

## ODONATOLOGICAL ABSTRACTS

**1988**

- (14800) BRODSKY, A.K., 1988. Stroenie, funkcionirovanie i evoluciya krylovyh sochleneniy nasekomyh. — Structure, functioning and evolution of the wing articulations in insects. *Chteniya Pamyati N.A. Holodkovskogo* 41: 3-47. (Russ., with Engl. s.). — (Last known address: Dept Ent., St Petersburg St. Univ., Universitetskaya nab. 7/9, RUS-199164 St Petersburg).

The structure and functioning of the wing axillary sclerites during wing beating and wing folding are described and illustrated. In the course of evolution the structure of the articulation zone of the wing has changed significantly, allowing new movements and new interconnections between axillary sclerites. A comparative account of the structure and functioning of the axillae is presented and some of the evolutionary trends are shown. Among these, the optimization of transmission of the effort from flight muscles to the wing is most important. A mechanism for wing folding is described and the sequence of changes in the course of the evolution is traced. Of all groups studied, the most primitive type of the wing axillary zone is found in Plecoptera. 2 distinctive stems may be derived from the ground-plan for Insecta: (1) Gryllones (without Plecoptera), and (2) Scarabaeiformes and Cimiciformes (without Palaeodictyopteroidea). The peculiarity of construction of the axillary zone in Ephemeroptera, Odon. and Palaeodictyopteroidea is very high and testify to their early separation (together or separately) from Insecta common stem. All these 3 groups seem adopted to benefit from gliding flight. — See also OA 8527.

- (14801) GRIESINGER, J., 1988. *Ökofaunistische Untersuchungen an den Libellen (Odonata, Insecta) des Saumsees bei Karlsruhe-Daxlanden (Naturschutzgebiet „Fritschlach“)*. DiplArb. Biol., Univ. Karlsruhe. iv+142

pp., App. 1-2 excl. — (Author's current address unknown).

The M.Sci. thesis was prepared under the supervision of Prof. Dr G. Jurzitza. The field work was conducted during May-Oct. 1987. At 8 sites in the Fritschlach Nature Reserve nr Karlsruhe (Germany), 27 spp. were evidenced. The respective odon. assemblages are described and ecologically analysed.

- (14802) SMITH, B.P., 1988. Host-parasite interaction and impact of larval water mites on insects. *A. Rev. Ent.* 33: 487-507. — (Author's last known address: Biol. Dept, Ithaca Coll., Ithaca, NY 14850, USA).

With references to the odon., the evolutionary trends in the association of larval water mites with insects, host and site selection, attachment and engorgement, detachment, population and community structure, and the impact of water mites are reviewed.

**1991**

- (14803) ANDEREGG, K., 1991. *Landschaft und Tierwelt im st. gallischen Linthgebiet*. Arbeitsgem Linthgebiet, Uznach. 224 pp. Hardcover (17.5x24.5 cm). ISBN none.

Includes a general chapter on dragonflies (pp. 154-156), and scattered information on the occurrence of some odon. spp.; — canton St Gallen, Switzerland.

- (14804) KATO, M., 1991. A list of insects from the Ogasawara Islands. *Ogasawara Res.* 17/18: 32-59. (Jap., with Engl. s.). — (Author's address not stated).

The checklist includes 10 odon. spp.; — Japan.

- (14805) [PAVAROTTI, L.], 1991. *Pavarotti in Holland. Tentoonstelling Schilderijen van Luciano Pavarotti*. — [Exhibition of Luciano Pavarotti's paintings]. Stadium

Design, Hillegom. 52 pp. Softcover (20.9×29.5 cm). ISBN none. (Dutch).

A catalogue of the exhibition of paintings (screen prints) of the noted opera tenor (Kurhaus Scheveningen, 30 Aug.-7 Sept. 1991, the Netherlands), with an autobiographic outline of his work as a painter, followed by 23 painting reproductions. "*Farfalle e insetti*" is a composition of 11 insects of various orders, incl. a calopterygid dragonfly.

## 1996

- (14806) DIETER, C.D., W.G. DUFFY & L.D. FLAKE, 1996. The effect of phorate on wetland macroinvertebrates. *Envir. Toxicol. Chem.* 15(3): 308-312. — (First Author: Dept Wildl. & Fish., South Dakota St. Univ., Brookings, SD 57007, USA).

The effects of this organophosphorous insecticide were studied at 3 prairie pothole palustrine, emergent wetlands on the Prairie Coteau in E-central Dakota. All insect orders, incl. Odon., were sensitive, while Gastropoda, Oligochaeta, Hirudinea and Ostracoda were tolerant.

- (14807) GARDNER, S.C. & C.E. GRUE, 1996. Effects of Rodeo® and Garlon® 3A on nontarget wetland species in central Washington. *Envir. Toxicol. Chem.* 15(4): 441-451. — (Second Author: Sch. Fish., Univ. Washington, Seattle, WA 98195, USA).

There were no significant differences in the number of odon. individuals collected before and after (1 d or 7 d) application of either herbicide in the 2 wetlands studied (surface 1.1 and 3.4 ha).

- (14808) HYONTEISKARTOITUS / INSEKTENKARTERING 81, 1996. Vuoden 1996 tulokset 21 suomalaisen hyönteislajin levinneisyyskartoituksesta. — Resultat av kartering av 21 insektarters utbredning i Finland år 1996. — Results of the mapping in 1996 of the distribution of 21 insect species in Finland. *Sahlbergia* 3(2): 63-75. (Finn. & Swed., with Engl. s.). — (Insektkartering 81, Div. Ent., Zool. Mus., P.O. Box 17, P. Rautatiekatu 13, FIN-00014 University of Helsinki).

The project commenced in 1981, and includes 2 odon. spp. (*Calopteryx splendens*, *C. virgo*); cf. OA 5179. The (anonymous) reports appear annually and contain also annual phenology graphs and distribution maps, but they were only incidentally and incompletely covered by OA. Here follows a complete bibliography for the period 1981-1995. In various periods, 3 Finnish periodicals were used as a publication vehicle, viz.: *Notul. ent.* 62[1982]: 25-36; — 63[1983]: 69-80; — 64[1984]: 57-68; — 65[1985]: 41-62; — 66[1986]: 105-120; — 67[1987]: 17-32; — 68[1988]: 9-24; — 69[1989]: 17-32; 175-190; — *Baptria*

17[1992]: 33-53; — 18[1993]: 13-26; — 19[1994]: 17-30; — 20[1995]: 47-60; — *Sahlbergia* 3[1996]: 9-20.

## 1998

- (14809) BATTEN, D.J., 1998. Palaeoenvironmental implications of plant, insect and other organic-walled microfossils in the Weald Clay Formation (Lower Cretaceous) of southeast England. *Cretaceous Res.* 19(3/4): 279-315. — (Inst. Geogr. & Earth Sci., Univ. Wales, Aberystwyth, SY23 3DB, UK).

Only passing references are made to the Odon. Referring to the papers listed in OA 10989 and 11012, it is emphasized that their Weald Clay occurrences are consistent with lacustrine-lagoonal environments.

- (14810) GOSLINGA, D., 1998. Watersnuffel, gevangen in Ronde zonnedaauw. — [Enallagma cyathigerum, captured by *Drosera rotundifolia*]. *Twirre* 9(2): cover photograph. (Dutch). — (Author's address not stated). Date and locality (in Friesland, the Netherlands) not stated.

- (14811) HALL, B.D., D.M. ROSENBERG & A.P. WIENS, 1998. Methyl mercury in aquatic insects from an experimental reservoir. *Can. J. Fish. Aquat. Sci.* 55(9): 2036-2047. (With Fr. s.). — (First Author: Dept Ent., Univ. Manitoba, Winnipeg, MB, R3T 2N6, CA).

The effects of experimental flooding of a small wetland lake (Experimental Lake Area, SW Ontario, Canada) on the MeHg concentrations in aquatic insects are reported. Odon. were among the groups that exhibited increases in MeHg in response to flooding. Predators exhibited an approx. 3-fold increase, compared with a 20-fold increase in water concentrations, and a 4-5-fold increase in fish. The results are compared with the situation in natural lakes in Finland and N Quebec, which is similar.

- (14812) PITHER, J. & P.D. TAYLOR, 1998. An experimental assessment of landscape connectivity. *Oikos* 83(1): 166-174. — (First Author: ACWERN, Dept Biol., Acadia Univ., Wolfville, NS B0P 1X0, CA).

The relative movement abilities of the sympatric, ecologically similar *Calopteryx maculata* and *C. aquabilis* within 2 structurally dissimilar habitat types, forest and pasture in Nova Scotia, Canada, are experimentally assessed. For both spp., streams are required resources, forest is a potential resource, and pasture is neutral habitat. Experimental manipulations were conducted at a spatial scale approaching typical inter-stream distances within the study region. A portion of the individuals was displaced away from its required stream habitat within its native

landscape, and the remaining individuals were transferred to another landscape of alternate habitat structure (either forest or pasture). Within each habitat type relative movement ability, an essential component of landscape connectivity, is equated with the proportion of displaced individuals observed to have reached the stream, as measured against reobservation rates of control individuals released at the stream. It was found that *C. maculata*, the sp. more consistent in its use of forest as a resource, moved significantly more readily through 700 m of pasture habitat than through the same distance of forest, while *C. aequabilis* moved with equal abilities through both habitat types. Historical behaviour – whether or not the individuals typically used forest as a resource before the manipulations – did not have a statistically significant effect on the movement abilities of individuals of either sp. in either habitat type. There was, however, some evidence that *C. maculata* individuals native to non-forested landscapes moved more readily through forest than their forest-inhabiting counterparts. Both sexes moved with equal abilities irrespective of habitat type, but ♂ *C. aequabilis* moved with greater ability through forest than ♀♀, while the reverse was true within pasture landscapes.

## 1999

- (14813) FLECK, G., A. NEL & X. MARTINEZ-DEL-CLÓS, 1999. The oldest record of libellulid dragonflies from the Upper Cretaceous of Kazakhstan (Insecta: Odonata, Anisoptera). *Cretaceous Res.* 20(5): 655-658. – (Second Author: Lab. Ent., Mus. Natn. Hist., 45 rue Buffon, F-75005 Paris).  
*Palaeolibellula zherikhini* gen. n., sp. n. is described from the Turonian of N. Karatau, S Kazakhstan, extending the stratigraphic range of the fam. ca 60 mio yr into the past.
- (14814) NEL, A., G. GAND & J. GARRIC, 1999. A new family of Odonatoptera from the continental Upper Permian: the Lapeyriidae (Lodève basin, France). *Geobios* 32(1): 63-72. – (First Author: Lab. Ent., Mus. Natn. Hist., 45 rue Buffon, F-75005 Paris).  
 The new fam. is erected for *Lapeyria magnifica* gen. n., sp. n. It is a sister group of Nodialata, and represents an evolutionary link between the venation type of the Paleozoic Meganisoptera and that of Odonata.

- (14815) PRAT, N., J. TOJA, C. SOLÀ, M.D. BURGOS, M. PLANS & M. RIERADEVALL, 1999. Effect of dumping and cleaning activities on the aquatic ecosystems of the Guadamar river following a toxic flood. *Science total Envir.* 242(1/3): 231-248. – (First Author:

Dept Ecol., Univ. Barcelona, Av. Diagonal 645, ES-08028 Barcelona).

The recovery of the aquatic ecosystem after the release of toxic mining waste in the Guadamar R. Basin, Sevilla, SW Spain, in Apr. 1998, is documented. After 6 months of cleaning operations, in Nov. 1998 the macroinvertebrate community of the river was composed mainly of spp. of short life cycles, typical of ponds (Odon., Coleoptera, Heteroptera), while the riverine spp. occurring at the upstream control station had not recolonised the river, due to its transformation into a series of artificial ponds, constructed as sediment traps. Values of all heavy metals in invertebrates were significantly high, those of Xn and Cu 2-3 times higher than in the unpolluted areas.

- (14816) VAN KONIJNENBURG-VAN CITTERT, J.H.A. & S. SCHMEISSNER, 1999. Fossil insect eggs on Lower Jurassic plant remains from Bavaria (Germany). *Palaeogeography Palaeolimnology Palaeoecology* 152: 215-223. – (First Author: Lab. Palaeobot. & Palynol., Univ. Utrecht, Budapestlaan 4, NL-3584 CD Utrecht).  
 Oviposition slits of endophytic eggs on *Schmeissneria microstachys* leaves (Ginkgoales) are described from the Lower Liassic succession of Pechgraben, Kulmbach distr., Franconia (Germany). 2 types were discerned. One of these has been deposited by odon., the other probably so. Some insect wings were found at the same locality. Some of these are referable to the anisozygopteran Iso-*phlebiptera*.

## 2000

- (14817) DOLNY, A., 2000. K využití vážek (Odonata) pro biologické monitorování jakosti vod. – On the use of dragonflies (Odonata) for biological monitoring of water quality. *Acta Fac. Rer. nat. Univ. ostraviensis* (Biol.-Ecol.) 192: 89-104. (Czech, with Engl. s.). – (Dept Biol. & Ecol., Fac. Nat. Sci., Univ. Ostrava, Chitussiho 10, CZ-71000 Ostrava).  
 The biological propensities of the Czech spp. are reviewed, and their suitability as water saprobity indicators is assessed. As good bioindicators are suggested *Calopteryx splendens*, *C. virgo*, *Lestes sponsa*, *Platycnemis pennipes*, *Enallagma cyathigerum*, *Erythromma najas*, *Ischnura elegans*, *Aeshna grandis*, *Somatochlora metallica*, *Libellula quadrimaculata* and *Sympetrum vulgatum*.
- (14818) JEYAPRAKASH, A. & M.A. HOY, 2000. Long PCR improves *Wolbachia* DNA amplification: *wsp* sequences found in 76% of sixty-three arthropod species. *Insect molec. Biol.* 9(4): 393-405. – (First Author:

- Dept Ent. & Nematol., Univ. Florida, P.O. Box 110620, Gainesville, FL 32611, USA).  
*Wolbachia* strain *w Ten-B1* was detected in *Perithemis tenera*, using Long PCR method, based on Tag and Pwo enzymes.
- (14819) ROWE, R.J., 2000. Odonata (damselflies and dragonflies): key to larvae. In: M.J. Winterbourn et al., Guide to the aquatic insects of New Zealand. *Bull. ent. Soc. N.Z.* 13: 13-16. — (Dept Zool., James Cook Univ., Townsville, QLD 4811, AU).  
 See OA 14821.
- (14820) WALKER, A., 2000. *The Reed handbook of common New Zealand insects*. Reed, Auckland. 175 pp., col. pls incl. Hardcover (15.5×23.5 cm). ISBN 0-7900-0718-5. Includes descriptions and col. figs (2 pls) of 4 odon. spp. Taxonomic, Engl. and Maori nomenclature.
- (14821) WINTERBOURN, M.J., K.L.D. GREGSON & C.H. DOLPHIN, 2000. *Guide to the aquatic insects of New Zealand*. Ent. Soc. New Zealand, Auckland. 102 pp. Softcover (17.5×24.5 cm). ISBN 0-9597663-6-7. [*Bull. ent. Soc. N.Z.* 13: 1-102]. 3<sup>rd</sup> edn.  
 The earlier edns were published in 1981 and 1989. The revised and updated text of the odon. larvae key was provided by R.J. Rowe (pp. 13-16; for the first edn see OA 3321); 17 spp. are covered. Cumulative References and the Glossary appear on pp. 83-93 and 94-95, respectively. In a tab. (p. 96), the Macroinvertebrate Community Index (MCI) scores (incl. 6 odon. genera) are presented. The MCI is commonly used as an indicator of water quality in New Zealand stony streams. Maps of the New Zealand subregion with area codes and collecting localities are appended.
- 2001**
- (14822) CHIVERS, D.P. & R.S. MIRZA, 2001. Importance of predator diet cues in responses of larval wood frogs to fish and invertebrate predators. *J. chem. Ecol.* 27(1): 45-51. — (First Author: Dept Biol. Sci., Univ. Maine, 5751 Murray Hall, Orono, ME 04469-5751, USA).  
 The effects of predator diet on the antipredator responses of *Rana sylvatica* tadpoles were examined. Tadpoles showed stronger responses to fish (*Perca flavescens*) that were fed tadpoles than to those fed invertebrates. They also responded more strongly to *Anax* larvae fed tadpoles than to those fed invertebrates. The overall intensity of response to fish was much stronger than that to dragonflies. Predator diet effects are not ubiquitous in predator-
- prey systems. Possible reasons why predator diet effects are seen in some, but not all, predator-prey systems are discussed.
- (14823) GARRISON, R.W., 2001. Dragonflies of North America. Revised edition, by J.G. Needham, M.J. Westfall Jr & M.L. May. *Proc. ent. Soc. Wash.* 103(3): 772-775. — (1030 Fondale St., Azusa, CA 91702-0821, USA).  
 A comprehensive, suggestive, and refreshing review of the volume described in OA 13710.
- (14824) GRIMALDI, D., 2001. Insect evolutionary history from Handlirsch to Hennig, and beyond. *J. Paleont.* 75(6): 1152-1160. — (Div. Invert., Am. Mus. Nat. Hist., New York, NY 10024-5192, USA).  
 Significant investigators and aspects in the past century of insect paleontology are briefly reviewed. Despite the pervasive influence of W. Hennig in systematic biology, the study of fossil insects remains more descriptive than most other paleontological areas. Hypotheses are reviewed on relationships and chronologies of early divergences in insects (Paleozoic, Lower Mesozoic), particularly living and extinct orders of the lower pterygotes and putative monophyly of the Paleoptera (Odon. + Ephemeroptera). Future direction in the field are suggested.
- (14825) HANEL, L., [Ed.], 2001. *Vážky 2001: Sborník referátů 4. celostátního semináře odonatologů na Šumavě* — [*Dragonflies 2001: Proceedings of the 4<sup>th</sup> national conference of odonatologists at Šumava*]. Čes. Svaz Ochr. Přír., Vlašim. 172 pp. Softcover (14.3×20.5 cm). ISBN 80-86327-20-5. (Czech, with Engl. s's). — (Available from: ZO ČSOP, Pláteníkova 264, CZ-258-01 Vlašim).  
*Hanel, L.*: Foreword (pp. 8-11); — Fundamental identification parameters for faunistic studies of dragonflies (Odonata) (pp. 12-21); — *Hanel, L. & J. Cempírek*: A note on the evidence of a dragonfly occurrence within the faunistic research of dragonflies (Odonata) (pp. 22-25); — *Fliček, J.*: Dragonflies (Odonata) of the Nature Reserve Dráčovské tůně in the central reaches of the river Lužnice (southern Bohemia) (pp. 26-31); — Dragonflies (Odonata) of the Nature Reserve Krabonoška niva on the upper reaches of the river Lužnice (southern Bohemia) (pp. 32-36); — *Hanel, L., J. Cempírek & J. Zelený*: A list of dragonflies (Odonata) found during the 4<sup>th</sup> Odonatological Days in August 2001 in the Šumava mountains (southern Bohemia) (pp. 37-49); — *Bezděčka, P.*: A contribution to the knowledge about dragonflies (Odonata) of the Vizovické vrchy and Hlúcká pahorkatina highlands (Moravia, Czech Republic) (pp. 50-61); — *Waldhauser, M.*: The current state of knowledge about dragonfly (Odonata) research in the Protected Landscape Area Lužické

- hory (northern Bohemia) (pp. 62-78); — *Honců, M. & O. Ráztočil*: The results of monitoring of dragonflies (Odonata) in the district Česká Lipa (northern Bohemia) (pp. 79-108); — *Cempírek, J.*: Dragonflies (Odonata) of the town České Budějovice (southern Bohemia) pt 2 (pp. 109-123); — *Dolný, A.*: The unusual occurrence of the dragonfly *Leucorrhinia pectoralis* (Odonata: Libellulidae) in the mining landscape in the town Karviná (Silesia, Czech Republic) (pp. 124-130); — *Honců, M.*: The occurrence of the dragonfly *Ophiogomphus cecilia* (Odonata: Gomphidae) in the district Česká Lipa (northern Bohemia), and a proposal to proclaim the protection of a part of the Ploučnice river in the framework of the programme NATURA 2000 (pp. 131-142); — *Červenka, P.*: A further discovery of the dragonfly *Leucorrhinia albifrons* (Odonata: Libellulidae) in Moravia (Czech Republic) (pp. 143-145); — *Dolný, A.*: A discovery of the dragonfly *Libellula fulva* (Odonata: Libellulidae) in the Protected Landscape Area Poodří (Silesia) (pp. 146-151); — *Hesoun, P.*: An occurrence of the dragonfly *Coenagrion lunulatum* (Odonata: Coenagrionidae) in six localities in the district Jindřichuv Hradec (Bohemia) (pp. 152-157); — *Červenka, P.*: Dragonflies (Odonata) in Finnish national parks (pp. 158-164); — *Hanel, L.*: Addenda and corrigenda to three odonatological publications [...] (pp. 165-169); — *Directory of participants* (pp. 170-171).
- (14826) KURSTJENS, G., 2001. Zuidelijke keizerlibel (*Anax parthenope*) in Limburg. — Lesser Emperor (*Anax parthenope*) found in Limburg. *Natuurh. Maandbl.* 90(May): 94-95. (Dutch, with Engl. s.). — (Ecol. Adviesbureau, Col. Ekmanstraat 15, NL-6573 BM Beek Ubbergen).  
1 ♂, Kessenich-Thorn (Zuid Limburg prov.), 7-VI-2000. This is the 6th record of this sp. in the Netherlands. It may be due to the period of unusually hot weather from the end of Apr. to mid May.
- (14827) LEIPELT, K.G., 2001. Larvenfund der Gestreiften Quelljungfer *Cordulegaster bidentata* Selys (Odonata: Cordulegastriidae) in Sachsen-Anhalt. *Ent. Mitt. Sachsen-Anhalt* 8(1): 19-22. (With Engl. s.). — (Zool. Inst., Univ. Braunschweig, Fasanenstr. 3, D-38092 Braunschweig). 2 full-grown larvae from a springbrook nr Stolberg, E Harz are recorded. This is the first larval record of this sp. for Sachsen-Anhalt, E Germany.
- (14828) MÜLLER, J., O. WÜSTEMANN, R. MÜLLER & R. STEGLICH, 2001. Neufunde von *Cordulegaster bidentata* im Harz und *Epithea bimaculata* im Elbtal (Odonata): zur Roten Liste Sachsen-Anhalt. *Ent. Mitt. Sachsen-Anhalt* 9(2): 47-49, cover phot. excl. — (First Author: Frankfelde 3, D-39116 Magdeburg). Several recent sightings of the 2 spp. are brought on record, and their status in the Sachsen-Anhalt Red List is commented upon.
- (14829) MUSCHA, M.J., K.D. ZIMMER, M.G. BUTLER & M.A. HANSON, 2001. A comparison of horizontally and vertically deployed aquatic invertebrate activity traps. *Wetlands* 21(2): 301-307. — (Second Author: Dept Ecol., Evol. & Behav., Univ. Minnesota, 100 Ecology Bldg, 1987 Upper Buford Circle, St Paul, MN 53108, USA). The relative performance of these 2 positions in terms of numbers of invertebrates captured, species richness of samples, detection rates of specific taxa, and community level characterizations are compared. Vertical traps outperform horizontal traps and are preferable for obtaining indices of invertebrate abundance. However, this is not applicable to Odon., Trichoptera, Ephemeroptera, and Chironomidae, for which no significant difference was observed either in number of organisms captured or in detection rates.
- (14830) SAHLÉN, G. & K. EKESTUBBE, 2001. Identification of dragonflies (Odonata) as indicators of general species richness in boreal forest lakes. *Biodiv. Conserv.* 10(5): 673-690. — (First Author: Syst. Zool., Evol. Biol. Cent., Uppsala Univ., Norbyvägen 18 d, S-75236 Uppsala).  
There is the need to select indicator spp. on empirical data, in order to avoid the influence of personal opinions. The results of an empirical selection process, based on a nested subset matrix, is outlined. Partivoltine odon. larvae were sampled from 74 small lakes in central Sweden. 11 spp. were selected as potential indicators of species richness. Odon. species richness appears to be positively associated with that of vascular plants. Nestedness matrices are a good selecting tool for indicator spp., particularly so in groups where the biology of the spp. is not well known.
- (14831) SHESHURAK, P.N., 2001. Strekozy (Odonata) Regional'nogo landsaftnogo parka "Granitno-stepnoe Pobuzh'e". — Dragonflies (Odonata) of the Regional Landscape Park "Granitno-Stepove Pobuzhzhzha". *Vest. Zool.* 35(3): 22. (Russ., with Engl. title). — (St. Pedag. Inst. "M.V. Gogol", Nishin, Ukraine).  
A list of 16 spp., recorded 1990-2000, 11 of which were not previously known from the Nikolaevsk distr., the Ukraine.
- (14832) STEGLICH, R. & J. MÜLLER, 2001. Eine wertvolle kleine Libellen-Sammlung (Odonata) aus den Jahren 1923 bis 1944 im Heimatnaturgarten Weissenfels

- (Coll. Beuthan). *Ent. Mitt. Sachsen-Anhalt* 9(2): 37-41. — (Second Author: Quittenweg 53, D-39118 Magdeburg). 34 spp. of the Beuthan coll. (1923-1944) are listed along with locality data and dates. Comments on the Sachsen-Anhalt records of *Calopteryx virgo*, *Coenagrion mercuriale*, *Nehalennia speciosa*, *Gomphus vulgatissimus*, and *Epithea bimaculata* are added, and a brief biography of the collector, Kurt Beuthan (1887-?) is provided.
- (14833) TIMM, H., M. IVASK & T. MÖLS, 2001. Response of macroinvertebrates and water quality to long-term decrease in organic pollution in some Estonian streams during 1990-1998. *Hydrobiologia* 464: 153-164. — (First Author: Võrtsjärv Limnol. Stn, Inst. Zool. & Bot., Estonian Agric. Univ., EE-61101 Rannu, Tartumaa, Estonia). 47 sampling sites in the area of 4 (mostly pig) farms were studied, 1394 samples were taken. *Calopteryx splendens* was represented in 9% of these, *Gomphus vulgatissimus* in 3%. No other odon. information is provided.
- (14834) VAN HALDER, I., L. TEN HALLERS & T. PAVLICEK, 2001. *Vlinders in de tuin*. — [*Butterflies in the garden*]. KNNV, Utrecht & Vlinderstichting, Wageningen. 128 pp. Hardcover (17.3x24.6 cm). ISBN 90-5011-124-6. Price: 17.95 net. (Dutch). — (Distributor: Alpak, 1<sup>e</sup> Industrieweg 14, NL-3411 MG Lopik). Designed for the situation in the Netherlands, the book deals with the garden representatives of various insect orders. A chapter (pp. 71-82) deals with garden pond dragonflies. At appropriate places, 18 odon. spp. are referred to.
- (14835) VAN SCHAIK, V.A. & R.P.G. GERAEDS, 2001. Eerste vondsten larvenhuidjes gaffellibel in Nederland. — First findings of exuviae of the dragonfly *Ophiogomphus cecilia* (Fourcroy, 1785) in the Netherlands. *Natuurh. Maandbl.* 90 (Sept.): 166-167. (Dutch, with Engl. s.). — (First Author: Van der Renneweg 26, NL-6075 EJ Herkenbosch). 25-VI/29-VII-2001, 4 exuviae and 2 (freshly emerged) ♀ were found along the Roer R., Zuid Limburg prov. The emergence localities are described.
- 14836) WHEELER, W.C., M. WHITING, Q.D. WHEELER & J.M. CARPENTER, 2001. The phylogeny of the extant hexapod orders. *Cladistics* 17: 113-169. — (First Author: Div. Invert. Zool., Am. Mus. Nat. Hist., Central Park West at 79<sup>th</sup> St., New York, NY 10024-5192, USA). Morphological and molecular data are marshalled to address the question of hexapod ordinal relationships. The combination of 275 morphological variables, 1000 bases of the small subunit nuclear rDNA (18S), and 350 bases of the large subunit nuclear rDNA (28S) are subjected to a variety of analysis parameters (indel and transversion costs). Representatives of each hexapod order are included with most orders represented multiply. Those parameters that minimize character incongruence (ILD of M.F. Mickevich & J.S. Farris, 1981, *Syst. Zool.*, 30: 351-370), among the morphological and molecular data sets are chosen to generate the best supported cladogram. A well-resolved and robust cladogram of ordinal relationships is produced with the topology (Crustacea ((Chilopoda Diplopoda))((Collembola Protura))((Japygina Campodeina))((Archaeognatha (Zygentoma (Ephemera (Odonata (((Mantodea Blattaria) Isoptera) Zoraptera))((Plecoptera Embiidina))(((Orthoptera Phasmida) (Grylloblattaria) Dermaptera)))(((Psocoptera Phthiraptera) Thysanoptera) Hemiptera))((Neuropteroidea Coleoptera))(((Strepsiptera Diptera) Mecoptera) Siphonaptera) (Trichoptera Lepidoptera)) Hymenoptera)))).
- (14837) ZHANG, J. & H. ZHANG, 2001. New findings of larval and adult aeschniids (Insecta: Odonata) in the Yixian Formation, Liaoning province, China. *Cretaceous Res.* 22(4): 443-450. — (Nanjing Inst. Geol. Palaeontol., Chin. Acad. Sci., Nanjing-210008, PR China). *Stylaeschnidium rarum* gen. n., sp. n. and *Dracontaeschnidium orientale* gen. n., sp. n. are described from, respectively, a pair of almost-ultimate instar ♀ larvae and a single adult hindwing. The age of the beds falls anywhere between the latest Jurassic and mid-Early Cretaceous. A larval mask, described previously by J. Zhang (*OA* 13382) from Transbaikial, Russia, is unrelated to aeschniids; it is referable to *Hemeroscopus baissicus* Pritykina (*Hemeroscopidae*).

