metodol. Educação, Univ. Fed. Paraiba, Rua Maria Rosa Padilha 84, Edif. Aeroville, Ap. 210, Bairro Bessa, BR-58037-260 João Pessão, PB).

The aquatic insect community was studied at a temporary retention reservoir, located on Borborema plateau (alt. 530 m), Paraiba. The odon. are said to be represented by Coenagrionidae, Gomphidae and Libellulidae, but a key to North American fauna was used for identification of the families.

- (17685) TORRALBA BURRIAL, A. & F.J. OCHARAN, 2005. Comportamiento de búsqueda de hembras inmaduras como estrategia reproductiva en machos de *Aeshna juncea* (Linnaeus, 1758) (Odonata: Aeshnidae). *Boln Soc. ent. aragon.* 36: 123-126. (With Engl. s.). — (Depto Biol. Organismos & Sistemas, Univ. Oviedo, ES-33071 Oviedo).
The behaviour of ♂♂ searching for immature, teneneral *A. juncea* ♀♀ is described from a Pyrenean population, alt. 2078 m a.s.l. ♂♂ were seen hovering over aquatic vegetation, trying to grasp the emerging ♀♀ amid vegetation, prior to their maiden flight. The usual mating behaviour was observed at nearby ponds, when mature ♀♀ were present. The consequences for the ♂ reproductive success, the dispersal and colonization capacity are commented upon. These observations are consistent with the previous reports on immature aeshnid ♀♀ showing signs of having mated.
- 2006**
- (17686) FEULNER, G., 2006. Dragonfly migration. *Gazelle*, Dubai 21(3): 4. — (Dubai Nat. Hist. Gr., P.O. Box 9234, Dubai, UAE).
At mid Jan. 2006, a swarming of Hemianax ephippiger has taken place among low hills in the Wadi Shawkah area, Dubai. In previous years, in Jan. swarms could be found intermittently over much of the Dubai mountain areas, including the very tip of the Musandam Peninsula.
- (17687) HOBART, H., 2006. And they don't even bite or sting! *Newsl. Indian Ponds Ass.*, Merstons Mills 6(4): 7. — (Indian Ponds Ass., P.O. Box 383, Merstons Mills, MA 02648, USA).
General on dragonflies, with reference to Barnstable's coastal plain ponds, Massachusetts, USA.
- (17688) JOVIĆ, A., M. PAUNOVIĆ, B. STOJANOVIĆ, S. MILOŠEVIĆ & V. NIKOLIĆ, 2006. Aquatic invertebrates of the Ribnica and Lepenica rivers: composition of the community and water quality. *Archs biol. Sci.*, Belgrade 58(2): 115-119. (With Serb. s.). — (First Author: Siniša Stanković Inst. Biol. Res., RS-11060 Belgrade).
Calopteryx virgo and *Gomphus vulgatissimus* are recorded from the 2 rivers, the Kolubara drainage region, Serbia.
- (17689) KJER, K.M., F.L. CARLE, J. LITMAN & J. WARE, 2006. A molecular phylogeny of Hexapoda. *Arthropod Syst. Phyl.* 64(1): 35-44. — (First Author: Dept Ecol., Evol. & Nat. Resour., Rutgers Univ., New Brunswick, NJ 08901, USA).
A supermatrix approach to insect phylogeny is presented.
- (17690) KOVÁCS, T., A. AMBRUS & P. JUHÁSZ, 2006. Larval and exuvial data to the Odonata fauna of Hungary, 2. *Folia hist. nat. Mus. matraensis* 30: 167-179. (Hung., with Engl. s.). — (First Author: Mátra Múzeum, Kossuth Lajos u. 40, HU-3200 Gyöngyös).
1333 records, for 49 spp. from 228 sampling sites (2003-2006). — For the first paper in this series, see OA 16076.
- (17691) MOLA, L.M. & A.G. PAPESCHI, 2006. Holokinetic chromosomes at a glance. *J. basic appl. Genet.* 17(1): 17-33. (With Span. s.). — (Lab. Cytogen. & Evol., Depto Ecol. Genet. & Evol., Fac. Cienc. Exactas & Naturales, Univ. Buenos Aires, Intendente Güiraldes y Costanera Norte, AR-1428 Buenos Aires).
Current knowledge on holokinetic chromosomes is reviewed. Their distribution in the different kingdoms is compiled and updated. The main criteria for their recognition are provided and discussed, from basic morphology and behaviour (ascertained by light microscopy) to a more precise characterization by means of immunofluorescence techniques and ultrastructural studies. The 2 modes of meiosis (pre- and post-reductional) encountered in holokinetic systems (incl. Odon.) are described as well as other topics related to the meiotic recess. The principal mechanisms of karyotype evolution (fusion/simploidy, fragmentation/agmatoploidy, translocation, polyploidy) and their occurrence and frequency in the different taxa are summarized. Finally, the different hypotheses about the origin of holokinetic chromosomes are described. — In Odon. the diploid chromosome numbers range between $2n = 6$ (*Macrothemis hemichlora*, Libellulidae) and $2n = 41$ (*Orthemis nodiplaga*, Libellulidae); $2n = 23, 25$ and 27 are the most frequent ♂ chromosome numbers present in 90% of spp. In zygopterans, 51% of the spp. belonging to Coenagrionidae have a modal number of $2n = 25$. Among anisopterans, the modal number in Aeshnidae is $2n = 27$, in Gomphidae $2n = 23$, while in Cordulegastridae, Corduliidae, Libellulidae and Macrodiplacidae it is $2n = 25$. Taking

- into account the phylogenetic relationships among the families and the distribution of the different modal numbers, $2n = 25 (24 + X)$ has been proposed as the atavic number of the order; the other 2 modal numbers would have originated through only one autosomal fusion ($2n = 23$) or fragmentation ($2n = 27$) in homozygosis.
- (17692) MONTEIRO, B.R., 2006. *Distribuição dos lepidopteros o donatas da Reserva Natural da Serra da Malcata*. Depto Biol., Univ. Aveiro. 121 pp. – (Author's address not stated).
Includes a treatment of the odon. fauna and its distribution (22 spp.) in the Reserve; – Portugal.
- (17693) ŠÁCHA, D., 2006. On dragonflies (Odonata) in mountains of Liptov and Spiš regions (Slovakia). *Folia faun. slovakica* 11(8): 43-48. (Slovak, with Engl. s.). – (Podtatranského 31, SK-03101 Liptovský Mikuláš).
27 spp. are brought on record from 25 wetland localities. Among these, *Coenagrion hastulatum*, *A. grandis*, *A. juncea*, *A. subarctica*, *Cordulegaster bidentata*, *Somatochlora alpestris*, *S. arctica*, *Symptetrum danae*, *Leucorrhinia dubia* and *L. rubicunda* are of particular interest. The latter sp. (1 exuvia) is for the first time recorded from the Tatra Mts.
- (17694) VEGA, F.J., P. GARCIA-BARRERA, M. DEL CARMEN PERRILLIAT, M.A. COUTIÑO & R. MARIÑO-PÉREZ, 2006. El Espinal, a new plattenkalk facies locality from the Lower Cretaceous Sierra Madre Formation, Chiapas, south-eastern Mexico. *Revta mex. Cienc. geol.* 23(3): 323-333. (With Span. s.). – (First Author: Inst. Geol., UNAM, Ciudad Universitaria, MX-04510 Mexico, D.F.).
An incomplete specimen of a zygopteran larva is described and illustrated.
- 2007**
- (17695) BACHALANY, Y., F. COBESTAING & S. AMBELLOUIS, 2007. Suivi de libellules par analyse de séquences d'images. *Schedae* 2007, prépublication 33(2): 229-237. – (First Author: LAGIS-UMR CNRS 8146, Cité Scientifique, F-59655 Villeneuve d'Ascq Cedex).
A study of the parameters of a dragonfly trajectory towards the capture of a prey. – See also OA 16151.
- (17696) CARBELLA, O.L. & A. CORDERO RIVERA, 2007. Are parthenogenetic and sexual *Ischnura hastata* damselflies equally fertile? Testing sexual conflict theories. *Ethology, Ecology & Evolution* 19: 291-298. – (Depto Ecol. & Biol. Animal, Univ. Vigo, EUET Forestal, Campus Universitario, ES-36005 Pontevedra).
Recent theories of sexual selection stress the importance of conflicts over reproduction in shaping the reproductive traits of ♂♂ and ♀♀. Except when the reproductive interests of both sexes coincide, which only occurs under strict monogamy, there is a conflict of interests between the sexes over the number of matings and reproductive decisions. It has been suggested that ♂♂ are selected to "harm" ♀♀ if this increases ♂ reproductive success, even at the expenses of ♀ fitness. One prediction of such an hypothesis is that sperm is selected to maximize the probability of fertilization, and this sometimes can cause a decrease in fertility due to polyspermy, genetic incompatibility, toxic seminal products that harm ♀♀, etc. Here, this hypothesis is tested by comparing the fertility rates of parthenogenetic and sexual *I. hastata* populations. The results show that sexual ♀♀ are less fertile than parthenogenetic ones, which is in agreement with the sexual conflict predictions tested in this study.
- (17697) CRAVES, J.A. & D.S. O'BRIEN, 2007. *Erythrodiplax umbrata* (Odonata: Libellulidae) new for Michigan. *Gt Lakes Nat.* 40(1/2): 95-97. – (Rouge River Bird Observatory, Univ. Michigan-Dearborn, Environmental Interpretive Cent., Dearborn, MI 48128, USA).
2 ♂, Detroit River International Wildlife Refuge, Wayne co., 6-X-2006.
- (17698) DELER-HERNÁNDEZ, A., Y.S. MEGNA, D.D. GONZÁLEZ LAZO & C.N. CARCASÉS TORRES, 2007. Aquatic insects and priority areas for conservation in the Cauto river high basin (Santiago de Cuba province, Cuba). *Boln Soc. ent. aragon.* 40: 451-461. (Span., with Engl. s.). – (First Author: Depto Biol., Univ. Oriente, Ave. Patricio Lumumba s/n, CU-90500 Santiago, Santiago de Cuba).
Records are presented of 13 odon. spp. (2 taxa at generic level only), incl. the endemic *Protonera capillaris*. Annotations on the respective habitats are provided.

