ODONATOLOGICAL ABSTRACTS

1999

(16022) STEFFENS, W.P. & W.A. SMITH, 1999. *Status survey for special concern and endangered dragonflies of Minnesota: population status, inventory and monitoring recommendations.* Minnesota Dept Natural Resourses (Natural Heritage & Nongame Research Program). 56 pp. – (Addresses not stated).

Status determination surveys for Ophiogomphus anomalus, O. susbehcha and Somatochlora hineana were conducted throughout eastern, central and northern Minnesota, USA. Threats to these rare spp. were evaluated and conservation and population status recommendations for Minnesota Anisoptera are presented. Baseline data on other Anisopt. in undersurveyed habitats are reported, including several state records and numerous county records. Several Zygoptera collections are also reported along with county distribution information, and recommendations for future odon. surveys and monitoring are offered.

(16023) YANOVIAK, S.P., 1999. Community structure in water-filled tree holes of Panama: effects of hole height and size. *Selbyana* 20: 106-115. – (Evergreen St. Coll., Lab. I, Olympia, WA 98505, USA).

Water-filled tree holes are common aquatic habitats in many neotropical forests, yet little is known of factors influencing their biodiversity. Here, community parameters (species richness, abundance and composition) of tree hole macroorganisms are compared at different heights (canopy, midstory, understory) in the forest of Barro Colorado Isl., Panama. Data from multiple censuses of 40 artificial tree holes during 3 wet seasons (1995-1997) revealed a small but significant decrease in the average number of spp. present with increasing height above the ground. Species richness and abundance were greater in larger holes. Similar patterns were observed in 206 natural tree holes. Of 7 top predator spp. (incl. 3 odon. taxa), Megaloprepus coerulatus larvae were not found in artificial or natural holes above 7 m. Chemical properties of tree hole water did not differ with height, but canopy tree holes dried out more frequently and were thermally less stable than midstory and understory holes. Harsh thermal conditions and higher disturbance frequency may be responsible for the decline in species richness with height.

2000

(16024) BASS, D., 2000. A preliminary study of aquatic macroinvertebrates from two springs in the Pontotoc Ridge Nature Preserve, Oklahoma. *Proc. Okla. Acad. Sci.* 80: 105-109. – (Dept Biol., Univ. Central Oklahoma, Edmond, OK 73034, USA).

4 odon. gen. are listed, a species list is not provided.

(16025) CHE SALMAH, M.R., S.T.S. HASSAN & A. ABU HASSAN, 2000. Local movement and feeding pattern of adult Neurothemis tullia (Drury) (Odonata: Libellulidae) in a rain fed rice field. *Trop. Ecol.* 41(2): 233-241, (With Span. & Port. s's). – (Sch. Biol. Sci., Univ. Sains Malaysia, Minden-11800, Pulau Penang, Malaysia).

The investigation was conducted in an 11 ha rice field in Bandar Baru distr., Kedah, Peninsular Malaysia, July 1994-Apr. 1995, using mark-release-recapture method. Both ♂ ♂ and ♀ ♀ were widely distributed within their home range of ca 30 m ra-

dius. Adult movements were highly localized and the longest distance travelled was ca 130 m. Diurnal feeding patterns were studied by examining gut contents. Some individuals had taken prey as early as 07.30 h, but feeding activity peaked at 10.30 and 17.30 h. The daily food intake was highly variable between sexes and at different day times. ♀♀ fed more actively in the morning and their body weights were higher than those of ♂♂ at all hours of the day.

(16026) [COOK, C.] LAUDERMILK, E.L., 2000. Carl Cook receives Commission's Biodiversity Protection Award, *Naturally Kentucky* 32: 2. – (c/o C. Cook, Box 16, Highway 218, Center, KY 42214, USA).
On 9 Dec. 1999, C. Cook received the annual Biological Diversity Protection Award of the Kentucky State Nature Preserves Commission. Some highlights of his odonatological career are outlined and a portrait is provided.

(16027) DOMMANGET, J.-L., 2000. La conservation des couleurs et la préparation des libellules destinées à la collection de référence. *Bull. Entomofaune* 22: 3-7. – (7 rue Lamaratine, F-78390 Bois-d'Arcy).
The colour preservation method is described, based on the classical O.P. Wenger's acetone processing of odon. specimens. Its advantages and disadvanages are pointed out, based on the examples from the European fauna.

(16028) FITZPATRICK, M., 2000. Review of Odonata associated with the wetlands of the Zambezi Basin. *Occ. Publs Biodiv.*, Bulawayo 8: 527-557. – (Author's address not stated).
An annotated and commented list of 217 spp. (77 Zygopt., 140 Anisopt.), with notes on their ecology, and sections on conservation and potential threats, and on the areas of high species richness. The gaps in our knowledge are pointed out with reference to future research. In an Appendix (p. 557) a checklist is given of 39 spp. (identification of some is uncertain and some taxa are identified to the gen. only) collected (20 March-4 Apr. 1999) from Barotseland.

(16029) GEISTER, I., 2000. *Popis favne in flore na Brdu pri Kranju. Kačji pastirji (Odonata) z Brda pri Kranju* – [*Fauna and flora inventory of Brdo estate near Kranj. Dragonflies (Odonata) at Brdo near Kranj*]. Zavod za favnistiko, Koper. (Slovene). – (Kocjančiči 18, SI-6276 Pobegi).
During 1991-2000, 31 spp. were evidenced at the estate, Slovenia. A commented list, with field notes, is presented here.

(16030) HASSAN, K.S., M.A. HABEEB & N.J. AL-MOUSAWI, 2000. Occurrence of aquatic insects with algae in Basrah province. *Marina mesopotamica* 15(1): 137-143. – (Dept Biol., Coll. Sci., Univ. Basrah, Basrah, Iraq).
Ischnura evansi and Anax sp. larvae occurred in algae samples collected from 9 stations along the Shatt al-Arab R., between Qurna and Abul-Kasib, Iraq; March-Sept. 1997.

(16031) KINVIG, R., 2000. Odonata survey of the Zambezi Delta. *Occ. Publs Biodiv.*, Bulawayo 8: 559-564. – (Author's address not stated).
A commented list of 25 spp., collected (June 1999) from 7 sites at the Marromeu wetland complex in the lower Zambezi Delta. The spp. were captured in a random sampling of the sites, using a sweep net during walking through the vegetation. The sites are described, and field notes on the spp. are provided.

(16032) POLHEMUS, D., R. ENGLUND, S. JORDAN & J. POLHEMUS, 2000. *Trip report for 1999 entomological and freshwater surveys of the Smithsonian Institution and Bishop Museum expedition to the Marquesas Islands and Tahiti.* Pac. Biol. Surv., Bishop Mus., Honolulu. vi+17 pp. [Contrib. No. 2000-002 Pac. Biol. Surv.]. – (First Author: Dept Ent., MRC 105, Natn Mus. Nat. Hist., Smithson. Instn, Washington, DC 20560, USA).
Collections of aquatic insects and other aquatic macroinvertebrates were made from streams and wetlands in the Marquesas and Society island groups of French Polynesia, from 17 Oct. to 6 Nov. 1999. A list is presented of odon. spp. recorded from Marquesas Isls of Nuku Hiva, Hiva Oa, Tahuata and Ua Huka, incl. a "Pantala new sp.?", abundant but restricted to the Faakua R. mouth on Hiva Oa. The Hemicordulia assemblages from both the Society Isls and the Marquesas are clearly in need of revision. For odon. and other spp. it is possible that the Marquesean streams may represent stepping stones to the nearest high islands of Hawaii.

(16033) RAMSAY, R.L. & S.G. CANNINGS, 2000.

Dragonflies at risk in British Columbia. *Proc. Conf. Biol. Mngmt Species & Habitats at Risk*, Kamloops 1: 89-93. – (Brit. Columbia Conserv. Data Cent., P.O. Box 9344, Stn Prov. Govt, Victoria, BC, V8W 9M1, CA).
In 1993, British Columbia's (Canada) Odon. were listed and ranked as to their conservation status in the province, based upon the knowledge at the time. Inventory efforts were then focused on the spp. considered at risk, in order to more accurately determine their status and to identify specific sites for conservation. For 3 yr surveys were conducted in 5 regions of the province: the NE corner, the Lower Mainland, southern Vancouver Island, the Okanagan, and the Columbia Basin. During the course of these surveys, known ranges of many spp. were extended, knowledge of habitat requirements increased, and 3 new spp. were confirmed for the province. While many of the targeted spp. were found only sparsely or not at all, a number of them were discovered to be more abundant than previously thought, and their conservation ranks were changed accordingly.

(16034) VAN BUSKIRK, J. & B.R. SCHMIDT, 2000. Predator induced phenotypic plasticity in larval newts: trade-offs, selection and variation in nature. *Ecology* 81(11): 3009-3028. – (Inst. Zool., Univ. Zürich, Winterthurerstr. 190, CH-8057 Zürich).
Evolutionary mechanisms maintaining an induced response to predators (Aeshna cyanea larvae) were studied in Triturus alpestris and T. helveticus larvae. When exposed to caged (nonlethal) Aeshna, newts spent more time hiding in the leaf litter, had darker pigmentation in the tail fin, and developed larger heads and larger tails relative to their body size, in comparison with newts in predator-free ponds. The 2 phenotypes faced a performance trade-off across environments with and without odon.: the predator-induced phenotype survived twice as well as the non-predator phenotype when exposed to free dragonflies, but the predator-induced phenotype of both spp. grew more slowly until just before metamorphosis.

