

## ODONATOLOGICAL ABSTRACTS

## 1995

- (16501) BENDELL, B.E. & D.K. McNICOL, 1995.

Lake acidity, fish predation, and the distribution and abundance of some littorial insects. *Hydrobiologia* 302: 133-145. — (Can. Wildlife Serv., Ontario Region, 49 Camelot Dr., Nepean, ON, K1A 0H3, CA).

Densities of Corixidae (Hemiptera), larval Odon., and large larval Trichoptera were estimated in the littoral zone of small lakes in an acid-stressed area near Sudbury, Ontario, Canada. Fish were present in some lakes and absent in others, and fishless lakes occurred across a wide range of pH. Anisopt. larvae tended to be more numerous in benthic samples from fishless lakes than from lakes with fish, and their exuviae were significantly more abundant around fishless lakes. In most lakes, the assemblage was dominated by *Leucorrhinia glacialis*, *Libellula julia*, and *Cordulia shurtleffi*. In lakes containing white sucker (*Catostomus commersoni*) *Gomphus* spp. were most numerous. In the most acid fishless lakes, *L. julia* was uncommon, and *L. glacialis* was extremely abundant. In fishless lakes, numbers of Anisopt. larvae and exuviae were negatively correlated with pH, though species richness was positively correlated with pH. Exuviae of Zygopt. were more abundant around fishless lakes, irrespective of pH.

- (16502) DOUPE, R.G. & P. HORWITZ, 1995. The value of macroinvertebrate assemblages for determining priorities in wetland rehabilitation: a case study from Lake Toolibin, Western Australia. *Jl R. Soc. W. Aust.* 78: 33-38. — (Second Author: Dept Envir. Mngmt, Cowan Univ., Joondalup Dr., Joondalup, WA 6027, AU).

*Xanthagrion erythroneurum*, *Austrolestes annulosus*, *A. io*, and *Hemianax papuensis* are listed from the northern Arthur R. wetlands (lakes Dulbinning and Walbyring), WA, Australia. The salinity concentrations of the sites are stated.

## 1996

- (16503) BRADT, P.T., 1996. Limestone to mitigate lake acidification: macrozoobenthos response in treated and reference lakes. *Hydrobiologia* 317: 115-126. — (Envir. Stud. Cent., Chandler-Ullmann Bldg, 17 Memorial Dr. E, Leigh Univ., Bethlehem, PA 18015, USA).

The littoral macrozoobenthos of 2 low acid neutralizing capacity lakes in NE Pennsylvania was sampled each ice-free season during 1984-1988, to evaluate response to limestone addition. The increased odon. occurrence in the limestoned lake (compared with that in the reference lake) is documented.

- (16504) FERNÁNDEZ, J., 1996. Nuevos táxones animales descritos en la Península Ibérica y Macaronesia entre 1994 y 1997. *Graellsia* 51: 163-215. — (Mus. Nac. Cien. Nat., C.S.I.C., José Gutiérrez Abascal 2, ES-28006 Madrid). *Cordulegaster boltonii iberica* Boudot & Jacquemin, 1995 *Sympetrum sinaiticum tarraconensis* Jödicke, 1994 are listed and bibliographic references to the respective original descriptions are provided.

- (16505) MOURGAUD, G., 1996. Inventaires préliminaires de la faune des Basses Vallées Angevines. *Crex* 1996(1): 17-24. — (Author's address not stated). Includes an annotated checklist of 29 odon. spp. recorded (1994-1995) in the area; — Maine-et-Loire, France.

- (16506) WANG, Z., 1996. Identification of the genus *Mnais* (Odonata: Agridae) in Henan province, China. *Henan Science* 14(2): 168-174. (Chin., with Engl. s.). — (Henan Acad. Sci., Zhengzhou-450003, China).

The morphological characters of *Mnais* specimens from Taihangshan, Funiushan and Tongbai-Dabieshan in Henan prov., China are minutely analysed and discussed. It is concluded the specimens are referable to *M. andersoni tenuis* Oguma.

### 1997

- (16507) FAVA, G., S.-A. MICALLEF, E. LANFRANCO & P.J. SCHEMBRI, 1997. *An ecological survey of the Ghajn Tuffieha area prepared for the Gaia Foundation as part of the management of the area*. Malta Univ. Serv., Msida. ii+35 pp., App. 1-3 excl. — (Authors' addresses not stated). 6 odon. spp. are checklisted; — Malta.

- (16508) HAARSTAD, J., 1997. *The dragonflies of selected eastern Minnesota rivers*. Conserv. Biol. Res. Grants Program, Div. Ecol. Serv., Minnesota Dept Nat. Resour. 82 pp., App., tabs & maps incl. [online version not paginated]. — (Author: Cedar Creek NHA, Bethel, MN 55005, USA). In the summer of 1992, 25 rivers and streams were surveyed and adults and exuviae collected. A total of 33 riverine Anisopt. spp. were recorded, and information on the occurrence of 3 riverine Zygopt. spp. is added. Data are presented per locality and per sp., and the seasonality of the fauna is briefly addressed.

- (16509) OHNISHI, T., 1997. Ecological note on *Nannophya pygmaea* Rambur (Libellulidae, Odonata) and on fauna in Shonai, Toyo city, Ehime prefecture, Japan. *Bull. Ehime prefect. Sci. Mus.* 1997(2): 37-39. (Jap., with Engl. s.). — (Author's postal address not stated). Notes on territorial behaviour in *N. pygmaea*, as recorded in May 1996 at Shonai marsh.

- (16510) WARD, S., 1997. The number of terrestrial and freshwater species in Scotland. *Scott. natural Heritage Review* 84: 1-110. — (Scott. Natural Heritage, Advisory Serv., 2 Anderson Pl., Edinburgh, EH6 5NP, UK).

The odon. list (p. 41) was provided by *A.J. Parr*.

There are 21 resident spp. and 3 migrants. In addition, *Calopteryx splendens* and *Aeshna grandis* have both been recorded within a few km of the Scottish border and may in due course be recorded from Scotland.

### 1998

- (16511) ANHOLT, B.R. & E.E. WERNER, 1998. Predictable changes in predation mortality as a consequence of changes in food availability and predation risk. *Evol. Ecol.* 12: 729-738. — (First Author: Dept Biol., Univ. Victoria, P.O. Box 3020, Victoria BC, V8W 3N5, CA).

Theory predicts that animals will have lower activity levels when either the risk of predation is high or the availability of resources in the environment is high. Here, it was tested experimentally whether predation mortality of *Rana sylvatica* tadpoles caused by a single *Anax junius* larva was affected by the presence of additional caged predators of the same sp. and elevated resource levels. Observations were consistent with predictions. The survival rate of the tadpoles increased when additional caged predators were present and when additional resources were provided.

- (16512) BROWN, G., 1998. Aquatic insects. In: P. Horner, [Ed.], *Wildlife survey in freshwater ecosystems and adjoining terrestrial habitats on Melville Island, Northern Territory, October 1996*. *Res. Rep. Mus. Art Galleries Northern Territory* 1: 7-23. — (Mus. & Art Galleries Northern Territory, P.O. Box 4646, Darwin, NT 0801, AU). Includes a commented list of 32 odon. spp. (pp. 10-14); — Melville Is., NT, Australia.

- (16513) GILES, G., 1998. An illustrated checklist of the damselflies and dragonflies of the United Arab Emirates. *Tribulus* 8(2): 9-15. [Not available for abstracting] — 19 spp. Cf. *OA* 16322.

- (16514) GORB, S., 1998. Functional morphology of the head-arrester system in Odonata. *Zoologica* 148: iv+132 pp. ISBN 3-510-55035-8. Not available for abstracting. A comprehensive book review was published by T. Soldán (2000, *Eur. J. Ent.* 97: 46).

- (16515) SPENCER, N.J., B.W. THOMAS, R.F. MA-

SON & J.S. DUGDALE, 1998. Diet and life history variation in the sympatric lizards *Oligosoma nigriplantare polychroma* and *Oligosoma lineocellatum*. *N. Z. J. Zool.* 25: 457-463. — (First Author: Landcare Research, P.B. 1930, Dunedin, NZ). As revealed by examination of the populations in northern South Island of Zealand, the 2 sympatric spp. have different life history traits and some differences in diet. Nevertheless, the odon. represent 1.0 and 1.2% of their prey, respectively.

- (16516) YANG, L. & Y. ON, 1998. The damselflies in the North of China. *J. Hanzhong Teachers Coll.* (Nat. Sci.) 16(1): 57-61. (Chin., with Engl. s.). — (First Author: Adults Educ. Coll., Hanzhong Teachers Coll., Hanzhong, Shaanxi-723000, China). 37 spp. of 4 Zygoptera fams, occurring above 38°N in China, are keyed.

## 1999

- (16517) ALENCAR, Y.B., N. HAMADA & S. MAGNI-DARWICH, 1999. Stomach content analysis of potential predators of Simuliidae (Diptera: Nematocera) in two lowland forest streams, central Amazonia, Brazil. *An. Soc. ent. Brazil* 28(2): 327-332. (With Port. s.). — (First Author: Inst. Nac. Pesquisas de Amazônia, Ent., Caixa postal 478, BR-69.011-970 Manaus, AM). In the Manaus area, Simuliidae were found in stomachs of the representatives of 6 odon. families. Spp. are not stated.
- (16518) FEULNER, G.R., 1999. Two new United Arab Emirates damselflies: *Ceriagrion glabrum* and *Pseudagrion decorum*. *Tribulus* 9(2): 31. [Not available for abstracting] — *C. glabrum* is recorded from Wadi Qawr Dam, and *P. decorum* from the same general area, nr Masafi, both in March 1999. Cf. *OA* 16322.
- (16519) McCARTY, J.P. & D.W. WINKLER, 1999. Foraging ecology and diet selectivity of Tree swallows feeding nestlings. *Condor* 101: 246-254. — (First Author: Dept Biol., Univ. Maryland, College Park, MD 20742, USA). The foraging ecology of a Tree swallow (*Tachycineta bicolor*) population was studied during 5 years at 2 sites in the vicinity of Ithaca, NY, USA. While feeding nestlings, the parents tended to spend most of

their time within sight of their nest box and less than 12 m above the ground. Major insect taxa captured include Diptera, Hemiptera and Odon.

- (16520) SCOTT, R.R. & R.M. EMBERSON, 1999. Handbook of New Zealand insect names. *Bull. ent. Soc. New Zealand* 12: 100 pp. ISBN 0-959-7663-5-9. Engl. common names and, where available, the Maori appellations are listed for 7 odon. spp. In Maori, the dragonflies are called '*kapowai*'.
- (16521) TIGAR, B.J. & P.E. OSBORNE, 1999. Patterns of biomass and diversity of aerial insects in Abu Dhabi sandy deserts. *J. arid Envir.* 43: 159-170. [Not available for abstracting] — *Hemianax ephippiger* is recorded from Abu Dhabi Emirate. Cf. *OA* 16322.