- (17699) GUNZBURGER, M.S., 2007. Evaluation of seven aquatic sampling methods for amphibians and other aquatic fauna. *Appl. Herpetol.* 4: 47-63. – (Nokuse Plantation, 13292 County Hw. 3280, Bruce, FL 32455, USA).
4 sampling methods allowed counts of individuals. For odon. the most effective was box trap, followed by the metal dipnet and the D-frame dipnet.
- (17700) HOLLAND, R.A., K. THORUP & M.C. WIKELSKI, 2007. Where the wild things go. *Biologist* 54(4): 214-219. – (First Author: Dept Ecol. & Evol. Biol., Princeton Univ. Princeton, NJ, USA). The paper deals with the techniques of tracking of animals over large spatial scales. Migrating dragonflies can be radio tagged and tracked from a plane. These transmitters are also detectable from low earth orbit.
- (17701) IWAMI, T., O. KISHIDA & K. NISHIMURA, 2007. Direct and indirect induction of a compensatory phenotype that alleviates the costs of an inducible defense. *PLoS ONE* 2(10): e1084. doi: 10.1371/journal.pone.0001084. – (Graduate Sch. Fish. Sci., Hokkaido Univ., Hakodate, JA). Organisms often exhibit phenotypic plasticity in multiple traits in response to impending environmental change. Multiple traits phenotypic plasticity is complex syndrome brought on by causal relations in ecological and physiological context. Larvae of the salamander *Hynobius retardatus* exhibit inducible phenotypic plasticity of 2 traits, when at risk of predation by *Aeshna nigroflava* larvae. One induced phenotype is an adaptive defense behaviour, i.e., stasis at the bottom of water column, directly triggered by the predation risk. Another one is a compensatory phenotype, i.e., enlarged external gills, for an unavoidable cost (hypoxia) associated with the induced defence. 2 ways were identified by which this compensatory phenotype could be induced, i.e., in response to the associated hypoxic conditions resulting from the induced defence and also by the presence of the predator.
- (17702) KRECH, M., 2007. Reproduktionsnachweise der Asiatischen Keiljungfer (*Gomphus flavipes* Charpentier, 1825) für den Unter- und Mittellauf der Unstrut in Sachsen-Anhalt und Thüringen (Odonata: Gomphidae). *Mitt. thürng. EntVerb.* 14(1): 2-5. – (Auf der Grossen Mühle 7, D-99198 Erfurt-Linderbach).
The breeding of *G. flavipes* is documented by exuviae, recorded from 9 sites in Thuringia and Sachsen-Anhalt (Germany). At almost all sites it co-occurs with *Calopteryx splendens* and *Ophiogomphus cecilia*.
- (17703) MAIOLINI, B. & M. CAROLLI, 2007. Aria di tempesta per I “dragoni volanti”. Le libellule (Odonata) in Trentino: quadro storico e attuale. *Natura alpina* 2007 (1/2): 81-98. – (Authors' address not stated).
Considerations on the odon. fauna of Trentino (Italy), with a commented list of 64 spp.
- (17704) MARTINS, F.A. & K. DEL CLARO, 2007. Distribuição especial e abundância de *Oxyagrion microstigma* (Odonata: Coenagrionidae) em uma área de Cerrado. *Anais 8 Congr. Ecol. Brasil, Caxambu/MG*, pp. 1-2. – (Lab. Ecol. Comportamental, Inst. Biol., Univ. Fed. Uberlândia, Rua Ceará s/n, Bloo 2D, ampus Umuarama,aixa Postal 593, BR-38400902 Uberlândia, MG).
The territorial behaviour of *O. microstigma* is briefly described and further work in this sp. is suggested.
- (17705) MUISE, C., K.R. LANGDON, R.P. SHIFFLETT, D. TRENTLY, A. HOFF, P. SUPER, A. MAYOR & B.J. NICHOLS, 2007. Checklist of Odonata from Great Smoky Mountains National Park. *SWest Nat.* (Special Issue) 1: 207-214. – (Last Author: Great Smoky Mountains Natn. Park, 1314 Cherokee Orchard Rd, Gatlinburg, TN 37738, USA).
A checklist of 93 spp.
- (17706) MURÁNYI, D., 2007. Contribution to the Odonata fauna of Albania. *Folia ent. hung.* 68: 41-53. – (Dept Zool., Hungarian Nat. Hist. Mus., Baross u. 13, HU-1088 Budapest).
The records of 34 spp. and notes on distribution and taxonomy of 14 of these are presented. *Somatochlora flavomaculata*, *S. meridionalis* and *Sympetrum depressiusculum* are new to the fauna of Albania; the number of known spp. for that country stands now at 55.
- (17707) OLOMUKORO, J.O. & L.I.N. EZEMONYE, 2007. Assessment of the macro-invertebrate fauna of rivers in southern Nigeria. *Afr. Zool.* 42(1): 1-11. – (DEept Anim. & Envir. Biol., Univ. Benin,

P.M.B. 1154, Benin, Nigeria).

Since odon. were identified using works on non-African (mostly nearctic) taxa, the publication is odonatologically irrelevant.

- (17708) PROKOP, J. & M. FIKAČEK, 2007. An annotated list of Early Oligocene insect fauna from Seifhennersdorf (Saxony, Germany). *Acta Mus. natn. Pragae* (B) 63(2/4): 209-217, pls 1-3 incl. – (Dept Zool., Fac. Sci., Charles Univ. Prague, Viničná 7, CZ-12844 Praha-2).
The sole odon. representative is “? Ictinogomphus Cowley, 1934”. Its affiliation to Gomphidae (Lindeniinae) is documented. The fossil represents the distal part of a forewing, with well-preserved venation. Specimen SMMG SaT 532, in the Staatliches Museum für Mineralogie und Geologie, Dresden, Germany.
- (17709) RUCHIN, A.B., N.G. LOGINOVA & D.K. KURMAEVA, 2007. K faune nasekomyh dvuh lesnichestv Nacional'nogo parka “Smol'ny” (Respublika Mordoviya). – [On insect fauna of two forestry districts in the “Smol'niy” National Park (Mordovian Republic)]. *Fauna i ekologiya nasekomyh* 1: 24-33, Rostov na Donu. (Russ.). – (Dept Biol., Mordovian St. Univ., Bolshevitskaya ul., Saransk-430000, Russia).
Includes a checklist of 9 odon. spp. recorded from the Barahmanskoe and L'vovskoe forestry districts; – Russia.
- (17710) SCHIELKE, E., C. COSTANTINI, G. CARCHINI, N. SAGNON, J. POWELL & A. CACCONE, 2007. Development of a molecular assay to detect predation on *Anopheles gambiae* complex larval stages. *Am. J. trop. Med. Hyg.* 77(3): 464-466. – (J. Powell, Dept Ecol. & Evol. Biol., Yale Univ., P.O. Box 208106, New Haven, CT 065208106, USA).
A molecular assay is developed to detect predation on *A. gambiae* s.l. mosquitoes. The intergenic spacer ribosomal DNA polymerase chain reaction assay and restriction enzyme analysis use *A. gambiae*-specific primers to detect mosquito DNA in the DNA extracts from whole invertebrate predators, which enables identification of the sp. (*A. gambiae* vs *A. arabiensis*) and molecular forms (M vs S in *A. gambiae*). It is shown that *A. gambiae* DNA can be detected after ingestion by lestsids after 4 h, libellulids after 6 h, and notonectids (Heteroptera) after 24 h. The method is an improvement over previously published methods because of the ease of its execution and the increased time of detection after ingestion.
- (17711) SANTOS, J.A., [Ed.], 2007. Libelulas e libelinhas. – [Dragonflies and damselflies]. *Madresilva* 7: 6-7, 9, 11 (references). (Port.). – (Associação Almargem, Alto di S. Domingos 14, PT-8100-756 Loulé).
An illustrated, brief general description of odon. biology, with a key to the fam. occurring in Algarve (southernmost prov. of Portugal) and with reference to some regional spp.

2008

- (17712) ANDREW, R.J., K.A. SUBRAMANIAN & A.D. TIPLE, 2008. *A handbook on common odonates of central India*. Hislop Coll., Nagpur. xx+54 pp. Softcover (13.7×20.9 cm). ISBN none. – Available from Dr R.J. Andrew, Dept Zool., Hislop Coll., Temple Rd, Civil lines, Nagpur-440001, India).
The book was published in the frameworks of the 18th Int. Symp. Odonatol. (cf. *OA* 17382), with the objective of providing an introduction to the fauna of Nagpur for the participants, students, researchers, environmentalists and, generally, for nature lovers. It presents 45 common spp., with beautiful field photographs, brief description of each sp. and the information on its habits and habitats. It is a useful and very nicely produced work. The Foreword was provided by Prof. Dr D.B. Tembhare; see *OA* 17742.
- (17713) AZAR, D. & A. NEL, 2008. First Baltic amber megapodagrionid damselfly (Odonata: Zygoptera). *Annls Soc. ent. Fr.* (N.S.) 44(4): 45q-457. (With Fr. s.). – (Second Author: entomologie, Mus. Natn. Hist. Nat., CP 50, 45 rue Buffon, F-75005 Paris).
Electropodagrion szwedoi gen. n., sp. n. is described and illustrated, the exact locality is not stated. Holotype is deposited at Mus. Inkluzji., Dept Invert. Zool., Univ. Gdansk, Poland. A checklist of the described fossil Megapodagrionidae is included.
- (17714) DE DIEGO, G., P.J. REBAGLIATI & L.M. MOLA, 2008. Fluorescent banding and meiotic behaviour in *Erythrodiplax nigricans* (Libellulidae) and *Coryphaeschna perrinsi* (Aeshnidae) (Anisoptera, Odonata). *Caryologia* 61(1): 60-67. – (Last

Author: Lab. Cytogen. & Evol., Depto Ecol. Genet. & Evol., Fac. Cienc. Exactas & Naturales, Univ. Buenos Aires, Intendente Güiraldes y Costanera Norte, AR-1428 Ciudad Universitaria, Buenos Aires).

The Odon. are cytogenetically characterised by possessing holokinetic chromosomes, a post-reductional meiosis, an X0/XX (δ/φ) sex chromosome mechanism, *m*-chromosomes, and only 1 chiasma per bivalent. Chromosome studies were performed on $\delta \delta$ *E. nigricans* and *C. perrensi* from Argentina. *E. nigricans* has $n = 12+X0$ and lacks *m*-chromosomes, while *C. perrensi* has $2n = 27$, $n = 13+X0$, *m*-chromosomes and a large autosomal pair associated with the nucleolus. The meiotic behaviour of both spp. follows the general pattern of the order: the X chromosome is positively heteropycnotic during early prophase I: bivalents regularly show only 1 chiasma; all chromosomes migrate synchronously and almost parallel to the equatorial plane at anaphase I; at metaphase II, the X chromosome is present in all the cells as a consequence of the post-reductional division, it lies outside the metaphasic plate, and migrates asynchronously with the autosomes at anaphase II. In *C. perrensi*, the largest bivalent exhibits 2 chiasmata in a large proportion of cells, which is a very rare feature among odon. Heterochromatin characterisation with DAPI-DMA banding reveals that *C. perrensi* does not show fluorescent banding, except for a CMA bright band at one telomeric region of the largest bivalent, associated with the NOR region; in *E. nigricans*, autosomes have small AT-rich telomeric blocks, except for the smallest pair, which exhibits conspicuous bands in both telomeric regions, one being GC-rich and the other AT-rich. Taking into account that the *m*-chromosomes have been found in other *E. nigricans* populations, their absence in the studied population may be due to the presence of such heterochromatic blocks.

- (17715) DINGEMANSE, N.J. & V.J. KALKMAN, 2008. Changing temperature regimes have advanced the phenology of Odonata in the Netherlands. *Ecol. Ent.* 33: 394-402. – (First Author: Anim. Ecol. Gr., Cent. Ecol. & Evol. Stud, Univ. Groningen, P.O. Box 14, NL-9750 AA Haren).

Responses of biota to climate change have been well documented for a restricted number of taxa. This study examined shifts in phenology of 37 odon. spp. in the Netherlands over the last decade. The present

study shows that adults of the Dutch Odon. have advanced their flight dates over recent years due to complex effects of changing temperature regimes on the timing of adult flight dates. Flight dates did not respond to changes in autumn/winter temperatures, advanced with increases in spring temperatures of the focal and previous year, and delayed with increases in summer temperatures of the previous year. Climate change consequently advanced the flight dates of the Odon. because only spring temperatures have increased during the study period. The findings imply that climate change can evoke strong phenological responses in aquatic insects. Moreover, shifts in phenology due to climate change are likely to vary both spatially or temporally, depending on the exact nature of climate change.