2001

(16035) BASS, D. & C. POTTS, 2001. Invertebrate community composition and physicochemical conditions of Boehler Lake, Atoka county, Oklahoma. *Proc. Okla. Acad. Sci.* 81: 21-29. – (First Author: Dept Biol., Univ. Central Oklahoma, Edmond, OK 73034, USA).
Boehler Lake is a 2.5 ha, dystrophic beaver pond. 11 odon. spp. are listed, a species list is not provided.

(16036) [NIELSEN, M.C., submitted the manuscript, the actual Author unknown], 2001. Why do you collect insects? *Newsl. Mich. ent. Soc.* 46(3): 4.
[Verbatim, concluding paragraphs:] The number of insects taken by collectors amounts to less than ten thousandths of one percent of the insects killed by man, yet from this minute percentage comes all the material used for aesthetic purposes such as books, illustrations, and art work; all the specimens used to compile learning and teaching collections for schools, universities, museums and public displays; all the material necessary to compile scientific studies and revisionary works of little-known groups; and all the specimens used in scientific work in agriculture and health. – Most private collectors eventually donate their collections to museums and universities, [...] making a worthwhile contribution to posterity.

(16037) O'BRIEN, M., 2001. A peek at Michigan Odonata. *Newsl. Mich. ent. Soc.* 46(3): 11. – (Insect Div., Mus. Zool., Univ. Michigan, Ann Arbor, MI 48109-1079, USA).
160 spp. are currently known from Michigan, USA. Somatochlora hineana is on the federal endangered spp. list. Some poorly-sampled habitats, such as seeps and fens, need monitoring on a regular basis.

(16038) YANOVIAK, S.P., 2001. Predation, resource availability and community structure in neotropical water-filled tree holes. *Oecologia* 126: 125-133. – (Evergreen St. Coll., Lab. I, Olympia, WA 98505, USA).
Predation and resource availability influence community structure in many aquatic ecosystems. Predators (Megaloprepus coerulatus larvae) and resources (leaf litter) were manipulated to determine their independent effects on macroorganism species richness, abundance, and composition in water-filled tree holes of Barro Colorado Isl., Panama. Interactive effects of these factors were also investigated in artificial tree holes. Large odon. reduced species richness in natural tree holes, but did not significantly reduce macroorganism abundance. The presence of larvae of Culex urichii and the ceratopogonid midge, Bezzia snowi, were negatively associated with the pres-

ence of large odon. larvae. In natural tree holes, leaf litter addition and removal respectively increased and decreased richness by ca 1 sp. relative to controls, and macroorganism abundance was greater in litter addition holes than in litter removal holes. Independent effects of predation showed similar patterns in artificial holes, but there was no predator-resource interaction, partly due to the short duration of the experiment. Predators grew faster when litter was abundant, and indirectly reduced litter degradation rates when resources were scarce in artificial holes. Both resource availability and predation influence species richness in water-filled tree holes, but act at different time scales; richness follows productivity (litter quantity) over a period of weeks, whereas effects of predation may span several months.

2002

(16039) CANNINGS, R., 2002. *Rare dragonflies of British Columbia.* BC Ministry Sustain. Resour. Mngmt & BC Ministry Water Land Air Prot., Victoria. 5 pp. Brochure. ISBN 0-7726-7699-2. – (Author: Royal B.C. Mus., P.O. Box 9815 Stn Prov. Govt, Victoria, BC, V8W 9W2, CA).
British Columbia (Canada) is home to 87 spp., 23 of these are considered rare or potentially at risk. Red-listed are: Calopteryx aequabilis, Argia vivida, Enallagma civile, Ischnura damula, Octogomphus specularis, Stylurus olivaceus, Somatochlora brevicincta, S. forcipata and S. kennedyi.

(16040) ÇELIK, K., 2002. Community structure of macrobenthos of a Southeast Texas sand-pit lake related to water temperature, pH and dissolved oxygen concentration. *Turk. J. Zool.* 26: 333-339. (With Turk. s.). – (Dept Biol., Belikesir Univ., TR-10100 Belikesir).
The man-made Bary's Lake is located ca 18 km N of Beaumont (Hardin Co., Texas, USA); surface: ca 1 ha; depth, fairly uniform: 7 m. Its macrozoobenthos was studied during June 1995-Feb. 1996. Dromogomphus sp., Paragomophus sp., Libellula sp. and L. axilena are listed.

(16041) CHE SALMAH, M.R. & A. ABU HASSAN, 2002. Distribution of aquatic insects in relation to rice cultivation phases in a rain fed rice field. *J. Biosains* 13(1): 87-107. (With Malay s.). – (Sch. Biol. Sci., Univ. Sains Malaysia, Minden-11800, Pulau Pinang, Malaysia).
The study was conducted in a 40-acre field plot in Bandar Baru distr., Kedah, Peninsular Malaysia. 16 fam. of 5 aquatic insect orders were recorded. In general, aquatic insects were most abundant during fallow phase and decreased at the onset of ploughing. Libellulidae were found in abundance in young and tiller phases. Due to their high population densities, they appear to be the most important predators.

(16042) CHE SALMAH, M.R., A. ABU HASSAN & J. GRINANG, 2002. Aquatic insects diversities in Kedah, Pinang and Bongor rivers and their potential use as indicator of environmental stress. *In*: C.N. Wehg, [Ed.], *Rivers towards sustainable development*, pp. 335-343, Penerbit Univ. Sains Malaysia, Pulau Pinang. – (Sch. Biol. Sci., Univ. Sains Malaysia, Minden-11800, Pulau Penang, Malaysia).
5 odon. fam. were represented in the polluted Kedah and Pinang rivers (3 fam. per river), but the representatives of 11 fam. occur in the mountainous, almost undisturbed Bongor R. The biological indices were calculated for all stations. 2 biotic indices, the Family Biotic Index (FBI) and the British Monitoring Working Party (BMWP), as well as the Shannon Diversity Index are used to categorize water quality. A checklist of spp. is not provided.

(16043) COLIGNON, P., 2002. Etude faunistique des odonates de Belgique. *Bull. Inst. roy. Sci. nat. Belg.* 72(Suppl.): 113. (With Engl. s.). – (Zool. gén. & appl., Fac. Sci. Agron., Passage des Déportés 2, B-5030 Gembloux).
[Synopsis of a poster] A comparison of odon. records in Belgium between the periods 1955-1978 and 1990-2000 shows a recent decrease in the abundance of Euro-Siberian faunal elements and an increase in more southern spp.

(16044) COTTERILL, F.D.P., 2002. Notes on mammal collections and biodiversity conservation in the Ikelenge pedicle, Mwinilunga district, northwest Zambia. *Occ. Publs Biodiv.*, Bulawayo 10: 1-18. – (Author's address not stated).
Includes a checklist of 37 odon. spp. that are either endemic or occur marginally in the Ikelenge pedicle, NW Zambia.

(16045) CURRY, J., 2002. Rare Odonata of Indiana. *Newsl. Mich. ent. Soc.* 47(3/4): 10, with Author's por-

trait. – (Dept Biol., Franklin Coll., 501 E. Monroes Str., Franklin, IN 46131, USA).
Rare Indiana odon. spp. fall into 1 of 3 categories: (1) southern spp. at the northern fringe of their ranges in S Indiana (e.g. Arigomphus submedianus, Gomphus hybridus, Macromia pacifica, Neurocordulia molesta), (2) northern spp. at the southern fringe of their ranges in N Indiana (e.g. Aeshna canadensis, A. tuberculifera, Gomphus ventricosus, Epitheca canis, Libellula julia, Nannothemis bella), and (3) spp. once more common to the state which have apparently become rare due to habitat changes (e.g. Tachopteryx thoreyi, Anax longipes, Cordulegaster obliqua, and perhaps, Somatochlora hineana).

(16046) FELLOWS, J.R. et al., [Eds], 2002. Report of a rapid biodiversity assessment at Wutongshan National Forest Park, Shenzhen Special Economic Zone, China, 16 to 17 May 2001. *Sth China Forest Biodiv. Surv. Rep. Ser.* 11: 1-20. [ISBN 962-86552-5-6]. – (Publishers: Kadoorie Farm & Bot. Garden Corp., Lam Kam Rd, Tai Po, N.T., Hong Kong, SAR, China).
The findings of a brief trip are detailed. The Park (surface 31 km²) is adjacent to Sha Tau Kok, Hong Kong. 17 odon. spp. are listed. The most interesting are records of Drepanosticta hongkongensis and Sinosticta ogatai that were previously thought to be endemic to Hong Kong. Mnais mneme, Philoganga vetusta, Agriomorpha fusca and Leptogomphus elegans are known from a few localities in Hong Kong, but do not appear to be highly restricted within S China. All spp. recorded in the survey are known from Hong Kong.

(16047) HAACK, R.A., 2002. Request for comments on Forest Service Sensitive species in Michigan. *Newsl. Mich. ent. Soc.* 47(3/4): 23. – (USDA Forest Serv., North Central Res. Stn, 1407 S. Harrison Rd, East Lansing, MI 48823, USA).
The 3 National Forests in Michigan (Hiawatha, Huron-Manistee, and Ottawa) are now collecting data to be used in revising their Forest Plans. As part of this process, they are conducting a "Species viability evaluation", which includes Gomphus iridifrons, G. quadricolor, Ophiogomphus anomalus, O. howei, Somatochlora forcipata, S. hineana, S. incurvata, S. minor, Stylurus notatus and Williamsonia fletcheri.