## 2002

- (14838) BECHLY, G. & K. UEDA, 2002. The first fossil record and first New World record for the dragonfly clade Chlorogomphidae (Insecta: Odonata: Anisoptera; Araripechlorogomphidae n. fam.) from the Crato Limestone (Lower Cretaceous, Brazil). *Stuttg. Beitr. Naturk. (B)* 328: 1-11. (With Germ. s.). — (First Author: Staat. Mus. Naturk., Rosenstein 1, D-70191 Stuttgart). *Araripechlorogomphus muratai* gen. n., sp. n. (*Araripechlorogomphidae* fam. n.) is described from the Lower Cretaceous limestones of the Crato Formation (Brazil). It is the first fossil Chlorogomphida record, and also the first New World record of this group that is at present confined to E Asia. The phylogenetic and biogeographic implications are discussed, and 7 new higher

taxa are introduced, viz. Cristotibiata, Paucipostnodalia, Eubrachystigmata, Neobrachystigmata, Paneurypalpidomorphia, Eurypalpidomorphia and Eurypalpidiformia. The monotypic Juracorduliidae fam. n. is established for Juracordulia, and Prohemeroscopus is transferred from Nannogomphidae to the monotypic Prohemeroscopidae fam. n. within Paucipostnodalia (as a sistergroup of Eubrachystigmata).

- (14839) BRADDY, S.J. & D.E.G. BRIGGS, 2002. New Lower Permian nonmarine arthropod trace fossils from New Mexico and South Africa. *J. Paleontol.* 76(3): 546-557. — (Dept Earth Sci., Univ. Bristol, Wills Memorial Bldg, Queen's Rd, Bristol, BS8 1RJ, UK). Rotterodichnium major ichno sp. n. is described and illustrated from the Late Wolfcampian of the Robledo Mts, New Mexico. The large size and length of the posterior medial imprint suggest a dragonfly-like producer, e.g. Protodonata or Odonata, resting on the substrate.

- (14840) CATLING, P.M., C.D. JONES & P. PRATT, [Eds], 2002. *Ontario Odonata*, Vol. 3 (including observations for the year 2001). Toronto Entomologists' Assoc., Toronto. iv+208 pp. Softcover (21.4x27.6 cm). ISBN 0-921631-24-3. Price: US\$ 25.- net. — (Orders to: A.J. Hanks, 34 Seaton Dr., Aurora, ON, L4G 2K1, CA). Catling, P.M. & V.R. Brownell: Rapids clubtail (*Gomphus quadricolor*) in eastern Ontario (pp. 1-4); — Additions to the Odonata of Lanark county, Ontario (pp. 4-5); — Bree, D.: Summary of the Odonata of Petroglyphs Provincial Park in 2001 (pp. 5-10); — Jones, C.D., D. Bree & R. Difruscia: Further additions to the Odonata list of Peterborough county, Ontario (pp. 10-12); — Pratt, P.D.: *Ischnura kellicotti* (Lilypad forktail) new to Canada (pp. 12-13); — Bree, D.: Notes on the Odonata of Prince Edward county, Ontario, 2001 (pp. 14-15); — Bracken, B. & C. Lewis: Black saddlebags (*Tramea lacerata*): first records for Ottawa-Carleton and Prescott-Russell counties and possible range expansion (pp. 16-18); — Catling, P.M. & V.R. Brownell: Ebony jewelwing (*Calopteryx maculata*) in northwestern Ontario (pp. 18-19); — Notes on the Odonata of Murphys Point Provincial Park, Lanark county, Ontario (pp. 20-23); — Laking, B.J., M. Holt & J.B. Falls: An annotated checklist of the Odonata of Manitoulin district, Ontario (pp. 23-31); — Jones, C.D. & P.S. Burke: Mass multiple species aggregation of dragonflies at Moris Island, Ottawa River (pp. 31-32); — Catling, P.M.: Checklist of Ontario Odonata (pp. 33-35); — Catling, P.M. & V.R. Brownell: A preliminary assessment of changes in status of Ontario dragonflies since Walker's published survey in 1941 (pp. 36-48); — C.D. Jones: Ad-

ditional records of the River bluet (*Enallagma anna*) in Ontario (pp. 49-50); — Catling, P.M.: An evaluation of some characters separating male *Lestes disjunctus* and *L. forcipatus* in Ontario (pp. 51-58); — A new identification problem in field surveys: *Tramea lacerata* and *Epithea princeps* (pp. 58-61); — Book review of "Dragonflies of Indiana" (pp. 61-62); — Catling, P.M. & V.R. Brownell: Observations of Odonata in Ontario made in 1996, 1997 and 1998 (pp. 63-103); — Catling, P.M., C.D. Jones & P. Pratt: Introduction to the year 2001 Ontario Odonata summary records (pp. 104-190); — Recent literature (pp. 195-196).

- (14841) CORDOBA-AGUILAR, A., 2002. Sensory trap as the mechanism of sexual selection in a damselfly genital trait (Insecta: Calopterygidae). *Am. Naturalist* 160(5): 594-601. — (Inst. Ecol., UNAM, Apdo Postal 70-275, Circuito exterior Ciudad Universitaria, MX-04510 Mexico, D.F.).

During copulation, ♂♂ of some calopterygid spp. displace the sperm stored in the spermatheca: the ♂ genital appendages enter into the spermathecal ducts and physically remove sperm. In *Calopteryx haemorrhoidalis*, the genital appendages are too wide to penetrate the spermathecae, but ♂♂ use a different mechanism in which the aedeagus stimulates the vaginal sensilla that control spermathecal sperm release. Since these sensilla are used during egg fertilization and oviposition, it was hypothesized that this function evolved before the ♂ stimulatory ability. The author investigated this using *Hetaerina cruentata*, whose position in the Calopterygidae phylogeny is more basal than *Calopteryx*. Given this position and having determined that ♂♂ of this sp. are not able to displace sperm of their conspecific ♀♀ during copulation, it was expected that *H. cruentata* ♀♀ would eject sperm when stimulated with the aedeagi of *C. haemorrhoidalis* but not when stimulated with the aedeagi of their conspecifics. This prediction was confirmed. In order to investigate the widespread nature of this result, *C. xanthostoma* and *C. virgo* were investigated. The results were similar to those of *H. cruentata*: conspecific ♂♂ were unable to stimulate their ♀♀, but ♀♀ ejected sperm when stimulated with *C. haemorrhoidalis* aedeagi. Morphometric analysis suggests that the mechanistic explanation for the stimulatory ability of *C. haemorrhoidalis* genitalia is that the aedeagal region that makes contact with the vaginal sensilla is wider in *C. haemorrhoidalis* than in the other sp. This suggests that the sensory "bias" shown and shared by *H. cruentata*, *C. splendens*, *C. virgo*, and *C. haemorrhoidalis* ♀♀ represents an ancestral condition and that the ♂ stimulatory ability is absent in the evolutionary history of the clade. These pieces of evidence as well as another one

presented elsewhere, which indicates that *C. haemorrhoidalis* ♂♂ vary in their stimulatory ability, constitute the 3 criteria for a case of sexual selection via exploitation of a ♀ sensory bias. These results also provide support to the sensory trap hypothesis that indicates that the ♀ bias (in this case, egg fertilization and oviposition) evolved in a context different from sexual selection. Considering that the ♂ genital appendages responsible for physically removing spermathecal sperm in other calopterygids are present in *C. haemorrhoidalis*, it is suggested that were once able to displace spermathecal sperm physically. Such ability may have been later impeded by a reduction in size of the spermathecal ducts. Possibly, one of the latest events in this sequence is the male's stimulatory ability. This hypothetical series of events suggests a coevolutionary scenario in which the central actor is the sperm stored in the spermathecae.

- (14842) DOLNÝ, A., 2002. *Libellula fulva* (Odonata) na důlním odkališti v Karviné. — *Libellula fulva* (Odonata) at mining-sedimentation pond in Karviná. *Čas. slez. Muz. Opava* (A) 51: 165-171. (Czech, with Engl. s.). — (Dept Biol. & Ecol., Fac. Nat. Sci., Univ. Ostrava, Chitussiho 10, CZ-71000 Ostrava).

During June-July 2001, the sp. was discovered at the mining-sedimentation pond area, Mokreš nr Karviná. The information on the habitat, phenology and abundance is provided. At present, this is the sole known locality of *L. fulva* in the Czech Republic.

- (14843) DOLNÝ, A., M. KRAUT & I. HORČIČKO, 2002. *Vážky* (Odonata) Přírodní rezervace Štěpán (pooderský bioregion). — Dragonflies (Odonata) of Natural Reserve Štěpán (bioregion Poodří). *Čas. slez. Muz. Opava* (A) 51: 259-269. (Czech, with Engl. s.). — (First Author: Dept Biol. & Ecol., Fac. Nat. Sci., Univ. Opava, Chitussiho 10, CZ-71000 Opava).

31 spp., incl. the nationally red-listed *Calopteryx splendens* and *Leucorrhinia pectoralis*, are recorded from the Reserve (Silesia, the Czech Republic). Their adult phenology is stated, and field notes and comments are provided on some of them.

- (14844) FLECK, G. & A. NEL, 2002. The first isophlebioid dragonfly (Odonata: Isophlebioptera: Campterophlebiidae) from the Mesozoic of China. *Palaeontology* 45(6): 1123-1136. — (Lab. Ent., Mus. Natn. Hist. Nat., 45 rue Buffon, F-75005 Paris).

*Bellabrunetia catherinae* gen. n., sp. n. is described from the Yixian Formation, Upper Jurassic/Lower Cretaceous of Liaoning prov. The body structures are well preserved, suggesting the Campterophlebiidae oviposited endophyti-

cally, unlike the *Isophlebiidae*.

- (14845) FLECK, G., A. NEL, G. BECHLY & F. ESCUILLE, 2002. The larvae of the Mesozoic family Aeschniidae and their phylogenetic implications (Insecta, Odonata, Anisoptera). *Palaeontology* 45(1): 165-184. — (Second Author: Lab. Ent. Mus. Natn. Hist. Nat., 45 rue Buffon, F-75005 Paris).

4 giant (unnamed) larvae from the Lower Cretaceous of China are described, and their affinities with the Aeschniidae are tentatively suggested. The position of other larvae (*Nothomacromia sensibilis*, *Sona nectes*, *Hemeroscopus baissicus*), formerly attributed to the Aeschniidae, is discussed.

- (14846) FREELAND, J.R. & K.F. CONRAD, 2002. Genetic similarity within and among populations of the Variable and Azure damselflies (*Coenagrion pulchellum* and *C. puella*). *Hydrobiologia* 479: 69-73. — (First Author: Dept Biol. Sci., Open Univ., Walton Hall, Milton Keynes, Buckinghamshire, MK7 6AA, UK).

In Britain, *C. puella* is both common and abundant, while *C. pulchellum* is experiencing a national decline. The reasons for the decline are poorly understood. The aim of this study was to investigate genetic relationships among populations of *C. puella* and *C. pulchellum*. We obtained mitochondrial sequence data from 36 *C. puella* and *C. pulchellum* individuals collected from 5 sites across central England. These revealed 3 haplotypes with high overall similarity. Hybridisation between *C. puella* and *C. pulchellum* was suggested by (1) the sharing of a haplotype between *C. puella* and *C. pulchellum*, — and (2) the fact that morphological characters of sympatric *C. puella* and *C. pulchellum* populations are not always species-specific. More research is required before it could be determined whether or not hybridisation is playing a role in the decline of *Coenagrion* species in the UK.

- (14847) GLOTZHOBER, R.C. & D. McSHAFFREY, 2002. *The dragonflies and damselflies of Ohio*. Ohio Biol. Surv., Columbus/OH. x+364 pp. [*Bull. Ohio biol. Serv.* (N.S.) 14(2)]. Softcover (21.5x28.0 cm). ISBN 0-86727-145-0. Price: US\$ 76.85 net. — (Distributor: Ohio Biol. Surv., P.O. Box 21370, Columbus, OH 43221-0370, USA).

The work is based on the survey conducted since 1990, the existing collections in Ohio and major collections in several other states were also considered. Sections include: the basic biology and life history, diagnostic keys for the adults to sp. level (ssp. in some cases), keys for the larvae to generic level, and species accounts with county dot maps for the 162 spp. now known from Ohio, USA. The



keys are illustrated with 471 line drawings, 90 col. species portraits (phot.), and the portraits of D.S. Kellicott (1842-1898), J.S. Hine (1866-1930), H.F. Price (1895-1987) and D.J. Borror (1907-1988) are also provided. The appendices include a glossary, a checklist of the Ohio spp., a discussion of discredited spp. previously listed for the state, and a (fairly exhaustive) regional bibliography. — A splendid work, of considerable extralimital importance as well.

- (14848) GONSETH, Y. & C. MONNERAT, 2002. *Rote Liste der gefährdeten Libellen der Schweiz*. CSCF, Neuchâtel & BUWAL, Bern. 46 pp. ISBN none. (With Engl., Fr. & Ital. s's). Available are also Fr. & Ital. edns. Price: free. — (Authors: c/o CSCF, Terreaux 14, CH-2000 Neuchâtel; — Distributed by: BUWAL, Dokumentation, CH-3003 Bern; — Order No. VU 9011; state the desired language).

This replaces the 1994 Red List (OA 11186). All odon. spp. mentioned from Switzerland at least once since the beginning of the 19<sup>th</sup> century are listed, but only those for which regular reproduction has been observed are included in the Red List proper. The IUCN categories are used, and additional notes on the current status of populations are added, where appropriate. Red-listed are 26 spp., viz RE (2 spp.), CR (12), EN (7) and VU (5). Other spp.: NT (12) and LC (34).

- (14849) HANEL, L., [Ed.], 2002. *Vážky 2002: Sborník referátů 5. celostátního semináře odonatologů v Labských pískovcích*. — *Dragonflies 2002: Proceedings of the 5<sup>th</sup> national conference of odonatologists at Labské Pískovce*. Čes. Svaz Ochr. Přír., Vlašim. 184 pp. (Softcover, 14.3×20.5 cm). ISBN 80-86327-27-2. (Mostly Czech, with Engl. s's). — (Available from: ZO ČSOP, Pláteníkova 264, CZ-258-01 Vlašim).

Hanel, L.: Foreword (pp. 5-7); — Benda, P. & M. Honců: A list of dragonflies (Odonata) found during the 5<sup>th</sup> Odonatological Days in July 2002 in PLA Labské Pískovce (northern Bohemia) (pp. 8-13); — Benda, P.: Dragonflies (Odonata) of the Protected Landscape area Elbe Sandstone and National Park Bohemian Switzerland (northern Bohemia) (pp. 14-20); — Brockhaus, T.: The project "Libellenfauna Sachsen 2004" (pp. 21-33; in Germ.); — Phoenix, J.: The dragonfly fauna of Saxonian Switzerland: a first synoptic survey (pp. 34-39; in Germ.); — Hanel, L.: Our dragonflies (Odonata) and NATURA 2000 (pp. 40-54); — Waldhauser, M.: Notes on dragonfly fauna (Odonata) in the Lužické hory (northern Bohemia) (pp. 55-72); — Dolný, A., M. Opletová & M. Baniánková: Dragonflies (Odonata) in peat bogs of Beskydy and Jeseníky mountains (Czech Republic) (pp. 73-82); —

Dolný, A.: Dragonflies (Odonata) in mining-sedimentation ponds in the region of Karvinsko (Silesia, Czech Republic) (pp. 83-90); — Honců, M. & O. Razzočil: The results of monitoring of the dragonflies (Odonata) in the district Česká Lipa (northern Bohemia) (pp. 91-139); — Petr, J.: Dragonflies (Odonata) of selected localities in the river basin of Veverský and Novohradský brooks (Novohradské Mts, southern Bohemia) (pp. 140-149); — Waldhauser, M.: Notes on dragonfly fauna (Odonata) in the Pardubice region (eastern Bohemia) with respect of discovery of Gomphus flavipes (pp. 150-156); — Benda, P.: The occurrence of dragonflies Orthetrum brunneum and Crocothemis erythraea (Odonata) in the Ústecko region (northern Bohemia) (pp. 157-158); — Šálek, P.: Padělký at Hulin (Moravia, Czech Republic), interesting locality with respect of dragonflies (Odonata) (pp. 159-167); — Razzočil, O. & R. Šrubař: Dragonflies (Odonata) perished in the peat-bog in the region of Českolipsko (northern Bohemia) (pp. 168-171); — Hanel, L.: Autumn occurrence of invertebrates along the pond's waterside (Křemešnická vrchovina, Bohemia) (pp. 172-174); — *Directory of participants* (pp. 175-177).