- (17716) DOI, H., 2008. Delayed phenological timing of dragonfly emergence in Japan over five decades. *Biol. Lett.* 4: 388-391. – (LAFWEDY, Fac. Agric., Ehime Univ., 3-5-7, Tarumi, Matsuyama, 790-8566, Ehime, JA).

Recent increases in air temperature have affected species phenology, resulting in the earlier onset of spring life-cycle events. Trends in the first appearance of adult dragonflies across Japan were analysed using a dataset consisting of observations from 1953 to 2005. Dynamic factor analysis was used to evaluate underlying common trends in a set of 48 time series. The appearance of the first adult dragonfly has significantly shifted to later in the spring in the past five decades. Generalized linear mixing models suggested that this is probably the result of increased air temperatures. Increased summer and autumn temperatures may provide longer bivoltine periods and a faster growth rate; thus, the second generation, which previously hatched in summer, can emerge in the autumn causing the size of the population of dragonflies that emerge in spring to decrease. It is also possible that reduced dragonfly populations along with human development are responsible for a delay in the first observed dragonflies in the spring. However, human population density did not appear to strongly affect the appearance date. This study provides the first evidence of a delay in insect phenological events over recent decades.

- (17717) *The DRAGONFHUNTER*. Newsletter of the New Hampshire Dragonfly Survey. (ISSN none). Issues not numbered; mostly 2 pp. per issue. Nos

Summer (2007), Fall (2007), Spring (2008), Summer (2008), Winter (2009). Editor P. Hunt. — (Editorial address: Audubon Soc. New Hampshire, 3 Silk Farm Rd, Concord, NH 03301, USA).

Mostly season notes on New Hampshire (USA) observations, using vernacular nomenclature.

- (17718) DYATLOVA, E.S., 2008. Izuchenie amfibi-oticheskikh nasekomykh zoologicheskogo stacionara Odesskogo Nacional'nogo Universiteta im. I.I. Mechnikova v nizov'yah Dnestra. — [Stationary study of aquatic insects in the Dniester mouth area by the University of Odessa]. *Significance and prospects of stationary research on conservation of biodiversity*, p. 129, Natn. Acad. Sci. Ukraine, Lvov. (Russ.; book title Engl.). — (Dept Zool., Fac. Biol., Odessa Natn. Univ., Dvoryanskaya 2, UKR-65026 Odessa).

With reference to the paper listed in OA 16188, 6 odon. spp. are added to the regional fauna, which stands now at 32 spp., of which *Erythromma lindennii* and *Anax imperator* are red-listed in the Ukraine and *Gomphus flavipes* is protected by the Habitat Directive. The scope of other studies on the regional fauna is mentioned without bibliographic references.

- (17719) FLENNER, I. & G. SAHLEN, 2008. Dragonfly community re-organisation in boreal forest lakes: rapid species turnover driven by climate change? *Insect Conserv. Divers.* 1: 169-179. — (Ecol. & Envir. Sci., Halmstad Univ., P.O. Box 823, SE-30118 Halmstad).

Climate change affects many ecosystems on earth. If not dying out of migrating, the spp. affected have to survive the altered conditions, including changes in community structure. It is, however, usually difficult to distinguish changes caused by a changing climate from other factors. Forestry is considered to be the major disturbance factor in Swedish forests. Here, forest lake data sets (1996, 2006) which include species abundance data for odon. larvae, water plant structure, forest age and forestry measures during 1980-2005 are used. Hence, it is possible to discriminate between forestry effects and changes in species composition driven by recent climate change. Effects on regional species composition, species abundance and ecosystem functions, such as changes in niche use, utilising odon. as model organisms are explored. The results show that odon. react rapidly to climate change, showing strong responses over

such a short time span as 10 yr. Changes in both species composition and abundance were observed: formerly rare spp. have become more frequent and now occur in lakes of a wider quality range, while formerly widespread spp. have become more selective in their choice of waters. The new communities harbour about the same number of spp. as before, but seen from a regional perspective, the diversity is reduced. It is predicted that the altered species composition and abundance might raise new demands in conservation planning as well as altering the ecological functions of the aquatic systems.

- (17720) GASSMANN, D. & S.J. RICHARDS, 2008. Description of *Idiocnemis patriciae* spec. nov. from Papua New Guinea (Odonata: Platycnemididae), with new distributional records of other *Idiocnemis* species. *Zool. Med., Leiden* 82(47): 581-593. — (First Author: Naturalis, P.O. Box 9517, NL-2300 RA Leiden).

The new sp. is described from lowland rainforests of the Dark-End Lumber and Lakekamu regions. Holotype ♂: Papua New Guinea: Gulf prov., 2-X-1999; deposited in SAMA, Adelaide. The distributions of *I. australis*, *I. chloropleura* and *I. kimminsi* are updated. A revised key to the ♂ ♂ of the *I. ornata* species-group is provided.

- (17721) GOMIERO, L.M., A.G. MANZATTO & F.M.S. BRAGA, 2008. The role of riverine forests for food supply for the omnivorous fish *Brycon opalinus* Cuvier, 1819 (Characidae) in the Serra de Mar, Southeast Brazil. *Braz. J. Biol.* 68(2): 321-328. (With Port. s.). — (First Author: Depto Zool., Inst. Biol., Univ. Estad. Paulista, Av 24 A 1515, CP 199, BR-13506-900 Rio Claro, SP).

In the Paraibuna basin, (Serra de Mar State Park), odon. remains were found in the digestive tract of 11.7% of the fish examined.

- (17722) GRAF, R., 2008. Jahresbericht Wauwiler Ebene 2007/2008: *Abschlussbericht der ersten Umsetzungsperiode des Vernetzungsprojekts*. Schweiz. Vogelwarte, Sempach. 41 pp. (Author: Schweizerische Vogelwarte, CH-6204 Sempach).

The man-made ponds, constructed since 1995 in the Wauwiler Plain (canton Luzern, Switzerland), were soon populated by *Ischnura pumilio*. A checklist of 42 odon. spp., recorded 1999-2007 at Mauensee is provided.

- (17723) HOLMES, P., 2008. East Keswick's dragonflies and damselflies. *Newsl. E Keswick Wildl. Trust* 31: 1-2. — (Author's address not stated). Short checklists of spp. recorded from 3 localities in E Keswick (Yorkshire, UK).
- (17724) HUNT, P., 2008. *The New Hampshire Dragonfly Survey manual for volunteers: 2008*. New Hampshire Audubon, Concord. 24 pp. — (Audubon Soc. New Hampshire, 3 Silk Farm Rd, Concord, NH 03301, USA). A brief outline of the Survey, instructions for the recorders (with the related forms) and a checklist of spp. currently known to occur in New Hampshire.
- (17725) JOVIĆ, M., S. SANTOVAC & L. ANDJUS, 2008. *Leucorrhinia caudalis* (Charpentier, 1840), a new or an ex dragonfly species in Serbian fauna? *Bull. nat. Hist. Mus. Belgrade* 1: 161-171. (With Serb. s.). — (First Author: Nat. Hist. Mus., Njegoševa 51, RS-11000 Beograd). 11 specimens (♂, ♀) from Bara Reva (Belgrade), deposited in the Natn. Mus. Zrenjanin, are brought on record. They were collected in May 1970 and 1971, and represent the first reliable evidence on the occurrence of this sp. in Serbia, though at the subsequent visits (2005, 2006) at the locality the sp. was not encountered.
- (17726) KOVÁCS, T. & R.J. GODUNKO, 2008. Faunistic records of larvae of Ephemeroptera, Odonata and Plecoptera from the Zakarpats'ka region, Ukraine. *Folia Hist. nat. Mus. matraensis* 32: 87-91. — (First Author: Mátra Muz., Kossuth Lajos u. 40, HU-3200 Gyöngyös). Records of 6 odon. spp.
- (17727) KRASSILOV, V. & S. SHUKLINA, 2008. Arthropod trace diversity on fossil leaves from the mid-Cretaceous of Negev, Israel. *Alavesia* 2: 239-245. — (First Author: Inst. Evol., Univ. Haifa, Mount Carmel, Haifa-31905, Israel). A set of egg insertions on an *Acaciaephyllum*-type leaf (*Phyllostigmas*) is described and illustrated from the Albion of Makhtesh Ramon. The set shows a zigzag pattern characteristic of Odon. and assigned to "coenagrionid type" by Hellmund & Hellmund (cf. e.g. *OA* 11249).
- (17728) KUKULA, K., A. BYLAK, E. KUKULA, A. WOJTON, 2008. The influence of European beaver, *Castor fiber* L., on fauna in the mountain stream. *Roczn. bieszczadzkie* 16: 375-388. (Pol., with Engl. s.). — (Kat. Biol. Srod., Univ. Rzeszowski, Cegielniana 12, PO-35-959 Rzeszów). The study was conducted on the Niedzwiedzi stream, a tributary of the San, in the Bieszczady Natn. Park, E Poland, where the beavers from the San population settled in 1995. By their construction of the dams, the beavers greatly changed the invertebrate composition of the stream. At the upper station and below the lowest dam, the bottom of the stream is rocky and no odon. occur there, whereas a rich odon. fauna (*Sympecma*, *Coenagrion*, *Ischnura*, *Aeshna*) was recorded from the large, almost stagnant, up to 1.8 m deep beaver ponds, where the bottom is covered by a deep layer of sediment. It is emphasized, the beaver activities significantly promote local biodiversity, therefore their presence in a habitat is considered useful.
- (17729) MACHADO, A.B.M., 2008. Studies on neotropical Protoneuridae, 21: The status of *Amazona Machado, 2004* (Odonata: Protoneuridae). *Lundiana* 9(1): 53-56. — (Depto Zool., Inst. Cienc. Biol., Univ. Fed. Minas Gerais, C.P. 486, BR-31270-901 Belo Horizonte, MG). The genus *Amazona*, regarded by F.A.A. Lencioni as a junior synonym of *Forcepsioneura Lencioni, 1999* (see *OA* 15868) is revalidated on morphological and zoogeographic evidence.
- (17730) MARTYNOV, A.V., 2008. Strekozy (Insecta: Odonata) stepnogo levoberezh'ya Ukrainy. — [Dragonflies (Insecta: Odonata) of the left-bank side steppe of the Ukraine]. *In: A.V. Prisky, [Ed.], Shivyie objekty v usloviyah antropogennogo pressa*, pp. 124-125, Belgorod. Gos. Univ., Belgorod, ISBN 978-5-98242-107-4. (Russ.). — (Dept Ecol., Fac. Biol., Donetsk Natn. Univ., Shchorsa 46, UKR-83050 Donetsk). The composition of the fauna (59 spp.) is briefly described, the characteristic spp. are listed, but an exhaustive checklist is not provided.
- (17731) MARTYNOV, A.V. & V.V. MARTYNOV, 2008. Dragonflies (Insecta, Odonata) of the "Kamennye Mogily" reserve. *Prir. Al'manah* (Biol.) 10: 67-82. (Russ., with Engl. & Ukr. s's). — (Dept Zool., Fac. Biol., Donetsk Natn. Univ., Shchorsa 46, UKR-83050 Donetsk).