(16048) HANCOX, J., 2002. *Dragonflies of Potteric Carr*. Yorkshire Wildlife Trust Potteric Carr Nature Reserve, York. 20 pp. Brochure (14.6×20.7 cm). ISBN none. – (Publishers: 1 St George's Pl., York, YO24 1GN, UK).
An attractive and very informative booklet on the fauna (18 spp.) of the Reserve (Yorkshire, UK). General odon. morphology and life history are concisely presented and the regional spp. are briefly described and their status on the Reserve is outlined. A key to the adults is appended. Although the publication relates to records up to the 2001 season, further recording work is being carried out each year and the results are published annually in the Reserve's newsletter, *Recorder*. – With this booklet the visitors of the Reserve will be more than adequately informed on the local dragonfly life and its peculiarities.

(16049) LAUDERMILK, E.L., 2002. Kentucky's stream dragons. *Naturally Kentucky* 37: 1. – (Author's address not stated).
A note on the Kentucky status of Ophiogomphus howei, O. mainensis, O. aspersus and Stylurus notatus which spp. are being monitored by the Kentucky State Nature Preserves Commission (address: 801 Schenkel Lane, Frankfort, KY 40601-1403, USA).

(16050) SUBRAMANIAN, K.A., 2002. When dragons fly ... A natural history of Odonata. *Resonance* 2002 (Oct.): 69-78. – (Cent. Ecol. Sci., Indian Inst. Sci., Bangalore-560012, India).
A feature article on the biology and behaviour. The Author is currently working on the community ecology of stream insects of Western Ghats (India), where ca 38% of odon. spp. are endemic. In order to design a feasible biomonitoring tool using odon., 2 issues need to be addressed immediately, viz.: (1) a better knowledge of larval ecology, and (2) an analysis of the effect of landscape changes on odon. distribution and status in Western Ghats.

(16051) TRIAL, L. & J. BELSHE, 2002. *Atlas of Missouri Odonata*. Missouri Dept Conserv., Columbia /MO. iv+160 pp. Softcover, spiral binding (21.2×27.8 cm). ISBN none. Price (incl. revised edn): € 34.- net.
For description of the revised edn and the address, see *OA* 16123.

(16052) WYKLE, J., 2002. The year of the dragonfly. *W. Virginia Wildlife Diversity News* 19(3): 1, 8.

– (W. Virginia Div. Nat. Resour., Wildlife Resour. Sect., Wildlife Div. Program, P.O. Box 67, Elkins, WV 26241, USA).
A feature article, on the occasion of the DSA meeting at Lewisburg (20-22 June 2002), with an appeal to those interested in the WV odon. to get in touch with the Author.

2003

(16053) ENGLUND, R.A., 2003. *Hawaii Biological Survey, Bishop Museum: observations and findings from 7 April 2003 site visit of unnamed stream flowing into Pila'a Bay, Kaua'i.* Prepared for Earth Tech, Honolulu. Hawaii Biol. Surv., Honolulu. 15 pp. – (Hawaii Biol. Surv., Bishop Mus., Honolulu, HA 96817, USA).
Ischnura posita, I. ramburii, Megalagrion vagabundum, Anax junius, Crocothemis servilia, Orthemis ferruginea and Pantala flavescens were encountered; – Hawaii.

(16054) FERREIRA-PERUQUETTI, P. & S. TRIVINHO-STRIXINO, 2003. Notas sobre relações foréticas entre espécies de Chironomidae e Odonata do Estado de São Paulo, Brasil. *Entomotropica* 18(2): 149-151. (With Engl. s.). – (First Author: Praça Jardineira 24, Jardim Asteca, BR-29104-500 Vila Velha, ES, Brazil).
The phoresis between Chironomidae larvae and odon. larvae in the streams of Campos do Jordão and Luiz Antonio (São Paulo, Brazil) is reported. Thiemanniella sp. was found attached on Argia modesta, and Rheotanytarsus sp. on Heteragrion sp., Castoraeschna sp. and on Elasmothemis connacrioides.

(16055) GARCIA, J.V. & G. PEREIRA, 2003. Diversity of benthic macroinvertebrates from the Caura river basin, Bolivar State, Venezuela. *RAP Bull. biol. Assmnt* 28: 49-55 (Engl.), 144-150 (Span.), 235-239 (Appendix). (Bilingual). – (Inst. Biol. Tropical, Fac. Cien., Univ. Central Venezuela, Aptdo Correos 47058, Caracas-1041-A, Venezuela).
The Caura watershed is located in the E sector of the Bolivar State, representing a vast expanse of relatively pristine forests and rivers and is a major tributary to the Orinoco R. The benthic macroinvertebrate diversity was assessed at 25 localities throughout the upper and lower sections of the river. 18 odon. genera, pertaining to 7 fam., are listed in the Appendix.

(16056) HERBECK, J.T. & J. NOVEMBRE, 2003. Codon usage patterns in cytochrome oxidase I across multiple insect orders. *J. mol. Evol.* 56: 691-701. – (First Author: JBP Cent. Comp. Mol. Biol. & Evol., Marine Biol. Lab., Woods Hole, MA 02543, USA).
Synonymous codon usage bias is determined by a combination of mutational biases, selection at the level of translation, and genetic drift. In a study of insect mtDNA, patterns of codon usage were analysed across a phylogeny of 88 spp., spanning 12 orders. The odon. are represented by "Lybella cyanea" and shown in phylogenetic trees (total bias level: medium), but no text reference is made to the order.

(16057) KIRTI, J.S. & A. SINGH, 2003. Studies on the male secondary genitalia of Indian species of genus Diplacodes Kirby (Odonata: Anisoptera, Libellulidae). *Ann. Ent.* 21(1/2): 5-10. – (Dept Zool., Punjabi Univ., Patiala-147 002, India).
The ♂ accessory genital structures of D. lefebvrei, D. nebulosa and D. trivialis are described and illustrated, based on specimens from Harayana and Uttaranchal. A key for separation of the 3 spp. is appended.

(16058) OGDEN, T.H. & M.F. WHITING, 2003. The problem with "the Paleoptera Problem": sense and sensitivity. *Cladistics* 19: 432-442. – (Dept Integrative Biol., Birgham Young Univ., 401 WIDG, Provo, UT 84602-5255, USA).
While the monophyly of Pterygota is well supported, phylogenetic relationships among the most basal extant pterygote lineages are problematic. Ephemeroptera and Odonata represent the 2 most basal extant lineages of winged insects, and determining their relationship with regard to Neoptera is a critical step toward understanding insect diversification. A recent molecular analysis concluded that Paleoptera (Odonata + Ephemeroptera) is monophyletic. However, here it is demonstrated that this result is supported only under a narrow range of alignment parameters. The monophyly of Paleoptera was further tested using additional sequence data from 18SrDNA, 28SrDNA, and Histone 3 for a broader selection of taxa and a wider range of analytical methodologies. The results suggest that the current suite of molecular data ambiguously resolve the 3 basal winged insect lineages and do not provide independent confirmation of Odonata + Neoptera as supported via morphological data.

(16059) STROO, A., 2003. Het ruggengraatloze soortenbeleid. – [A spineless species conservation policy]. *Nieuwsbr. Europ. Invert. Surv. Nederland* 36: 8-14. (Dutch). – (Author's address not stated).
A detailed description of, and critical comments on species conservation management in the Netherlands. A list of 35 odon. spp. is provided, with statements on their legal status in Europe and in the Netherlands.

(16060) VAN SWAAY, C., D. GROENENDIJK & R. KETELAAR, 2003. *Monitoring butterflies and dragonflies in the Netherlands in 2002*. De Vlinderstichting, Wageningen & Centraal Bureau voor de Statistiek, Voorburg. 29 pp. ISBN none. (Dutch, with Engl. s.). – (De Vlinderstichting, P.O. Box 506, NL-6700 AM Wageningen).
In 2002, odon. were counted every fortnight between May and Sept. at 306 sites. The average numbers of individuals per transect were higher than in previous years. Enallagma cyathigerum was again the most common spp., with almost 80000 individuals. For the first time indices are presented for a number of spp. An alarming decreasing trend was detected for Leucorrhinia pectoralis, whereas another Red List sp., Lestes virens, shows a positive trend.

2004

(16061) BAMBARADENIYA, C.N.B., J.P. EDIRISINGHE, D.N. DE SILVA, C.V.S. GUNATILLEKE, K.B. RANAWANA & S. WIJEKOON, 2004. Biodiversity associated with an irrigated rice agroecosystem in Sri Lanka. *Biodiv. Conserv.* 13: 1715-1753. – (First Author: IUCN Sri Lanka Office, 53 Horton Pl., Colombo-07, Sri Lanka).
The study was conducted in a 1 ha rice field at Bathalagoda, Kurungela distr., Intermediate Zone, during Nov. 1995-March 1998. 19 odon. spp. are reported (incl. 4 taxa identified to the gen. only).

(16062) BERNÁTH, B., J. GÁL & G. HORVÁTH, 2004. Why is it worth flying at dusk for aquatic insects? Polarotactic water detection is easiest at low solar elevations. *J. exp. Biol.* 207: 755-765. – (Third Author: Biooptics Lab., Dept Biol. Physics, Eötvös Univ., Pázmány sétány 1, H-1117 Budapest).
Has only a passing reference to the Odon.