- (14850) HOVMÖLLER, R., T. PAPE & M. KÄLLERSJÖ, 2002. The Palaeoptera problem: basal pterygote phylogeny inferred from 18S and 28S rDNA sequences. *Cladistics* 18: 313-323. — (First Author: Dept Zool., Stockholm Univ., Stockholm, Sweden).

Monophyly of the pterygote insects is generally accepted, but the relationships among the three basal branches (Odonata, Ephemeroptera and Neoptera) remain controversial. The traditional view, to separate the pterygote insects in Palaeoptera (Odonata + Ephemeroptera) and Neoptera, based on the ability or inability to fold the wings over the abdomen, has been questioned. Various authors have used different sets of morphological characters in support of all three possible arrangements of the basal pterygote branches. 18S and 28S rDNA from Odon. (18 spp.), Ephemeroptera (8 spp.), Neoptera (2 spp.) and Archaeognatha (1 sp.) were sequenced. The new sequences, in combination with sequences from GenBank, have been used in a parsimony jackknife analysis resulting in strong support for a monophyletic Palaeoptera. Morphological evidence and the phylogenetic implications for understanding the origin of insect flight are discussed.

- (14851) JACUŃSKI, L., L. TESZAR, J. TEMPLIN & T. NAPIORKOWSKA, 2002. Przypadek oligomelii u larwy ważki Aeshna grandis L. — The case of oligomely in the larvae of the dragonfly Aeshna grandis L. *Przegl. Zool.* 46(1/2): 91-93. (Polish; with Engl. s.). — (Dept Invert. Zool., Inst. Gen. & Molec. Biol., Kopernik Univ.,

ul. Gagarina 9, PO-87-100 Turón).

A larva is described and illustrated, in which the right fore- and mid legs are abnormally short; Martwa Wisła R., Toruń, Poland. At the same locality, in May, several similar specimens were collected.

- (14852) MARTYNOV, V.V., 2002. Novaya nahodka *Cordulegaster bidentatus* (Insecta, Odonata) na territorii Ukrainy. — New record of *Cordulegaster bidentatus* (Insecta, Odonata) in Ukraine. *Vest. Zool.* 36(3): 24. (Russ., with Engl. title). — (Donetsk Nac. Univ.; postal address not stated).

Since the 1930s, no records of this sp. were known from the Ukraine (cf. OA 14160). Here it is reported from the Carpathian Biosphere Nature Reserve (Mala Ugol'ka), alt. 410 m, 19/21-VIII-2001, and some field notes on its behaviour are provided.

- (14853) MARTYNOV, V.V., 2002. Zametki o nekotorykh redkih i krasnokniznykh vidyakh nasekomykh, ohraniyaemykh territoriy Doneckoy i Luganskoy oblasti. — The notes about some rare and Red Book insect species from reserve territories of Donetsk and Lugansk regions. *Vest. Zool.* 36(2): 68. (Russ., with Engl. title). — (Donetsk Nac. Univ.; postal address not stated).

Records of *Calopteryx virgo* and *Anax imperator*; — the Ukraine.

- (14854) MITRA, T.R., 2002. Geographical distribution of Odonata (Insecta) of eastern India. *Mem. zool. Surv. India* 19(1): xvi+208 pp. ISBN 81-85874-88-3. Price: US\$ 30.—net. — (208 Raja Ram Mohan Roy Rd, Netaji Sarak, Calcutta-700008, India).

The area considered covers Arunachal Pradesh, Assam, Bihar, Manipur, Mizoram, Nagaland, Orissa, Sikkim, Tripura, and W Bengal, and supports 294 known spp. and sspp., of which 2 genera and 34 spp. and sspp. are endemic to E India. All taxa are listed and keyed. The origin and biogeographic affinities of the fauna are outlined.

- (14855) NISHIDA, G.M. & J.W. BEARDSLEY, 2002. A review of the insects and related arthropods of Midway Atoll. *Occ. Pap. Bishop Mus.* 68: 25-69. — (Hawaii Biol. Surv., Bishop Mus., 1525 Bernice St., Honolulu, HA 96817-2704, USA).

*Pantala flavescens* is the only odon. sp. listed from the atoll; — Hawaii.

- (14856) NOVELO-GUTIÉRREZ, R., 2002. Two new Mexican larvae of the genus *Erpetogomphus* Hagen in Selys (Odonata: Gomphidae). *Jl N.Y. ent. Soc.* 110(3/4): 370-375. — (Depto Ent., Inst. Ecol., A.C., Apartado

Postal 63, MX-91000 Xalapa, Veracruz).

*E. boa* and *E. cophias* are described, illustrated and compared with other larvae of the *crotalinus*-subgroup. Both spp. are easily separable by general body coloration, length and shape of ligula, and details of ♂ epiproct.

- (14857) PETRULEVIČIUS, J.F. & A. NEL, 2002. New palaeomacromiid dragonflies from the Upper Paleocene of Argentina. *Palaeontology* 45(4): 751-758. — (Lab. Ent., Mus. Natn. Hist. Nat., 45 rue Buffon, F-75005 Paris).

*Curviarculia delicata* gen. n., sp. n. and *C. lamasi* sp. n. are described from the Maiz Gordo Formation, NW Argentina. Phylogenetic relationships within Palaeomacromiidae are discussed, leading to a new family diagnosis.

- (14858) TURGEON, J. & M.A. McPEEK, 2002. Phylogeographic analysis of a recent radiation of *Enallagma* damselflies (Odonata: Coenagrionidae). *Molec. Ecol.* 11(10): 1989-2001. — (First Author: Dépt Biol., Univ. Laval, Québec City, QC, G1K 7P4, CA).

A phylogenetic hypothesis revealed 2 recent radiations among nearctic *Enallagma* spp., and extensive ecological work suggests that both adaptive and nonadaptive processes are involved in these radiations. The geographical pattern of genetic variability was analysed at 868 bp of mitochondrial DNA (mtDNA) among 283 individuals of 5 spp. displaying little ecological differentiation to identify the ancestral lineage, support their independent evolutionary trajectories and identify historical events and the underlying mechanism for one of these radiations. Nested clade analysis results clearly support a past event of range fragmentation in *E. hageni*. These Atlantic and Continental *hageni* races experienced distinct dispersal histories and still maintain nearly nonoverlapping ranges. All 4 other spp. derive from the Continental *hageni*. Whereas 3 spp. endemic to the Atlantic coastal plain show little genetic variation, *E. ebrium* shared several haplotypes with the Continental *hageni*. Contrasting levels of genetic differentiation between *E. hageni* and *E. ebrium* in geographical areas associated with distinct events of *E. hageni*'s recent history support the recent origin of this sp. Altogether, the results are compatible with a process of radiation via divergence in mate recognition systems within the Continental *hageni* race following secondary contacts between putative refugial races.

- (14859) ZESSIN, W., 2002. Eindrücke vom XV. Internationalen Symposium der Odonatologie (S.I.O.) vom 9. bis 21. Juli 2001 in Novosibirsk, Russland. *Virgo* 6(1): 91-106. — (Lange Str. 9, D-19230 Jasnitz).

A comprehensive report on, and impressions from the

Symposium and related field trips, with a list of presentations, a checklist of 63 odon. spp. from 8 localities, and 45 splendid photographs, incl. also close-ups and portraits of many participants.

## 2003

- (14860) **ARGIA**. The news journal of the Dragonfly Society of the Americas (ISSN 1061-8503), Vol. 15, No. 2 (1 Aug. 2003). — (c/o Dr & Mrs T.W. Donnelly, 2091 Partridge Lane, Binghamton, NY 13903, USA). [Scientific articles:] *Tennessee, K.*: Minter J. Westfall, Jr passes away (pp. 2-3; under the same heading are added personal reminiscences of *M. May* [pp. 3-4], *S. Dunkle* [p. 4], *J. Daigle* [p. 4], *C. Cook* [p. 4], and *B. Maufray* [p. 5]); — *Valley, S.*: 2003 DSA Annual Meeting in Williams, CA and post-meeting trip to Owens Valley, June 19-25 (pp. 5-8; records); — *Daigle, J.J. & T. Thom*: 2003 Eglin AFB, Florida meeting (pp. 8-9; records); — *Daigle, J.J., B. Maufray & G. Beaton*: 2003 SE meeting at Lafayette, Georgia (pp. 9-10; records); — *Rose, J.S.*: Dragonfly Days, 16-19 May 2003 (pp. 10-12; records); — *Paulson, D.*: Down under again: drought, dragonflies, and WDA (pp. 12-14); — *Donnelly, N.*: Northern Great Plains: a side trip on the way to California (pp. 14-15); — *May, M. & P. Corber*: Gathering useful information about the seasonal ecology of *Anax junius* (pp. 15-16); — *Beckemeyer, R.*: Short-term economic troubles and the potential destruction of irreplaceable taxonomic and biodiversity treasures: the University of Nebraska-Lincoln catastrophe (pp. 16-17); — Digital odonatology imaging: what might the future hold? (p. 18); — *Biggs, K.*: Illotum thermometer (pp. 18-19); — *Bried, J.*: Notes on an *Epieaeschna heros* feeding swarm (pp. 19-20); — *Donnelly, N.*: [Review] Dragonflies and damselflies of California, by T. Manolis (p. 21); — *Dunkle, S.*: Minutes of the 2003 DSA meeting (pp. 21-22).
- (14861) **AUSTROLESTES**. Newsletter of the Australian Dragonfly Society, Nos 7 (Summer 2002/2003), 8 (Autumn/Winter 2003). (c/o D. Reeves, 30 Bremston Terrace, Herston, QLD 4006 AU). [Scientific articles:] [No. 7:] *Orr, B.*: Book review [of the volume described in OA 14558] (p. 1); — *Anonymous*: Species profile: *Aeshna brevistyla* (Rambur, 1842) (p. 2); — *Yates, N.*: Worldwide Dragonfly Association 3<sup>rd</sup> International Symposium of Odonatology (pp. 2-3); — *Reeves, D.*: Obituary for D.A.L. Davies (p. 3); — *Taylor, J.*: Backyard dragonflies in Perth (p. 4); — [No. 8:] *Anonymous*: Species profile: *Hemianax papuensis* (Burmeister, 1839) (p. 1); — *Theischinger, G.*: Dragonfly news from Cape York Peninsula (pp. 2-3); — *Anonymous*: Book review [of the volume described in OA 14761] (pp. 3-4); — *Theischinger, G.*: Corrections to Dragonflies of Victoria, by G. Theischinger & J.H. Hawking [cf. OA 14558] (p. 4).
- (14862) **BELEVICH, O.E. & Yu.A. YURCHENKO**, 2003. Strekozy roda *Aeshna* zapadnoy Sibiri. — [*Aeshna* dragonflies of western Siberia]. In: A.Yu. Haritonov & L.N. Sivohinova, [Eds], *Biologicheskaya nauka i obrazovanie v pedagogicheskikh vuzah*, Vol. 3, pp. 11-15, Novosibirsk St Pedagog. Univ., Novosibirsk, ISBN 5-85921-293-3. (Russ.). — (Authors' addresses not stated). Some phenological information is provided for *A. crenata*, *A. grandis*, *A. juncea* and *A. viridis*, mostly from the Chen' R. area and from the lakes of Izmenec and Dolgunc. In all 4 spp., the emergence peak occurs during 26-30 June.
- (14863) **BOANO, G. & A. ROLANDO**, 2003. Aggressive interactions and demographic parameters in *Libellula fulva* (Odonata, Libellulidae). *Ital. J. Zool.* 70(2): 159-166. — (First Author: Mus. Civ. Stor. Nat., Via San Francisco di Sales 188, I-10022 Carmagnola/Torino). ♂ aggressive interactions and sex ratio, survival, abundance and life span of *L. fulva* were studied at a marsh in NW Italy by monitoring marked individuals. Perching ♂♂ attacked every dragonfly passing near the perch. However, the mean homospecific attack distance was significantly longer than the heterospecific one and this suggests that ♂♂ were able to discriminate among spp., at least partially. In some instances, aggressive ♂♂ succeeded in catching and copulating with ♀♀. Release-recapture analyses indicate that the sex ratio was very biased towards ♂♂, even though ♂ and ♀ capture probabilities were equal. ♀♀ had a slightly greater mortality rate than ♂♂, but this difference in adult survival is not sufficient to explain why adult ♀♀ were rather rare at the study site. Life span estimates indicate that most ♂♂ stayed alive for less than 10 days. The results, suggest a connection between interactions and demographic parameters. ♂ aggressive behaviour can in fact be viewed as an adaptation to a sexual environment where the time for reproduction is very short and the probability of meeting a partner is very low. Aggressions may in fact enhance ♂ probabilities to catch (and copulate with) ♀♀ flying through the site. Weather conditions influenced ♂ behaviour, attack distance was significantly and positively related with light intensity. However, they did not influence the longevity. The aggressive behaviour of *L. fulva* ♂♂ might be classed as territoriality. However, the classical "defence of resource approach" seems to be scarcely appropriate here, since no resource located inside the hypothetical

territory was defended at the perch site.