## 2001

- (16522) BEUTEL, R.G. & S.N. GORB, 2001. Ultrastructure of attachment specializations of hexapods (Arthropoda): evolutionary patterns inferred from a revised ordinal phylogeny. *J. zool. Syst. Evol. Res.* 39: 177-207. — (Second Author: Biol. Microtribology Gr., Biochem. Dept, MPI für Entwicklungsbiologie, Spemannstr. 35, D-72076 Tübingen). Attachment devices of representatives of most higher hexapod taxa are examined. Short descriptions of tibial, tarsal and pretarsal adhesive structures for each order are presented and their evolution on the background of hexapod phylogeny is discussed. The odon. tarsus is 3-segmented and the distal segment is longer than the others. The paired claws are usually armed with a hook. Specific adhesive structures are absent in the order.
- (16523) PAPESCHI, A., L. MOLA, P. REBAGLIATI, S. RODRIGUEZ GIL & M. BRESSA, 2001. Heterochromatin characterization in the holokinetic chromosomes of some Heteroptera, Odonata and Araneae with DAPI-CMA. *Chromosome Res.* 9(Suppl.1): 75. [Abstr. Pap. 14th Int. Chromosome Conf. Wurzburg; 4-8 Sept. 2001]. — (Lab. Citogenética y Evolución, Depto Cien. Biol., Fac. Cien. Exactas y Naturales, Univ. Buenos Aires, Ciudad Universitaria, AR-1428 Buenos Aires). Most organisms have monocentric chromosomes, and holokinetic chromosomes are present in a few invertebrate groups, in the monocotyledons Junceaceae and Cyperaceae, and in some dicotyledon

spp. (Ranales, Cuscutaceae). All spp. belonging to the insect orders Homoptera, Heteroptera, Lepidoptera, Phthiraptera and Odonata have holokinetic chromosomes, while in Nematoda and Arachnida spp. with both, monocentric or holokinetic chromosomes are found. Mitotic behaviour is common to all taxa, but in meiosis chiasmata are sometimes absent; besides, in chiasmate meiosis bivalents segregate reductionally at the first (R) or the second (E) division, and sex chromosomes can also divide pre- (r) or post-reductionally (e), with no direct relation to the autosomal behaviour. The analysis of ♂ meiosis revealed in the heteropterans *Pachylis argentinus*:  $n = 6+m+X0,R,r$ ; *Nezara viridula*:  $n = 6+XY,R,e$ ; *Diclops furcatus*:  $n = 5+XY,R,e$ ; *Edessa mediatubunda*:  $n = 6+XY,R,e$ ; *Largus rufipennis*:  $n = 6+X0,R,e$  and *Dysdercus albofasciatus*:  $n = 5+neo-XY,R,r$ ; in the dragonflies *Orthemis nodiplaga*:  $n = 20+X0,E,e$ ; *O. ambinigra*:  $n = 5+neo-XY,E,e$  and *Aeshna cornigera planaltica*:  $n = 7+neo-XY,E,e$ ; and in the spiders *Ariadna boesenbergii*:  $n = 4+X0,R,r$  and the achiasmate *Dysdera crocota*:  $n = 5+X0,R?,e$ . Fluorescent banding showed that heterochromatin is scarce in all these spp., and its distribution is frequently telomeric and DAPI bright; in a few spp. a CMA bright band is observed at the nucleolus organizing region.

- (16524) RAMOS-ELORDUY, J. & J.M. PINO M., 2001. Contenido de vitaminas de algunos insectos comestibles de México. *Revta Soc. quim. México* 45(2): 66-76. (With Engl. s.). — (Inst. Biol., UNAM, Circuito Exterior, Apdo Postal 70-153, Ciudad Universitaria, MX-04510 México, D.F.). The concentrations of vitamins A, C, D, and B were identified in 35 spp. of Mexican edible insects, representing 7 orders. For odon. (*Anax* sp.) only data (mg/100 g) for the B-complex are stated, viz: thiamine 0.05, riboflavine 0.09, and niacin 1.29. The thiamine and riboflavine values are the lowest among the spp. examined, and that of niacin is almost so.

## 2002

- (16525) (Anonymous), 2002. *North Coast Odonata Survey manual*. North Coast Odonata, Garfield Heights/OH. 42 pp. — (Publishers: 12828 McCracken Rd, Garfield Heights, OH 44125-3015, USA). The main purpose of the manual is to establish standards for documenting odon. in northern Ohio, USA. In addition, there are sections outlining procedures to follow when collecting and preserving voucher specimens. Instructions and forms for submitting information are included.
- (16526) ENGLUND, R.A., D.J. PRESTON & K. ARAKAKI, 2002. *Stream survey of Wailoloa and Keanu'i omanō streams, Hawai'i Island*. Final report prepared for PBR Hawaii, Hilo. 8 pp. — (Hawaii Biol. Surv., Bishop Mus., 1525 Bernice St., Honolulu, HA 96817-0916, USA). 1 endemic, 2 indigenous, and 3 introduced odon. spp. are brought on record.
- (16527) HEINO, J., 2002. Concordance of species richness patterns among multiple freshwater taxa: a regional perspective. *Biodiv. Conserv.* 11: 137-147. — (Dept Biol. & Envir. Sci., Univ. Jyväskylä, P.O.B. 35, FIN-40351 Jyväskylä). Geographical gradients in species richness and the degree to which different taxa show congruent patterns remain unknown for many taxonomic groups. Here, broad-scale species richness patterns are examined in 5 groups of freshwater organisms, viz. macrophytes, Odon., Plecoptera, aquatic Coleoptera and fishes, based on provincial distribution records in Denmark, Norway, Sweden and Finland. In general, variation in species richness across provinces was concordant among the groups, but stoneflies showed weaker negative relationships with the other taxonomic groups. Species richness in most groups decreased with increasing latitude and altitude, and a considerable part of the variation was explained by mean July temperature. However, Plecoptera showed a reversed pattern, with species richness correlating positively, albeit more weakly, with mean provincial altitude. Nevertheless, combined species richness of all 5 taxa showed a strong relationship with mean July temperature, accounting for 74% of variation in provincial species richness alone. Such temperature-controlled patterns suggest that regional freshwater biodiversity will strongly respond to climate change, with repercussions for local community organization in freshwater ecosystems in Fennoscandia.
- (16528) IRLE, A., S. IRLE & K.-J. CONZE, 2002. Erstnachweis der Grünen Keiljungfer *Ophiogomphus cecilia* (Fourcroy, 1785) im Kreis Siegen-Wittgenstein. *Beitr. Tier- Pflanzenwelt Siegen-Wittgenstein* 7: 63-64. — (First Author: Oberholzklauser Str. 41, D-57258 Freudenberg).

A ♂ was photographed on 13-IX-2000 at the Military Training Area in Siegen. Since 1996, this is only the fourth *O. cecilia* record from Rhineland-Westphalia, W Germany.

- (16529) LANG, H., C. LANG & R. RAAB, 2002.

*Erfassung der Quelljungfervorkommen auf Wiener Stadtgebiet*. Studie im Auftrag der MA 22-Umweltschutz, Wien. 13 pp. — (First Author: Muhrhoferweg 1-5/4/8/42, A-1110 Wien).

During a systematic survey of the *Cordulegaster* spp. occurrence in the Vienna metropolitan area, Austria, 19 stream sections were explored and 24 adults and larval *C. bidentata* (from 7 sites: 7 larvae, 12 adults) and *C. heros* (2 sites: 1 larva, 4 adults) specimens were identified. Detailed descriptions of the respective habitats and an outline of *Cordulegaster* biology are appended.

- (16530) LINGENFELDER, U., 2002. *Untersuchungen zur Libellenfauna im Stadtverband Saarbrücken*.

Gutachten im Auftrag des Umweltamtes des Stadtverbandes Saarbrücken, ii+73 pp. — (Author's address unknown).

The odon. fauna (30 spp.) of Saar-Bliesgau, Prims-Blies-Hügelland and Warndt (Saarland, W Germany) is described and analysed (23 sampling sites).

- (16531) STANCZYKOWSKA, A., M. KORRYCIŃSKA & E. KRÓLAK, 2002. The effect of treated wastewater on benthic invertebrate communities in the lowland Liwiec river (central Poland).

*In: A. Kownacki et al., [Eds], River bio-monitoring and benthic invertebrate communities*, pp. 53-62, Inst. Envir. Prot., Warszawa & Inst. Freshw. Biol., Pol. Acad. Sci., Kraków. — (Author's addresses not stated).

The objective of the study was an assessment of the suitability of benthic macroinvertebrates in monitoring the influence of pollutants on water quality. The representatives of 4 odon. families were recorded at the control station, but only Calopterygidae occurred at the polluted site. The assessment based on physico-chemical parameters is less sensitive.

- (16532) TRUEMAN, J.W. & L.M. RIDDIFORD, 2002. Endocrine insights into the evolution of metamorphosis in insects. *Annu. Rev. Ent.* 47: 467-500. — (Dept Zool., Univ. Washington, Seattle, WA 98195-1800, USA).

This review (that contains but very few explicit refer-

ences to the Odon.) explores the roles of ecdysone and juvenile hormone (JH) in the evolution of complete metamorphosis and how metamorphosis, in turn, has impacted endocrine signaling. JH is a key player in the evolution of metamorphosis because it can act on embryos from more basal insect groups to suppress morphogenesis and cause premature differentiation, functions needed for transforming the transitional pronymphal stage of hemimetabolous insects into a functional larval stage. In the ancestral condition, imaginal-related growth is then delayed until JH finally disappears during the last larval instar. In the more derived groups of the Holometabola, selective tissues have escaped this JH suppression to form early-growing imaginal discs. It is discussed how complete metamorphosis may have influenced the molecular aspects of both ecdysone and JH signaling.

## 2003

- (16533) FERLETIČ, U. & A. ŠALAMUN, 2003.

Skupina za kačje pastirje. — [Dragonfly study group]. *In: U. Ferletič & U. Žibrat, [Eds], Sv. Peter nad Dragonjo 2003*, pp. 24-30, Društvo študentov biologije, Ljubljana, ISBN none. (Slovene). — (First Author: Merezige 1, SI-6273 Merezige).

A commented list of records of 23 sp. from 34 localities in Istria, SW Slovenia.

- (16534) MILOSEVI, B., 2003. Materials for the entomological bibliography of Croatia, 1997. *Entomologia croat.* 7(1/2): 89-109. (Croat., with Engl. s.). — (Kosorova 1, HR-10000 Zagreb).

Lists 148 publications related to the insect fauna of Croatia and published in 1997. All titles are given also in Engl. translation. A taxonomic index is not provided, therefore not all papers containing odonatol. information can be identified. The 3 earlier published pts of this series, covering the 1990-1996 bibliography, have appeared in *Entomologia croat.* 3(1998): 49-66, 4(1999): 81-90, and 5(2001): 85-103.

- (16535) POTTER, J.F., 2003. Oaks, dragonflies and people [...], by N.W. Moore, *Environmentalist* 23: 193-194. — (Author's address not stated).

Titled as a book review of the volume described in OA 14519, the reviewer is dwelling rather on own experience with construction and maintenance of a lake on his property, where he achieves a similar

fauna and flora diversification as described by Professor Moore. Whether the construction of such a private 'nature reserve' could be called 'conservation' is indeed questionable, but this is a nice, little piece and its Author should be encouraged to follow Moore's example, by providing a comprehensive account of his work and, above all, on the development of, and the succession within the biotic community on his wetland property.

- (16536) **POUILLY, M.**, 2003. Expédition spéléologique Guizhou 2003, Chine: rapport des observations biologiques. *Expédition Guizhou 2003* (Biol.), pp. 1-27. — (Author's postal address not stated). From the caves in the systems of the Shuanghe and Gesohe rivers, Guizhou prov., China larval "Cordulegastridae" and "Philoganga sp." are brought on record.

- (16537) **VIEIRA, V., P.A.V. BORGES, O. KARSHOLT & J. WUNDERLICH**, 2003. The Arthropoda fauna of Corvo island (Azores): new records and updated list of species. *Vieraea* 31: 1-12. (With Span. s.). — (First Author: Depto Biol., Univ. Açores, Rua da Mãe de Deus, PT-9501-801 Ponta Delgada, Açores). In addition to the previously known *Sympetrum fonscolombii*, *Anax imperator* is listed for the island for the first time.