(16063) CHE SALMAH, M.R., A. ABU HASSAN & Z.S. AMEILIA, 2004. Odonate communities (Odonata: Insecta) in a tropical river basin, Malaysia. *Wetland Sci.* 2(1): 1-9. – (Sch. Biol. Sci., Univ. Sains Malaysia, Minden-11800, Pulau Pinang, Malaysia).
During both rainy and dry seasons, odon. larvae were sampled from 16 tributaries of the Kerian R., N Malaysia. The distribution of odon. genera was significantly different among rivers in both seasons, but no seasonal influence was detected. A checklist of spp. or gen. is not provided, but many taxa are commented upon. The distribution of larvae is conditioned by physico-chemical parameters, which are possibly influenced by human activities in the adjacent areas. The most dominant spp., Prodasineura autumnalis and Brachythemis contaminata, favour slightly acidic water.

(16064) CHE SALMAH, M.R. & A.A. WAHIZATUL, 2004. Distribution of Odonata (Insecta) in various ecosystems in northern Peninsular Malaysia. *Wetland Sci.* 2(3): 184-191. – (First Author: Sch. Biol. Sci., Univ. Sains Malaysia, Minden-11800, Penang, Malaysia).
Odon. larvae and adults (51 spp.) were collected from 14 sites of various habitats, incl. rivers, rice fields, mountain streams, freshwater and peat swamps, oilpalm-, sugarcane- and rubber plantations, and a lake. The riverine and stream ecosystems had the highest species diversity; the poorest fauna was recorded from a lake. Many spp. were restricted to certain habitats or water parameter gradients and could be used as bioindicators of these.

(16065) CLUBB, L., 2004. Hunting dragons. *Cygnus* 2(1): 2, 6. – (Mixedwood Forest Soc., Box 22021, Brandon, MB, R7A 6Y9, CA).
On the Manitoba Dragonfly Survey. The responsible person: Dr J. Duncan, Wildlife Br., Manitoba Conserv., Box 24, 200 Saulteaux Crescent, Winnipeg, MB, R3J 3W3, Canada.

(16066) COSTA, J.M., J. PUJOL-LUZ & L.L.P.B. REGIS, 2004. Descrição de larva de Zenithoptera anceps (Odonata, Libellulidae). *Iheringia* (Zool.) 94(4): 421-424. (With Eng. s.). – (First Author: Dept Ent., Mus. Nac., UFRJ, Quinta da Boa Vista, São Cristóvão, BR-20940-040, Rio de Janeiro, RJ).
The final instar larva is described and illustrated, based on specimens from Pernambuco, Brazil, and a key to the neotropical Palpopleurinae genera is provided.

(16067) ECHOLS, K.R., D.E. TILLITT, J.W. NICHOLS, A.L. SECORD & J.P. McCARTY, 2004. Accumulation of PCB congeners in nestling tree swallows (Tachycineta bicolor) on the Hudson river, New York. *Envir. Sci. Technol.* 38(23): 6240--6246. – (Second Author: U.S. Envir. Prot. Agency, NHEERL, MED-Duluth, 6201 Condgon Blvd, Duluth, MN 55804, USA).
Tree swallows were used as a sentinel sp. to monitor the contamination and bioavailability of polychlorinated biphenyls (PCBs) in the Hudson R. watershed. The congener PCBs patterns in eggs, nestlings and adults were compared to those found in emergent Odon. and Diptera using principal components analysis. Total PCBs (ng/g, wet weight) in Odon. (swallows' food items), collected with hand nets along the shoreline from 4 sites on the Hudson R., NY, USA were: lipid (%) 3.6-5.5, and sum of all PCB congeners analysed (ng/g) 290-1200.

(16068) ENGLUND, R.A., 2004. *Report for the 2003 Pacific Biological Survey, Bishop Museum Austral islands, French Polynesia expedition to Tubuai and Rurutu.* Fac. Biol. Surv., Bishop Mus., Honolulu. v+29 pp. (With Fr. s.). – (Bishop Mus., Honolulu, HA 96817, USA).
The biodiversity assessment of the French Polynesian islands of Tubuai and Rurutu was conducted during 9-28 Nov. 2003. The following Odon. are reported from Tubuai: Ischnura aurora, Anaciaeschna jaspidea, Anax (?) guttatus, Diplacodes bipunctata, Pantala flavescens and Tholymis tillarga, and the following from Rurutu: I. aurora, Ischnura sp. n., A. jaspidea, D. bipunctata, P. flavescens and T. tillarga. The undescribed Ischnura sp. n. is the third endemic zygopteran found in the Austral Islands and indicates this genus has amazing dispersal abilities by finding even small, isolated islands such as Rurutu (surface 32.3 km^2) and Raivavae (16.7 km^2).

(16069) ESENKO, I., 2004. Bloščica in njeni raki. – [The Bloščica stream and its crabs]. *Moj mali Svet* 36(10): 54-55. (Slovene). – (Author's address not stated).
Calopteryx virgo is mentioned from the stream; – Slovenia.

(16070) GEISTER, I., 2004. An inventory of plants and animals of Brdo near Kranj. *Kronika* 52(2): 273-284. (Slovene, with Engl. & Germ. s's). – (Kocjančiči 18, SI-6276 Pobegi).
A summary of the results of a systematic inventarisation (2000-2003) at Brdo estate, Slovenia. 782 plant- and 989 animal spp. were recorded, incl. 32 odon. spp. Among the latter, Anaciaeschna isosceles is the recentmost addition (cf. *OA* 16029). Some noteworthy taxa are listed.

(16071) [HANCOX, J.], 2004. Early and late dates 1998-2003. *Potteric Carr Nature Reserve Recorder* 7: 12. – (57 Braithwell Rd, Ravenfield, Rotherham, S65 4LH, UK).
Includes a comparative review (1998-2003) of the first and last flying period dates for 17 odon. spp. at Potteric Carr Nature Reserve, Yorkshire, UK.

(16072) HANCOX, J., 2004. Varied success for dragonflies. *Potteric Carr Nature Reserve Recorder* 7: 3. – (57 Braithwell Rd, Ravenfield, Rotherham, S65 4LH, UK).
A summary of the 2003 records of 18 spp. at Potteric Carr Nature Reserve, Yorkshire, UK.

(16073) KJER, K.M., 2004. Aligned 18S and insect phylogeny. *Syst. Biol.* 53(3): 506-514. – (Dept Ecol. Evol. & Nat. Resour., 14 College Farm Rd, Cook Coll., Rutgers Univ., New Brunswick, NJ 08901, USA).
The nuclear small subunit rRNA (18S) has played a dominant role in the estimation of relationships among insect orders from molecular data. The relationships among Odon. are unexpected. Many studies have shown both Anisoptera and Zygoptera to be monophyletic, as do unpublished data from the 28S and EF-1α from Author's laboratory. There are very few variable characters among Odon. in the entire 18S. This may explain why the Bayesian analyses fail to recover Anisoptera, while parsimony succeeds; because a group with virtually no change on the terminal branches is both "unlikely" and parsimonious.

(16074) KOSKIMAKI, J., M.J. RANTALA, J. TASKINEN, K. TYNKKYNEN & J. SUHONEN, 2004. Immunocompetence and resource holding potential in the damselfly Calopteryx virgo L. *Behav. Ecol.* 15(1): 169-173. – (Dept Biol. & Envir. Sci., Univ. Jyväskylä, P.O. Box 34, FIN-40014 Jyväskylä).
It is generally believed that resource holding potential reliably reflects ♂ quality, but empirical evidence showing this is scarce. Here it is shown that the outcome of ♂-♂ competition may predict ♂

immunocompetence in the territorial C. virgo. Contests were staged between 27 pairs of ♂♂ and it was found that winners of the contests showed higher immunocompetence, measured as encapsulation response, compared with that of losers. Furthermore, the winners had larger fat reserves. 29 ♂♂ that had not been used in staged contests were also collected, and it was found that in these encapsulation response correlated positively with an individual's fat reserves. Both immunocompetence and resource holding potential seem to depend on energy reserves, suggesting a trade-off between parasite resistance and energetically costly territorial behaviour. The results suggest that the outcome of ♂-♂ contest can be used to predict ♂ quality in terms of immune defense.

(16075) KOTARAC, M., A. ŠALAMUN & M. GOVEDIČ, 2004. Natura 2000 vrste v naravnih in antropogenih vodnih habitatih: primer kačjih pastirjev. – [Natura 2000; species in natural and anthropogenic aquatic habitats, the case of dragonflies]. *Mikšičev vodarski Dan.* [ISSN 1318-2226] 15: 91-97. (Slovene). – (CKFF, Zemljemerska 10, SI-1000 Ljubljana).
Deals with Coenagrion ornatum, Ophiogomphus cecilia, Cordulegaster heros and Leucorrhinia pectoralis. – For the comprehensive original publication, see *OA* 15133.

(16076) KOVÁCS, T., A. AMBRUS, P. JUHÁSZ & K. BÁNKUTI, 2004. Larval and exuvial data on the Odonata fauna of Hungary. *Folia hist.-nat. Mus. matraensis* 28: 97-110. (Hung., with Engl. s.). – (First Author: Mátra Muz., Kossuth Lajos u. 40, HU-3200 Gyöngyös).
1458 records are presented for 54 spp. from 363 sites in Hungary, covering the period 1988-2002.