The fauna (28 spp.) of the Reserve, situated on the Karatysh river (Donetsk region, the Ukraine) is described and its phenology is outlined. Ecologically plastic spp., widespread in Europe, are forming its basis.

- (17732) **MONITORING DRAGONFLIES IN EUROPE.** Programme & Abstracts of International Symposium, Wageningen, 13-14 June 2008. De Vlinderstichting, Wageningen. Each abstract on a separate page, pages not numbered.
 Oral presentations: *Groenendijk, D., V. Mensing & C. Plate*: Ten years dragonfly monitoring in the Netherlands: results and lessons for the future; – *Ott, J.*: What can monitoring studies of dragonflies tell us? From single waters to landscapes, from short term to long term projects; – *Grönhagen, N. & K.-J. Conze*: How to detect trends in heterogeneous data accurately? The example of the preparation of the new red list of dragonflies in Northrhine-Westphalia; – *Oertli, B.*: The local species richness: a metric for a long term monitoring; – *Torralba-Burrial, A. & F.J. Ocharan*: Monitoring dragonfly species as river ecological status bioindicators; – *Van Strien, A.*: Detecting trends in dragonfly data: difficulties & opportunities; – *Bell, S.*: People count too: volunteers and biodiversity monitoring in Europe; – *De Knijff, G.*: The dragonfly inventory project in Flanders (Belgium): thirty years of collecting data. Are there any trends detectible?; – *Dyatlova, E.S.*: Dragonflies of the proposed National Park “Nizhnednestrevsky”: monitoring and conservation; – *Thompson, D.J.*: Monitoring *Coenagrion mercuriale*: the UK experience; – *Termaat, T., J. Bouwman & C. Plate*: Monitoring threatened species in the Netherlands; – *Luque, P. & M. Lockwood*: The Catalan Dragonfly Monitoring Scheme; – *Kalkman, V.*: Progress report on the atlas and red list of European dragonflies; – *Van Swaay, C.*: Lessons from the Butterfly Monitoring Network in Europe; – **Poster presentations**: *Azpilicueta Amerin, M. & A. Cordero Rivera*: Monitoring *Oxygastra curtisii* and *Macromia splendens*: their habitat and life cycle; – *Oertli, B. & P. Nicolet*: The European Pond Conservation Network (EPCN); – *Sánchez Guillén, R.A. & A. Cordero Rivera*: Relative frequency of *Ischnura elegans* and *I. graellsii* (Odonata: Coenagrionidae) in the Galician coast; – *Termaat, T., V.J. Kalkman & J.H. Bouwman*: Trends in ranges of dragonflies in the Netherlands: does climate change play a role?;

– *Termaat, T., V. Mensing, D. Groenendijk & J. Bouwman*: Dragonfly protection in the Netherlands: a stepwise approach.

- (17733) **MULLER, J.**, 2008. Libellen mediterraner Verbreitung zunehmend als neue Faunenelemente in Sachsen-Anhalt. *NatSchutz Sachsen-Anhalt* 45(1): 13-22. – (Frankfelde 3, D-39116 Magdeburg).
 Considerations on the current status and trends in the occurrence and abundance of *Ceriagrion tenellum*, *Coenagrion mercuriale*, *Erythromma lindesii*, *Aeshna affinis*, *Anax ephippiger*, *Crocothemis erythraea*, *Sympetrum fonscolombii* and *S. meridionale* in Sachsen-Anhalt, E Germany.
- (17734) **MÜLLER, J. & R. STEGLICH**, 2008. Zur Reproduktion der Frühen Heidelibelle *Sympetrum fonscolombi* (Odonata: Libellulidae) in der Bodeniederung bei Unseburg. *Ent. Mitt. Sachsen-Anhalt* 16(1):41-47. – (First Author: Frankfelde 3, D-39116 Magdeburg).
 The views on the generic affiliation (*Sympetrum/Tarnetrum*) are reviewed, and the spelling of the sp. name (*fonscolombii*) is commented upon. In 2007, the invasion of the sp. was observed between early Sept. and mid Oct. The second generation of this bivoltine sp. is documented from Bodeniederung at Unseburg, i.e. for the first time in Sachsen-Anhalt (E Germany).
- (17735) **MUSCHIOL, D. & W. TRAUNSPURGER**, 2008. Life at the extreme: meiofauna from three unexplored lakes in the caldera of the Cerro Azul volcano, Galápagos Islands, Ecuador. *Aquat. Ecol.* 2008: 14 pp.; – doi: 10.1007/s10452-008-9202-y. – (*Anim. Ecol.*, Univ. Bielefeld, *Morgenbreede* 45, D-33615 Bielefeld).
 On Isla Isabela, 3 so far unexplored lakes were investigated in the caldera of Cerro Azul, one of the most active volcanoes in the world. The lakes face recurrent desiccation and eruption events and showed distinct differences in their water chemistry. Among the 27 aquatic metazoan spp., the Aeshnidae and Libellulidae are familywise reported.
- (17736) **NIEUWSBRIEF VAN DE NEDERLANDSE VERENIGING VOOR LIBELLENSTUDIE** (ISSN 1387-4470), Vol. 11, Nos 3 (Sept. 2007), 4 (Dec. 2007), Vol. 12, Nos 1 (Feb. 2008), 2 (June 2008). (Dutch). – (c/o T. Hesselink, Lange Akkers

- 33, NL-666 HB Heteren).
 [Some highlights]: [11/3]: *Schut, D. & V. van Schaik*: Ophiogomphus cecilia larvae in the dried-up Roer (pp. 3-4); – *Dutmer, G.*: Orthetrum cancellatum oviposits also on moist ground (p. 4); – *Witte, R.H. & D. Groenendijk*: Development of low fen dragonflies in Flevoland (pp. 6-8); – [11/4]: *Wasscher, M.*: Dragonfly inventarisatie workshop in SW Romania (pp. 3-4; with a checklist of 40 spp.); – [12/1]: related to the Plenary Business Meeting (29 March 2008) of the Society; – [12/2]: *Termaat, T. & D. Groenendijk*: Review of the Netherlands odonatological literature, 2006 (pp. 3-5). – (Note: All back-issues can be downloaded at www.brachytron.nl)
- (17737) *NIKOLAEVA, N.E.*, 2008. Analysis of freshwater invertebrate fauna caught in underwater light-trap. *Vest. tver. gos. Univ. (Biol. & Ekol.)* 2008(7): 95-105. (Russ., with Engl. s.). – (Author's postal address not stated).
 White-light diodes were used as the source of light in traps. More than 80 spp. of various taxa were caught. Larval *Lestes sponsa*, *L. virens*, *Sympetrum flaveolum*, *S. vulgatum* and *S. danae* were attracted by light. *Coenagrion* responded weakly, whereas *Aeshna*, *Cordulia* and *Libellula* larvae were not phototactic.
- (17738) *OKAJIMA, R.*, 2008. The controlling factors limiting maximum body size of insects. *Lethaia* 2008, 8 pp. – DOI 10.1111/j.1502-3931.2008.00094.x. – (Dept Ecol. & Evol. Biol., Grad. Sch. Life Sci., Tohoku Univ., Aoba-yama, Sendai, 980-8578, JA).
 Based on the working hypothesis that insect body sizes can be explained only by the historical changes in the oxygen supply, the paper focuses on the body size of the Protodonata and Odonata. The amount of oxygen needed and that of oxygen entering the insect body was calculated using allometric equations. The theoretical maximum sizes at each geologic time were estimated from palaeo-atmospheric oxygen partial pressure and compared with the maximum size of known fossilized insects. The historical change in fossilized insect sizes was much larger than that in theoretical sizes. Additionally, from the Jurassic, despite an increase in the partial pressure of oxygen which would theoretically increase maximum size, the maximum size of fossilized insects became smaller. These findings are inconsistent with the expectations of the working hypothesis. Oxygen supply is likely to partially limit the maximum size of insects with additional factors.
- (17739) *PETRULEVIČIUS, J.F., T. WAPPLER, S. WEDMANN, J. RUST & A. NEL*, 2008. New megapodagrionid damselflies (Odonata: Zygoptera) from the Paleogene of Europe. *J. Paleontol.* 82(6): 1173-1181. – (Second Author: Steinmann Inst., Univ. Bonn, Nussallee 8, D-53115 Bonn).
 Based on isolated wings are described: *Eckfeldia superstes* (Wappler, 2003) gen. n. from the Middle Eocene laminated mudstones of Eckfeld, Maar, Germany; *Furagrion jutlandicus* (Henriksen, 1922) gen. n. from the lowermost Eocene laminated claystones of the Ølst and Fur-Formation, Denmark; and an unidentified Middle Eocene sp. Taphonomy and colour preservation of the fossils are briefly considered. Characters used for phylogenetic analyses in extant and fossil Megapodagrionidae are discussed. The biogeographical and paleoecological implications of the new European fossils are briefly touched upon.
- (17740) *SCHURAN, E.*, 2008. *The impact of deltamethrin on larval development of dragonflies (Odonata) of the Okavango Delta, Botswana*. Diplom Ingenieur (FH) thesis, Dept Nature Conserv. & Landscape Planning, Anhalt Univ., Bernburg, in cooperation with the Harry Oppenheimer Okavango Res. Cent., Univ. Botswana, Maun. 39 pp.
 Subsequent to the 1999 outbreak of trypanosomiasis in the Okavango Delta (Botswana), aerial application of deltamethrin was used to control/eradicate the tsetse flies, *Glossina morsitans centralis*, in 2001 and 2002. Tsetse fly control monitoring, conducted between 2002 and 2005, did not detect any tsetse in the sprayed areas. However, it does appear that deltamethrin applications were responsible for a significant decrease in terrestrial and aquatic invertebrate abundance and shifted species composition within different Okavango Delta habitats. For a closer investigation of these effects, 14 artificial ponds were constructed at the Harry Oppenheimer Res. Cent. After natural colonisation by freshwater invertebrates, half of them were treated with spraying campaigns. The observation of subsequent effects focused primarily on Odon. The abundance of invertebrate fauna decreased drastically in the treated ponds; the odon. emergence almost completely ceased, whereas it was flourishing in the

control ponds. The experiment was simultaneously conducted in the laboratory for odon. larvae, by application of 30 µl concentration, i.e. equivalent to the dose used in spraying operations. Additionally, it was repeated also with just a half of the concentration. In both cases the results were similar and supported those obtained under field conditions. At both concentrations, odon. larvae died within 3 h. It is estimated, the lethal dose is below 15 µl. A better controlled setting of experiments is required to achieve more generalizable results, to avoid further impact of deltamethrin on already threatened spp. and the subsequent loss in biodiversity.