- (14864) BOS, F., 2003. *Libellen in beeld*. — [*Dragonflies illustrated*]. KNNV, Utrecht, 32 pp., 2 fold. pp. excl. (softcover (10.0x21.0 cm). ISBN 90-5011-164-5. (Dutch). Price: 4.75 net. — (Distributor: Alpak, 1e Industrieweg 14, NL-3411 MG Lopik). A handy introduction to dragonfly biology, with a presentation of 23 common Netherlands spp., directed at the general readership.
- (14865) BOWLES, B., 2003. Results of the 2002 Pelee island insect counts. *Ontario Insects* 8(2): 34. — (374 Grenville, Orillia, ON, L3V 7P7, CA). 949 individuals of 16 odon. spp. were sighted; 4-VIII-2002, Ontario, Canada. See also OA 14257.
- (14866) BRIERS, R.A. & J. BIGGS, 2003. Indicator taxa for the conservation of pond invertebrate diversity. *Aquat. Conserv. Marine Fresh. Ecosyst.* 13(4): 323-330. — (First Author: Inst. Biol. Sci., Edward Llwyd Bldg, Univ. Wales, Aberystwyth, Ceredigion, SY23 3DA, UK). Ponds are a valuable resource for the conservation of freshwater biodiversity, but are often extremely numerous in a given area, making assessment of the conservation value of individual sites potentially time consuming. The use of indicator taxa, the species richness of which is representative of total site species richness, may provide one way to improve the efficiency of survey work. However, such indicators are poorly developed for freshwater systems. A data set was used describing the occurrence of macroinvertebrate taxa in ponds in Oxfordshire, UK, to assess the extent to which variation in the species richness of selected taxa most consistently represented variation in all other taxa. Coenagrionidae (Odonata) and Limnephilidae (Trichoptera) reflected the variation in species richness of other taxa most consistently, with Coenagrionidae showing the best overall performance as an indicator taxon. For both suggested indicator taxa, selection of sites based solely on the presence of at least 1 sp. of indicator would represent over 95% of all spp. recorded across all sites.
- (14867) BROCKHAUS, T., 2003. Ein weiteres Vorkommen von *Aeshna subarctica elisabethae* (Walker, 1908 [sic!]) in Sachsen (Odonata, Aeshnidae) und Hinweise zur Libellenfauna der Natura-2000-Lebensräume 7110, 7140 und 7150. *Ent. Nachr. Ber.* 47(1): 27-30. (With Engl. s.). — (An der Morgensonne 5, D-09387 Jahnsdorf/Erzgebirge). 3 exuviae and 1 adult *A. s. elisabethae* are reported from the Moskauer Heide, Upper Lusatia, E Germany (VI/IX-2002). The habitat is described, an annotated list of the odon. spp. from the area is provided and the fauna is discussed.
- (14868) BUCZYŃSKI, P., 2003. *Aeshna affinis* (Vander L.) (Odonata: Aeshnidae) w dolinie Bugu w roku 2000. — *Aeshna affinis* (Vander L.) (Odonata: Aeshnidae) in the valley of river Bug in the year 2000. *Wiad. ent.* 22(1): 48-49. (Polish, with Engl. title). — (Dept Zool., Inst. Biol. M. Curie-Skłodowska Univ., Akademicka 19, PO-20-033 Lublin). *A. affinis* was discovered in the grasslands along the Bug R. (nr Gródek) already in 1995. (cf. the paper listed in OA 11654). Here, the records from 3 localities in the same general region are stated and briefly discussed.
- (14869) BUCZYŃSKI, P., 2003. Nowe stanowisko *Orthetrum coerulescens* (Fonscolombé, 1837) (Odonata: Libellulidae) w południowo-wschodniej Polsce. — New locality of *Orthetrum coerulescens* (Fonscolombé, 1837) (Odonata: Libellulidae) in the southeastern Poland. *Wiad. ent.* 22(1): 49-50. (Polish, with Engl. title). — (Dept Zool., Inst. Biol. M. Curie-Skłodowska Univ., Akademicka 19, PO-20-033 Lublin). 1 ♂, grasslands nr Wieprzowe Lake, 25-VIII-2001. The occurrence in the highlands of SE Poland is reviewed and discussed.
- (14870) *BULLETIN OF AMERICAN ODONATOLOGY* (ISSN 1061-2781), Vol. 7, No. 2 (1 Aug. 2003). — (c/o Dr & Mrs T.W. Donnelly, 2091 Partridge Lane, Binghamton, NY 13903, USA). *Trapero Quintana, A. & C. Naranjo López*: Revision of the order Odonata in Cuba (pp. 23-40; a list of 81 spp., with an altitudinal analysis at species level, and a chapter on the relationships with the fauna of the Greater Antilles).
- (14871) BURWELL, C.J. & G. THEISCHINGER, 2003. New distribution records and notes on the larva of *Urothemis aliena* Selys (Odonata: Urothemistidae). *Aust. Ent.* 30(2): 57-64. — (First Author: Higher Ent. Sect., Queensland Mus., P.O. Box 3300, South Brisbane, QLD 4101, AU). The distribution is presented, based primarily on specimens in ANIC. Specimens from 2 SE Queensland localities (Enoggera Reservoir and Birkdale) extend the known range of the sp. by almost 1000 km to the SE. *U. aliena* is also recorded for the first time from Cape York Peninsula. The final instar larval exuviae is illustrated and diagnostic features are provided.
- (14872) CLAUSNITZER, V., 2003. Dragonfly communities in coastal habitats of Kenya: indication of biotope

quality and the need of conservation measures. *Biodiv. Conserv.* 12: 333-356. — (Liebenauer Str. 180, D-06110 Halle/Saale).

The odon. species-diversity in the region is highlighted, indicator spp. are identified for certain habitat types, and the importance of conserving the last remaining coastal forests in the area is emphasized. 78 spp. were recorded, 5 of these for the first time in E Africa. Dragonfly communities relative to different habitat types from indigenous forest to cultivated landscapes are described and compared. The forest spp. are often confined to coastal forests of E Africa. They are stenotopic and highly sensitive to disturbance. With increasing habitat disturbance the species richness increases at first, but most of the colonisers are eurytopic spp. that are common and widely distributed in Africa. The species assemblages between different habitat types in the disturbed landscape are more or less the same; the  $\beta$ -diversity is much lower than in different habitat types of the natural coastal landscape. Management implications are briefly discussed.

- (14873) CORDOBA-AGUILAR, A., 2003. Predicting mechanisms of sperm displacement based on genital morphometrics in the Calopterygidae (Odonata). *Insect Behav.* 16(1): 153-167. — (Inst. Ecol., UNAM, Apdo Postal 70-275, Circuito exterior Ciudad Universitaria, MX-04510 Mexico, D.F.).

The different copulatory mechanisms calopterygids utilize on the basis of genital morphometry are characterized. This is tested by examining a set of calopterygids whose copulatory mechanisms have been documented. Using the same morphometric analysis, the likely mechanisms are proposed in a set of calopterygid spp. whose mechanisms are unknown.

- (14874) CORDOBA-AGUILAR, A., J.C. SALAMANCA-OCANAT & M. LOPEZARAIZA, 2003. Female reproductive decisions and parasite burden in a calopterygid damselfly (Insecta: Odonata). *Anim. Behav.* 66: 81-87. — (First Author: Inst. Ecol., UNAM, Apdo Postal 70-275, Circuito exterior Ciudad Universitaria, MX-04510 Mexico, D.F.).

There is currently a gap in sexual selection theory about how much the environment drives  $\varnothing$  mating decisions. Field data are presented that suggest that  $\varnothing$  sexual behaviour in *Calopteryx haemorrhoidalis* is influenced by parasite burden.  $\delta$  wing pigmentation in *Calopteryx* is a sexually selected trait that signals a  $\varnothing$  ability to cope with eugregarine parasites (an intestinal parasite that feeds on the adult's ingested food). Because adult *C. haemorrhoidalis*  $\varnothing$  &  $\varnothing$  also show wing pigmentation, it was examined whether this trait is similarly influenced by parasite burden

and whether it may signal the  $\varnothing$  reproductive value.  $\delta$  *C. haemorrhoidalis* defend riverine substrates that  $\varnothing$  &  $\varnothing$  use for oviposition. After copulation and during oviposition,  $\varnothing$  &  $\varnothing$  are guarded by the copulating  $\delta$  against intruder  $\delta$   $\delta$ . Alternatively,  $\varnothing$  &  $\varnothing$  may avoid mating and 'steal' an oviposition site within a  $\delta$  territory. In the present study, it was found that the amount of  $\varnothing$  wing pigmentation was negatively correlated with the number of eugregarines present.  $\varnothing$  &  $\varnothing$  with more parasites produced fewer eggs, survived fewer days, spent less time during courtship, 'inspected' fewer  $\delta$   $\delta$  before mating, had a lower mating success, were guarded for less time during oviposition and engaged in fewer 'stealing' events during oviposition. The reduced egg production and survival of heavily infected  $\varnothing$  &  $\varnothing$  may result from eugregarine depletion of the  $\varnothing$  consumed food reserves. Thus, to offset reduced longevity, heavily infected  $\varnothing$  &  $\varnothing$  may accept a mating more rapidly and mate with fewer  $\delta$   $\delta$ . 'Stealing' behaviour may be related to the  $\varnothing$  differential use of sperm from some  $\delta$   $\delta$ , particularly high-quality  $\delta$   $\delta$ . Interestingly,  $\delta$   $\delta$  that mated with low-pigmented  $\varnothing$  &  $\varnothing$  showed greater variance in wing pigmentation than did  $\delta$   $\delta$  that mated with high-pigmented  $\varnothing$  &  $\varnothing$ . Possibly,  $\varnothing$  wing pigmentation may signal a  $\varnothing$  reproductive value, which provides  $\varnothing$  &  $\varnothing$  with longer mate-guarding episodes and reduced interference from intruder  $\delta$   $\delta$ . This study points out one possible constraint, intestine parasites, that  $\varnothing$  &  $\varnothing$  may face during mating decisions. Because  $\varnothing$  &  $\varnothing$  in bad condition mate with  $\delta$   $\delta$  in both good and bad condition, this constraint may be pervasive enough to weaken the intensity of selection for a  $\delta$  sexually selected trait, wing pigmentation, and help to maintain its variation in phenotypic expression.

- (14875) [DAVIES, D.A.L.] VENNING, G., R. CAINE & P. CORBET, 2003. [Obituary] David Allen L. Davies. *Lancet* 361(9375): 2163, with portrait. — (Third Author: Crean Mill, Crean, St Buryan, Cornwall, TR19 6HA, UK).

Born 18 March 1923, in Newport, Pembrokeshire, UK; deceased 2 March 2003, in Cambridge, UK. A biochemist who was the first to purify a transplantation antigen, a world authority on odon., an expert on fungi, a war hero, and a supreme lateral thinker. His odon. collection has been bequeathed to the Cambridge Univ. Mus. Zool., UK.

- (14876) DE BLOCK, M. & R. STOKS, 2003. Adaptive sex-specific life history plasticity to temperature and photoperiod in a damselfly. *J. evol. Biol.* 16(5): 986-995. — (First Author: Evol. Biol. Gr., Univ. Antwerp, Groenenborgerlaan 171, B-2020 Antwerp).

4 predictions as to the effect of temperature, photoperiod,

and sex on the life history plasticity and foraging activity in *Lestes viridis* were investigated. (1) As predicted, increased temperatures increased foraging activity and growth rates, but in contrast with the prediction, late photoperiod (high time stress) did not affect foraging activity and growth rate. (2) Unexpectedly, the increase in growth rate at increasing temperatures was not larger under high time stress. (3) As predicted, age and size at emergence decreased at higher temperatures and at the late photoperiod. Temperature-induced life history shifts were direct or the result of behavioural growth mediation depending on the temperature range. Photoperiod-induced life history shifts were direct. (4) As predicted, ♂♂ emerged before ♀♀, but at a smaller size. The degree of sexual size dimorphism was influenced by the joint effects of temperature and photoperiod. Only genetic variation in size plasticity in photoperiod could be detected. The match between the sex-specific life history responses to temperature and photoperiod and predictions by relevant optimality models suggests adaptive life history plasticity to these variables.

- (14877) DIJKSTRA, K.-D.B. & J. LEMPERT, 2003. Odonate assemblages of running waters in the Upper Guinean forest. *Arch. Hydrobiol.* 157(3): 397-412. — (First Author: Gortestraat 11, NL-2311 MS Leiden; — Second Author: Vereinsstr. 41, D-20357 Hamburg).

In order to describe the assemblages of adult Odon. of running waters in the Upper Guinean forest, 36 sites in Liberia and Ghana were analysed using Non-metric Multidimensional Scaling. 5 groups were identified, which correspond with different assemblages in the sequence of habitats from small streams to large rivers. Taxonomically related spp. demonstrate distinct ecological segregation within this gradient, occupying different sections of running waters, or different microhabitats therein. The balance of sun and shade, resulting from a varying degree of habitat openness, is thought to be an important factor in habitat selection, but it is difficult to distinguish from other factors associated with stream size. anthropogenic opening of stream habitat (e.g. by deforestation or damming) can downscale the present fauna, i.e. result in the invasion of spp. of downstream habitats (more open) and the disappearance of upstream (dense forest) spp.

- (14878) DOLNÝ, A., T. BLAŠKOVIČ, J. ŠIBL, E. BULÁNKOVÁ & P. MATĚJKA, 2003. On the occurrence of *Libellula fulva* Müller in the Czech Republic and in Slovakia (Odonata: Libellulidae). *Opusc. zool. flumin.* 212: 1-14. — (First Author: Dept Biol. & Ecol., Fac. Nat. Sci., Univ. Ostrava, Chitussiho 10, CZ-71000 Opava). All Czech (3) and Slovak (24, incl. 14 new) localities are

listed and, whenever possible, the respective habitats are described. The regional distribution of the sp. is mapped. Its habitat choice in the region is compared with that elsewhere in central and eastern Europe.

- (14879) FLECK, G., G. BECHLY, X. MARTINEZ-DEL-CLÒS, E. JARZEMBOWSKI, R. CORAM & A. NEL, 2003. Phylogeny and classification of the Stenophlebiptera (Odonata: Epiproctophora). *Annls Soc. ent. Fr.* (N.S.) 39(1): 55-93. (With Fr. s.). — (Last Author: Lab. Ent., Mus. Nac. Hist. Nat., 45 rue Buffon, F-75005 Paris). Juraheterophlebiidae fam. n. (of the "heterophlebioid" lineage), Henrotayidae fam. n. ("anisopteroid" lineage), Prostenophlebiidae fam. n. and Liassostenophlebiidae fam. n. (both in the Stenophlebiptera) are erected, and the following lower taxa are described: Juraheterophlebia kazakhstanensis gen. n., sp. n., Henrotayia marci gen. n., sp. n., Liassostenophlebia germanica gen. n., sp. n., Hispanostenophlebia barremiana gen. n., sp. n., Mesostenophlebia anglicana gen. n., sp. n., and Cretastostenophlebia mongolica gen. n., sp. n., all from the Mesozoic of Germany, Spain, England, Kazakhstan and Mongolia. The phylogenetic position of the Erichschmididae and Gondvanogomphidae are discussed, and a tentative phylogenetic analysis of the Anisopteromorpha is proposed.

- (14880) FREELAND, J.R., M. MAY, R. LODGE & K.F. CONRAD, 2003. Genetic diversity and widespread haplotypes in a migratory dragonfly, the common green damselfly *Anax junius*. *Ecol. Ent.* 28(4): 413-421. — (First Author: Dept Biol. Sci., Walton Hall, Open Univ., Milton Keynes, MK7 6AA, UK).

Spp. that undertake regular 2-way migration may be expected through population connectivity, to exhibit some level of genetic similarity over broad spatial scales. Although seldom following 2-way migration, highly mobile insect spp. tend to exhibit either low haplotype diversity and no phylogeographic structuring, or relatively high haplotype diversity and pronounced phylogeographic structuring. — This study reveals the first wide-scale genetic characterisation of a migratory *A. junius*. Unusually for insects, N-S 2-way migration is common in this sp., although not obligatory. In at least part of its range, some individuals follow an extended developmental period and overwinter in a state of diapause. — Mitochondrial sequence data were obtained from 92 individuals collected from 35 sites across Canada, USA, and Mexico. These revealed 38 haplotypes, some of which were extremely widespread, although the majority (27 haplotypes) was found in only one individual. In contrast to previous studies on mobile insects, the overall pattern was of relatively high haplotype diversity in the absence of phylo-

geographic structuring. — Migrants and non-migrants, which sometimes shared haplotypes, were distributed across multiple genetic lineages. This suggests that, contrary to some earlier assertions, developmental pathways in this sp. may be plastic. Such plasticity would allow highly mobile sp. to adapt to a range of environmental conditions, and may be key to the widespread distribution of multiple haplotypes.

and the Extra Meeting of the K.R.G.O. (pp. 60-69; with Engl. s.).