(16077) *MARTINIA*. Revue scientifique de la Société française d'odonatologie (ISSN 0297-0902), Vol. 20, No. 4 (Dec. 2004). (Mostly with Engl. s's). – (c/o J.-L. Dommanget, 7 rue Lamartine, F-78390 Bois-d'Arcy).
Faton, J.-M. & C. Deliry: Surveillance de la population de Coenagrion mercuriale (Charpentier, 1840) dans la Réserve naturelle des Ramières du Val de Drôme (Odonata, Zygoptera, Coenagrionidae) (pp. 163-179); – *Ilbert, N. & J. Menegaux*: Observations d'odonates en Guadeloupe (Petites Antilles françaises) (p. 180); – *Leroy, T.*: Les odonates du département du Cantal: état des connaissances (pp. 181-193); – *Jourdain, B.*: Découverte de Macromia splendens (Pictet, 1843) en Gironde (Odonata, Anisoptera, Macromiidae) (pp. 194-196); – *Deschanel, M.*: Observations d'odonates dans la montagne ardéchoise (p. 196); – *Meurgey, F.*: Sur la collection d'odonates de Guyane française du Muséum d'Histoire naturelle de Nantes (pp. 197-198); – *Pont, B.*: Contribution à la connaissance des odonates de Guadeloupe et de Martinique (pp. 199-203); – *Dommanget, J.-L.*: Calopteryx haemorrhoidalis (Vander Linden, 1825) dans le département de l'Aveyron (Odonata, Zygoptera, Calopterygidae) (p. 204); – *Grand, D.*: Calopteryx h. haemorrhoidalis (Vander Linden, 1825), une espèce accidentale du département du Doubs (Odonata, Zygoptera, Calopterygidae) (p. 205); – *Dommanget, J.-L.*: Rubrique bibliographique (pp. 206-210).

(16078) TYNKKYNEN, K., M.J. RANTALA & J. SUHONEN, 2004. Interspecific aggression and character displacement in the damselfly Calopteryx splendens. *J. evol. Biol.* 17: 759-767. – (First Author: Dept Biol. & Envir. Sci., P.O. Box 35, FIN-40014 University of Jyväskyla).
Problems in species recognition are thought to affect the evolution of secondary sexual characters mainly through avoidance of maladaptive hybridization. Another, but much less studied avenue for the evolution of sexual characters due to species recognition problems is through interspecific aggression. In C. splendens, ♂♂ have pigmented wing spots as a sexual character. Large-spotted ♂♂ resemble ♂♂ of another sp., C. virgo, causing potential problems in species recognition. In this study, it was investigated whether there is character displacement in wing spot size and whether interspecific aggression could cause this pattern. It was found first that wing spot size of C. splendens in populations decreased with increasing relative abundance of C. virgo. Secondly, C. virgo ♂♂ were more aggressive towards large- than small-spotted C. splendens ♂♂. Thirdly, in interspecific contests C. virgo ♂♂ had better territory holding ability than C. splendens ♂♂. These results suggest that interspecific aggression may have caused character displacement in wing spot size of C. splendens, because the intensity of aggression towards large-spotted ♂♂ is likely to increase with relative abundance of C. virgo ♂♂. Thus interspecific aggression may be an evolutionarily significant force that is able to cause divergence in secondary sexual characters.

(16079) VALVASOR, J.V., 2004. *Rastline in živali na Kranjskem.* – [*The Carniolian plants and animals*]. J.V. Valvasor Foundation at the Slovene Academy of Sciences and Arts, Ljubljana. ii+50 pp., 163 col. pls excl. Hardcover (32.5×40.0 cm), weight 4.1 kg. ISBN 961-6242-56-3. [*Bibliotheca valvasoriana*, Vol. 18, edited by L. Gostiša]. Price: € 150.- approx. Available also in bibliophilic edn. (Threelingual: Slovene, Engl., Croatian).
This impressive volume is marked as a "dotisk" (= supplementary volume) of J.V. Valvasor's (1641--1693) graphic collection, titled "*Underschiedliche Frucht / Bluemen / Krautter wie auch Vogl / Fisch / Thier / Ungeziffer und dergleichen ...*" and dated 1685. However, in that year, only the (German) title page was printed, while the pls actually remained unpublished, therefore the present edn is the first published edn of the complete 1685 work. The pls (water colours) are reproduced in the original colour and size. The original title page is facsimile reproduced and its translations in Slovene, Engl. and Croatian, printed in the same typographic style, are added. The threelingual text consists of comments and annotations on pls and on the represented organisms. The odon. are shown on pls 29-30, 52 and 74, and annotated on pp. 11, 25 and 39. The text was provided by M. Gogala, and taxonomic identifications by B. Kiauta. This is the earliest known work dealing with the Odon. of Slovenia. – See also *OA* 7316 and 7706.

(16080) VAN DER SLUIS, T., M. BLOEMEN & I.M. BOUWMA, 2004. *European corridors. Strategies for corridor development for target species.* ECNC, Tilburg & Alterra, Wageningen. 32 pp. ISBN 90-76762-16-3. – (Orders to: Alterra, P.O. Box 47, NL-6700 AA Wageningen).
Corridors facilitate biological processes such as dispersal, migration or the regional movement of animals. They strengthen the spatial cohesion of the network of habitat patches, which is critical to many spp. Here, examples of corridor development are presented for 9 spp., suggesting practical solutions for specific problems in the field of habitat fragmentation and loss. Gomphus flavipes is among the spp. treated. It is included in the European Red-List, the EU Habitats Directive (App. IV) and in the Bern Convention (App. II), and it is listed as an endangered sp. on the IUCN Red-List. G. flavipes was extinct from the Rhine R. and most other W European rivers for almost a century. The decline was probably caused by water pollution and by loss of habitat, triggered by river and stream canalisation and changed management of the water edges. Nowadays the sp. has reappeared in several W European rivers, most likely so due to climate change, as the larvae show preference for warmer sites and the adults may be also sensitive to higher temperatures. Recent observations in the Rhine and the Meuse rivers suggest that the habitat connectivity may be enhanced by the improvement of water quality and by the creation of larval and adult habitats in nature development programs. The required corridors are of linear type with nodes (larvae) and stepping stones (adults).

(16081) VON DER OHE, P.C. & M. LIESS, 2004. Relative sensitivity distribution of aquatic invertebrates to organic and metal compounds. *Envir. Toxicol. Chem.* 23(1): 150-156. – (Dept Chem. Ecotoxicol., UFZ Cent. Envir. Res., Permoserstr. 15, D-04318 Leipzig).
The available information is grouped to assign sensitivities to aquatic invertebrate taxa relative to Daphnia magna. As far as the insects are concerned, with respect to organic compounds, most taxa of Coleoptera, Diptera, Ephemeroptera, Heteroptera, Trichoptera and Odon. (Ischnura elegans, Lestidae, Orthetrum sp.) are less sensitive than D. magna, while Plecoptera are significantly more sensitive. For metal compounds, ca 30% of the investigated taxa were more sensitive than D. magna.

(16082) WANG, Z.J., 2004. The role of drag in insect hovering. *J. exp. Biol.* 207: 4147-4155. – (Theor. & Appl. Mechanics, Cornell Univ., Ithaca, NY 14853, USA).
Studies of insect flight have focused on aerodynamic lift, both in quasi-steady and unsteady regimes. This is partly influenced by the choice of hovering motions along a horizontal stroke plane, where aerodynamic drag makes no contribution to the vertical force. In contrast, some of the best hoverers, dragonflies and hoverflies, employ inclined stroke planes, where the drag in the down- and upstrokes does not cancel each other. Here, computation of an idealized dragonfly wing motion shows that a dragonfly uses drag to support about three quarters of its weight. This can explain an anomalous factor of four in previous estimates of dragonfly lift coefficients, where drag was assumed to be small. – To investigate force generation and energy cost of hovering flight using

different combination of lift and drag, a family of wing motion parameterized by the inclined angle of the stroke plane was studied. The lift-to-drag ratio is no longer a measure of efficiency, except in the case of horizontal stroke plane. In addition, because the flow is highly stalled, lift and drag are of comparable magnitude, and the aerodynamic efficiency is roughly the same up to an inclined angle about 60°, which curiously agrees with the angle observed in dragonfly flight. – Finally, the lessons from this special family of wing motion suggests a strategy for improving efficiency of normal hovering, and a unifying view of different wing motions employed by insects.

2005

(16083) [BALINSKY, B.I.] HANRAHAN, S.A., 2005. [Memorial] Boris Ivan Balinsky (10 September 1905 - 1 September 1997). *Afr. Ent.* 13(2): 390--392. – (Animal Plant & Envir. Sci., Univ. Witwatersrand, Johannesburg, SA).
A comprehensive biography and appreciation of work of the noted South African embryologist and odonatologist of Russian extraction. His complete odonatol. bibliography is appended; his complete bibliography was published in *Sth Afr. J. Sci.* 101: 309-312.

(16084) BEDJANIČ, M., 2005. *Inventarizacija favne kačji pastirjev (Odonata) na območju občinskega lokacijskega načrta "Proizvodna cona Želodnik", s presojo vplivov načrtovanih posegov.* – [*Inventarisation of the dragonfly (Odonata) fauna in the area of the parish project of Želodnik, with an impact assessment of the proposed interventions*]. Oikos, Domžale. 18 pp. (Slovene). – (Author: Kolodvorska 21/B, SI--2310 Slovenska Bistrica).
36 spp. occur in the area. Among these, Leucorrhinia pectoralis is endangered, and 6 other spp. are in Slovenia vulnerable. Various, absolutely necessary mitigating measures are outlined in detail, but in summary, the project that would seriously impact one of the most beautiful and hitherto untouched nature areas in central Slovenia (E of Domžale), is considered "incomprehensible".