- (17741) SIMAIKA, J.P., 2008. *Conservation biogeography of South African dragonflies (Odonata)*. M.Sci. thesis (Ent.), Stellenbosch Univ. xi+71 pp. Supervisor: Prof. M.J. Samways. (With Afr. s.). – (Dept Conserv. Ecol. & Ent., Fac. AgriSci., Univ. Stellenbosch, P.B. X1, Matieland-7602, SA). The great pressures on freshwaters require their conservationists and manager to develop methods to rapidly and accurately assess their condition. Odon. are excellent indicators of habitat integrity and are effective organisms for this purpose. However, assessment must be done at the correct spatial scale. The aim here is to optimize the spatial resolution at which spp. are mapped, using three different concepts and methods in freshwater invertebrate distribution mapping, with special emphasis on IUCN Red Listing. The first is the extent of occurrence (EOO) concept, using the minimum convex polygon, and the second, the area of occupancy (AOO) concept, using IUCN and quaternary catchments. The third approach uses a river layer to compare the suitability of grids as opposed to catchments in mapping. In this study it was found that area estimation based on minimum convex polygons should not be encouraged for aquatic organisms. This study also suggests that the IUCN concept of area of occupancy (AOO) should be redefined simply as occurrence, referring to known point-locality presences only and, if future data allow, to known absences. The IUCN extent of occurrence (EOO), for aquatic spp., should be defined as ‘the sum of the smallest hydrological units identified of presently known, inferred or projected occurrences of a taxon, excluding cases of vagrancy, that are used to estimate the threat to a taxon’. A single hydrological unit is also the conservation or management unit. Currently, that unit is the quaternary catch-

ment. Odon. have excellent potential as indicators of habitat integrity. For this purpose, the aim was to develop the Dragonfly Biotic Index (DBI) for South Africa and compare the DBI to another index, the Average Taxonomic Distinctness Index (AvTD), which was believed to have potential in assessments. The DBI and AvTD are correlated, which suggests that they could be used on a complementary basis to prioritize sites. The DBI is a low-cost, easy-to-use method and is already used for measuring habitat recovery. It has great potential for environmental assessment and monitoring freshwater biodiversity, especially as a complement to freshwater quality assessments that use macroinvertebrate scores. It is, thus recommended its integration into freshwater management and conservation schemes.

- (17742) TEMBHARE, D.B., 2008. Foreword. In: R.J. Andrew et al., *A handbook on common odonates of central India*, p. iii, Hislop Coll., Nagpur; see OA 17712. – (44 Vijaya Nagar, South Ambazari Rd, Nagpur-440022, India). By the Doyen of Indian odonatology and the Past-President of the South Asian Council of Odonatology; with a portrait.
- (17743) YANG, G.-h., B.-y. MAO & Z.-z. YANG, 2008. A preliminary report on the investigation of dragonflies from Cangshan Nature Reserve of Yunnan. *J. Dali Univ.* 7(2): 9-11. (Chin., with Engl. s.). – (Coll. Life Sci. & Chemistry, Dali Univ., Dali-671000 Dali, Yunnan, China). A commented checklist of 65 spp.
- (17744) YU, W.-y., Z.-h. LI, D.-j. SONG, C. HUANG, H.-q. WANG, J. LU, H. WANG & Y.-p. QIAN, 2008. Research on fauna and diversity of Odonata in different seasons in Laoshan area, Nanjing. *Sichuan J. Zool.* 27(3): 322-326. (Chin., with Engl. s.). – (First Author: Dept Life Sci., Nanjing Xiaozhuang Univ., Nanjing-211171, China). 30 spp. were recorded during 2005-2007, 7 of which are new for the province of Jiangsu. The biogeographic composition of the fauna is analysed.
- (17745) YU, W.-y., Z.-h. LI, D.-j. SONG, C. HUANG, X. YANG, X.-j. YUAN & J. ZHOU, 2008. Study of the fauna and diversity of Odonata insects in Zijin Mountain of Nanjing. *J. Nanjing Forestry Univ. (Nat. Si)* 32(4): 139-142. (Chin., with Engl. s.). – (First Author: Dept Life Sci., Nanjing Xiaozhuang

Univ., Nanjing-211171, China).

30 spp., collected 2005-2007, are listed; 8 of these are recorded from the province for the first time. The percentage of the cosmopolitan spp. is higher than that of the oriental taxa, though the percentage of palearctic spp. is the lowest.

- (17746) YU, W.-y. et al. [transliteration of 6 joint authors not provided], 2008. Analysis of the Libellulidae fauna (Odonata) of Lushan area, Jiangxi province and its diversity. *J. Anhui Agric. Sci.* 36(7): 2854-2856, 2866. (Chin., with Engl. s.). — (Dept Life Sci., Nanjing Xiaozhuang Univ., Nanjing-210017, Jiangsu, China).

A list of 24 spp., with the analyses of their biogeographic features and adult phenology.

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- (17747) *AGRION, WDA*. Newsletter of the Worldwide Dragonfly Association (ISSN 1476-2552), Vol. 13, No. 2 (July 2009). — (c/o Dr N. von Ellenrieder, California St. Coll. Arthropods, Cdfa, 3294 Meadows Rd, Sacramento, CA 95832, USA). *Wilson, K.*: Editorial (p. 36); — *Adams, C.*: Message from a new member (p. 36); — *Schneider, W.*: Message from the President (pp. 37-38); — *Orr, B.*: [book review] Dragonflies, by P.S. Corbet & S.J. Brooks (pp. 40-41); — *Dijkstra, K.-D.B.*: [book review] Dragonflies and damselflies of the West, by D. Paulson (pp. 42-43); — [book review] Dragonflies and damselflies of South Africa, by M.J. Samways (pp. 43-44); — *Reimer, B.*: Additional records for Oman (pp. 45-47); — *Tarboton, W. & M. Tarboton*: Red-veined dropwings: how long do they live? (pp. 48-49); — *Theischinger, G., J. Miller, R. Miller & M. Krogh*: Rediscovery of *Austrocordulia leonardi* in the suburbia of Sydney; — *Crewe, M.D. & C. Cohen*: *Viridithemis viridula* Fraser, 1960: discovery of the first known male (pp. 54-55); — *Van der Poorten, N.*: Additional record of *Lyriothemis defonseikai* van der Poorten, 2009 in Sri Lanka (pp. 56-57); — *Von Ellenrieder, N.*: Databasing dragonflies: state of knowledge in the Neotropical region (pp. 58-72) — *Villanueva, R.J., J. van der Ploeg & M. van Weerd*: Some Odonata from the northern Sierra Madre Natural Park, Isabela, Luzon, Philippines (pp. 72-74); — *Kosterin, O. & N. Vikhrev*: Some new provincial records of Odonata made in Thailand in 2007-2009 and a new record from Vietnam (pp. 75-79); — *Reels, G.T. & K.D.P. Wilson*:

Observations of the oviposition behaviour of four species of *Euphaea* Selys (Zygoptera: Euphaeidae) (pp. 80-83); — *Parr, M.J.*: The 6th WDA International Congress of Odonatology, Xalapa, Mexico, 7-12 June 2009 (pp. 84-87); — A few words about Phil Corbet (pp. 88-89); — *Corbet, P.S.*: List of publications including observations on Odonata (pp. 90-96); — *New from Princeton* (p.

- (17748) ANDERSON, R.C., 2009. Do dragonflies migrate across the western Indian Ocean? *J. trop. Ecol.* 25: 347-358. — (Manta Marine, P.O. Box 2074, Malé, Maldives).

In the tropical Indian Ocean, the Maldives lack surface freshwater, so are unsuitable for odon. reproduction. Nevertheless, millions of dragonflies (mostly *Pantala flavescens*) appear suddenly every year starting in Oct. Arrival dates in the Maldives and India demonstrate that the dragonflies travel from southern India, a distance of some 500-1000 km. Dates of arrival and occurrence coincide with the southward passage of the Inter-tropical Convergence Zone (ITCZ). Circumstantial evidence suggests that the dragonflies fly with north-easterly tail winds, within and behind the ITCZ, at altitudes over 1000 m. It is proposed that this massive movement of dragonflies is part of an annual migration across the western Indian Ocean from India to E Africa. Arrival dates in the Seychelles support this hypothesis. Dragonflies also appear (in smaller numbers) in the Maldives in May, with the onset of the southwest monsoon, suggesting a possible return migration from Africa. These proposed migrations of dragonflies, regularly crossing 3500 km or more of open ocean, were previously unknown. It is known that these dragonflies exploit ephemeral rain pools for reproduction: the monsoons and ITCZ bring not only alternating, seasonal rains to India and Africa, but also appropriate winds for dragonflies to follow those rains. Several bird spp. migrate from India across the western Indian Ocean to wintering grounds in Africa. They do so at the same time as the dragonflies, presumably taking advantage of the same seasonal tail winds. Many of these birds also eat dragonflies; the possible significance of this was not previously appreciated.

- (17749) ARDUK-GARCIA, A.M. & T.R. GREGORY, 2009. An exploration of genome size diversity in dragonflies and damselflies (Insecta: Odonata). *J. Zool.* 278: 163-173. — (Second Author: Dept In-

- tegrative Biol., Univ. Guelph, Guelph, ON, N1G 2W1, CA).
- The Odon. remain poorly studied from the perspective of genome size. They exhibit several characteristics that make them desirable targets for analysis in this area, for example a large range in body size, differences in developmental rate, and distinct modes of flight, all of which are related to genome size in at least some animal taxa. The present study provides new genome size estimates and morphometric data for 100 spp., covering about 1/5 of described North American odon. diversity. Significant relationships are reported between genome size and body size (positive in Anisoptera, negative in Zygoptera), and there is also indication that developmental rate and flight are related to genome size in these insects. Genome size is also positively correlated with chromosome number across the order. These findings contribute to an improved understanding of genome size evolution in insects, and raise several interesting questions for future research.
- (17750) AYTEN, Y. & M.S. OZGOKÇE, 2009. Odonata species, their distribution and habitats in Van province. *Yüzüncü Yıl Univ. J. agric. Sci.* 19(1): 1-9. (Turk., with Engl. s.). — (Zirast Fakültesi, Yüzüncü Yıl Univ., Bitki Koruma Bölümü, Van, Turkey). Records of 18 spp., with their preferential habitats marked in a tab. — Turkey.
- (17751) BALLENGÉE, B. & S.K. SESSIONS, 2009. Explanation for missing limbs in deformed amphibians. *J. exp. Zool. (Mol. Dev. Evol.)* 312B, 6 pp. — (Second Author: Dept Biol., Hartwick Coll., Oneonta, NY 13829, USA). The evidence is presented that the most commonly found deformities in wild-caught amphibians, those featuring missing limbs and missing limb segments, may be the result of selective predation. Here it is reported that *Aeshna mixta*, *Libellula depressa* and especially *Sympetrum* larvae can severely injure and even fully amputate developing hind limbs of anuran tadpoles. Developmental responses of the injured tadpoles range from complete regeneration to no regeneration, with intermediate conditions represented by various idiosyncratic limb deformities, depending mainly on the developmental stage of the tadpole at the time of injury/amputation.
- (17752) BRABY, M., 2009. Dragonflies: reporting back on the talk by Brian Thistleton at the April meeting. *Nature Territory* 2009 (May): 9-10. — (c/o P.O. Box 39565, Winnellie, NT 0821, AU). General, with emphasis on Australia and with a checklist of some Northern Territory spp.; — Australia.
- (17753) BROCKHAUS, T., 2009. Erste kommentierte Checkliste der Libellen des Himalayagebirges) (Insecta: Odonata). In: M. Hartmann & J. Weipert, [Eds], *Biodiversität und Naturlausstattung im Himalaya*, vol. 3, pp. 87-106, pl. 3 excl., Ver. Freunde u. Förderer NaturMus. Erfurt. (With Engl. s.). — (An der Morgensterne 5, D-09387 Jahnsdorf/Erzgebirge). A commented checklist is presented of the 239 spp. A brief discussion is provided on the typical mountain spp. and on the possible endemics. The biogeographical composition of the fauna is analysed. A comprehensive (though not exhaustive) regional bibliography is appended.
- (17754) BUCZYNSKI, P., 2009. Babki, pałatki i dzieweczki, czyli o wazkach, ozdobie przyrody Warmii i Mazur. — Damoiselles, emerald damselflies and azure bluets, or on dragonflies, ornaments of nature of Warmia and Mazury. *Natura, Olaszyn* 2(14): 6-11. (Pol.). — (Dept Zool., UMCS, Akademia 19, P-20-033 Lublin). Following a brief general description of odon. morphology, biology, ecology and biotopes, and with reference to Polish fauna, the odon. fauna of Warmia and Mazury (Poland) is outlined. The emphasis is given to the various types of habitats, consequences of the climate change and to the anthropogenic impacts. The objective of the paper is to trigger the interest in odonatological research with non-professional entomologists.
- (17755) CANO-VILLEGAS, F.J., 2009. Larval development of *Onychogomphus costae* Selys, 1885 in the South of the Iberian Peninsula with comments on its confusion with *Ophiogomphus cecilia* (Fourcroy, 1785) (Odonata: Gomphidae). *Boln Soc. ent. aragon.* 44: 327-332. (Span., with Engl. s.). — (Montmayor 4, 1^a-2, ES-14003 Córdoba). A study of the larval development and phenology of *O. costae* in Andalusia is presented. In the studied area it is semivoltine. The previous *O. cecilia* records from the studied area are apparently referable to *O. costae* larvae. The Iberian spp. of the 2 genera are keyed.