## 2004

- (16538) **D'AMICO, F., S. DARBLADE, S. AVIGNON, S. BLANC-MANEL & S.J. ORMEROD**, 2004. Odonates as indicators of shallow lake restoration by liming: comparing adult and larval responses. *Restoration Ecol.* 12(3): 439-446. — (First Author: Lab. Ecol. Molec., Univ. de Pau & des Pays de l'Adour, B.P. 1155, F-64013 Pau Cedex). Odon. assemblages were compared between replicate sets of shallow lakes that had been created and acidified by open-cast mining across a large area (2,451 ha) of SW France (Arjuzanx, Landes); one set of lakes (n = 5) was experimentally restored by liming with calcium carbonate, whereas another group (n = 5) was left as untreated reference lakes. Odon. adults and exuviae were sampled bimonthly during May-August 1998. Elevated turbidity and conductivity in limed lakes were the only physicochemical measures differing between restored and reference lakes, because deacidification occurred naturally,

even in reference lakes during the 17 yr after the onset of restoration. Restoration by liming can apparently lead to effects on lake turbidity that might be considered adverse. 24 and 19 spp. occurred among adults and exuviae, respectively, but there were no significant differences in richness between restored and reference sites. However, significantly, more exuviae were collected from the reference sites (588 vs 180), where exuvial diversity and rank abundance indicated more evenly structured assemblages than those in restored lakes. Ordination showed that adult assemblages differed significantly between restored and reference lakes, and varied highly significantly with lake turbidity. This effect occurred because a small group of generally scarce adults were characteristic of reference sites (*Chalcolestes viridis*, *Lestes virens*, *Cordulia aenea*, *Leucorrhinia albifrons* and *Sympetrum sanguineum*). Exuviae of these spp. were less abundant at restored sites, but exuvial assemblages overall did not discriminate between restored and reference lakes. It is concluded that lake restoration by liming can reduce diversity and larval numbers among odon. and subtly affects adult assemblages. In this case study, adult assemblages discriminated between the lake types involved in the experiment, but important additional information arose from exuvial abundance and structure. This study indicates that natural recovery processes after acidification in formerly open-cast areas, rather than chemical intervention through liming, might lead to preferable conservation outcomes.

- (16539) **KIRTI, J.S. & A. SINGH**, 2004. Studies on secondary genitalia of the type species of some dragonflies (Odonata: Anisoptera: Libellulidae). *Zoos' Print J.* 19(6): 1505-1511. — (Dept Zool., Punjabi Univ., Patiala, Punjab 147002, India). Detailed descriptions and illustrations are presented of the secondary genitalia in *Acisoma p. panorpoides*, *Brachydiplax sobrina*, *Brachythemis contaminata*, *Bradinopyga geminata*, *Crocothemis s. servilia*, *Neurothemis fulvia*, *Pantala flavescens*, *Potamarcha congener*, *Selysiotthemis nigra*, *Tholymis tillarga* and *Zyxomma petiolatum*. The taxonomic significance of these structures is highlighted.
- (16540) **LAUFER, H.**, 2004. Zum Beutespektrum einer Population von Ochsenfröschen (Amphibia: Anura: Ranidae) nördlich von Karlsruhe (Baden-Württemberg, Deutschland). *Faun. Abh. Dresden* 25: 139-150. (With Engl. s.). — (Büro f. Landschaft-

sökol., Friedenstr. 28, D-77654 Offenburg).

The N. American bullfrog (*Rana catesbeiana*), introduced in Europe, is considered by some researchers to have a negative effect on the native amphibians. Here, the stomachs of 44 individuals, collected in the field in the Upper Rhine area, Germany, were examined. They contained 4 mammals 2 birds, 2 reptiles, 3 amphibians, 1 fish, and 65 invertebrates, mostly insects, incl. wing remains of 2 anisopterans. It is concluded that the bullfrog is an opportunistic omnivore, eating all living animals that are smaller than itself and that it can capture.

- (16541) PALOT, M.J. & C. RADHAKRISHNAN, 2004. A note on mock-mating behaviour in damselflies (Odonata: Insecta). *Zoos' Print J.* 19(4): 1431. — (W. Ghats Fld Res. Stn, Zool. Surv. India, Kozhikode, Kerala 673002, India).

The description of an intergeneric tandem, *Copera marginipes* ♂ × *Ceriagrion cerinorubellum* ♀; 6-IX-2001, Madayipara, Kerala, India.

- (16542) ZAY, M.P., 2004. *Spoznavaймо naše kale*. Campanotto Editore, Pasian di Prato. 162 pp. ISBN 88-456-0417-9. [Slovene edn of the original Italian work, titled *Andar per stagni*]. — (Publishers: Via Marano 46, I-33037 Pasian di Prato/UD). On pp. 38-67 and 118-131, Author's experience with the habits of *Coenagrion puella*, *Anax imperator*, *Libellula depressa* and *Orthetrum cancellatum* and their larvae in karst ponds in NE Italy are outlined along with very detailed suggestions for photography. The text is richly illustrated with original photographs.

## 2005

- (16543) BRODIN, T., 2005. *Predator effects on behaviour and life-history of prey*. PhD diss., Umeå Univ. 34 pp. + 5 papers. ISBN 91-7305-964-1. — (Author: Dept Ecol. & Envir. Sci., Umeå Univ., S-90187 Umeå).

Based on Odon., the work highlights the importance of monitoring prey behaviour when studying life history characteristics. The 5 appended papers form the essential part of the dissertation. At the time of its publication, 1 of these was in the press, 1 was submitted, and the remaining were published in: *Oecologia* 132 (2002): 316-322; *J. Freshw. Ecol.* 18(2003): 415-423; and in *Ecology* 85(2004): 2927-2932.

- (16544) CRUMRINE, P.W., 2005. Size structure and substitutability in an odonate intraguild predation system. *Oecologia* 145: 132-139. — (Dept Nat. Sci., Longwood Univ., Farmville, VA 23909, USA).

Interactions between different size classes of predator spp. have the potential to influence survival of prey spp. in intraguild predation (IGP) systems, but few studies test for these effects. Using a substitutive design in a field setting, the effects were measured of 2 size classes of IG predators (large and small *Anax junius* larvae) on the mortality of IG prey (*Pachydiplax longipennis* larvae). It was also examined whether combinations of large *A. junius* and *P. longipennis* and small *A. junius* and *P. longipennis* had substitutable effects on shared prey (*Ischnura verticalis* larvae). The presence of both size classes of *A. junius*, when alone and in combination with *P. longipennis*, significantly increased mortality of *I. verticalis*. In the presence of *P. longipennis*, large and small *A. junius* had similar effects on the mortality of *I. verticalis*, and effects of size-structured assemblages of *A. junius* were similar to the effects of each size class alone at the same density. The effects of the 2 size classes of *A. junius* on *P. longipennis* differed, and *P. longipennis* mortality was lower when exposed to size structured assemblages of *A. junius* than when exposed to only large *A. junius* at the same density. Results were similar to those in a laboratory study, although the effect of *P. longipennis* on *I. verticalis* was much lower in the field setting. These results demonstrate that interactions between different size classes of IG predators promote the survival of IG prey and highlight the importance of within-species size structure as a characteristic that may promote the coexistence of predators in IGP systems.

- (16545) EMILIYAMMA, K.G., 2005. On the Odonata (Insecta) fauna of Kottayam district, Kerala, India. *Zoos' Print J.* 20(12): 2108-2110. — (W. Ghats Fld Stn, Zool. Surv. India, Annie Hall Rd, Kozhikode, Kerala 670002, India).

Records of 31 spp.; those of *Agriocnemis keralensis* and *Caconeura risi* are of particular interest.

- (16546) HICKLING, R., D.B. ROY, J. HILL & C.D. THOMAS, 2005. A northward shift of range margins in British Odonata. *Global Change Biol.* 11: 502-506. — (NERC Cent. Ecol. & Hydrol., Monks Wood, Abbots Ripton, Huntingdon, Cambridge, PE28 2LS, UK).

The evidence is presented for 37 spp. of non-migratory British Odon. shifting northwards at their range margins over the past 40 yr, seemingly as a result of climate change. This response by a group associated with freshwater, parallels polewards range extensions observed in terrestrial invertebrates and other taxa.

- (16547) KANDIBANE, M., S. RAGURAMAN & N. GANAPATHY, 2005. Relative abundance and diversity of Odonata in an irrigated rice field of Madurai, Tamil Nadu. *Zoos' Print J.* 20(11): 2051-2052. — (Second & Third Author: Agric. Coll. & Res. Inst., Madurai, Tamil Nadu 652104, India). 12 spp. were recorded. *Agriocnemis f. femina*, *Crocothemis servilia*, *Diplacodes trivialis*, *Pantala flavescens* and *Tramea limbata* were more abundant in partially weeded rice ecosystem than in the weeded one. *Anax guttatus*, *Neurothemis tyllia*, *Rhyothemis variegata* and *Trithemis* sp. occurred only during the tillering stage of crop growth.
- (16548) MICHALETZ, P.H., K.E. DOISY & C.F. RABENI, 2005. Influences of productivity, vegetation, and fish on macroinvertebrate abundance and size in midwestern USA impoundments. *Hydrobiologia* 543: 147-157. — (First Author: Missouri Dept Conserv., 1110 South Coll. Ave, Columbia, MO 65201, USA).  
The study was conducted at 30 impoundments within the state of Missouri. Odon. became less abundant with increasing impoundment productivity. The size of individuals was related to macrophyte coverage. The names of the spp. are not stated.
- (16549) MÓRA, A., E. CSEPES, M. TÓTH & G. DÉVAI, 2005. Changes in spatial and temporal distribution of benthic macroinvertebrates at a cross-section of the river Tisza between Tiszaomgyorós and Lónya. *Acta biol. debrecina Oecol. Hung.* 13: 131-139. (Hung., with Engl. s.). — (Dept Hydrobiol., Univ. Debrecen, Egyetem tér 1, H-4032 Debrecen).  
*Gomphus flavipes* was the only odon. sp. in the samples; — the Tisza R., Hungary.
- (16550) OBOLEWSKI, K., 2005. Epiphytic macrofauna on Water Soldiers (*Stratiotes aloides* L.) in Ślupia river oxbows. *Oceanol. hydrobiol. Stud.* 34(2): 37-54. — (Dept Ecol. & Prot. Sea, Pomeranian Pedag. Univ., Arciszewskiego 22 b, PO-76-200 Ślupsk).
- The composition and biomass of phytophilous macrofauna dwelling on *S. aloides* were determined in Apr.-July 1981 and 2001. The recorded odon. are referable to *Ischnura* sp., *Lestes* sp., *Libellula* sp. and *Aeshna grandis*.
- (16551) ORŠANIČ, H.T., 2005. *Conservation of nature and forest ownership: a case study of Posavje area*. M.Sc. thesis, Biotech. Fac., Univ. Ljubljana. xvii+193 pp. (Slovene, with Engl. s.). — (Current Author's address unknown).  
*Coenagrion ornatum* and *Cordulegaster heros* are listed from Mirna, the latter sp. also from Kamenški potok and Dobrava (Posavje, Slovenia).
- (16552) PETROVŠEK, M., 2005. *Strokovni predlog za zavarovanje ribnika Vrbje pri Žalcu z okolico*. — [Technical proposal for conservation of the fishpond Vrbje near Zalec and its hinterland]. Zavod RS za varstvo narave, Celje. 19 pp. (Slovene). — (Author's address unknown).  
5 odon. spp. are listed for the pond; — Styria, Slovenia.
- (16553) RINCON, J.E., I. MARTINEZ, E. LEÓN & N. AVILA, 2005. Procesamiento de la hojorasca de *Anacardium excelsum* en una corriente intermitente tropical del nordeste de Venezuela. *Interscienca* 30(4): 228-234. (With Engl. s.). — (First Author: Depto Biol., Fac. Cienc., Univ. Zulia, Apdo 15247, Ipostel Galerías, Maracaibo 4005-A, Venezuela).  
In order to examine some factors influencing leaf litter breakdown of *A. excelsum*, litter bags were placed in a riffle and a pool section of the Carichuano Creek, 70 km N of Maracaibo (Zulia, NW Venezuela). The bags were rapidly colonized by invertebrates, the densities were higher in the riffle. The relative abundance is stated family-wise for the *Coenagrionidae* and *Calopterygidae*.
- (16554) ŠALAMUN, A. & U. FERLETIČ, 2005. Report of Odonata group. In: G. Planinc, [Ed.], *Raziskovalni tabor študentov biologije Dekani 2004*, pp. 37-46, Društvo študentov biologije, Ljubljana, ISBN 961-91041-5-3. (Slovene, with Engl. s.). — (Second Author: Merezige 1, SI-6273 Merezige).  
The odonatological exploration of the Slovenian part of Istria is traced from 1961 (49 known spp.), and highlights of the results of the 2004 Biology Research Camp Dekani are outlined. 33 spp. were