(16085) BEDJANIČ, M., 2005. *Popis velikega studenčarja Cordulegaster heros (Insecta: Odonata) na območju Ureditevnega načrta za območje kamnoloma Cerov Log na Gorjancih, s presojo vplivov in predlogom omilitvenih ukrepov.* – [*Cordulegaster heros (Insecta: Odonata) survey within the limits of the Cerov Log querry reconstruction, with impact assessment and a suggestion of mitigating measures*]. Oikos, Domžale. 11 pp. (Slovene). – (Author: Kolodvorska 21/B, SI-2310 Slovenska Bistrica).
C. heros is in Slovenia rather common, known from over 340 localities. It is legally protected in Slovenia and in Europe. Here, 7 sites were explored and habitat requirements of the sp. are outlined. Protective measures include the conservation of stream hydrology, the avoidance of organic and chemical pollution as well as the washing off sand into the streams and the deposition of barren material on the banks, conservation of bush- and arboreal vegetation in the vicinity etc.

(16086) BEDJANIČ, M., 2005. *Presoja vplivov na favno kačji pastirjev (Odonata) na območju UN "Izgradnja parkirišča za tovornjake in osebna vozila ter pomožnega prostora z avtopralnico pri Podpeči".* – [*Assessment of impact on the dragonfly (Odonata) fauna of the projected construction of a parking place and motor-car washing facility near Podpeč*]. Oikos, Domžale. 9 pp. (Slovene). – (Author: Kolodvorska 21/B, SI-2310 Slovenska Bistrica).
8 common and widespread spp. occur in the vicinity of the site. The construction of the projected facilities would not menace their populations in the otherwise odonatologically important Ljubljansko Barje, central Slovenia.

(16087) BERMUDEZ RIVAS, C., 2005. Clave para los imagos de los géneros de Libellulidae (Odonata: Anisoptera) del Valle del Cauca, Colombia. *Boln Mus. Ent. Univ. Valle* 6(1): 7-22. (With Engl. s.). – (Grupo Invest. Entomol., Depto Biol., Univ. del Valle, Cali, Colombia).
A generic key for identification of the adults of the 21 libellulid genera occurring in the Valle del Cauca, Colombia. 7 gen. are considered new to the fauna of this department, and Rhodopygia is reported for the first time for Colombia.

(16088) The *BOGHAUNTER*. Occasional news about the dragonflies and damselflies of Vermont (ISSN none), Vol. 1, No. 1 (winter 2002), Vol. 2, No. 1 (spring 2003), Vol. 3, Nos 1 (winter 2003/2004), 2 (spring 2004), Vol. 4, Nos 1 (winter 2004/2005), 2 (spring 2005). – (c/o B. Pfeiffer, 113 Bartlett Rd, Plainfield, VT 05667, USA).

[Scientific articles:] [1(1)]: *Pfeiffer, B.*: Williamsonia fletcheri discovered in Vermont (pp. 1-2); – *Blust, M.*: Three new damselflies added to state list (pp. 1--2); – *Miller, D.H.*: [book review] Dragonflies and damselflies of Ohio, by R. Glotzhober & D. McShaffrey (p. 3). – [2(1)]: *Pfeiffer, B.*: Dragonflies for dummies (pp. 1-2); – *Brunelle, P.-M.*: A preliminary list of the Odonata of Vermont (pp. 3-7); – *Pfeiffer, B.*: A proposed Odonata field voucher card (p. 8). – [3(1)]: *Pfeiffer, B.* [book review]: A field guide to the dragonflies and damselflies of Massachusetts, by B. Nikula et al. (p. 4); – *Darmstadt, C.*: The Stylurus saga continues (p. 5); – *Pfeiffer, B.*: The almost-official Vermont checklist (p. 6); – *Cordoba-Aguilar, A., E. Uhia & A. Cordero Rivera*: Sperm competition in Odonata (p. 7). – [3(2)]: *Blust. M.*: Vermont's next odes (pp. 1-3); – *Pfeiffer, B.*: [book review]: Damselflies of the Northeast, by E. Lamm (p. 6). – [4(1)]: *Blust, M.*: Ischnura hastata confirmed in Vermont (pp. 1-2); – *Pfeiffer, B.*: Vermont 2004 season summary (pp. 3-4); – Operation rubyspot comes to Vermont (p. 6); – The Vermont ode data project (p. 7); – [4(2)]: *Novak, P.*: New York begins odonate survey (pp. 1-2).

(16089) BROUWER, J. & H, KORTEKAAS, 2005. Beginnen met libellen: voldoening en valkuilen. – [Dragonfly inventarisation at Laag-Wolfheze, the Netherlands]. *Vlinders* 20(4): 8-10. (Dutch). – (Author's addresses not stated).
A narrative on Authors' experience gained during their 2003-2004 odon. inventarisation work, with a checklist and an adult phenology graph of 23 spp. recorded from Laag-Wolfheze.

(16090) CANNINGS, R. & L.R. RAMSAY, 2005. The conservation status of British Columbia dragonflies (Insecta: Odonata): species at risk, inventory and status ranks. *Boreus* 25(2): 21 [abstract only]. – (First Author: Roy. British Columbia Mus., P.O. Box 9815 Stn Prov. Govt, Victoria, BC, V8W 9W2, CA).
[Verbatim:] The changes in the conservation status ranks of BC's odon. spp. over a 9-yr period demonstrate how inventory provides information for assigning these ranks. Preliminary conservation status ranks were assigned to BC's dragonflies in 1993. Subsequently, inventory efforts focused on spp. considered at risk in order to more accurately determine their status. From 1996 to 2003, concentrated surveys were conducted throughout much of the province. During these surveys, known ranges of many spp. were extended, knowledge of habitat requirements increased, and five new species were confirmed for the province. Many of the targeted spp. were more abundant than previously thought, and their conservation ranks were changed accordingly. Others were found only rarely or not at all. Ranking poorly known spp. is challenging, particularly if samples are small or habitats are difficult to access. By increasing our knowledge of these spp. and their requirements, we can assign them more accurate ranks, thus ensuring that conservation efforts will target the spp. and habitats that truly require them. As of 2005, an expanded COSEWIC Invertebrate Subcommittee is now empowered to list spp. of Odon. at risk in Canada; inventory in BC has helped determined sp. requiring COSEWIC attention.

(16091) CANNINGS, R.A. & J.P. SIMAIKA, 2005. Lestes disjunctus and L. forcipatus (Odonata: Lestidae): an evaluation of status and distribution in British Columbia. *J. ent. Soc. Br. Columb.* 102: 57-63. (First Author: Roy. Brit. Columbia Mus., 675 Belleville St., Victoria, BC, V8W 9W2, CA).
Of the 5 Lestes spp. that live in British Columbia, L. forcipatus Ramb. and L. disjunctus Sel. are the most difficult to separate morphologically. ♀♀ can be readily distinguished by the size of the ovipositor, but ♂♂ are difficult to separate. In British Columbia, L. disjunctus is more common, widespread and familiar. Before 1998, when it was first reported in BC, specimens of L. forcipatus were misidentified as L. disjunctus because the former is known mainly from eastern North America and most Lestes spp. are usually most readily identified using ♂ characters. The identities of museum specimens of the 2 spp. were checked and corrected necessary. Ecological and behavioural observations and up-dated distribution maps of the spp. are presented. Throughout its range in BC, L. forcipatus is mostly sympatric with L. disjunctus but lives in a narrower range of habitats and localities, mostly cool sedge marshes and fens. The 2 spp. show some temporal and behavioural separation.

(16092) CLAUSNITZER, V., 2005. An updated checklist of the dragonflies (Odonata) of the Kakamega Forest, Kenya. *J. East Afr. nat. Hist.* 94(2): 239-246. – (Gräfestr. 17, D-06110 Halle/Saale).

An annotated checklist of 72 spp. (42% of Kenya's fauna) is presented and briefly discussed. The habitat preferences and affinities with other African regions are stated for all spp. 20 spp. are of national importance, since in Kenya they are restricted to this region, therefore their habitat requirements are outlined in detail. The Kakamega Forest odon. fauna is impoverished compared to the more western Guineo-Congolian rainforest area. The effects of forest fragmentation and isolation, hindering immigration from western rainforest patches, are addressed.

(16093) CUPUL, F., 2005. Biodiversidad Bahiabanderense. *Gaceta CUC* 3(36): 9. – (Author's address not stated).
General on dragonflies, examplified by Erythrodiplax funerea, with emphasis on Mexico.