- (14881) GONSETH, Y. & F. CORDILLOT, 2003. [Centre suisse de cartographie de la faune / Schweizer Zentrum für die Kartographie der Fauna] Rapport d'activité 2002 / Jahresbericht 2002. *Nouvelles Cent. suisse Cartogr. Faune* 25: 5-27 (Fr.), 28-50 (Germ.). — (CSCF, Terreaux 14, CH-2000 Neuchâtel).

The Odon. report appears on pp. 6-7, 29-30. C. Monnerat & Y. Gonthier (both c/o CSCF) are the responsible coordinators. In the framework of the project, «Odonata 2000», ca 40.000 new records were registered. The recent (2002) version of the Swiss Red List is based on the assessment of 97.000 records. A new Distribution Atlas of the Swiss odon. fauna is in preparation; it will also include some of the unpublished art work of the well-known Swiss painter and odonatologist P.A. Robert.

- (14882) GRACILE. [Newsletter of Odonatology], Osaka (ISSN 1344-123X), Nos 65 (1 Dec. 2002), 66 (1 May 2003). (Jap., with Engl. titles). — (c/o K. Inoue, 5-9, Fuminosato 4-chome, Abeno-ku, Osaka, 545-0004, JA). [No. 65]: Shimura, S.: Structure of micropylar region of eggs of 12 species in Gomphidae (pp. 1-8); — Oka, I., Y. Oda & S. Morishita: Observations on *Sympetrum striolatum imitoides*, *Anax n. nigrofasciatus* and *Aeshna nigroflava* in the western part of Kobe city, Hyogo pref. (pp. 9-15); — Matsumoto, M.: Ecological observations on *Tramea virginia* (Rambur) in the central part of Kochi pref. (pp. 16-20); — Kanazawa, I., Y. Nishimura & M. Yoshida: Two collection records of *Stylurus oculus* in Osaka pref. (pp. 21-22); — Hirake, T.: The history of survey trips of Kansai Research Group of Odonatology (pp. 22-27). — [No. 66]: Aoki, T.: Life history and seasonal regulation in *Asiagomphus pryleri* Selys (pp. 1-28); — Yagi, T.: Odonate fauna of Ryuogabuchi, Murch-mura, Nara pref. (pp. 29-35); — Une, S.: A female *Sympetrum* frequens with a pair of black spots on antepronotum (p. 36); — Kiyoshi, T.: An immature specimen of *Tramea virginia* from the southern part of Hyogo pref. (p. 37); — Tabata, O.: Dragonflies of Mt Kongo and the surrounding areas: records in 2000 & 2001 (pp. 38-56); — Matsuda, I.: Odonate specimens to be donated to the Nature Museum of Mt Kongo collected until the end 2001, Pt 2 (pp. 57-59); — Inoue, K.: Record of four Siberian researchers' visit

- (14883) HUANG, D.-y., A. NEL & Q.-b LIN, 2003. A new genus and species of aeshnopteran dragonfly from the Lower Cretaceous of China. *Cretaceous Res.* 24(2): 141-147. — (Second Author: Lab. Ent., Mus. Natn. Hist. Nat., 45 rue Buffon, F-75005 Paris).

*Parapetala liaoningensis* gen. n., sp. n. is described from Yixian Formation (?) of W Liaoning prov. It has a very basal position in the clade Aeshnoptera, close to the Upper Jurassic Mesuropetalidae. Its discovery suggests a rapid evolution of the clade in the Early and Middle Jurassic.

- (14884) INTERNATIONAL JOURNAL OF ODONATOLOGY (ISSN 1388-7890), Vol. 6, No. 2 (Oct. 2003).

*De Marmels, J.*: *Lamproneura lucerna* gen. nov., sp. nov. from Venezuela, and *Cyanallagma ferenigrum* sp. nov., a remarkable new species from Brazil (Odonata: Protoneurida, Coenagrionidae) (pp. 99-108); — *Dijkstra, K.-D.B.*: Problems of Chlorocypha classification: four cases from West Africa and a discussion of the taxonomic pitfalls (Odonata: Chlorocyphidae) (pp. 109-126); — *Dumont, H.J.*: Odonata from the Republic of Mongolia and from the Autonomous Region of Inner Mongolia (pp. 127-146); — *von Ellenrieder, N. & R.W. Garrison*: A synopsis of the genus *Triacanthagyna* (Odonata: Aeshnidae) (pp. 147-184); — *Corbet, P.S.*: Reproductive behaviour of Odonata: the history of a mystery (pp. 185-193).

- (14885) JORDAN, S., C. SIMON & D. POLHEMUS, 2003. Molecular systematics and adaptive radiation of Hawaii's endemic damselfly genus *Megalagrion* (Odonata: Coenagrionidae). *Syst. Biol.* 52(1): 89-109. — (Third Author: Dept Syst. Biol., MRC 105, Smithsonian Instn, Washington, DC 20560, USA).

The *Megalagrion* spp. have radiated into a wide variety of habitats and are a model group for the study of adaptive radiation. Past phylogenetic analysis, based on morphological characters, has been problematic. Relationships among 56 individuals from 20 of the 23 described spp. are examined, using maximum likelihood (ML) and Bayesian phylogenetic analysis of mitochondrial (1,287 bp) and nuclear (1,039 bp) DNA sequence data. Models of evolution were chosen using the Akaike information criterion. Problems with distant outgroups were accommodated by constraining the best ML ingroup topology, but allowing the outgroups to attach to any ingroup branch in a bootstrap analysis. No strong contradictions were obtained between either data partition and the combined data set. Areas of disagreement are mainly confined to clades that are strongly supported by the mitochondrial

DNA and weakly supported by the elongation factor1 $\alpha$  data because of lack of changes. However, the combined analysis resulted in a unique tree. Correlation between Bayesian posterior probabilities and bootstrap percentages decreased in concert with decreasing information in the data partitions. In cases where nodes were supported by single characters bootstrap proportions were dramatically reduced compared with posterior probabilities. 2 speciation patterns were evident from the phylogenetic analysis. First, most speciation is interisland and occurred as members of established ecological guilds colonized new volcanoes after they emerged from the sea. Second, there are several instances of rapid radiation into a variety of specialized habitats, in one case entirely within the island of Kauai. Application of a local clock procedure to the mitochondrial DNA topology suggests that 2 of these radiations correspond to the development of habitat on the islands of Kauai and Oahu. About 4.0 mio yr ago, spp. simultaneously moved into fast streams and plant leaf axils on Kauai, and about 1.5 mio yr later another group moved simultaneously to seeps and terrestrial habitats on Oahu. Results from the local clock analysis also strongly suggest that Megalagrion arrived in Hawaii about 10 mio yr ago, well before the emergence of Kauai. Date estimates were more sensitive to the particular node that was fixed in time than to the model of local branch evolution used. A general model for the development of endemic spp. on Hawaiian Isls is proposed, and document 5 potential cases of hybridization (*M. xanthomelas*  $\times$  *M. pacificum*, *M. eudytum*  $\times$  *M. vagabundum*, *M. orobates*  $\times$  *M. oresitrophum*, *M. nesioties*  $\times$  *M. oahuense*, and *M. mauka*  $\times$  *M. paludicola* are documented.

- (14886) JOVIĆ, M. & L. ANDJUS, 2003. *Epithecina bimaculata* (Charpentier) recorded from Serbia again (Odonata: Corduliidae). *Opusc. zool. flumin.* 214: 1-7. — (Nat. Hist. Mus. Belgrade, Njegoševa 51, P.O. Box 401, SM-11000 Belgrade, Serbia).  
A ♂ from the man-made pond, Trešnja nr Belgrade, (alt. 230 m) is brought on record (2-VI-2001). This is only the third listing for Serbia, where the sp. has not been seen since 1906. The pond and its odon. fauna are briefly described, and some habitat conservation measures are suggested.

- (14887) KETELAAR, R., 2003. Libellen vliegen vroeger en noordelijker: een gevolg van klimaatsverandering? — Dragonflies are flying earlier and expanding northwards: an effect of climate change? *Levende Nat.* 104(3): 83-85. (Dutch, with Engl. s.). — (De Vlinderstichting, P.O. Box 506, NL-6700 AM Wageningen).  
In the Netherlands, the numbers of southern odon. spp. are

increasing, while some of the stenotopic spp. and those with a more northern range are decreasing. A phenology analysis of 10 common spp. has shown that since 1980 the flight season peaks of 9 of them occur much earlier than they did before 1980. The shifts are as follows: spring spp.: *Pyrhosoma nymphula* (18.3 days earlier), *Coenagrion puella* (12.8), *Calopteryx splendens* (13.8); — summer spp.: *Anax imperator* (10.0), *Orthetrum cancellatum* (7.5), *Ischnura elegans* (6.9), *Enallagma cyathigerum* (no change), *Lestes sponsa* (6.2), *Aeshna grandis* (7.1), and *A. mixta* (6.2 days earlier). It is assumed that climate change is responsible for these occurrences, and the subject is discussed.

- (14888) MALKMUS, R., 2003. Die prächtige Smaragdlibelle, ein Juwel unter Portugals Libellen. *Natur Mus., Frankf.* 133(7): 207-212. — (Schulstr. 4, D-97859 Wiesthal).

Based on literature and on own observations in Portugal, the biology of *Macromia splendens* is described. Its geographical range is outlined, and the ecology of its habitats (mostly in Portugal) is described. The adult behaviour, copulation, oviposition, larval habitats and larval behaviour are addressed. A comprehensive bibliography is provided.

- (14889) MANOLIS, T., 2003. *Dragonflies and damselflies of California*. Univ. California Press, Berkeley. x+203 pp., 40 col. pls (incl. odon. portraits & range maps) excl. (12.1  $\times$  19.0 cm). ISBN (softcover) 0-520-23567-3, (hardcover) 0-520-23566-5. Price: US\$ 16.95 / 27.20 (soft), US\$ 39.95 (hard).

A very good guide, covering 108 spp., with descriptions, notes on behaviour, distribution, habitat and adult phenology. Some structural features are illustrated, and for each sp. a painted portrait and a range map are provided. Among the concise, the conventional topics covering introductory chapters, the characterisation of the odon. faunas of the 5 Californian biotic provinces is of particular value, and so are the numerous identification tips, appearing throughout the book. The book will be essential to the regional naturalists, and it will be certainly much appreciated by the professional workers as well.

- (14890) The *MIGRANT SKIMMER*. Bulletin of the Dragonfly Project (ISSN none), No. 1 (not numbered; May 2003). — (c/o Dr R. Mackenzie Dodds, East Ardsraigart, Fortingall by Aberfeldy, Perthshire, PH15 2LN, UK).  
This is the continuation of the former *Ashton Skimmer* (see OA 14366), bringing information on the Education Courses: 2 on "Basic introduction to dragonflies", 2 on "Larval identification", and 1 on "Dragonflies and wa-



terplants". They were run in summer 2002 at English Nature's Wood Walton National Nature Reserve. 12 Dragonfly Safaries were also conducted there. In 2003, the base of the National Dragonfly Museum, now operating as "The Dragonfly Project", will be at Wicken Fen National Trust Nature Reserve nr Cambridge. Various other activities, scheduled for 2003, are also stated.

- (14891) MIRZA, R.S. & D.P. CHIVERS, 2003. Influence of body size on the responses of fathead minnows, *Pimephales promelas*, to damselfly alarm cues. *Ethology* 109(8): 691-699. — (First Author: Dept Biol., 208 Mueller Lab., Pennsylvania St. Univ., University Park, PA 16802, USA).

A wide variety of aquatic organisms release chemical alarm cues upon encountering or being attacked by a predator. These cues can be used by nearby individuals to assess local predation risk. Receivers warned by chemical alarm cues gain a survival benefit when encountering predators. Animals of the same guild that co-occur and share the same predators may learn to recognize each others' chemical alarm cues. This ability may confer an adaptive advantage. However, if the prey grow to different sizes and, as a consequence, are no longer vulnerable to the same suite of predators, there should no longer be an advantage for the prey to respond to each others' alarm cues. — In the present study, small and large fathead minnows were exposed to cues from syntopic injured *Enallagma boreale* larvae, from injured mealworm larvae and to distilled water. Small minnow exhibited antipredatory behaviour and increased shelter use in response to *Enallagma*, but not to the injured mealworm or distilled water. Large minnows, on the other hand, exhibited no significant response. This demonstrates a considerable flexibility in the responses to heterospecific alarm cues.

- (14892) MITRA, T.R., 2003. Ecology and biogeography of Odonata with special reference to Indian fauna. *Rec. zool. Surv. India* (Occ. Pap.) 202: ii+1-41, 4 col. pls excl. ISBN 81-85874-82-4. Price: US \$ 10.- net. — (208 Raja Ram Mohan Roy Rd, Netaji Sarak, Calcutta – 700008, India).

A general review of odon. ecology is presented with emphasis on the Indian fauna. The spp. occurring in physiographically different Indian ecosystems are listed, viz. E Himalaya, W Himalaya, Indo-Ganga-Brahmaputra plains, Meghalaya, Purvanchal, Peninsular uplands, and the insular fauna.

- (14893) MIZUTANI, A., J.S. CHAHL & M.V. SRINIVASAN, 2003. Motion camouflage in dragonflies. *Nature, Lond.* 423 [5 June]: 604. — (First Author: Cent.

Visual Sci., Res. Sch. Biol. Sci., Austral. Natn. Univ., P.O. Box 475, Canberra, ACT 2601, AU.

Most animals can skilfully conceal themselves when stationary, but they may become apparent as soon as they move. The Authors used stereo-cameras to reconstruct the movements in 3 dimensions of *Hemianax papuensis*, and show that it actively uses camouflage to disguise itself as stationary during territorial aerial manoeuvres. Deployment of this sophisticated technique by the oldest airborne predator tricks the victim's retina into perceiving the stalker as stationary even while it darts about in pursuit.

- (14894) MOCEK, B. & D. ČÍP, 2003. Nález vážky *Orthetrum coerulescens* (Fabricius, 1798) ve východních Čechách. — Finding of dragonfly *O. coerulescens* in East Bohemia. *Acta Mus. reginaehradecensis* (A) 29: 82 (Czech, with Engl. title). — (First Author: Muz. východních Čech, Eliščino nab. 465, CZ-50001 Hradec Králové).  
1 ♂, distr. Trutnov, 21-VII-2002.

- (14895) MOROZ, M., S. CZACHOROWSKI & K. LEWANDOWSKI, 2003. Wstępne badania nad wodnymi owadami rezerwatu "Prostyr" (Białoruś). — Preliminary investigation of water insects of the Reserve "Prostyr" (Belarus). *Parki narod. Rezerw. Przyr.* 22(1): 117-124. (Polish, with Engl. s.). — (First Author: Inst. Zool., Belaruss. Acad. Sci., Akademicheskaya 27, Minsk-220072, Belarus).

The Reserve (surface 3440 ha) is situated between the Prostyr and Prypeć rivers, extending to the Belarus-Ukraine border. 5 odon. spp. are listed.