recorded from 73 localities, but a list of records is not provided. Regional occurrence of *Chalcolestes parvidens* and *Orthetrum c. coerulescens* is of particular interest.

- (16555) SUBRAMANIAN, K.A., 2005. *Dragonflies and damselflies of peninsular India: a field guide*. Indian Acad. Sci., Bangalore [Project Lifescape]. 118 pp. Freely available from: [http://www.ias.ac.in/initiat/sci\\_ed/lifescape/odonates/html](http://www.ias.ac.in/initiat/sci_ed/lifescape/odonates/html) — (Author: Cent. Ecol. sci., Indian Inst. Sci., Bangalore 560012, India).

A well-organized and richly illustrated field guide and identification tool for 60 spp., prepared with the objective of popularization of interest in dragonflies among non-professional Indian naturalists. Along with taxonomic nomenclature, Engl. common names are introduced for Indian odon. for the first time. Concise text provides information on diagnostic features and ecology for each sp., and is enhanced by good phot. of all spp.

- (16556) TARR, T.L., M.J. BABER & K.J. BABBITT, 2005. Macroinvertebrate community structure across a wetland hydroperiod gradient in southern New Hampshire, USA. *Wetlands Ecol. Mgmt* 13: 321-334. — (Third Author: Dept Nat. Resour., Univ. New Hampshire, 206 Nesmith Hall, Durham, NH 03857, USA).

In order to examine the influence of hydroperiod and concomitant changes in abiotic (wetland size, pH, conductivity, dissolved oxygen, water temperature) and biotic (predatory fish presence) characteristics on macroinvertebrate communities in isolated wetlands, a field study was conducted at 42 wetlands with short (<4 months), intermediate (4-11 months) and long (permanent) hydroperiods. 15 odon. genera (all Anisoptera) were recorded. The most common of these were *Aeshna*, *Leucorrhinia*, *Libellula* and *Sympetrum*, while the least common were *Ariogomphus*, *Gomphaeschna* and *Dorocordulia*. *Aeshna* spp. were far less common in wetlands with intermediate hydroperiods than in those with long hydroperiods. Since they have long aquatic phases and lack desiccation resistant stages, they were restricted from wetlands with short hydroperiods. Some genera (e.g. *Libellula*) were more likely to occur in permanent wetlands without fish, whereas *Basiaeschna* was more likely to occur in wetlands with predatory fish.

- (16557) VEGA, F.J., F. GARCIA-CRIEDO, D. MIGUÉLEZ & L.F. VALLADARES, 2005. Diversidad de odonatos en los humedales rehabilitados del Parque Natural de Salburua (Álava). *Est. Mus. Cienc. nat. Álava* 20: 107-114. (With Engl. & Basque s's). — (First Author: Depto Biol. anim., Fac. Cienc. Biol. & Ambient., Univ. León, ES-24071 León).

A commented list of 27 spp. recorded in the Park (Basque Country, Spain). *Sympetrum meridionale* is listed for the first time from the Álava prov., and *Coenagrion mercuriale* and *C. scitulum* are also of regional interest.

- (16558) YAMAKAMI, K. & C. SATO, 2005. *Dragonflies are the messengers of water environment: the creation of Community Marsh (Satonuma) through dragonfly catch*. Paper submitted by the pupils of the Hokkaido Tahuhoku Senior High School [Japan] for the Stockholm Junior Water Prize (2005). 14 pp. — (Postal address not stated).

The somewhat puzzling title of the paper can be understood from the statement in the concluding paragraph: "We strongly believe that understanding and appreciating local nature through collecting dragonflies in childhood will nurture conscious minds and affection toward the local nature". — Since 1990, the members of the (pupil) Science Research Club of the school were collecting data on the change of water quality, vegetation and the dominant odon. spp. in and around "Tonneusu Marsh" and have noticed the decrease in odon. diversity, triggered by deterioration of water quality and by the progress of sedimentation. In order to preclude the process of natural succession, various operations, such as sediment dredging and partial vegetation removal, were applied. The effects of these were the alteration of odon. community structure and the increase of species diversity. The methods and the results are described and discussed.

## 2006

- (16559) ALAGIYAWADU, A., A. DISANAYAKA, C.K. KRISHAN, S. GUNASINGHE & K. CONIFF, 2006. *Dragonflies of Sri Lanka (Low country wet zone)*. Wildlife Conserv. Soc., Galle, Sri Lanka. Poster (43.5×57.0 cm).

Field phot. are presented of 13 Zygopt. and 12 Anisopt. spp., using taxonomic and Engl. vernacular nomenclature.

- (16560) **BONSEL, A. & M. RUNZE**, 2006. Unterschiedliche Landschaftsentwicklung als eine Ursache für unterschiedliche Libellen-Gemeinschaften (Odonata) in benachbarten Kleinseen. *Natur-Landesk.* 113(1/3): 35-42. — (First Author: Vasenbusch 15., D-18337 Gresenhorst). The odon. species richness was studied in 5 small lakes in the vicinity of Thelkow (E Germany), characterized by different land use history of the respective catchment areas. The richest fauna occurred in 2 mesotrophic lakes with well-structured littoral vegetation and the catchment of which was continuously covered by forest, as documented since 1786. Land use in the catchments of the other 3 lakes varied historically: forest-grassland-agriculture-and (currently again) grassland. The littoral vegetation and the respective odon. communities are poor. The importance of the gathered evidence for the policies of nature conservation is emphasized.
- (16561) **BRACHYTRON** (ISSN 1386-3460), Vol. 9, No. 1/2 (dated Nov. 2006; mailed Jan. 2007). (Dutch with Engl. s.). — (c/o R. Manger, Stoepveldsingel 55, NL-9403 SM Assen). *Bouwman, J.H. & V.J. Kalkman*: Status of the Odonata of the Habitat Directive in the Netherlands (pp. 3-13); — *de Boer, E.P. & M.T. Wasscher*: Rediscovery of *Leucorrhinia albifrons* in the Netherlands (pp. 14-20); — *Wasscher, M.T.*: From NLO to NVL, 35 years of organized dragonfly study in the Netherlands (pp. 21-32); — *Ketelaar, R.*: Pattern and rapidity of the colonisation of *Erythromma viridulum* in het Netherlands (pp. 33-37); — *Bal, D. & D. Groenendijk*: Consequences of the Habitat Directive for the legal protection of dragonflies in the Netherlands (pp. 38-48); — *Calle, P., G. Kurstjens & B. Peters*: Dragonflies of the Gelderse Poort: natural river landscape richer in biodiversity than expected (pp. 49-57); — *Kalkman, V.J. & B. Koese*: Rediscovery of a population of the Common goldring (*Cordulegaster boltonii*) near Venlo (pp. 58-60); — *Ketelaar, R.*: [book review] H. Wildermuth et al., 2005, Libellen der Schweiz (pp. 61-62).
- (16562) **BRACHYTRON** (ISSN 1386-3460), Vol. 10, No. 1 (dated Dec. 2006; mailed 10 Jan. 2007). (Engl.). — (c/o R. Manger, Stoepveldsingel 55, NL-9403 SM Assen). *Kalkman, V.J.*, Key to the dragonflies of Turkey, including species known from Greece, Bulgaria, Lebanon, Syria, the Trans-Caucasus and Iran (pp. 3-82); — *Kalkman, J.V. & G.J. van Pelt*: The distribution and flight period of the dragonflies of Turkey (pp. 83-153); — New records of rare or uncommon dragonflies in Turkey (Odonata) (pp. 154-162).
- (16563) **BRIED, J.T. & G.N. ERVIN**, 2006. Abundance patterns of dragonflies along a wetland buffer. *Wetlands* 26(3): 878-883. — (First Author: Nature Conservancy E New York Chapter & Albany Pine Bush Preserve Commission, 195 New Karner Rd, Albany, NY 12205-4605, USA) Local abundance of animals with aquatic and terrestrial life stages may be useful to determine criteria for protective buffers around wetlands. Maiden flights and daily commutes of adult Odon. occur between wetland breeding area and adjacent upland habitat used for foraging, maturation, and nocturnal roosting. Abundance of dragonflies adjacent to a wetland in Mississippi, USA was measured to determine if it varied with distance from water. Sexually mature ♂♂ and combined ♀♀ / prereproductive adult ♂♂ (♀♀-immatures) were recorded 10-160 m from the littoral edge of a 185 ha shallow reservoir. The number of dragonflies was dominated by *Celithemis eponina* throughout the study period. Mean abundance did not change with distance from water out to 160 m, both for all spp. combined and for each of 3 dominant spp. In the assemblage, mature ♂♂ outnumbered ♀♀-immatures in the 10-40 m distance, whereas the reverse occurred in the 130-160 m distance. At the species-level, there was a mixed response in the mature ♂♂ : ♀♀-immature ratio, with little resemblance to the assemblage pattern. Results of this study suggest that wide buffer zones around wetlands may be essential to protect Odon. assemblages, especially ♀♀ and sexually immature adults. Furthermore, odon. flight behaviour may serve as a useful biocriterion to determine the width of ecologically significant wetland buffers.
- (16564) **CESARD, N.**, 2006. Des libellules dans l'assiette: les insectes consommés à Bali. *Insectes* 140(2006/1): 3-6. — (Author's address not stated). The consumption of aquatic insects is widespread among the rice-cultivating societies. On the island of Bali (Indonesia), dragonflies are a popular diet item, with the spp. of *Anax*, *Cratilla*, *Crocothemis*, *Neurothemis*, *Orthetrum* and *Pantala* being most often on the bill of fare. The methods of capture and the traditions related to dragonfly consumption are outlined and documented by photographs.

— See also *OA* 10820.

- (16565) CHEUNG, C. & L. DeVANTIER, 2006. *Socotra: a natural history of the islands and their people*. Odyssey Books, Hong Kong. xv+393 pp. ISBN 962-217-770-0. — (Distributor: NHBS Environmental Bookstore, 2-3 Wills Rd, Totness, Devon, TO9 5XN, UK).