(16094) DE BLOCK, M. & R. STOKS, 2005. Fitness effects from egg to reproduction: bridging the life history transition. *Ecology* 86(1): 185-197. – (First Author: Evol. Biol. Gr., Dept Biol., Univ. Antwerp, Groenenborgerlaan 171, B-2020 Antwerpen).
Although complex life cycles are widespread, little is known about how constraints in the larval stage influence adult fitness. Most models assume a tight coupling of larval conditions and adult fitness through size and timing of the life history transition. However, there are few empirical tests of this assumption. Here, an experimental manipulation of larval environment was combined with a subsequent study of adult fitness, measured as lifetime mating success. Lestes viridis individuals were followed from the egg stage to adult reproduction and death. Under time constraints, emergence occurred earlier, but in late-hatched larvae, this did not result in a smaller size. Under nutritional constraints, emergence occurred later, and size was reduced. Variation in survival to maturity was better explained by larval constraints than by emergence traits, whereas both larval constraints and emergence traits explained variation in lifetime mating success. Sexes reacted differently to larval constraints, and the coupling of larval constraints to adult fitness also was sex specific. The results indicate that larval constraints do not necessarily carry over to adult fitness through size and timing of transition, and that carryover effects may be sex specific. This may explain the existence of hidden costs that become visible after maturation and may explain part of the unexplained variation in selection studies on adults.

(16095) EROS, T., D. SCHMERA, B. CSER, Z. CSABAI & D. MURÁNTYI, 2005. Composition of macroinvertebrate assemblages in two submontane streams: the influence of stream order and riffle-pool structure. *Acta biol. debrecina Oecol. Hung.* 13: 85-94. (Hung., with Engl. s.). – (First Author: Plant Prot. Inst., Hung. Acad. Sci., Budapest, Hungary).
The seasonal macroinvertebrate composition and biomass patterns were examined in 2 streams of Mt Börzsöny, Hungary. Calopteryx virgo, Gomphus vulgatissimus and Onychogomphus forcipatus are listed in a tab., but no reference to the Odon. is made in the text.

(16096) FAUCHEUX, M.J., 2005. Vibrorécepteurs et osmorécepteurs sur les lamelles caudales de la larve de Lestes sponsa (Hansemann, 1823) (Odonata, Zygoptera, Lestidae). *Bull. Soc. Sci. nat. Ouest Fr.* (N.S.) 27(4): 203-206. (With Engl. s.). – (Lab. Endocrinol. Insectes Sociaux, Univ. Nantes, 2 rue de la Houssinière, B.P. 92208, F-44322 Nantes Cedex 03).
Based on SEM, sensilla filiformia and sensilla campaniformia are described and illustrated from caudal lamellae in L. sponsa larva. These types were for the first time detected on the odon. larval caudal appendages. The sensilla filiformia are mechanoreceptors, stimulated by water vibrations and serve as detectors of the presence and position of a predator. The sensilla campaniformia are true osmoreceptors, enabling the insect to adapt to the conditions of the surrounding water.

(16097) FAUCHEUX, M.J. & F. MEURGEY, 2005. Ontogenèse de l'appareil stridulant des larves d'Epiophlebia superstes (Selys, 1889) (Odonata: Anisozygoptera: Epiophlebiidae). *Bull. Soc. Sci. nat. Ouest Fr.* (N.S.) 27(4): 183-195. (With Engl. s.). – (Second Author: Mus. Hist. Nat., 12 rue Voltaire, F-44000 Nantes).
The development of the stridulatory apparatus was studied in 3 larval stages, using SEM. The pars stridens is made up of triangular zones, consisting of a transverse series of ridges, placed on each of the abdominal tergites 3-5 (stage A), 3-6 (stage B), 3-7 (stage C). The inner edge of the femur of the metathoracic legs serves as a plectrum. Contrary to the general situation in insects, it is the pars stridens (abdomen) which rubs against the plectrum (femur). The stridulation was observed in the 3 larval stages

when they were outside water and in a state of catalepsy. It is possible that sound emission serves an agonistic and spacing function among conspecifics.

(16098) GÄDE, G., 2005 Peptides of the adipokinetic hormone family in Mantophasmatodea: close structural similarity with peptides of Odonata. *Proc. 15th ent. Congr. Grahamstown*, p. 25 [abstract only]. – (Zool. Dept., Univ. Cape Town, Rondebosch-7700, SA).
[Verbatim:] It is not clear yet to which insect orders the newly discovered order Mantophasmatodea is most closely related to, although it is thought that Phasmida may be one of the sister groups. I have attempted to shed some light on the matter by using my research on sequence elucidations of small peptide hormones that belong to the ubiquitous adipokinetic hormone (AKH)/red pigment-concentrating hormone (RPCH) family, instead of using morpho-anatomical characters or molecular markers (mitochondrial genes). This "peptide" approach has, previously successfully contributed to the interpretation of phylogenies in the Blattodea and Odonata. Data will be presented on sequences of AKH peptides in Mantophasmatodea that show there is mostly a close relatedness with AKH peptides of Odonata but not of Phasmida.

(16099) GEISTER, I., 2005. *Brdo estate: controlled area of high natural values*. Ministry Envir. & Spatial Planning, Environ. Agency of Slovenia, JGZ Brdo Protokolarne storitve RS. Brdo-pri-Kranju. 44 pp. Softcover (23.6×23.2 cm). ISBN none. – (Author: Kocjančiči 18, SI-6276 Pobegi).
With emphasis on photographs, an overview is presented of geology, habitat types and flora and fauna of Brdo estate near Kranj, Uper Carniola, Slovenia. 32 odon. spp. were recorded there; some of these are introduced here.

(16100) HAMADA, K. & K. INOUE, 2005. *The dragonflies of Japan in color*, Vols 1 & 2, Kodansha, Tokyo. 376 pp. [3rd & revised edn]. ISBN 4-06-997202-1. Price: ¥ 52500.- net. (Jap., with taxonomic nomencl. & Engl. s.). – The make-up of the book is the same as described in *OA* 5245.
The new, revised and updated edn of this classical standard work will be much appreciated. For detailed description, see *OA* 5245. The alterations are outlined on p. 371, viz.: (a) after the appearance of the 1st edn (1985), 14 spp. were added to, or deleted from the Japanese fauna (currently 198 spp., of these with 2 sspp., 3 with 3 sspp.); (b) in accordance with the current understanding, changes in the taxonomy of Rhipidolestes and Mnais are introduced; and (c) for the same reason, 12 taxonomic names (appearing in the list on pp. 372-375) are modified. – The reproduction of the col. illustrations is excellent, but the editorial organisation of the work is somewhat unconventional, hence the reader may have difficulties to find the way in pagination, which is not consecutive and runs as follows: Vol. 1, pp. 1--124; switching over to Vol. 2, pp. 125-292; switching back to Vol. 1, pp. 293-376. Nonetheless, this is a primary reference work, useful also to those lacking the command of the language.

(16101) HANCOX, J., 2005. Disappointing year for dragonflies. *Potteric Carr Nature Reserve Recorder* 8: 4. – (57 Braithwell Rd, Ravenfield, Rotherham, S65 4LH, UK).
A summary of the 2004 records of 18 spp. at Potteric Carr Nature Reserve, Yorkshire, UK.

(16102) [HANCOX, J.], 2005. Early and late dates 1998-2004. *Potteric Carr Nature Reserve Recorder* 8: 12. – (57 Braithwell Rd, Ravenfield, Rotherham, S65 4LH, UK).
Includes a comparative review (1998-2004) of the first and last flying period dates for 17 odon. spp. at Potteric Carr Nature Reserve, Yorkshire, UK.

(16103) HAYASHI, F., S. DOBATA & R. FUTAHASHI, 2005. Disturbed population genetics: suspected introgressive hybridization between two Mnais damselfly species (Odonata). *Zool. Sci.* 22(8): 869-881. – (First Author: Dept Biol., Tokyo Metropolitan Univ., Minamiosawa 1-1, Hachioji, Tokyo, 192-0397, JA).
During their larval and adult life, M. costalis and M. pruinosa have low dispersal abilities, they cohabit widely in W Japan, and the previous nuclear DNA sequencing and their morphology show they are very closely related. M. costalis lives in the lower and M. pruinosa in the upper reaches of a stream. The analysis in the present study is based on mitochondrial DNA (mtDNA), which usually mutates faster and is more variable among individuals than rDNA, and which is inherited maternally. It was found that most COI haplotypes were shared between the 2 spp., and that for most study sites interspecific riverine genetic

structures were not clarified by mtDNA analysis. Incongruent population genetic structures based on nDNA and mtDNA suggest hybridization and introgression of mtDNA between the 2 spp.

(16104) HERON, J., 2005. Odonata adventures. *Boreus* 25(2): 29-30. – (Invertebrate Species, BC Ministry of Environment, 2202 Main Mall, Vancouver, BC, V6T 1Z4, CA).
Impressions from a 2 week (2005) odon. survey with Dr R.A. Cannings in the central coast of British Columbia, Canada, from Prince Rupert to Terrace. The Lakelse Lake record of Rhionaeschna multicolor represents a considerable range extension of this sp.

(16105) HERTZOG, M., 2005. Libellen: Neufunde im Kanton Thurgau. *Protokoll Herbstvers. ent. Ver. Alpstein* 2005: 3. – (Rebhaldenstr. 29, CH-8596 Scherzingen).
Erythromma najas, E. viridulum, Leucorrhinia caudalis, L. pectoralis and Libellula fulva are reported from Ochsenfurt, and Cordulegaster bidentata, C. boltoni and Sympetrum depressiusculum from Immenberg, canton Thurgau, Switzerland.