- (14896) MROWIŃSKI, P. & A. ZAWAL, 2003. Nowe stanowiska żagnicy torfowej *Aeshna subarctica elisabethae* Djakonov, 1922 na Pomorzu Zachodnim. — The new localities of *Aeshna subarctica elisabethae* Djakonov, 1922 in the western Pomerania region. *Wiad. ent.* 22(1): 47-48. (Polish, with Engl. title). — (Second Author: Inst. Invert. Zool. & Limnol., Univ. Szczecin, ul. Waska 13, PO-71-415 Szczecin).

The 1999 and 2001 observations from 2 localities are recorded, and the respective habitats are described; — Poland.

- (14897) MÜLLER, Z., T. JAKAB, A. TÓTH, G. DÉVAL, N. SZÁLLASSY, B. KISS & R. HORVÁTH, 2003. Effect of sports fisherman activities on dragonfly assemblages in a Hungarian river floodplain. *Biodiv. Conserv.* 12(1): 167-179. — (First Author: Dept Ecol., Debrecen Univ., P.O. Box 71, H-4010 Debrecen).

Data on adults, larvae and exuviae were recorded (May–Oct. 1998, 1999) along a 15 km stretch of the floodplain of the regulated first-order Tisza. Odon. were found to be reliable indicators of small-scale habitat patterns, reflecting vegetation differences. Along a gradient of utilisation intensity, the number of spp. in assemblages and the summed relative abundance of the 5 rarest spp. decreased linearly with increasing fragmentation of the marginal vegetation. Sports fisherman activities, implying disruption of the littoral marsh zone by establishment of clearings and excessive trampling of the banks, can also be monitored by dragonfly faunistic investigations. The results demonstrate that conservation of these varied floodplain water bodies requires the control of sports fishing activity, suggesting that (1) to maintain the representative odon. fauna, some non-fragmented shore must be provided, and (2) permanent fishing stands should not exceed 8 m mean width and should be separated by at least 12 m of intact riparian sections.

- (14898) NACHTIGALL, W., 2003. Ausflug "mit dem Widerstand" bei der Blauflügel-Prachtlibelle *Calopteryx virgo* (Odonata: Calopterygidae). *Entomol. gener.* 26(4): 241–251. (With Engl. s.). — (Allg. Biol., Univ Saarland, D-66041 Saarbrücken).

It is shown that (contrary to equal phasic up to antiphasic beating of the fore- and hindwings at normal flight and in mating flight) during quick vertical starts, all wings beat rapidly and synchronously downward. Model measurements using flow visualisation show that hereby a downward travelling vortex ring, very similar to that of a white cabbage butterfly's vertical take-off, is generated. When parameters are measurable, calculations using approximation parameters show that an upward directed reaction force corresponding up to double body weight is generated, thus catapulting the insect vertically into the air. The very next wing-beat already shows a pronounced phase shift which permits lift generation. Thereby the possibility of flying by drag generation was proved using a flight situation that was measurable and the parameters of which could be calculated.

- (14899) NOVELO-GUTIÉRREZ, R., 2003. The larva of *Palaeonema domina* Calvert, 1903 (Odonata: Platystictidae). *Trans. Am. ent. Soc.* 129(1): 71–75. — (Depto Ent., Inst. Ecol., A.C., Apartado Postal 63, MX-91000 Xalapa, Veracruz).

The larva is described and illustrated. It shows the most complex colour pattern, and is the least setose of the 3 known congeners.

- (14900) ODONATOLOGICAL LIBRARY NEWS, Osaka,

Nos 31 (1 Dec. 2002), 32 (30 March 2003). Published by Kansai Research Group of Odonatology. ISSN none. (Jap., with Engl. title). — (c/o K. Inoue, 5-9, Fuminosato 4-chome, Abeno-ku, Osaka, 545-0004, JA).

The 2 issues (28 pp.) contain 576 numbered bibliographic entries (Nos 8221–8796) of publications by Jap. authors, published mostly in 2002–2003.

- (14901) ORR, A.G., 2003. *A guide to the dragonflies of Borneo, their identification and biology*. Nat. Hist. Publs (Borneo), Kota Kinabalu/Sabah, Malaysia. x+195 pp., half title p. 2 col. pls facing Forword and Preface + 25 col. pls (species drawings) incl. Hardcover (19.0x26.5 cm). ISBN 983-812-069-3. — (Publishers: A913, 9<sup>th</sup> Floor, Phase 1, Wisma Merdeka, P.O. Box 15566, 88864 Kota Kinabalu, Sabah, Malaysia).

275 spp. (42% of these endemic: Zygopt. 64%, Anisopt. 20%) are now known from Borneo, and are splendidly covered by this work, which certainly is the most comprehensively illustrated account of any large tropical odon. fauna yet published, incl. 210 col. text phot. of habitats and spp. Introductory chapters (pp. 3–26) discuss structure and general biology, ecology, conservation, biogeography, collecting techniques and photography. In a complete and up-to-date checklist (pp. 37–42), the endemic spp. and the taxa of doubtful status are asterisked, while the unnamed spp. are listed only if mentioned in the main text, or in taxonomic publications and manuscripts. An illustrated key to families (adults) (pp. 27–35) is followed by the main body of the text, titled "Summary of species: their identification and biology" (pp. 43–133). It is family-wise organised, luxuriously illustrated (many of the species portraits supplied by Dr M. Hämäläinen), and includes a gold-mine of previously unpublished information, particularly so with reference to the habitats. A regional bibliography is not included. — Herewith, the book is more than warmly recommended.

- (14902) PADEFFKE, T. & F. SUHLING, 2003. Temporal priority and intra-guild predation in temporary waters: an experimental study using Namibian desert dragonflies. *Ecol. Ent.* 28(3): 340–347. — (Second Author: Inst. Zool., Techn. Univ. Braunschweig, Fasanenstr. 3, D-38102 Braunschweig).

Intra-guild predation between early larval instars of co-existing *Sympetrum fonscolombii* and *Trithemis kirbyi*, was investigated with respect to temporal advantage and growth. 3 situations were simulated experimentally: (1) *S. fonscolombii* began development 11 days before *T. kirbyi*; (2) *T. kirbyi* began development 11 days before *S. fonscolombii*; (3) both spp. began on the same day. — With a temporal advantage of 11 days to the second sp.

the resulting larval density of the respective first sp. was significantly higher than that of the second sp. — Without a temporal advantage, the survival of *S. fonscolombii* was higher than that of *T. kirbyi*, and *S. fonscolombii* had a larger size due to faster growth than *T. kirbyi*. Hence, it is assumed that survival depended on early oviposition as well as on larval growth. — To test the relevance of the laboratory results, observations at artificial ponds in the Namibian semi-desert were conducted. *T. kirbyi* was the first sp. colonising these ponds while *S. fonscolombii* arrived 15 days later. In field samples, many more *Trithemis* larvae than *Sympetrum* larvae were found, a pattern similar to the laboratory experiments in which *T. kirbyi* enjoyed a temporal advantage.

- (14903) PEREPELOV, E.A., 2003. *Evoluciya kariotipov strekoz (Insecta, Odonata) severnoy Palearktiki*. — [Karyotype evolution of the North Palaearctic dragonflies (Insecta, Odonata)]. Autoref. Diss. Kand. biol. Nauk. 17 pp. Sibir. Otd. Russ. akad. Nauk, Inst. Sist. & Ekol. Zhivot., Novosibirsk. (Russ.). — (Dept Nat. Sci., Novosibirsk St. Univ., Pirogova 2, RUS-630090 Novosibirsk). 52 spp. from W Siberia, Far East and N Caucasus were examined. For 49 of these, the distribution of the constitutive heterochromatin is described for the first time. The size and location of C-band heterochromatic sections are analyzed, the organisation and evolution of sex-chromosome systems in the Aeshnidae and Gomphidae are addressed, and the families represented in the region are cytotaxonically characterized (Calopterygidae, Lestidae, Coenagrionidae, Platynemididae, Aeshnidae, Gomphidae, Cordulegastridae, Corduliidae, Libellulidae). Based on this information, the possible trends in the odon. karyotypic evolution are tentatively outlined, and the affinity kladograms of the families concerned are provided. — This is solely a printed summary of the original dissertation (144 pp., 48 figs incl.), which is not available for abstracting.

- (14904) PETRULEVIČIUS, J.F. & A. NEL, 2003. A new libelluloid dragonfly (Insecta: Odonata: Italoansida) from the Late Paleocene of Argentina. *Geobios* 30(4): 401-406. (With Fr. & Span. s's). — (Lab. Ent., Mus. Natn. Hist. Nat., 45 rue Buffon, F-75005 Paris). *Austrolibellula noroestenia* gen. n., sp. n. is described from the Maiz Gordo Formation of NW Argentina. Its phylogenetic relationships within Cavilabiata are discussed.

- (14905) PETRULEVIČIUS, J.F. & A. NEL, 2003. Oldest petalurid dragonfly (Insecta: Odonata): a Lower Cretaceous specimen from south Patagonia, Argentina. *Cretaceous Res.* 24(1): 31-34. — (Lab. Ent., Mus. Natn. Hist.

Nat., 45 rue Buffon, F-75005 Paris).

*Argentinetalia archangelskyi* gen. n., sp. n. from the Baqueró Group, Anfiteatro de Ticó Formation, is described. It comes from the Atlantic side of S Patagonia.

- (14906) PURSE B.V., G.W. HOPKINS, K.J. DAY & D.J. THOMPSON, 2003. Dispersal characteristics and management of a rare damselfly. *J. appl. Ecol.* 40(4): 716-728. — (First Author: Inst. Anim. Health, Pirbright Lab., Ash Rd, Pirbright, Surrey, GU24 0NF, UK). *Coenagrion mercuriale* is a rare sp. in Britain and mainland Europe and has been declining in the last 30 yr. It has specialized habitat requirements and has been viewed, traditionally, as a poor disperser. Knowledge of its dispersal ability was considered in its Biodiversity Species Action Plan as essential for the formulation of appropriate conservation management strategies. — Mark-release-recapture (MRR) studies in 2 large UK heathland populations were undertaken. Mature adults had a low rate of movement within continuous areas of habitat (average < 25 m movement), low emigration rates (1.3-11.4%) and low colonization distances (max. 1 km), all comparable to similarly sized coenagrionids. — Movements were more likely within than between patches of suitable habitat over short to medium distances (50-300 m). Between-patch movements were more likely between patches that were close together. Scrub barriers reduced dispersal. — The probability of dispersal between 2 recaptures depended on the length of the time interval between them. *C. mercuriale* performed considerable between-patch movements within a small fraction (1-2 days) of its mean mature adult life span (7-8 days). — Qualitative comparison of field colonization distances measured here and distances between UK sites occupied by *C. mercuriale* revealed that empty sites within large clusters of sites would probably be recolonized rapidly and dispersal events would be frequent. However, such events would occur rarely within small isolated sites or clusters of sites, leaving local populations prone to extinction. — These data show that management effort should be directed towards maximizing the likelihood of *C. mercuriale* recolonizing sites naturally within 1-3 km of other populations (particularly within large clusters). Scrub boundaries should be removed between existing populations and empty, but suitable, sites to facilitate stepping-stone dispersal movements.

- (14907) REJL, J. & M. MIKÁT, 2003. Vážka hnědoskvrnná, *Orhetrum brunneum* (Fonscolombe, 1837) (Odonata, Libellulidae), nový druh vážky pro východní Čechy. — *Orhetrum brunneum*, new species for East Bohemia. *Acta Mus. reginaehradecensis* (A) 29: 81-82. (Czech, with Engl. s.). — (First Author: Agentura

- Ochrani Přírody a Krajiny, Boženy Němcové 2625, CZ-53002 Pardubice).  
2 ♂ are listed from resp. Hustiřany (distr. Nachod) and Hradec Králové (July 2001).
- (14908) RELYEA, R.A., 2003. Predators come and predators go: the reversibility of predator-induced traits. *Ecology* 84(7): 1840-1848. — (Dept Biol. Sci., Univ. Pittsburgh, Pittsburgh, PA 15260, USA).  
While numerous studies have been conducted on the ecology and evolution of phenotypic plasticity, to really understand plasticity one needs to expose organisms to different environments over several ontogenetic stages. In this way it can be examined whether organisms change their phenotypic strategy over ontogeny, whether there are developmental windows to constrain the development of plastic traits, and whether behaviour is more reversible than morphology if the environment reverts back to the original state. These questions are here addressed by examining predator-induced (*Anax longipes* larvae) in *Hyla versicolor* tadpoles. Tadpoles were reared with constant absence of predators, and the addition or removal of them at 3 different times during their larval period. Tadpoles changed their phenotypic strategy over ontogeny; early in ontogeny they responded to *Anax* larvae by hiding, reducing their activity, and developing relatively deep tail fins. Later they no longer employed behavioural defenses, but relied on a combination of greater mass, deeper tails and shorter bodies. The phenotypic changes were inducible throughout most of ontogeny, suggesting that there were few developmental windows. The reversibility should affect not only the sp., but will likely transmit the effects throughout the larger ecological community.
- (14909) SAMWAYS, M.J., 2003. Threats to the tropical island dragonfly fauna (Odonata) of Mayotte, Comoro archipelago. *Biodiv. Conserv.* 12: 1785-1792. — (Dept Conserv. Ecol. & Ent., Univ. Stellenbosch, Private Bag X1, Matieland-7602, SA).  
The odon. fauna (ca 20 spp.) of the Mayotte island, W Indian Ocean comprises some widespread African spp. and some Comoro endemics. It is under threat from increasing human impact. To date, although often the odon. wings and bodies became stained white with detergent, the assemblage appears remarkably tolerant, but the impact is differential, with loss of the endemic spp. in the most impacted areas, while the eurytopic spp. continue to thrive there. It is urgent to change people's water-usage behaviour.
- (14910) SAYERS, J., [no date; received:] 2003. *Wiltshire and Swindon pond survey*. Swindon Envir. Cent., Swindon, 8 pp. Fold. brochure (14.5×21.0 cm). — (Publishers & Author: 47 b Fleet St., Swindon, SN1 1RE, UK).  
An informative questionnaire, with reference to the odon., and with a statement of structure requirements of a dragonfly garden pond; — UK.
- (14911) SCHINDLER, M., C. FEST & A. CHOVANEC, 2003. Dragonfly associations (Insecta: Odonata) in relation to habitat variables: a multivariate approach. *Hydrobiologia* 497: 169-180. — (Third Author: Fed. Envir. Agency, Spittelauer Lände 5, A-1090 Wien).  
In an odon. survey, carried out in a lowland wetland area in E Austria, 19 resident spp. were recorded. Multivariate statistical procedures were used to analyse the relationship between odon. assemblage patterns and environmental variables. In addition to widespread and euryoecious spp. with unspecific habitat requirements, 2 odon. associations were identified, viz spp. mainly occurring at temporary natural or near-natural ponds (characterised by rush and reed vegetation), and spp. preferring permanent waters such as the man-made waterbodies (in the investigated area characterised by floating macrophytes). Water persistence and the presence of floating macrophyte vegetation determined the formation of species assemblages.
- (14912) SCHULZ, R., M.T. MOORE, E.R. BENNETT, J.L. FARRIS, S. SMITH & C.M. COOPER, 2003. Methyl parathion toxicity in vegetated and nonvegetated wetland mesocosm. *Envir. Toxicol. Chem.* 22(6): 1262-1268. — (First Author: Ecol. Sci., Syngenta Crop Protect. AG, Jealott's Hill Int. Res. Cent., Bracknell, Berks, RG42 6EY, UK).  
Methyl parathion was introduced into constructed wetlands for the purpose of assessing the influence of emergent vegetation on transport and toxicity of the pesticide. A 3-way analysis of variance using contamination (repeated measure variable), location, and vegetation indicated significant negative effects of contamination on various insect taxa. *Ischnura verticalis*, *Telebasis byersi*, *Dromogomphus spinosus*, *Epitheca cynosura*, *Pachydiplax longipennis* and *Libellula lydia* are the odon. considered.
- (14913) sda/ap., 2003. Das Feuer ist da: auch in der Schweiz lodern Waldbrände. *Sarganserländer* 131(152), issue of 12 Aug., p. 28.  
The fire, triggered by the long period of unusually hot weather, has destroyed (11 Aug. 2003) ca 2000-3000 m<sup>2</sup> of bush and reed vegetation in the Nature Reserve "Les Grangettes", canton Vaud, Switzerland. Considerable, though not irreversible damage have suffered the local populations of various odon. spp., as reported in this re-

gional daily.