- (17756) CARRON, G., 2009. Coenagrion mercuriale (Charpentier 1840) et Leucorrhinia albifrons (Burmeister, 1839) (Odonata) dans la région genevoise. *Entomo helvetica* 2: 71-81. (With Engl. & Germ. s's). — (Bureau Gilles Carron C.P. 90, CH-2002 Neuchâtel).
A restricted but quite a large *C. mercuriale* population was rediscovered in 2006, after 46 yr of absence, on the Creuson stream, in the cantons of Geneva and Vaud (Switzerland). In Cartigny, a small *L. albifrons* breeding population was also found in 2006. This is the sole known population of this sp. in the Geneva region and the third one in Switzerland.
- (17757) CARRON, G., 2009. Les coléoptères aquatiques des marais du lac de Pfäffikon (canton de Zürich), avec première mention pour la Suisse de *Hydroporus scalesianus* Stephens, 1828 et recommandations pour la conservation. *Entomo helvetica* 2: 239-253. (With Engl. & Germ. s's). — (Bureau Gilles Carron, C.P. 90, CH-2002 Neuchâtel).
Includes a reference to the occurrence of *Nehalennia speciosa* and *Leucorrhinia pectoralis* at Pfäffikersee, canton Zürich, Switzerland.
- (17758) COWEY, S., 2009. Wiltshire dragonfly report 2008. *Wiltshire County Recorder's annual Report 2008-2009*: 9-11. — (Author's address not stated).
A commented review of the spp. recorded in 2008 from Wiltshire (UK). It was not a good recording yr. *Pyrrhosoma nymphula* was the first sp. sighted on 2 May, and the last (12 Oct.) were *Aeshna cyanea*, *A. grandis*, *A. mixta* and *Sympetrum striolatum*.
- (17759) DUFOUR, C., 2009. Nouvelle preuve de reproduction d'*Onychogomphus f. forcipatus* (Linnaeus, 1758) dans le Lac de Neuchâtel, Suisse (Odonata, Gomphidae). *Entomo helvetica* 2: 23-31. (With Engl. & Germ. s's).
O. forcipatus breeds again in the Lake of Neuchâtel (Switzerland), along a highly artificial bank, after many decades without any observation. Its return is probably due to the significant improvement of water quality, which is the result of efforts of about 40 yr. A particularly rapid emergence is described and photographically documented.
- (17760) DUMONT, H.J., 2009. Aquatic insects of the Nile basin, with emphasis on the Odonata. In: H.J. Dumont, [Ed.], *The Nile: origin, environments, limnology and human use*, pp. 631-646, Springer, Science & Business Media [*Monogr. biol.* 89]. — (Author: Biol. Dept, Fac. Sci., Univ. Gent, Ledeganckstr. 35, B-9000 Gent).
Much work has been done on the Diptera and also on the Heteroptera of the Nile, whereas the Odon. is by far the best explored order. With ca 250 spp. (listed in tab.), out of the 900 spp. estimated for Africa, the Nile is not particularly rich. The endemic spp. are relatively few, most are found in the faunistically depaupered Ethiopian plateau, followed by the E African lake zone. Quite a few wide-ranging afrotropical spp. have used the Nile valley as a pathway to reach the Mediterranean shores, while in Lower Egypt some Palearctic spp. of Irano-Turanian extraction occur. There has been exchange, across Sinai with the Levant, and perhaps across the Bab-el-Mandeb passage with Arabia. Some of these exchanges have been recent, others are older, and (sub-)speciation has occurred since. Old endemics of Arabia and the Levant (at genus level) may not have had anything to do with the Nile. Their ancestors may have used the Red Sea valley as a pathway for dispersal before the opening of Bab-el-Mandeb. Not only the afrotropical fauna of the Levant is a pluvial relict of Pleistocene age; also in W Sudan, relicts of an African forest fauna are found in a mountainous Sahel environment (Jebel Marra). Oriental elements in the Nile fauna are extremely rare.
- (17761) ENDERSBY, I., 2009. Nomenclatural amendments to the current catalogue of Australian Odonata. *Aust. Nat.* 36(3): 99-101. — (56 Looker Rd., Montmorency, Vic. 3094, AU).
Notes on the type depositories of 7 libellulid spp. described by J.J. Kaup or F. Brauer from SE Asia and recorded from Australia are provided, together with a note on the validity of the generic name *Tramea* Hagen. — See. *OA* 16409.
- (17762) GARRISON, R.W. & N. VON ELLENRIEDER, 2009. Redefinition of *Mesoleptobasis* Sjöstedt, 1918 with the inclusion of *Metaleptobasis cyanolineata* (Wasscher, 1998) comb. nov. and description of a new species *Mesoleptobasis elongata* (Odonata: Coenagrionidae). *Zootaxa* 2145: 47-68. (With Span. s.). — (First Author: Plant Pest Diagnostic Br., California Dept Food & Agric., 3294 Meadowview Rd, Sacramento, CA 95832, USA).
Metaleptobasis cyanolineata is transferred to *Mesoleptobasis*. *Mesoleptobasis elongata* sp. n. is de-

- scribed (holotype ♂: Surinam, Boven Coesewijne; deposited in RMNH, Leiden), and the genus is diagnosed.
- (17763) GLIGOROVIC, V. PESIC & A. ZEKOVIC, 2009. A contribution to the knowledge of dragonflies (Odonata) of mountainous area Lukavica (Montenegro). *Natura montenegrina* 8(1): 31-39 (With Serb. s.). – (First Author: Dept Biol., Fac. Sci., Univ. Montenegro, Cetinjski put b.b., ME-81000 Podgorica).
A commented list of 12 spp. from 3 localities in central Montenegro. The record of *Aeshna cyanea* from Mannito lake (alt. 1764 m a.s.l.) represents the highest site of this sp. so far known in Montenegro.
- (17764) HUANG, D.-y. & A. NEL, 2009. The first Chinese Tarsophlebiidae from the Lower Cretaceous Yixian Formation, with morphological and phylogenetic implications (Odonoptera: Panodonta). *Cretac. Res.* 30: 429-433. – (First Author: St. Key Lab. Palaeont. & Stratigr., Nanjing Inst. Geol. & Paleont., Chin. Acad. Sci., Nanjing-210008, China).
Turanophlebia sinica sp. n. (Tarsophlebiidae) is described and illustrated from western Liaoning, China. Holotype is in Nanjing Inst. Geol. & Paleont. The exquisite preservation of the type specimen allows to precise several important morphological structures of phylogenetic importance, i.e. three-segmented tarsi, with basal tarsomere very long; and absence of subapical tooth on tarsal claw. If the first character not longer supports a basal position for Tarsophlebiidae, the second confirms it. The presence of a fore leg tibial comb supports the hypothesis that the reduced tibial comb of the Hemiphlebiidae is apomorphic for this group.
- (17765) HUANG, D.-y., A. BAUDOIN & A. NEL, 2009. A new aeschnidid genus from Early Cretaceous of China (Odonata: Anisoptera), *Cretac. Res.* 30: 805-809. – (Third Author: C.P. 50, Entomologie, Mus. Natn. Hist. Nat., 45 rue Buffon, F-75005 Paris).
Linaeschnidium sinensis gen. n., sp. n. is described from Yixian Formation, Beipian, Liaoning prov. Holotype is in Nanjing Inst. Geol. & Paleontol. It is closely related to the European *Angloaeschnidium* and *Leidoaeschnidium*.
- (17766) JOVIC, M. & S. MALIDZAN, 2009. List of dragonflies in the collection of the Natural History Museum of Montenegro (Insecta: Odonata). *Acta ent. serb.* 14(1): 121-124. (With Serb. s.). – (First Author: Nat. Hist. Mus. Belgrade, Njegoševa 51, P.O. Box 401, RS-11000 Belgrade).
A list of 28 spp., collected 2006-2007 in Montenegro. *Coenagrion scitulum* is recorded here for the first time, bringing the number of known Montenegrine spp. up to 64.
- (17767) KADOYA, T., S.-i. SUDA & I. WASHITANI, 2009. Dragonfly crisis in Japan: a likely consequence of recent agricultural habitat degradation. *Biol. Conserv.* 142(9): 1899-1905. – (Dept Ecosyst. Stud., Inst. Agri. & Life Sci., Univ. Tokyo, 1-1-1 Yayoi, Bunkyo-ku, Tokyo, 113-8657, JA).
Many Japanese odon. spp. depend on habitat complexes maintained in rice paddy systems. The present authors postulate that recent alterations to habitat complexes in paddy systems have had adverse effects on odon. populations, especially on those 'once common species' that have come to depend primarily on paddy systems following losses of natural floodplain habitats. A high proportion of Japanese lentic spp. depends on paddy fields or agricultural ponds that have been extensively degraded, while spp. are more susceptible to changes in agricultural habitats and are subject to higher extinction risks than lotic spp. The paper aims to extend previous work on estimating dragonfly extinction risk by developing mechanistic insights into the processes involved. Postulates are tested by analyzing relationships between (i) previous quantitative extinction risk assessments for dragonfly spp. and (ii) spp. ecological characteristics (i.e., distribution range and habitat type [lentic or lotic]). Lentic spp. are disproportionately represented among those with elevated extinction risk. Spp. with large distribution ranges are also subject to higher extinction risks than those with narrower ranges, reflecting a driving force acting at a national scale (i.e., intensive degradation of paddy systems).
- (17768) KARLSSON, T., 2009. *Årsrapport 2008 för projekt Trollsländor i Östergötland*. Ent. För. Östergötland. 7 pp. (Swed.). – (Länsstyrelsen Östergötland, Miljövärdsheten, SE-58186 Linköping).
A report on the 2008 survey of the Odon. of Östergötland, Sweden, with information on the number of records of the observed spp.