Includes a brief section on Odon. 18 spp. are known from the archipelago (Indian Ocean; Yemen), which are dominated by strong flying afrotropical representatives. Most have close relatives in the Dhofar region on the Arabian mainland coast, in Somalia, or on the Red Sea coast of Eritrea, demonstrating close biogeographic links with tropical Africa and Arabia. *Azuragrion granti* and *Trithemis arteriosa socotrensis* are endemic.

- (16566) CORDERO RIVERA, A., [Ed.], 2006. *Forests and dragonflies*. The WDA International Symposium of Odonatology, Pontevedra (Spain), July 2005. Pensoft, Sofia-Moscow. 299 pp. Hardcover (17.5×24.0 cm). ISBN 954-642-278-9. — (Publishers: Geo Milev 13a, BG-1111 Sofia).  
*Cordero Rivera, A.*: Introduction: dragonflies as forest-dependent animals (pp. 7-12); — *Corbet, P.S.*: Forests as habitats for dragonflies (Odonata) (pp. 13-36); — *Graça, M.A.S.*: Allochthonous organic matter as a food resource for aquatic invertebrates in forested streams (pp. 37-47); — *Orr, A.G.*: Odonata in Bornean tropical rain forest formations: diversity, endemism and implications for conservation management (pp. 51-78); — *Paulson, D.*: The importance of forests to neotropical dragonflies (pp. 79-101); — *Fincke, O.M.*: Use of forest and tree species, and dispersal by Giant Damselflies (Pseudostigmatidae): their prospects in fragmented forests (pp. 103-125); — *Dijkstra, K.-D.B. & V. Clausnitzer*: Thoughts from Africa: how can forest influence species composition, diversity and speciation in tropical Odonata? (pp. 127-151); — *Sahlén, G.*: Specialists vs generalists in the Odonata: the importance of forest environments in the formation of diverse species pools (pp. 153-179); — *Tsubaki, Y. & N. Tsuji*: dragonfly distributional predictive models in Japan: relevance of land cover and climatic variables (pp. 181-205); — *Samways, M.J.*: Threat levels to odonate assemblages from invasive alien tree canopies (pp. 209-224); — *Taylor, P.D.*: Movement behaviours of a forest odonate in two heterogeneous landscapes (pp. 225-238); — *Thompson, D.J. & P.C.*

*Watts*: The structure of the *Coenagrion mercuriale* populations in the New Forest, southern England (pp. 239-258); — *Watanabe, M.*: Mate location and competition for mates in relation to sunflecks of forest floors (pp. 259-268); — *Córdoba-Aguilar, A. & J. Contreras-Garduño*: Differences in immune ability in forest habitats of varying quality: dragonflies as study models (pp. 269-278); — *Hadrys, H., V. Clausnitzer & L.F. Groeneveld*: The present role and future promise of conservation genetics for forest odonates (pp. 279-299).

- (16567) DE KNIJF, G., A. ANSELIN & M. TAILLY, 2006. Dragonflies in Belgium. New knowledge for a better management of their biotopes. *Natuur Focus* 5(4): 129-134. (Dutch, with Engl. s.). (First Author: Inst. v. Natuur-Bosonderzoek, Kliniekstraat 25, B-1070 Brussel).

The authors of the book described in *OA* 16453 are presenting here some of its highlights.

- (16568) ERJAVECIA. Bulletin of the Slovene Odonatological Society (ISSN 1408-8185), No. 21 (31 Oct. 2006). (Slovene). — (c/o M. Bedjanič, Kolodvorska 21/B, SI-2310 Slovenska Bistrica).  
*Bedjanič, M.*: On J.W. Valvasor and on the 18th volume of his graphic art collection from 1685 (pp. 1-8; cf. *OA* 16079); — *Šalamun, A.*: Cordulegaster heros survey in the Natura 2000 area of Goričko (pp. 8-14); — *Bedjanič, M.*: ♂ *Lestes sponsa* - ♂ *Chalcolestes viridis* connection (pp. 15-17); — New records of *Lestes barbarus* and *Coenagrion scitulum* also from Petelinjek fishponds in the Ličenca valley nr Poljčane (pp. 17-20); — *Šalamun, A. & M. Kotarac*: New interesting *Ophiogomphus cecilia* records from the Sava river (pp. 20-21); — *Bedjanič, M.*: On the exhibit "Dragonflies: a picturesque life between the water and sky" (pp. 21-22); — [book review] Field guide to the dragonflies of Britain and Europe, by K.-D.B. Dijkstra (pp. 22-27); — Impressions from the 17th International Symposium of Odonatology, Hong Kong (pp. 28-38); — *Mihoković, N.*: Croatian Odonatological Society, "Platycnemis" (pp. 38-39); — *Bedjanič, M.*: Additions to the odonatological bibliography of Slovenia, 21 (pp. 40-44; Nos 601-640).
- (16569) FINCH, J.M., M.J. SAMWAYS, T.R. HILL, S.E. PIPER & S. TAYLOR, 2006. Application of predictive distribution modelling to invertebrates: Odonata in South Africa. *Biodiv. Conserv.* 15: 4239-

4251. — (First Author: Dept Geography, Univ. Kwa-Zulu-Natal, P.O. X01, Scottsville, Pietermaritzburg-3209, SA).

The application of distributional modelling techniques to invertebrates has seldom been explored, primarily due to a lack in adequate distributional data for these taxa. Here, a simple modelling approach for the generation of distribution maps from a limited dataset was selected, as a first step to the atlassing of Odon. in S Africa. The BIOCLIM-type approach was selected for this purpose, as it requires minimal data for model building and validation procedures. BIOCLIM partitions an area climatically prior to survey, and predicts species distributions on a bioclimatic basis. Conservative deterministic models were developed using point presence/absence data for each of the regions' 160 described spp. These models were validated by cross-validation, and the Jaccard coefficient of similarity was used as an index of model performance. A sensitivity analysis investigated the influence of extreme values and errors in the data on predictive ability. Models identified disjunct distribution patterns and accurately predicted the restricted ranges of habitat-specialist spp. However, models overstated the distribution of habitat generalists and spp. with distinct outlier records. For accurate predictions of broad-ranging spp., it is suggested that a probabilistic approach be adopted. Nevertheless, basic distribution patterns generated through this conservative approach can be further applied to the investigation of species richness and issues relating to conservation, such as reserve design. The BIOCLIM-type approach provided a means of predicting species distributions, allowing for broad-scale atlassing and thereby providing the first step towards Odon. conservation in S Africa.

(16570) GRANT, P.B.C. & M.J. SAMWAYS, 2006.

Montane refugia for endemic and red listed dragonflies in the Cape Floristic Region biodiversity hotspot. *Biodiv. Conserv.* 2006, 19 pp. DOI 10.1007/s10531-005-6201-3. — (Second Author: Dept Ent., Univ. Stellenbosch, P.B. X1, Matieland-7602, SA). One of the features of many endemic organisms is that they are highly spatially restricted, and habitat specialists. The Kogelberg Biosphere Reserve is a major centre of plant endemism within a global hotspot, the Cape Floristic Region. Odon. in this botanical hotspot have a range of habitat specialization from narrow-range specialists to widespread

generalists, with an unusually strong bias towards the specialists. A high 53% of odon. individuals and 26% of taxa recorded are national endemics, and 3 spp. are red listed. Thus, a group of predatory insects, which are largely not dependent on plant composition, mirrors the level of habitat specialization and restricted distributions of the plants at the spatial scale of the whole reserve. Although some studies caution the use of one taxon as a surrogate for another, the results here show that at the reserve scale in this global hotspot there can be remarkable concordance, suggesting further studies on other taxa should be carried out to determine the full extent of taxonomic concordance in this irreplaceable area.

(16571) GUNTHER, A., M. OLIAS & T. BROCKHAUS, 2006. *Rote Liste Libellen Sachsens*. Landesamt Umwelt & Geologie, Dresden. ii+20 pp. ISBN none. Free copies available from: Saxoprint, Enderstr. 94, D-01277 Dresden. — (First Author: Naturschutzzinst. Freiberg, Waisenhausstr. 10, D-09599 Freiberg).

68 spp. are known from Saxony (Germany), 33 of these are redlisted. Their status is stated and the threats are documented and analysed.

(16572) HACET, N. & N. AKTAÇ, 2006. The Odonata of Gökçeada island, Turkey: a biogeographical assessment. *Ent. News* 117(4): 357-368. — (Dept Biol., Fac. Arts & Sci., Trakya Univ., TR-22030 Edirne).

A commented list of 29 spp., with emphasis on *Lindenia tetraphylla*, *Onychogomphus forcipatus albotibialis* and *Pantala flavescens*, the regional occurrence of which is outlined in detail. The island is situated in the N Aegean, close to the Dardanelles Strait.

(16573) HARDERSEN, S., 2006. *Le libellule di Bosco della Fontana*. Cierre Edizioni, Verona. 64 pp. Softcover (14.7×21.0 cm). ISBN 978-88-8314-396-0. — (Author: Centro Naz. per lo Studio Conserv. della Biodiv. Forestale, Verona-Bosco della Fontana, Strada Mantova 29, I-46045 Marmirolo, MN).

An attractive field guide to the 32 spp. known from the Bosco della Fontana, Po Lowlands (Pianura padana), Italy, of which *Calopteryx virgo* became locally extinct in the 1950s.