- (14914) SRYGLEY, R.B., 2003. Wind drift compensation in migrating dragonflies *Pantala* (Odonata: Libellulidae). *J. Insect Behav.* 16(2): 217-232. — (Smithsonian Trop. Res. Inst., Apdo 2072, Balboa, Panama). Tailwind drift compensation serves to maximize a migrant's flight distance on a given amount of energy, and crosswind drift compensation serves to hold a course true and minimize the distance flown. With full or part compensation, airspeeds are predicted to increase with greater crosswind drift. To test whether migrating dragonflies compensated for wind drift, the velocity and heading of *P. hymenaea* and *P. flavescens* in natural flight over a lake and the ambient wind speed and direction were measured. *P. hymenaea* flew NE (58°), whereas *P. flavescens* flew significantly more ENE (74°) throughout the day. *Pantala* spp. demonstrated part compensation for changes in crosswind drift within individuals (mean compensation = 54%,  $P = 0.0000$ ), evidence for use of a ground reference to correct for drift when flying over water. Among individuals, *P. flavescens* compensated for crosswind drift. *P. hymenaea* overcompensated and then drifted downwind on one morning and compensated for crosswind drift on the next. As predicted from optimal migration theory, airspeed (5.0 m/s for both species with no tailwind) decreased with tailwind velocity both among individuals (data for both species pooled [ $n = 19$ ],  $P < 0.0001$ ) and within each individual as it crossed the lake ( $P = 0.0016$ ).
- (14915) STOKS, R. & M.A. McPEEK, 2003. Predators and life histories shape *Lestes* damselfly assemblages along a freshwater habitat gradient. *Ecology* 84(6): 1576-1587. — (Second Author: Dept Biol. Sci., Dartmouth Coll., Hanover, NH 03755, USA). Survey data from New England showed that *Lestes* assemblages are organized along the entire gradient of pond permanence and predator presence. One assemblage occupies vernal ponds lacking large dragonfly predators and fish: 4 are largely confined to temporary ponds that typically contain dragonfly predators: 1 dominates fishless permanent ponds and lakes where dragonflies are the top predators; and 1 dominates permanent ponds and lakes where fish are the top predators. The role of life history and predation in maintaining this striking pattern by conducting a series of transplant experiments in the field and a laboratory experiment manipulating presence and absence of local predators as was determined. Life history (1) shaped the ability of spp. to cope with drying regime, thereby excluding temporary-pond *Lestes* from vernal ponds and permanent-water *Lestes* from temporary ponds, and (2) generated size differences among spp. due to differences in timing of hatching. This mediated the exclusion of temporary-pond *Lestes* from permanent water bodies through asymmetric intraguild predation by permanent-water *Lestes*. Dragonfly predation on permanent-water *Lestes* had an indirect positive effect on the survival of temporary-pond *Lestes*; however, this effect apparently is too small to allow coexistence of both *Lestes* groups. Predation by large dragonfly larvae excluded the *Lestes* spp. of vernal ponds from temporary ponds, and differential vulnerability to large dragonfly larvae and fish shaped the reciprocal dominance of *L. eurinus* and *L. vigilax* in fishless and fish-containing permanent water bodies, respectively. Taken together, these results show that life history constraints and predation both shape the distributions of *Lestes* spp. along the pond permanence gradient in New England. The importance of this freshwater habitat gradient in shaping local and regional species diversity is discussed.
- (14916) STRESZCZENIA REFERATOW I PLAKATOW 19 ZIAZD HYDROBIOLOGOW POLSKICH. — ABSTRACTS OF PAPERS AND POSTERS PRESENTED AT THE 19<sup>th</sup> SYMPOSIUM OF POLISH HYDROBIOLOGISTS, Fac. Biol., Univ. Warsaw, 9-12 Sept. 2003. (Polish). [Odonatol. titles:] *Jezierska-Madziar, M., H. Gromadzińska-Graczyk, J. Golski & A. Dziurbacz*: Zoobenthos of the Warta R. oxbows as an important fish food (p. 70; passing reference to Odon. only); — *Joniak, T., P. Klimaszek & P. Domek*: A comparative analysis of humus lake macrofauna communities in Drawieński and Wielkopolski national parks (p. 71); — *Korycińska, M. & G. Tończyk*: Odonate fauna of the Liwiec river (Południowopodlaska and Środkowomazowiecka Lowlands) (p. 88); — *Serafin, E. & P. Buczyński*: The importance of fishponds for aquatic insects, exemplified by dragonflies (Odonata) and caddisflies (Trichoptera) in ponds of the Lublin region (p. 168); — *Zawal, A. & D. Janicki*: Relationships between watermite and dragonfly larvae: phoresis or parasitism? (p. 213).
- (14917) THEISCHINGER, G., 2003. A new species of *Nannophya* Rambur from Australia (Odonata: Libellulidae). *Lin. biol. Beitr.* 35(1): 661-666. — (2A Hammersley Rd, Grays Point, NSW 2232, AU). *N. paulsoni* sp. n. (♂ holotype: Yirrkala Mission, Arnhem Land, NT, Australia, 31-I/3-II-1968; deposited in ANIC, Canberra) is described after material from the type locality and from Cape York Peninsula, QLD. It is illustrated and compared with the congeners.

- (14918) TORRALBA BURRIAL, A. & F.J. OCHARAN, 2003. Cambio en la posición de reposo de *Lestes virens* (Odonata: Lestidae) por efecto de una lluvia fuerte. *Boln Soc. ent. aragon.* 32: 233. (With Engl. s.). — (Depto Biol. Organismos & Sistemas, Univ. Oviedo, ES-33071 Oviedo).  
The observation is reported on 2 resting *L. virens* ♂♂ having folded up the wings in a heavy rainshower the way most other zygopterans do rather than holding them half open in the Lestidae mode.
- (14919) TORRALBA BURRIAL, A. & F.J. OCHARAN, 2003. Coches come habitat para libélulas ? Algunos machos de *Crocothemis erythraea* creen que sí. *Boln Soc. ent. aragon.* 32: 214-215. (With Engl. s.). — (Depto Biol. Organismos & Sistemas, Univ. Oviedo, ES-33071 Oviedo).  
The phenomenon of ♂♂ *C. erythraea* mistaking the surface of a car for water is described (Huesca prov., NE Spain) and interpreted in terms of the mode of light reflection by the 2 kinds of surfaces.
- (14920) TORRALBA BURRIAL, A. & F.J. OCHARAN, 2003. Predación per peces sobre *Anax imperator* asociada a la reproducción de éste (Odonata, Aeshnidae). *Boln Soc. ent. aragon.* 32: 219-220. (With Engl. s.). — (Depto Biol. Organismos & Sistemas, Univ. Oviedo, ES-33071 Oviedo).  
The predation by the non-native fish, *Micropterus salmoides*, on *A. imperator* is reported. The attacks are associated with the dragonfly reproductive activity and represent a reproductive cost that affects, for different reasons, both sexes.
- (14921) TYAGI, B.K., 2003. *Medical entomology. A handbook of medically important insects and other arthropods*. Scient. Publishers (India), Jodhpur. xxiv + 262 pp., 8 col. pls excl. Hardcover (16.3x24.2 cm). ISBN 81-7233-351-X. Price (in India): RsIC 950.- net). — (Publishers: 5-A, New Pali Rd, P.O. Box 91, Jodhpur-342001, India).  
Addressing most aspects of medical entomology, this is a very relevant work, by an experienced medical entomologist, directed at students of zoology and medicine as well as at professional researchers in India. The discussions on various aspects of vector-human relationships in relation to the changing environment and climatic variability enhance the value of the book. — The odon. play a relatively minor role in medical entomology (though they found some incidental application even in forensic entomology!), but some spp. are intermediate hosts of human vectors of disease; the parasite reaching humans via the second intermediary host, a bird or a snake, if consumed raw, which is particularly the case with some tribes in NE India. The role of dragonflies in the control of malaria transmitting mosquito spp. is well known; in various places different odon. spp. were identified as most efficient (cf. e.g. OA 14411).
- (14922) UILHOORN, K., 2003. De langverwachte libellenatlas is uit. — [The long expected dragonfly monograph was published]. *Natura, Amst.* 100(3): 86-88. (Dutch). — (Author's address not stated).  
Some background information on the work involved in the preparation of the volume described in OA 14600.
- (14923) VAN OOSTENBRUGGE, R., J. JANSSEN, R. REIJNEN & C. VOS, 2003. Quick Scan beleidswijzigingen EHS: een indicatie van de effecten op soorten en ecosystemen van enkele wijzigingen in het rijksbeleid ten aanzien van de Ecologische Hoofdstructuur. — [An indication of the consequences for species and ecosystems of the changes in state policy regarding the Ecological Main Structure]. *Alterra-Rapp.* 657: 1-45. (Dutch). — (Alterra, P.O. Box 47, NL-6700 AA Wageningen).  
The inquire was conducted with the objective its results will serve for a recommendation in the Netherlands Parliament. It is concluded that in case the efforts at conservation of the selected types of natural environment are to depend on the objectives of agriculture, 11 odon. spp. will become at risk in the Netherlands. An annotated list of these is provided.
- (14924) WANG, Z.-g., 2003. A new species of the genus *Sinocnemis* (Odonata: Platynemididae) from Henan province of China. *Entomotaxonomia* 25(1): 1-3. (Chin., with Engl. s.). — (Henan Acad. Sci., Zhengzhou, Henan-450002, P.R. China).  
Both sexes of *S. henanese* sp. n. are described and illustrated. Holotype ♂: China, Henan prov.: Song Co., Mt Baiyun, 6-VIII-1996; deposited in Henan Acad. Sci., Zhengzhou. It is similar to *S. yangbingi*; the separating features are stated.
- (14925) [WESTFALL, M.J., Jr] Anonymous, 2003. Westfall Jr, Dr Minter Jackson. *Gainesville Sun*, Gainesville/FL, issue of 22 July. — (c/o Dr David N. Westfall, 2611 Parker Trl, Gainesville, GA 30506, USA).  
Local daily's obituary (born: 28-I-1913, Orlando/FL, deceased 20-VII-2003, Gainesville/GA), with a brief biographic sketch. In the professional world, MJW is considered a cornerstone and anchor for the science of odonatology, who touched the lifes and careers of countless workers. With his departure, a chapter in the history

- of odonatology is closed. — An almost identic obituary has appeared on 22 July 2003 in *The Times*, Gainesville/GA.
- (14926) WILLIGALLA, C., 2003. Nowe dane o wałkach (Odonata) Pojezierza Mazurskiego. — New data on dragonflies (Odonata) of the Masurian lakelands. *Wiad. ent.* 22(1): 50. (Polish, with Engl. title). — (Brock 45, D-48346 Ostbeuern).  
Records from 4 localities; — Poland.
- (14927) YURCHENKO, Yu.A., 2003. Izmenchivost' strekoz roda Enallagma (Insecta, Odonata) Evrazii. — [Variability in the Eurasian Enallagma dragonflies]. In: A.Yu. Haritonov & L.N. Sivohinova, [Eds], *Biologicheskaya nauka I obrazovanie v pedagogicheskikh vuzah*, Vol. 3, pp. 15-19, Novosibirsk St. Pedagog. Univ., Novosibirsk, ISBN 5-85921-293-3. (Russ.). — (Author's address not stated).  
The systematics of the palaearctic Enallagma is considered. The variability of structural features and coloration in *E. cyathigerum* was analysed. As apparent from the analysis of 541 ♂ from Russia, Kazakhstan, Kirgizia and Mongolia, the coloration of the second tergite is highly variable even within the same region, therefore it is of no taxonomic significance. A taxonomic revision of the genus, based on morphological, biochemical and molecular analysis is under consideration.
- (14928) ZAWAL, A., 2003. Ważki (Odonata) rezerwatu "Dolina Pieciu Jezior" (Pojezierze Drawskie). — Dragonflies (Odonata) of nature reserve "Dolina Pieciu Jezior" ("Valley of Five Lakes") (Drawskie Lake District). *Parki narod. Rezerw. Przyr.* 22(1): 101-106. (Polish, with Engl. s.). — (Inst. Invert. Zool. & Limnol., Univ. Szczecin, ul. Waska 13, PO-71-415 Czczecin).  
29 spp., collected in 1999 and 2000, are brought on record, and the biogeographic composition of the fauna is outlined. *Erythromma viridulum* and *Aeshna viridis* are of particular interest.
- (14929) ZHOU, C.-f. & K.-y. ZHOU, 2003. Status of phylogenetic research on the Palaeoptera (Insecta, Pterygota). *Acta zootax. sin.* 28(2): 192-195. (Chin., with Engl. s.). — (Inst. Genet. Resour., Coll. Life Sci., Nanjing Normal Univ., Nanjing-210097, P.R. China).  
The phylogenetic position of Palaeoptera, and the relationships of this group with the Neoptera are outlined. There are 3 main points of view on this issue, viz. (1) Palaeoptera (= Ephemeroptera + Odonata) + Neoptera; — (2) Ephemeroptera + (Odonata + Neoptera); — and (3) Odonata + (Ephemeroptera + Neoptera). The first option is supported by morphological, fossil and some molecular evidence, the second depends more on morphological characters, while the last one is based on the least evidence.

## 2004

- (14930) ISHIZAWA, N., 2004. *Calendar 2004. Red dragonflies of Kunugiyama Forest*. Ishizawa, Tokorozawa. — (1644-15, Yamaguchi, Tokorozawa, Saitama, 359-1145, JA).  
A bimonthly wall calendar, with beautiful portraits of *Sympetrum frequens*, *S. infuscatum*, *S. kunkeli*, *S. darwinianum*, *S. baccha mutatinum*, *S. r. risi* and *Pantala flavescens*. The history, insect inventarisation programs and the current conservation status of the Kunugiyama Forest (surface ca 152 ha, located on the border between the cities of Sayama, Tokorozawa and Kawagoe and Miyoshi-cho) are briefly outlined, and concise but exhaustive information on the biology and behaviour of the concerned spp. is presented, therefore the Calendar could serve as an important "reference work".

## ERRATUM

- (14705) ZIJLSTRA, M., 2001. "De Vroege glazenmaker" stands for *Aeshna isosceles*. The Abstractor has to apologize for the erroneous reference to *Brachytron pratense*.