- (17769) KHROKALO, L.A. & H. Yu. VERVES, 2009 Dragonflies (Odonata) and certain two-winged insects (Diptera: Sarcophagidae) of the Shatsk Lake District. *Nauk. Visn. Bolis'kogo nac. Univ. L Ukrainki* 2009(2): 114-118. (Ukr., with Engl. & Russ. s's). – (First Author: Dept Envir. Biotechnol. & Bioenergy, Natn. Tech. Univ. Ukraine, Kyiv, Ukraine). The records are presented for 31 odon. spp. from the Shatsk Lake District and the Volyn Oblast (the Ukraine), gathered 2005-2008.
- (17770) LEONG, T.M. & S.L. TAY, 2009. Encounters with *Tetracanthagina plagiata* (Waterhouse) in Singapore, with an observation of oviposition. *Nature Singapore* 2: 115-119. – (Central Nat. Reserve, Natn Park Bd, 601 Island Club Rd, Singapore-578775).
The behaviour of several encountered individuals is briefly described. One of the ♀♀ was spotted flying low (waist level) over a sandy forest stream, perched on a moss-covered, decomposing log beside the stream and began to arch its abdomen in order to insert its ovipositor into the soft, moist wood. The ♀ deliberately scraped an dug into the branch for over a minute, after which it flew off downstream.
- (17771) *LIBELLULES ENTRE CIEL ET EAU*, 2009. Musée Vert, Le Mans. 6 pp. – (Musée Vert, 2004 av. Jean Jaurès, F-72100 Le Mans).
A brochure on the dragonfly exhibit, organized 4 Feb. – 26 July 2009, by the Nat. Hist. Mus., Nantes.
- (17772) MARTYNOV, A.V. & V.V. MARTYNOV, 2009. New interesting finds of dragonflies (Odonata) in Ukraine. *Vest. Zool.* 43(2): 150. (Russ., with Engl. title). – (Dept Zool., Fac. Biol., Donetsk Natn. Univ. Shchorsa 46, UKR-83050 Donetsk).
New records are presented for *Lestes parvidens*, *Coenagrion scitulum*, *Anax ephippiger*, *Somatochlora arctica*, *S. metallica*, *Sympetrum fonscolombii* and *S. striolatum*.
- (17773) MATSUMOTO, K., 2009. Odonate fauna of Tama Forest Science Garden. *Bull. Forestry & Forest Products Res. Inst.* 8(1): 109-114. (Jap., with Engl. s.). – (Div. Forest Ent., Forestry & Forest Products Res. Inst., Matsumoto 1, Tsukuba, Ibaraki, 305-8687, JA).
A commented list of 33 spp. recorded from the Garden, Hachioji, Tokyo metropolitan area; 12 of these are red-listed for Sth Tama region of Tokyo.
- (17774) MEURGEY, F., 2009 Redescription of *Argia concinna* (Rambur), with a description of *Argia telesfordi* spec. nov. from Grenada, West Indies (Zygoptera: Coenagrionidae). *Zootaxa* 2272: 54-62. – (Mus. Hist. Nat., 12 rue Voltaire, F-44000 Nantes).
Both spp. are described, illustrated and diagnosed. The new s. (holotype ♂: Grenada, St Andrew Parish, Ste Margaretá Falls, 9-V-2009; deposited in the Nantes Mus. Nat. Hist.) is close to *A. concinna*, from which can be separated by morphology of ♂ tori, cerci and paraproct and ♀ mesostigmal laminae. Their distribution is allopatric, with *A. telesfordi* sp. n. distributed on Grenada, while *A. concinna* is known only from Guadeloupe and Dominica.
- (17775) NATIONALPARK HAINICH, [Publ.], 2009. *Artenbericht 2008: Tiere, Pflanzen und Pilze im Nationalpark Hainich. Kenntnisstand zum 31.12.2008*. Nationalpark Hainich, Bad Langensalza. 134 pp. ISBN none. – (Publishers: Natn-Park Hainich Verwaltung, Bei der Marktkirche 9, D-99947 Bad Langensalza).
A checklist of 43 spp. appears on pp. 23-24; – Thuringia, Germany. Noteworthy spp. are: *Coenagrion mercuriale*, *Lestes barbarus*, *Crocothemis erythraea*, *Leucorrhinia pectoralis* and *Orthetrum coerulescens*.
- (17776) *NEWSLETTER SUSSEX DRAGONFLY SOCIETY* (ISSN none), Nos 17 (Spring 2007), 18 (probably not published?), 19 – Autumn 2007), 20 (Spring 2008), 21 (Autumn 2008), 22 (Spring 2009). – (Address not provided).
It is bringing various notes on the Sussex (United Kingdom) dragonflies and notifications on regional organisations, projects and events.
- (17777) *ODONAT'INFOS*. Lettre d'information de la Société Limousine d'Odonatologie (ISSN none), Nos 22 (May 2008), 23 (Nov. 2008), 24 (March 2009). – (SLO, 11 rue Jauvion, F-87000 Limoges).
Society news, notifications, and (mostly short and anonymous) notes on the local fauna.
- (17778) *ODONATRIX*. Bulletin of the Odonatological Section of the Polish Entomological Society (ISSN 1733-8239), Vol. 5, No. 2 (31 July 2009). (Pol., with Engl. s's). – (c/o Dr P. Buczyński, Dept Zool,

UMCS, Akademicka 19, PO-20-033, Lublin).

Michalczyk, W., P. Buczyński & B. Daraż: First data from the monitoring of population condition of *Coenagrion ornatum* (Selys, 1850) in the valley of the Seniocha river (Sniatycze, SE Poland) (pp. 33-44); – *Czachorowski, S. & P. Czachorowski*: New localities of *Nehalennia speciosa* (Charpentier, 1840) in the vicinity of Dobre Miasto (NE Poland) (pp. 45-47); – *Miszta, A. & P. Cuber*: New localities of dragonflies (Odonata) endangered in Poland recorded in the years 2006-2008 in Silesia province outside of protected areas (pp. 48-54); – *Daraż, B.*: New data on dragonflies (Odonata) of northeasternmost Bulgaria (pp. 55-64).

- (17779) **PAULSON, D.**, 2009. *Dragonflies and damselflies of the West*. Princeton Univ. Press. 535 pp. Hardcover, with jacket (14.5×22.0 cm). ISBN 978-0-691-12280-9. Price: UK£ 44.95 net. – (Publishers: 41 William St., Princeton, NJ 08540, USA). A fully illustrated field guide to the 348 spp. of Western N America (updated with 7 spp. that arrived from Mexico and were recorded in the region in 2008). Every sp. is illustrated with col. phot., distribution map and line drawings of structural features are provided where these aid in-hand identification. Detailed species accounts include description, identification hints, information on natural history, habitat, flight season and distribution. – A work of excellence by one of the greatest N American odonatologists.
- (17780) **QUERINO, R.B. & N. HAMADA**, 2009. An aquatic microhymenopterous egg-parasitoid of *Argia insipida* Hagen in Selys (Odonata: Coenagrionidae) and biological observations on the central Amazon, Brazil. *Neotrop. Ent.* 38(3): 346-351. (With Port. s.). – (Second Author: INPA, Coordenação de Pesquisas em Entomologia, C.P. 478, Av. André Araújo 2936, Petropolis, BR-69011-970 Manaus, AM). The interaction among *A. insipida*, the egg parasitoid *Pseudoligosita longifragiata* (Trichogrammatidae) and the oviposition plant *Tonina fluviatilis* (Eriocaulaceae) was investigated at a rapid stream in Presidente Figueiredo municipality, central Amazonas. This is the first record of egg parasitism in *A. insipida* by *P. longifragiata* in Brazil and the first record of the occurrence of the latter sp. in this country. The maximum numbers of ovipositing *A. insipida* tandems was observed between 13:00-14:00 h. The *Tonina* leaves turned yellowish and dried out when large numbers of eggs were deposited.
- (17781) **RAE, S.**, 2009. Dragonflies. *Bandicoot Times*, Hobart [Tasmania] 33: 6, 8. – (Author's address not stated).
A general note, with a particular reference to Tasmania.
- (17782) **REHFELDT, G. & V. BACHMANN**, 2009. *Renaturierung der Schunteraue im Flurbereinigungsgebiet Hondelage/Dibbesdorf: Monitoring von Libellen und Amphibien*. LaReG, Braunschweig. 29 pp. – (First Author: Zool. Inst., Univ. Braunschweig, Fasanenstr. 3, D-38092 Braunschweig).
Includes a commented list of 23 odon. spp., recorded 2007-2008 at the Schunter and its oxbow, Braunschweig, Germany.
- (17783) **REID, L.**, 2009. Dragonflies and butterflies: reporting back on the April field trip. *Nature Territory* 2009 (May): 11. – (c/o P.O. Box 39565, Winnellie, NT 0821, AU).
14 odon. spp. are recorded from McMinns Lagoon, Northern Territory, Australia.
- (17784) **RISERVATO, E., J.-P. BOUDOT, S. FERREIRA, M. JOVIĆ, V.J. KALKMAN, W. SCHNEIDER, B. SAMRAOUI & A. CUTTELOD**, 2009. *El estado de conservación y la distribución de las libélulas en la cuenca del Mediterraneo*. IUCN, Gland-Málaga. vii+33 pp. ISBN 978-2-8317-1189-8. – (Available from: IUCN Centro de Cooperación del Mediterráneo, C/ Marie Curie 22, ES-29590 Campanillas, Málaga).
A monograph on the conservation state of Odon. of the Mediterranean Basin. – For the Atlas of the area, see *OA* 17635.
- (17785) **SCHNEIDER, B. & H. WILDERMUTH**, 2009. Libellen als Individuen, zum Beispiel *Aeshna cyanea* (Odonata: Aeshnidae). *Entomo helvetica* 2: 185-199. (With Engl. & Fr. s's). – (First Author: Wolfbühlstr. 34 a, CH-8408 Winterthur).
All ascertainable *A. cyanea* ♂♂ and ♀♀ that were present in the course of about 2 months in autumn 2008 at 4 small adjacent ponds near Winterthur (Switzerland) were documented by digital photography. The insects were examined for morphological features by which the individuals could be recognized. Distinct differences were found in the marking-pattern of head, thorax and abdomen

as well in the fine wing veins. Altogether 66 ♂ and 9 ♀ could be identified with certainty. They were present at the study site on 1-11 different days over a maximum period of 43 days. The advantages and disadvantages of photo documentation of the individuality with respect to morphology and behaviour are discussed.

- (17786) TAKAHASHI, J., M. FUKUI & Y. TSUBAKI, 2009. Genetic diversity of the dragonfly *Libellula angelina* in the Okegayanuma area of Japan. *Jap. J. Conserv. Ecol.* 14: 73-79. (Jap., with Engl. s.). – (First Author: Cent. Ecol. Res., Kyoto Univ., Kyoto, 520-2111, JA).

The genetic diversity and differentiation among 60 individuals of the threatened *L. angelina* from 3 populations in the Okegayanuma area of Japan was determined using random amplified polymorphic DNA (RAPD) analysis. 20 polymorphic loci were detected by 19 of the 80 RAPD primers examined, and 12 DNA types were identified (only 4 types were populations specific). The diversity among and within the populations was low; the mean gene diversity and gene differentiation values were 0.317 and 0.007, respectively. No significant between-population genetic differences were detected in the analysis of molecular variance (AMOVA). Of the genetic divergence, 98.7% was attributable to population divergence and 1.3% to individual differences within a population. Cluster analysis indicated that most individuals from the 3 populations belonged to the same cluster. The results provide data that could be used to elucidate genetic diversity in *L. angelina* populations, using RAPD analysis.