(16574) JARA, F.G. & M.G. PEROTTI, 2006. Vari-

- ación ontogenética en la palatabilidad de los renacuajos de *Bufo spinulosus papillosus* Philippi, 1902 (Amura, Bufonidae). *Cuad herpetol.* 19(2): 37-42. (with Engl. s.). — (Lab. Fotobiol., CRUB-UNCOMA [CONICET], Quintral 1250, AR-8400 San Carlos de Beriloche, Rio Negro).  
The ontogenetic variation in palatability of *Rhionaeschna variegata* larvae to the *Bufo spinulosus papillosus* tadpoles was examined. Tadpoles in stages 24-26 and 32-34 were unpalatable, while those in stages 38-40 and 42-45 were consumed. When unpalatable tadpoles were caught, a dragonfly rejection behaviour was observed. The palatability pattern observed is different from that where the related *Bufo* spp. are involved.
- (16575) *JOURNAL OF THE BRITISH DRAGONFLY SOCIETY* (ISSN none), Vol. 21, No. 2 (Apr. 2006), Vol. 22, No. 1 (Oct. 2006), No. 2 (Dec. 2006). — (Jo H. Curry, 23 Bowker Way, Whittlesey, Peterborough, PE7 1PY, UK).  
[21/2]: Moore, N.W.: Use of the herbicide Glyphosate to control Common Reed (*Phragmites australis*) and its effects on dragonfly populations (pp. 37-42); — Tyrrell, M.: Observations on emergence and duration of adult life in the Hairy Dragonfly *Brachytron pratense* (Müller) (pp. 43-46); — Gibson, V.: A study of the copulatory behaviour of the Migrant Hawker *Aeshna mixta* Latreille in the wheel position (pp. 47-54); — Ward-Smith, J. & D. Sussex: Population expansion of Small Red Damselfly *Ceriatron tenellum* (Villers) in south-east Berkshire (pp. 55-67); — Brooks, S.: [book review] The dragonflies of Europe (revised edn), by R.R. Askew (p. 68). — [22/1]: White, D.: The Keeled Skimmer *Orthetrum coerulescens* (Fabricius) at Holt Lowes, Norfolk: history and habitat use (pp. 1-12); — Parr, A.J.: Migrant and dispersive dragonflies in Britain during 2005 (pp. 13-18); — Phillips, J.: Dragonflies in the Forest of Dean 1996-2005 (pp. 19-28); — Jacquemin, G.: The use of binoculars to identify adult Odonata (pp. 29-32). — [22/2]: Cham, S.: In-flight cleaning behaviour by male Migrant Hawkers *Aeshna mixta* Latreille (pp. 33-35); — Development and hatching of eggs of the Common Darter, *Sympetrum striolatum* (Charpentier) (pp. 36-40); — Aspects of dragonfly flight behaviour revealed by digital still photography (pp. 41-53); — Baker, R.A.: Mites on odonates; some early accounts and records (to 1950) from Britain (pp. 54-57); — Ward, L. & P.J. Mill: Diel activity patterns in the adult Banded Damoiselle, *Calopteryx splendens* (Harris) and the effect of weather variables (pp. 58-63); — Taylor, P.: Vagrant Emperor Anax (Hemianax) ephippiger (Burmeister, 1839), a new breeding species for Bulgaria (pp. 64-68).
- (16576) KHODABANDEH, S., 2006.  $\text{Na}^+, \text{K}^+$ -ATPase in the gut of larvae of the zygopteran *Ischnura elegans* and het anisopteran *Libellula lydia* (Odonata): activity and immunocytochemical localization. *Zool. Stud.* 45(4): 510-516. — (Dept Marine Biol., Fac. Marine Sci., Univ. Tarbiat Nodarres, Mazandaran, Noor, P.O. Box 46414-356, Iran).  
 $\text{Na}^+, \text{K}^+$ -ATPase activity and immunolocalization were demonstrated in the gut of *I. elegans* and *L. lydia* larvae. Localization was performed through immunofluorescence light microscopy using the IgG $\alpha$ , mouse monoclonal antibody. The  $\text{Na}^+, \text{K}^+$ -ATPase activity was significantly higher in the hindgut than in the foregut-midgut in both species. In *I. elegans*,  $\text{Na}^+, \text{K}^+$ -ATPase activities were 29.44 and 5.12  $\mu\text{M Pi/mg/protein/h}$  in the hindgut and foregut-midgut, while in *L. lydia*, the activities were 16.24 and 1.98  $\mu\text{M Pi/mg/protein/h}$  in the hindgut and foregut-midgut, respectively. No specific fluorescence staining was observed in the cells of the foregut or midgut regions in either species.  $\text{Na}^+, \text{K}^+$ -ATPase was found in the malpighian tubules and rectal pad epithelium in *I. elegans*, and in the epithelium of the basal pads of the rectal gill lamellae in *L. lydia*. A consistently high immunoreactivity was observed in the sides of the lumen of malpighian tubule cells, and a positive and strong fluorescence signal was found in the basolateral sides of the pads of epithelium cells. These findings show that as in crustaceans, this antibody is useful for locating of  $\text{Na}^+, \text{K}^+$ -ATPase and ionocytes in insect osmoregulatory tissues. A high concentration of  $\text{Na}^+, \text{K}^+$ -ATPase activity in these tissues confirms their participation in osmoregulation through active ion exchange.
- (16577) KOTARAC, M., A. ŠALAMUN, M. GOVEDIČ & M. PODGORELEC, 2006. *Popis velikega studenčarja (Cordulegaster heros) s predlogom conacije Natura 2000 območja Goričko (SI3000221)*. — [Survey of *Cordulegaster heros*, with the proposal for zonation of the Natura 2000 area of Goričko (SI3000221)]. CKFF, Miklavž-na-Dravskem-polju. 31 pp., digital app. excl. (Slovene). — (CKFF, Klunova 3, SI-1000 Ljubljana).  
The biology and distribution of *C. heros* in Slovenia are briefly outlined, and the specific survey meth-

odology is described. The occurrence of the sp. in Goričko (NE Slovenia; 147 sites) is presented and the strength of the respective populations is assessed. The total population within Goričko is estimated at 50.000-150.000 larvae. Based on this evidence, the boundaries of the inner protective zones within the Natura 2000 area of Goričko are proposed.

- (16578) KREBS, A., 2006. Räuber der Lüfte. *Natürlich* 2006(7): 40-41, 43, 45. — (Author's address not stated).

General on dragonflies. The Author is a professional journalist and has received some information on the subject from Prof. H. Wildermuth.

- (16579) KULKARNI, P.P., M. PRASAD & S.S. TALMALE, 2006. [Fauna of Todoba-Andhari Tiger Reserve (Maharashtra)]: Insecta: Odonata. *Zool. Surv. India Conserv. Area Ser.* 25: 197-226. — (First Author: Zool. Surv. India, W. Reg. Stn, Rawet Rd, Pune-411044, India).

41 spp. are recorded from the Reserve, with precise collection data and diagnostic characters.

- (16580) KULKARNI, P.P., S.S. TALMALE & M. PRASAD, 2006. [Fauna of Sanjay Gandhi National Park (Borivali, Mumbai)]: Insecta: Odonata. *Zool. Surv. India Conserv. Area Ser.* 26: 19-40. — (First Author: Zool. Surv. India, W. Reg. Stn, Rawet Rd, Pune-411044, India).

27 spp. are listed from the Park, with precise collection data and diagnostic characters. *Vestalis a. apicalis* and *V. g. gracilis* are new to the fauna of Maharashtra state (India).

- (16581) KUMAR, R. & J.-S. HWANG, 2006. Larvicidal efficiency of aquatic predators: a perspective for mosquito biocontrol. *Zool. Sci.* 45(4): 447-466. — (Second Author: Inst. Marine Biol., Natn. Taiwan Ocean Univ., 2 Pei-Ning Rd, Keelung, Taiwan).

The subject is reviewed based on literature. The efficiency of odon. larvae is dealt with on pp. 454-455.

- (16582) LATTY, T.M., 2006. Flexible mate guarding tactics in the dragonfly *Sympetrum internum* (Odonata: Libellulidae). *J. Insect Behav.* 19(4): 469-477. — (Dept Biol. Sci., Univ. Calgary, 2500 University Dr., Calgary, AB, T2N 1N4, CA).

This study aimed to determine if ♂ *S. internum* ad-

just the duration of contact mate guarding according to environmental, temporal and physiological factors. There was a significant interaction between ♂ density and season on duration of contact mate guarding. Early in the season ♂ increased the duration of contact guarding as the density of rivals increased. Later in the season ♂ guarded mates longer irrespective of ♂ density. Wind and temperature did not detectably alter the duration of contact mate guarding, suggesting that the trade-off between current and future reproductive success was more important than were physiological costs.

- (16583) MAHATO, M., 2006. *Evaluation of city of Denton sub-watershed by benthic macroinvertebrate field experimental approach*. PhD diss., Univ. North Texas. xiii+160 pp., App. incl. — (Author: 904 Glenngary Way, Denton, TX 76208, USA).

The study was conducted at several creeks within the Trinity R watershed, located ca 50 km N of the city of Dallas, Texas, USA. The dissertation has 3 chapters, each with a separate abstract and bibliographic reference list. The 3rd of these is titled: "Field experimental approach to detect urban impact on *Erpetogomphus designatus* (Gomphidae) dragonfly larvae" (pp. 99-121 + App. D, pp. 147-160), presenting an attempt to design and conduct an in situ experiment using the larvae collected from the reference site (Clear Creek) and then exposed to potentially impacted urban sites (Cooper, Pecan and Hickory Creeks). In larvae from the reference site, head width, total width, wing pad length and wet weight were measured before placing them in enclosures at all urban sites. Surviving specimens were retrieved after 6 weeks and all parameters were measured again to assess the difference between the reference and urban sites. No survival was observed in the urbanized Cooper Creek and Upper Pecan Creek in both spring and summer and Hickory Creek in spring. Due to an experimental design error a high mortality was observed in the spring at the reference and Lower Pecan Creek sites. However, survival of the larvae may be also influenced by the differences in hydrology and water quality, especially during the summer experimental period. In the spring, a statistically significantly higher growth rate ( $p < 0.05$ ) occurred at the Lower Pecan Creek site compared to the reference site. This difference in growth rate may have been influenced by less fluctuation and higher minimum water temperature at the Lower Pecan Creek site. Although this experiment was only par-

tially successful, it did indicate that the local common odon. taxa found at the reference site could be useful for field biomonitoring experiments to assess water quality of urban sites. If fully successful, this type of in situ field experiments may indicate actual impacts rather than attempting to apply conclusions based on either laboratory microcosm or mesocosm-based toxicity tests.

- (16584) MAHER, I., 2006. *Tupelški kal*. [The Tupelče karst pond]. Zavod RS za varstvo narave, Nova Gorica. Fold. brochure, 6 pp. (Slovene).

The construction of natural-like, rain-fed "dragonfly ponds" in the classical, waterless Karst country of SW Slovenia and adjacent Italy presents a considerable technical problem. The village karst pond (Slovene appellation: "kal") in Tupelče was originally constructed mid 19th century. The bottom was made of compressed clay, paved with stones. The pond harboured a rich dragonfly (and other) fauna and it was basically used for cattle watering. By treading, the cattle kept the clay compressed and the bottom waterproof. After World War II, the life stock was drastically reduced, hence the pond dried up. In 2006, it was reconstructed, using betonit (= ground volcanic clay), mounted between 2 layers of woven stuff. In contact with water, betonit swells up and makes the bottom waterproof. Dragonfly colonization is expected; *Libellula depressa* (documented by a photo) was apparently among the first visitors/colonizers.

- (16585) MÜLLER, J., 2006. Libellen als Nachhaltigkeitsindikatoren für die ökologische Gewässerqualität. *Halophila* 50: 6-7. — (Frankfelde 3, D-39116 Magdeburg).

60 spp. are arranged in a bioindication system for the habitat and water quality assessment in Saxony-Anhalt, Germany.

- (16586) NATTRASS, R., 2006. *Dragonflies of South East Queensland: a field guide*. Nattrass, Bellbird Park/Qld. 116 pp. Plastified cover, spiral binding (15.3×21.4 cm). ISBN none. — (Orders to Author/Publisher: 25 Warwick Court, Bellbird Park, Qld 4300, AU).

This is a welcome tool for identification of adult odon. of SE Queensland, Australia, covering 86 spp. The book is directed mainly at non-professional odon. collectors, but it will be useful to anybody interesting in the odon. fauna of Queensland. —

In the introductory chapters. as an alternative for collecting (since "increasingly people are becoming more reluctant to kill living beings even in the cause of good science"), the requirements of documental photography are emphasized. The collecting principles, equipment and specimen handling are outlined systematically and concisely, considering also the details the reference to which is but rarely encountered in the literature of this kind (e.g. what to wear in the field, where to stand for catching, the technicalities of the swing). — The book has no keys. Each sp. is treated on a separate page that includes a specimen scan (of both sexes, where required, and locality name and collection date of the figured specimen are provided), in natural size and in colours of a living/freshly killed specimen. For identification important details are shown in another, enlarged scan. Aside of concise general notes on the respective spp., for all spp. the information is provided on distinguishing features, habit, habitat, status, locations, and flight times. An illustrated glossary and the regional checklist conclude this work. — The way the book is technically produced (plastified covers, fairly water resistant and strong paper, spiral binding), it is ideal for use in the field.

- (16587) NIBA, A.S. & M.J. SAMWAYS, 2006. Development of the concept of 'core resident species' for quality assurance of an insect reserve. *Biodiv. Conserv.* 15: 4181-4196. — (Second Author: Dept Ent., Univ. Stellenbosch, P.B. X1, Matieland-7602, SA).