- (17787) TING, J.J., J. BOTS, F. PEREZ JVOSTOV, H. VAN GOSSUM & T.N. SHERRATT, 2009. Effects of extreme variation in female morph frequencies on the mating behaviour of male damselflies. *Behav. Ecol. Sociobiol.* 2009: 12 pp.; – DOI: 10.1007/s00265-009-0839-x. – (Last Author: Dept Biol., Carlton Univ., Ottawa, ON, K1S 5B6, CA). ♀-limited polymorphism is often attributed to selection to avoid excessive ♂ mating attempts. It is encountered in various taxonomic groups, but is particularly common in Zygoptera, where one ♀ morph (andromorph) typically resembles the conspecific ♂ in colour pattern, while the other(s) (gynomorphs(s)) do not. 2 sets of theories have been proposed to explain the phenomenon in Zygoptera, which can be classified as the learned mate recogni-

tion (LMR) and ♂ mimicry (MM) hypotheses. To test predictions of these hypotheses, the rate of ♂ sexual response towards ♀ morphs and conspecific ♂♂ was evaluated in *Nehalennia irene*. The LMR hypothesis predicts that ♂♂ should respond sexually to andromorphs at greater rates in populations containing a higher relative frequency of andromorphs. The MM hypothesis predicts that ♂♂ respond more often sexually to both andromorphs and ♂♂ as the ratio of andromorphs to ♂♂ increases. While LMR predicts that the rate of mating attempts towards gynomorphs should vary, the MM predicts that it should be relatively fixed. On experimentally presenting live specimens to focal ♂♂ in 5 different populations with extreme variation in ♀ morph frequencies it was observed that as the andromorph frequency and ratio of andromorphs to ♂♂ increased, the proportion of ♂ mating attempts increased on both andromorphs and ♂♂, whereas it decreased on gynomorphs. While the simplest form of the MM hypothesis is rejected, the results support specific predictions of both hypotheses and suggest that future studies should not treat these hypotheses as mutually exclusive.

- (17788) TUMILOVICH, O.A., 2009. New species of odonatofauna of the Kaliningrad region. *Biodiversity, protection and prospects of Baltic seashore habitats*, pp. 49-50, Vilnius. – (Kaliningrad St. Techn. Univ., RUS-236000 Kaliningrad).

This is an updated and abridged Engl. version of the paper listed in OA 17789 and based on the same research. Here, 35 spp. are said to have been recorded in the region, and *Ceriagrion tenellum* is added to the 3 for the district new spp., as listed in the above-said paper. A checklist of the fauna is not provided.

- (17789) TUMILOVICH, O.A., 2009. On dragonfly fauna of Kaliningrad district. *Uchen. Zap. kazan. gos. Univ. (Estestvennyye Nauki)* 151(2): 192-196. (Rss., with Engl. s.). – (Kaliningrad St. Techn. Univ., RUS-236000 Kaliningrad).

The odon. fauna of the Kaliningrad distr., Russia (formerly Königsberg, East Prussia) was systematically explored during 2004-2007. In a tab., 32 spp. are listed along with their resp. abundance (while in the text the number is given as 31). *Lestes viridis*, *Sympetrum depressiusculum* and *S. fonscolombei* are recorded for the first time. – See also OA 17788.

(17790) WALDHAUSER, M., 2009. First record of *Erythromma lindenii* (Selys, 1840) (Odonata, Coenagrionidae) in the Czech Republic, *Bull. Lampetra* 6: 26-29. (Czech, with Engl. s.). — (Petrovice 136, CZ-47125 Jablonné v Podještědí).
A ♂ from Horní Kunratický rybník, N of Kunratice (Cvikova distr.) is brought on record (23-VII-2009). The site is located ca 65 km SE from the nearest hitherto known locality: Knappensee in Saxony, Germany; cf. *OA* 14748.

(17791) WINKLER, C. & H. NEUMANN, [2007], 2009. Neu für Schleswig-Holstein: die Feuerlibelle *Crocothemis erythraea* (Brullé, 1832). *Bombus* 3(76-78): 312. — (First Author, last known address: Wilhelminenstr. 35, D-24103 Kiel).
2 *C. erythromma* observations from Schleswig-Holstein (N Germany) are brought on record. These are the first records for the province (19-VI and 15-VIII-2007).

(17792) WISSINGER, S.A., H. GREIG & A. McINTOSH, 2009. Absence of species replacements between permanent and temporary lentic communities in New Zealand. *Jl N. Am. benthol. Soc.* 28(1): 12-23. — (First Author: Biol. Dept., Allegheny Coll., Meadville, PA 16335, USA).
The species composition of lentic communities often shifts along hydroperiod gradients, in part because temporary-habitat specialists replace closely related permanent-habitat specialists. The evidence of spp. replacements and the underlying tradeoffs is considerable in N America, while the examination of 58 sites has shown that this is not so in New Zealand. Odon. and several other large-bodied taxa common in permanent habitats were absent from most temporary habitats. Thus, *Austrolestes colenisonis*, *Xanthocnemis zealandica*, *Procordulia grayi* and *P. smithi* are very common in permanent habitats, while in temporary habitats only the 2 zygopterans rarely occur. 2 explanations are proposed for the absence of species replacements in the New Zealand habitats studied.

(17793) WOHLFAHRT, B. & S.M. VAMOSI, 2009. Antagonistic selection or trait compensation? Diverse patterns of predation-induced prey mortality due to the interacting effects of prey phenotype and the environment. *Evol. Biol.* 2009: 11 pp.; — DOI: 10.1007/s11692-009-9071-x. — (Dept Biol. Sci., Univ. Calgary, 2500 Univ. Dr. NW, Calgary,

T2N 1N4, CA).

Aeshna larvae were used in laboratory experiments on predation-induced mortality in 4 dytiscid spp. (Coleoptera). Some notes on the larvae are provided based on brief and clear definitions of various types of their behaviour.

(17794) ZHANG, J. & X.-Y. LU, 2009. Aerodynamic performance due to forewing and hindwing interaction in gliding dragonfly flight. *Phys. Rev. E* 80, 017302, 4 pp. — DOI 10.1103/PhysRevE.80.017302. — (Dept Modern Mechanics, Univ. Sci. & Technol., Anhui, Hefei-230026, China).
Aerodynamic performance due to forewing and hindwing interaction in gliding dragonfly flight has been studied using a multiblock lattice Boltzmann method. It was found that the interactions between forewing and hindwing effectively enhance the total lift force and reduce the drag force on the wings compared to independent wings. The interaction mechanism may be associated with the triangular camber effect by modulating the relative arrangement of the forewing and hindwing. The results obtained in this Brief Report provide physical insight into the understanding of aerodynamic behaviours for gliding dragonfly flight.

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(17795) *AGRION, WDA*. Newsletter of the Worldwide Dragonfly Association (ISSN 1476-2552), Vol. 14, No. 1 (Jan. 2010). — (c/o Dr N. von Ellenrieder, California State Collection of Arthropods, CDFA, 3294 Meadowview Rd, Sacramento, CA 95832, USA).

[Selected articles]: *Wilson, K.*: Spotlight on Korean dragonflies (pp. 3-6); — *Ferreira, S.*: First European Congress on Odonatology, Vairão, Portugal (p. 11); — *Termaat, T.*: A short report on the 3rd Convention on the Dragonflies of Italy, Bolzano (pp. 12-13); — *Dow, R.A. & G.T. Reels*: The Odonata of three National Parks in Sarawak (pp. 14-19).

(17796) DUMONT, H.J., A. VIERSTRAETE & J.R. VANFLETEREN, 2010. A molecular phylogeny of the Odonata (Insecta). *Syst. Ent.* 35: 6-18. — (First Author: Dept Biol., Ghent Univ., Ledeganckstraat 35, B-9000 Ghent).

The phylogeny of the order Odonata, based on sequences of the nuclear ribosomal genes 5.8S, 18S, and ITS1 and 2, is examined. An 18S-only

analysis resolved deep relationships well: the order Odonata, as well as suborders Zygoptera and Epiprocta (Anisoptera + Epiophlebia), emerged as monophyletic. Some other deep clades resolved well, but support for more recently diverged clades was generally weak. A second, simultaneous, analysis of the 5,8S and 18S genes with the intergenic spacers ITS1 and 2 resolved some recent branches better, but appeared less reliable for deep clades, with, for example, suborder Anisoptera emerging as paraphyletic and Epiophlebia superstes recovered as an Anisopteran, embedded within aeshnoid-like anisopterans and sister to the cordulegastrids. Most existing family levels in the Anisoptera were confirmed as monophyletic clades in both analyses. However, within the corduliids that form a major monophyletic clade with the Libellulidae, several subclades were recovered, of which at least Macromiidae and Oxygastridae are accepted at the family level. In the Zygoptera, the situation is complex. The lestid-like family groups (here called Lestomorpha) emerged as sister taxon to all other zygopterans, with Hemiphlebia sister to all other lestomorpha. Platystictidae formed a second monophylum, subordinated to lestomorpha. Platystictidae formed a second monophylum, subordinated to lestomorpha. At the next level, some traditional clades were confirmed, but the tropical families Megapodagrionidae and Amphipterygidae were recovered as strongly polyphyletic, and tended to nest within the clade Caloptera, rendering it polyphyletic. Platycnemididae were also non-monophyletic, with several representatives of uncertain placement. Coenagrionids were diphyletic. True Platycnemididae and non-American protoneturids are closely related, but their relationship to the other zygopterans remains obscure and needs more study. New world protoneturids appeared relatively unrelated to old world + Australian protoneturids. Sev-

eral recent taxonomic changes at the genus level, based on morphology, were confirmed, but other morphology-based taxonomies have misclassified taxa considered currently as Megapodagrionidae, Platycnemididae and Amphipterygidae and have underestimated the number of family-level clades.

- (17797) KOPERSKI, P., 2010. Diversity of macrobenthos in lowland streams: ecological determinants and taxonomic specificity. *J. Limnol.* 69(1): 1-14. — (Dept Hydrobiol., Univ. Warsaw, Banacha 2, PO-02-097 Warszawa).

The investigation of the relationships between the environmental variables and the taxonomic diversity of common benthic macroinvertebrates was conducted on 7 streams in the Masurian Lakeland, NE Poland. The odon. diversity (19 spp.; not listed) was affected by stream width and isolation of the site.

- (17798) *ODONATOLOGICAL ABSTRACT SERVICE* (ISSN 1438-0269), Nos 25 (Jan. 2010), 48 pp., — 26 (Feb. 2010), 56 pp. — (Distributor: M. Schorr, Schulstr. 7/B, D-54314 Zerf).

[No. 25]: abstracts Nos 7909-8210 of works published in 1997-2008; — [No. 26]: abstracts Nos 8211-8529 of works published in 2009-2010.

- (17799) SCHMIDT, E., 2010. Ordnung: Odonata, Libellen. In: M. Schaefer, [Ed.], *Brohmer – Fauna von Deutschland: ein Bestimmungsbuch unserer heimischen Tierwelt*, 23rd edn, pp. 247-259, Quelle & Meyer, Wiebelsheim. — (Coesfelder Str. 230, D-48249 Dülmen).

For the history of this popular work, see OA 10243. The peculiarity of the present edn is that the recent abolishment of "Cercion" and the transfer of "C." lindenii to Erythromma was not considered.