Awareness in the eyes of the public is important for involving the wider community in conservation. A dragonfly awareness trail was developed and implemented in the year 2000 at a national botanical garden in S Africa. Such a trail is not likely to always have the same number of odon. spp. either throughout the year or from one year to the next. The aim was to assess odon. assemblage changes that occurred along the trail over 3 yr, so as to fine-tune expectations that the public may have as regards spp. to be seen at any particular time. A cumulative species variance for spp. and species-environmental relations, strongly indicated that certain measured site variables were responsible for the main variation in odon. spp. patterns over time. Habitat requirements of an odon. sp. may be defined primarily in terms of marginal grasses, floating and submerged vegetation, marginal herbs, sedges and reeds, and pH. Additional variables were percentage shade,

exposed rock, marginal forest and water flow characteristics. Both odon. species richness and abundance changed over the 3 yr. One of the reasons for this was a single, major disturbance, in the form of dredging the reservoir site to reverse ecological succession in 2002. Despite an impact such as this, and after accounting for vagrancy, there were in all 24 'core resident species' still to be seen along the trail from Jan. to May. Another 11 spp., including 2 migrants and 1 sp. lost temporarily to dredging disturbance can be considered only as 'possibilities' on any one visit. Assurance that the 24 core spp. can be seen in the summer months (although only 3 in winter) is essential for maintaining the bona fide of such a trail, and hence conservation awareness, in the eyes of the public.

- (16588) OSTERWALDER, R., G. VONWIL & I. FLÖSS, 2006. *Kontrollprogramm Natur und Landschaft: Die Libellen im Kanton Aargau*. Umwelt Aargau (SonderNr 23): 96 pp. — (Distributor: Abt. Umwelt, Buchenhof, CH-5001 Aargau). A comprehensive report on the status of the odon. fauna (56 spp.) of canton Aargau, Switzerland, based on the 1993-2002 studies. The Foreword (p. 1) was contributed by H. Wildermuth.
- (16589) PACKARD, P., 2006. Small wonder dragonflies and damselflies. *Downstream* 15: 1, 4-5, 7. — (c/o Eds: Dept Conserv. & Recreation, Div. Water Supply Prot., Office Watershed Mngmt, 180 Beaman St., West Boylston, MA 01583, USA). General, beautifully illustrated, directed at Massachusetts (USA) non-professionals.
- (16590) PARMESAN, C., 2006. Ecological and evolutionary responses to recent climate change. *Annu. Rev. Ecol. Evol. Syst.* 37: 637-669. — (Sect. Integrative Biol., Univ. Texas, Austin, TX 78712, USA). A comprehensive and authoritative review, based on literature, incl. 2 odon. examples, viz.: (1) Shifts in Northern Hemisphere temperate spp. are apparent in the UK, where 23 of the 24 temperate spp. had expanded their northern range limit between 1960-1995, with mean northward shift of 88 km (R. Hickling et al., 2005, *Glob. Change Biol.* 11: 502-506); — and (2) As a shift of tropical species range is to be understood the appearance of 5 new tropical spp. that had established themselves in Florida, in 2000, representing an apparently natural invasion from Cuba and the Bahamas (D.R. Paulson, 2001, *Int. J. Odonatol.* 4: 57-69).
- (16591) PEREZ-BOTE, J.L. & B. LEDESMA CAR-PI, 2006. *Claves para la identificación de la fauna Extremeña*. 4. *Odonata*. Univ. Extremadura, Cáceres. viii+42 pp. Softcover (14.2×20.4 cm). ISBN 84-7723-691-7. — (Available from: Servicio de Publicaciones, Univ. Extremadura, Plz Caldereros 2, ES-10071 Cáceres). An illustrated key to the adults of the 47 spp. known from Extremadura, Spain.
- (16592) PIKSA, K., B. WACHOWICZ & M. KWARCINSKA, 2006. Dragonflies (Odonata) of some small anthropogenic water bodies in Cracow city. *Fragm. faun.* 49(2): 81-89. (With Pol. s.). — (Inst. Biol., Cracow Pedag. Univ., ul. Podbrzezie 3, PO-31-054 Kraków). 38 spp. are reported from 4 water bodies, Cracow, S Poland. Among the many southern spp. are *Aeshna affinis*, *Crocothemis erythraea*, *Orthetrum albistylum* and *Sympetrum fonscolombii*. Also interesting is the occurrence of tyrphobiontic and tyrphophilous spp., viz. *Coenagrion hastulatum*, *Lestes sponsa*, *Leucorrhinia dubia*, *L. rubicunda* and *Sympetrum danae*. The importance of these secondary biotopes for odon. conservation is discussed.
- (16593) PROESS, R., 2006. Rote Liste der Libellen Luxemburges. 3. Fassung 2006 (Insecta, Odonata). *Bull. Soc. Naturalistes luxemb.* 107: 123-130. (With Engl. s.). — (Ecotop, 5 rue Gustave Kahnt, L-1851 Luxembourg). The 3rd and updated Red Data List of Luxembourg includes 63 hitherto recorded spp., of which 12 are considered Regionally Extinct (RE), 1 is Critically Endangered (CE), 2 are Endangered (EN), 2 are Vulnerable (VU), 2 are Near Threatened (NT), 6 are Extremely Rare (ER), and 35 spp. are considered safe (LC).
- (16594) [RISERVATO, E.], 2006. Il ritorno delle libellule. *Periodico novarese* 1(2): 48-49, incl. 2 col. portraits of the Author. — (Via Maestra 81, I-28100 Novara). In an interview with the initiator and coordinator (Dr Elisa Riservato) of a 3-yr educational and mapping project, "Le libellule a Novara" (Italy), its aims and scope are outlined. These include the construction of dragonfly ponds by the local schools, a systematic survey of the provincial fauna, and the



publication of a provincial odon. atlas. Mrs Misa Tanimoto-Piper is providing the liaison with the Dragonfly Kingdom at Nakamura, Japan. — In the article are also mentioned some regional dragonfly appellations in Medio Ticino (N Italy), viz. “unga”, “suor”, “prevù”, “fra”, and “cardinalu”. In Novara, dragonflies are called “cirabebè”.

- (16595) RISERVATO, E., 2006 [?; no date]. *Lillibe e Bellulo. I cirabebè ovvero le libellule*. [Guida al riconoscimento delle libellule]. Servizio per l'educazione ambientale, Provincia di Novara. ii+42 pp. Softcover. (15.0×21.0 cm). ISBN none. — (Author: Via Maestra 81, I-28100 Novara).

The booklet provides a brief, lucid general outline of dragonfly biology, including also chapters on anthropoodonatology, human impact on dragonflies, and on odon. conservation. It was published in the framework of the project, “Le libellule a Novara: un progetto di conservazione ed educazione ambientale”.

- (16596) ŠALAMUN, A. & M. KOTARAC, 2006. *Veliki studenčar (Cordulegaster heros)*. — [Balkan goldenring (*Cordulegaster heros*)]. Fold. brochure. CKFF, Miklavž-na-Dravskem-polju. 6 pp. (Slovene). — (Distributor: CKFF, Klunova 3, SI-1000 Ljubljana).

A small pamphlet, describing habitat requirements, distribution and legal conservation status of the sp.

- (16597) SAMWAYS, M.J. & P.B.C. GRANT, 2006. Honing Red List assessments of lesser known taxa in biodiversity hotspots. *Biodiv. Conserv.* 2006, 12 pp. DOI 10.1007/s10531-006-9023-z. — (Dept Ent., Univ. Stellenbosch, P.B. X1, Matieland-7602, SA). Red listing organisms is an iterative process involving 2 variables, viz.: (1) the conservation status of a taxon becomes clearer as more information becomes available, and (2) the actual status changes as the taxon becomes more threatened or less threatened. Using a 20-yr database of S African Odon. has enabled the Authors to hone conservation assessments and to arrive at a realistic appraisal of their true conservation status. Changes in the evaluation of taxa came about through improved knowledge of habitat and particularly from information on the exact flight period. This background improved the apparency of the taxa so enabling accurate conservation assessments. Flight periods of the 16 red-listed S African

spp. are stated, and changes in their conservation status and Global Red List over 18 publication yr are reviewed.

- (16598) ŠTUMBERGER, B., M. KALIGARIČ & I. GEISTER, 2006. *Krajinski park [Landscape Park] Šturmovci*. Mariborska razvojna agencija, Maribor. 50 pp. Softcover. ISBN 961-91860-0-1. (Slovene). — (Third Author: Kocjančiči 18, SI-6276 Pobje).

A guide to the living world of the Park, situated on the Drava (Drau) R., SE of Maribor, Slovenia. A chapter on odon. (authored by I.G.) appears on pp. 40-46, providing a good and well illustrated review of the local fauna.

- (16599) VINKO, D., 2006. *Popis kačjih pastirjev (Odonata) v Mengšu in okolici*. — [Dragonfly (*Odonata*) inventory of Mengeš and its vicinity]. Individual paper as required for the practical course in “Invertebrate systematics”, Univ. Ljubljana. 13 pp. (Slovene). — (c/o Dept Biol., Univ. Ljubljana, P.O. Box 2995, SI-1001 Ljubljana).

28 spp. from 6 sites in the Mengeš area, central Slovenia.

- (16600) VOGRIN, M., 2006. Pastir za okras. *Gea, Ljubljana* 16(6): 40-41. (Slovene). — (Zg. Hajdina 83 c, SI-2288 Hajdina).

A short literary text with a phot. of *Calopteryx virgo*, taken at a not specified locality in Inner Carniola, Slovenia.

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- (16601) AGRION, WDA. Newsletter of the Worldwide Dragonfly Association (ISSN 1476-2552), Vol 11, No. 1 (Jan. 2007). — (c/o J. Silsby, Sunrise of Banstead, Croydon Lane, Banstead, Surrey, SM7 3AG, UK).

[Selected articles:] *Kalkman, V.*: European atlas of dragonflies project (p. 2); — *Dyatlova, E.*: Odonatological notes from the Ukraine (pp. 3-4); — *Orr, B.*: Three new dragonfly books (pp. 4-6); — *Kalkman, V.*: List of species found at the Malagos Watershed area, Davao city, Philippines (pp. 8-9); — *Dow, R.*: Interesting behaviour of *Podolestes chrysopus* Selys, 1886 (p. 10); — *Villanueva, R.*: Dragonflies of the Malagos Watershed area, Davao city, Philippines (p. 10).

- (16602) ATROPOS (ISSN 1478-8128), No. 30

- (Feb. 2007). — (c/o M. Tunmore, 36 Tinker Lane, Maltham, Holmfirth, W Yorks, HD9 4EX, UK). [Odon. articles:] *Parr, A.*: Migrant dragonflies in 2006, including recent decisions and comments by the Odonata Records Committee (pp. 26-35); — *Wightman, S.*: Dragonfly conservation from the BDS: spotlight on Cornmill Meadows Dragonfly Sanctuary (pp. 42-43); — *Reports* from Coastal Stations, 2006: *Scott, M.A. et al.*: Longstone Heritage Centre, St Mary's Isles of Scilly (pp. 49-51); — *Tunmore, M.*: Lizard Peninsula, Cornwall (pp. 51-53); — *Knill-Jones, S.*: Isle of Wight (pp. 58-60); — *Phillips, J.*: Hayling Island, Hampshire (pp. 60-61); — *Hunter, I.*: Elms Farm, Icklesham, East Sussex (pp. 62-63); — *Bentley, C.*: Rye Harbour Nature Reserve, East Sussex (pp. 63-64); — *Clancy, S.*: Dungeness area, Kent (pp. 64-67); — *Jarman, N. & T. Morris*: Kingsdown Beach and Margaret's at Cliffe, Kent (pp. 67-69); — *Solly, F.*: Isle of Thanet, Kent (pp. 69-71); — *Dewick, S.*: Curry Farm, Bradwell-on-Sea, Essex (pp. 71-72); — *Odin, N.*: Landguard Bird Observatory, Suffolk (pp. 72-73); — *Deans, M.*: Bawdsey Peninsula, Suffolk (pp. 73-75); — *Harvey, R. & J. Higgott*: Minsmere RSPB Nature Reserve, Suffolk (pp. 75-76); — *Moore, C.*: Dunwich Heath National Trust, Suffolk (pp. 76-77); — *Bowman, N.*: Eccles-on-Sea, Norfolk (pp. 77-78); — *Troake, P.*: Gibraltar Point, Lincolnshire (pp. 78-79); — *Spence, B.*: Spurn Point, East Yorkshire (pp. 79-81); — *Darke, J.*: Skomer Island NNR, Pembrokeshire (pp. 83-84); — *Scott, D.A.*: Dursey Island, co. Cork (pp. 85-86).
- (16603) *BEDJANIČ, M.*, 2007. *Preliminarna presoja vplivov projekta "Terme Janežovci" na biotsko raznolikost območja opuščenih glinokopov pri Janežovcih: vidik javne kačjih pastirjev (Odonata)*. — [Preliminary assessment of the impact of the projected tourist centre, "Terme Janežovci", on biodiversity in the area of the abandoned clay pits near Janežovci: aspect of odonate fauna]. *Erico Velenje*, Inštitut za ekološke raziskave, Velenje. 19 pp. (Slovene). — (Author: Kolodvorska 21/B, SI-2310 Slovenska Bistrica). The locality is situated in the Ragoznica R. valley, N of the city of Ptuj, Slovenia. 26 (incl. 3 vulnerable) spp. are listed, the expected effects of the construction of the Centre are analysed and the required relieving measures are outlined. Of particular interest is the concise description of the odon. community succession stages in a man-made pond.
- (16604) *BOANO, G., R. SINDACO, E. RISERVATO, S. FASANO & R. BARBERO*, 2007. *Atlante degli odonati del Piemonte e della Valle d'Aosta. Memorie Assoc. naturalistica piemont.* 6: 160 pp. (With Engl. s.). — (Third Author: Via Maestra 81, I-28100 Novara). A beautifully produced distribution atlas of Piedmont and Valle d'Aosta, NW Italy (63 spp.). The locality maps are accompanied by the adult phenology and vertical occurrence graphs. For each sp. are given paragraphs on diagnostic features, phenology, habitats, distribution and on regional status. An overview of the spp. occurring at the Sites of Community Interest and in the protected areas of the region is appended.
- (16605) *DIGEST OF JAPANESE ODONATOLOGICAL SHORT COMMUNICATIONS*, No. 20 (Jan. 2007). — Compiled, translated and produced by K. Ishizawa (1644-15, Yamaguchi, Tokorozawa, Saitama, 359-1145, JA). *Kano, K. & T. Miyahuta*: Crawling of Epiophlebia superstes larvae on the snow (pp. 1-2); — *Naraoka, H.*: Diurnal rhythm of the damselfly Ischnura asiatica Brauer (Coenagrionidae, Odonata), 2: Sperm displacement (pp. 2-5); — *Kano, K.*: Some notes on dragonflies of Hong Kong (pp. 5-6).
- (16606) *HAMAMOTO, M., Y. OHTA, K. HARA & T. HISADA*, 2007. Application of fluid-structure interaction analysis to flapping flight of insects with deformable wings. *Advanced Robotics* 21(1/2): 1-21. — (First Author: Advanced Technology Res. Labs, Corporate Res. & Develop. Gr., Sharp Corporation, 2613-1 Ichinomoto-cho, Tenri, Nara, 632-8567, JA). The aerodynamic advantage of the dragonfly's flexible wing during hovering is quantitatively investigated. The flapping flight of insects, which have simple wings compared with those of a bird, is an ideal means of travel for microrobots. For the realization of such microflight, reduction of the wing weight is essential. One of the simplest means of trimming the wing mass is to reduce the thickness. However, a very thin wing cannot hold against an aerodynamic force and will lose lift power. Thus, for the design of a flapping microrobot like a dragonfly, one should investigate the loss and choose flexibility to avoid it. Unfortunately, a complicated interaction between wing deformation and the surrounding airflow has long prevented the elucidation

of the effect of the flexibility. Here it was found that finite element analysis based on the arbitrary Lagrangian-Eulerian method can handle the problem accurately. Customized modeling methods for such a deformable wing and its actuation were established and tested its adequacy on actual dragonfly hovering. Then, the aerodynamic performance of the flexible wing was compared with that of an imaginary rigid one, and the advantages and disadvantages of the flexible wing were examined.

- (16607) HILFERT-RUPPELL, D. & G. RUPPELL, 2007. *Juwelenschwinden: geheimnisvolle Libellen - Gossamer wings: mysterious dragonflies*. Splendens-Verlag, Cremlingen. 167 pp. Hardcover (28.7×22.4 cm) ISBN 978-3-00-020389-3. Price: € 34.95 net. (Bilingual: Germ./Engl.). — (Publishers: An der Wasserfurche 32, D-38162 Cremlingen). Merely the names of the authors of the present book, whenever they appear, they trigger the highest expectations as to the artistic quality and documental power of their photographic work. Even so, this book exceeds the most favourable expectations: it is a sublime document of the combination of science and arts, of a profound knowledge of dragonfly biology, combined with technical skill and undescrivable patience, power of observation of the known or hitherto unknown detail, and the artistic feeling of a field photographer. In short: the book represents a milestone in the use of digital photography for documenting dragonfly (or any other insect) behaviour. The photographic "poetry" is augmented with concise, lucid and easy-to-read prose that make the book a "jewel" for the professional and for a general nature lover alike. — The work is documenting the life and behaviour of ca 30 European spp., under the headings: "Appearance", "From water to air", "Flight", "Prey capture", "Threatening and fighting", "Courting", "Mating tactics", "Danger", "Mating", "Oviposition", "Larvae" and "Roosting". — The Preface was provided by Dr *Ola M. Fincke*.
- (16608) MOSELEY, M., 2007. Acadian biospeleology: composition and ecology of cave fauna of Nova Scotia and southern New Brunswick, Canada. *Int. J. Speleol.* 36(1): 1-21. — (Nova Scotia Mus. Nat. Hist., 1747 Summer St., Halifax, NS, B3H 3A6, CA). From 2 caves in Nova Scotia are listed 4 odon. taxa, viz.: (1) *Aeshna umbrosa* larvae (Hayes Cave: deep threshold pools, Sept.-Nov.; "habitual trogloxene"); — (2) *Aeshna* sp. indet. larvae (Hayes Cave: threshold and deep threshold pools, June-Aug.; "habitual trogloxene"); — (3) *Cordulegaster maculata*, stage not stated (Cave-of-the-Bats: deep threshold stream, Sept.-Nov.; "accidental (stray)"); — and (4) *Macromia illinoensis* larvae (Hayes Cave: threshold and deep threshold pools, June-Aug.; "habitual trogloxene").
- (16609) NIEUWSBRIEF [VAN DE] LIBELLEN-VERENIGING VLAANDEREN — [NEWSLETTER OF THE FLANDERS DRAGONFLY SOCIETY] (ISSN none), Vol. 1, No. 1 (20 March 2007). (Dutch). — (c/o G. De Knijf, Matrouwstraat 10, B-9661 Brakel). Subsequent to the publication of the Belgian national dragonfly atlas (see OA 16453), the need was felt to re-organize the odonatological work in Belgium along the ethnic lines, and the Flanders Dragonfly Society was recently set up. This is the first issue of its newsletter, dealing largely with the organisational modalities and with the forthcoming work. Among the other items, an anonymous note on the latest observations of adults in 2006 will be of extralimital interest: *Enallagma cyathigerum* (11-XI, Flanders), *Aeshna cyanea* (2-XII, Wallonia) and *Sympetrum striolatum* (9-XII, Flanders).
- (16610) ODONATRIX. Bulletin of the Odonatological Section of the Polish Entomological Society (ISSN 1733-8239), Vol. 3, No. 1 (31 Jan. 2007). (Pol. & Engl., with Engl. s's). — (c/o Dr P. Buczyński, Dept Zool., UMCS, Akademicka 19, PO-20-033 Lublin). *Cios*, S.: Odonata as food of fish (pp. 1-8); — *Miszta*, A. & A. Dolný: Localities of protected and rare dragonfly species in the Silesian voivodship found outside nature reserve in 2003-2005 (pp. 15-18); — *Buczyński*, P.: More than dragonfly impressions from field studies in northern Masovia (pp. 19-21); — *Tończyk*, G.: An interesting development site of *Aeshna cyanea* (Müller) (pp. 22-23); — Horizontal and vertical parameters of *Ophiogomphus cecilia* (Fourcroy) emergence in a small lowland river (pp. 23-25); — *Zieba*, P. & P. *Buczyński*: *Aeshna viridis* caught in light traps (pp. 26-28); — *Reports and announcements* (p. 29); — *Literature and reviews* (pp. 30-32); — *Varia* (pp. 29, 32).
- (16611) PEROVIC, G. & F. PEROVIC, 2007. Prelimi-

nary results of research into dragonflies (Odonata) in Medimurje, Croatia. *Entomologia croat.* 10(1/2): 87-103. [Dated 2006; issue actually published on 19 Feb. 2007]. (Croat., with Engl. s.). — (Second Author: Croatian Nat. Hist. Mus., Demetrova 1, Zagreb, Croatia).

The region of Medjimurje is situated in NW Croatia. During 1998-2005, 31 spp. were documented. Symptetrum pedemontanum is recorded for the first time from Croatia. A large population of Coenagrion ornatum and the records of Lestes dryas are also considered of interest.

- (16612) SALUR, A. & S. KIYAK, 2007. Additional records for the Odonata fauna of south-western Anatolia, 1: Anisoptera. *Munis Ent. Zool.* 2(1): 63-68. — (Second Author: Dept Biol., Fac. Arts & Sci., Gazi Univ., TR-06500 Ankara).

Records of 43 spp. (2000-2002) from 6 provinces; Turkey.

- (16613) SALUR, A. & S. MESCI, 2007. Additional records for the Odonata fauna of Corum province

(Turkey). *Munis Ent. Zool.* 2(1): 169-170. — (Dept Biol., Fac. Arts & Sci., Hitit Univ., TR-19030 Corum).

Records of 20 spp.; 15 spp. are for the first time recorded from the province (Black Sea region, Turkey).

- (16614) TERZANI, F., 2007. Ricerche odonatologiche in Toscana, 11: La Boyeria irene (Fonscolombe, 1838) (Odonata, Aeshnidae). *Onychium* 5: 26-28. (With Engl. s.). — (Mus. zool. "La Specola", Univ. Firenze, Via Romana 17, I-50125 Firenze).

New records of B. irene are presented and its distribution in Tuscany, Italy is mapped.

- (16615) TERZANI, F. & F. CIANFERONI, 2007. Ricerche odonatologiche in Toscana, 10: Odonati del Mugello (Odonata). *Onychium* 5: 1-25. (With Engl. s.). — (Mus. zool. "La Specola", Univ. Firenze, Via Romana 17, I-50125 Firenze).

An annotated review of records of 30 spp. from 50 localities in the Sieve R. basin, Tuscany, Italy.