(16106) INOUE, K. & Y. MIYATAKE, [Eds], 2005. *Tombo no shirabekata.* – [*Dragonfly research manual*]. Bunkyo Shuppan, Osaka. iv+308 pp. Softcover (18.0×25.5 cm). ISBN 938489-11-2. Price: ¥ 4500.- net. (Jap., with vernacular nomenclature). – (Publishers: 1-12-19, Nishi-hommachi, Nishi-ku, Osaka, 550-0005, JA).
Opening with a Preface by *Y. Miyatake* and closing with a Postscript by *K. Inoue*, and aside of the References and Index, the book has 11 chapters, viz. Dragonfly morphology (pp. 1-4; by *K. Inoue*), Pictorial key to adults (p. 5-51; *K. Inoue*), Pictorial key to larvae (pp. 52-105; *T. Aoki*), Egg and early instar larvae, chromosomes, and DNA analysis (pp. 106-126; *Y. Watanabe, N. Katatani and R. Futahashi & F. Hayashi*, resp.), Environment and life history (pp. 127-142; *Y Arano, A. Muraki*), Collection and specimen preparation (pp. 143-179; *T. Aoki, N. Katatani, Y. Miyatake, S. Shimura*), Dragonfly survey (pp. 180-216; *M. Fukui, K. Higashi, M. Ohtsuki, M. Sugimura, T. Yagi*), Analysis and indexing (pp. 217--226; *Y. Sakuratani*), Species and habitat conservation (pp. 227-262; *Y. Arai, M. Fukui, K. Higashi, K. Matsuki, S. Nishu, M. Sugimura*), Dragonflies and people (pp. 263-267; *K. Aisaka, I. Matsuda*), and Data bank (pp. 268-289; *K. Inoue*, incl. a taxonomic checklist of the Japanese fauna, on pp. 268-284). – An interesting work, unique in its coverage, but solely useful to those in command of the Jap. language. It is unfortunate that no taxonomic names are used in the keys, since otherwise the pictorial key to the adults could be easily used by everyone.

(16107) The *JAPANESE SOCIETY FOR ODONATOLOGY GENERAL MEETING in 2005 at Toyama University* (October 1-2, 2005): *Symposium program.* 8 pp. – (c/o N. Ishizawa, 1644-15, Yamaguchi, Tokorozawa, Saitama, 359-1145, JA).
[Abstracts of papers:] *Karube, H.*: Problems of dragonflies that fly over to Japan from the continent (p. 2); – *Futahashi, R.*: Recent trends in dragonflies of continental origin in the Hokuriku district (pp. 2-3); – *Nagahata, Y.*: Ecology of Sympetrum species in the Maritime Province of Siberia (p. 3); – *Naraoka H. & K. Takahashi*: Landing of the larvae of Epiophlebia superstes (Selys) on the snow (pp. 3-4); – *Ishizawa, N.*: Energy expenditure of patrolling Cordulia aenea amurensis (Selys) males (p. 4); – *Fukao, Y. & K. Fukao*: Behaviour of Ictinogomphus clavatus (Fabricius) at Mizumoto Metropolitan Park (2nd report) (pp. 4-5); – *Futahashi, R., Y. Ohshima & F. Hayashi*: Genetic differentiations and introgression in the Japanese Davidius Selys, 1878 inferred from DNA sequences (p. 5); – *Karube, H.*: Systematic position of the genus Anotogaster Selys (pp. 5-6); – *Yoshida, M., H. Karube, S. Suda, A. Ozono & I. Kawashima*: Quantitative judgement method of RDB list of Odonata (pp. 6-7); – *Ubukata, H.*: Monitoring frequency and recorded species of Odonata: proposal of a theoretical model and its verification (p. 7). – [Abstracts of posters:] *Ae, H. & S. Nishu*: Mortonagrion hirosei Asahina at Momojima pond in Hyogo prefecture (pp. 7-8); – *Fukui, J.*: Expansion of Ictinogomphus pertinax (Selys) in Shizuoka prefecture (p. 8).

(16108) KEAT, S., D.J. THOMPSON, S.J. KEMP & P.C. WATTS, 2005. Ten microsatellite loci for the small red-eyed damselfly Erythromma viridulum (Charpentier). *Mol. Ecol. Notes* 5(4): 788-790. – (Sch. Biol. Sci., Biosci. Bldg, Univ. Liverpool, Crown St., Liverpool, L69 7ZB, UK).
E. viridulum is the first recorded example of a migrant damselfly establishing colonies in the British Isles. To examine the population genetic structure of E. viridulum, a partial genomic library enriched

for CA microsatellite loci was constructed. Of the 42 loci tested, 19 amplified spurious bands and 13 were monomorphic, leaving 10 polymorphic loci that resolved distinct alleles within the expected size range. The number of alleles ranged between two (LIST14-021, LIST14-40) and eight (LIST14-002). Observed and expected heterozygosities varied between 0.000-0.698 and 0.045-0.688, respectively.

(16109) KONING, M. & F. KONING, 2005. Libellen in de duinen van Zuid-Kennemerland. [Dragonflies in the dunes of Zuid-Kennemerland]. *Natura*, Amst. 2005(5): 176-178. (Dutch). – (Hobbemastraat 37, NL-2102 BJ Heemstede).
A review of the 31 regional spp. encountered in 2003, with current observations and notes on the regional status of Sympecma fusca, Enallagma cyathigerum, Pyrrhosoma nymphula, Libellula fulva and Sympetrum fonscolombii. Of particular interest are the graphs on the 1998-2004 regional abundance of S. fusca (increasing) and Coenagrion pulchellum (rapidly decreasing); – Noord Holland prov., the Netherlands.

(16110) KURSTJENS, G., P. CALLE & B. PETERS, 2005. Recovery of insect biodiversity in the "Gelderse Poort", an example of floodplain restoration. *Levende Nat.* 106(6): 260-267. (Dutch, with Engl. s.). – (First Author: Rijksstraatweg 213, NL-6573 CS Beek-Ubbergen).
The effects of large-scale floodplain restoration on Odon., Rhopalocera and Orthoptera are outlined and discussed. At present, 40 odon. spp. occur in the area (Arnhem-Nijmegen-Kleve-Emmerich; the Netherlands & Germany), incl. appreciable populations of 6 red-listed spp. Compared with data from the recent decades, the species richness increased clearly, due to improvement of the river water quality, climate change (colonisation by Mediterranean spp.) and habitat recovery (side channels, new marshes, alluvial forest, vegetation structure created by beavers and large herbivores). It is concluded that odon., in particular, are good indicators of floodplain restoration effects.

(16111) *MERCURIALE*. Zeitschrift der Schutzgemeinschaft Libellen in Baden-Württemberg (ISSN 1618-9124), No. 5 (Dec. 2005). – (c/o U. Stephen, Im Westengarten 12, D-79241 Ihringen).
Kunz, B. & H. Hunger: Editorial (p. 1); – *Sonntag, H.*: Schlupfbiologische Freilanduntersuchungen an Sympecma paedisca (pp. 2-5); – *Rackhow, H.*: Beobachtungen zum Paarungs- und Eiablageverhalten von Ophiogomphus cecilia an der Lauter (Rheinland-Pfalz) (pp. 5-8); – *Bauer, S.*: Das Zielartenkonzept im Landkreis Ravensburg (pp. 9-13); – *Landmann, A., G. Lehmann, F. Mungenast & H. Sonntag*: Die Libellenfauna Tirols: eine Übersicht (pp. 13-19); – *Frank, K.S.*: Juwel unserer Kulturlandschaft: der Mindelsee bei Radolfzell (pp. 20-25); – *Kunz, B.*: Entwurf eines Metapopulationsmodells anhand zahlreicher aktueller Funde von Sympetrum flaveolum in der Region Hohenlohe im Jahr 2005 (pp. 26-32); – *Westermann, K. & E. Westermann*: Künstliche Flutmulden im NSG "Elswiesen" als Habitat seltener Libellen (pp. 33-35); – *Wildermuth, H.*: Beobachtungen zur Spätherbst- und Winteraktivität der Gemeinen Winterlibelle (Sympecma fusca) (pp. 35-39); – *Hunger, H.*: Langstreckenmarsch schlüpfbereiter Orthetrum cancellatum-Larven (pp. 40-41); – *Koch, H.-M.*: Herbstschlupf von Lestes sponsa (pp. 41-42); – *Kuriosa* (pp. 42-45); – *Phänologiedaten* (pp. 45-48); – *Vereinsnachrichten* (pp. 49-55).

(16112) MOLNÁR, A. & A. AMBRUS, 2005. Odonata and aquatic beetle records from the Hanság habitat reconstruction area. *Acta biol. debrecina Oecol. Hung.* 13: 115-120. (Hung., with Engl. s.). – (First Author: Dept Syst. Zool. & Ecol., Eötvös Lóránd Univ., Pázmány Péter sétány 1/c, H-1117 Budapest).
The wetland habitat reconstruction commenced in 2001, involving a surface of ca 430 ha. 29 odon. spp. are listed and notes on the succession are provided. The small ponds in the vicinity of the flooded area, fed by water filtering through the peat soils, support a particularly interesting odon. fauna.

(16113) MUZON, J. & A. GARRE, 2005. Description of the last instar larva of Erythrodiplax paraguayensis (Anisoptera: Libellulidae). *Revta Soc. ent. Argent.* 64(1/2): 85-91. (With Span. s.). – (Inst. Limnol. 'Dr R. Ringuelet', C.C. 712, AR-1900 La Plata).
The final instar larva is described and illustrated, based on specimens from Iberá, Corrientes, Argentina. A comparative analysis of the hitherto known congeneric larvae from Argentina and a key are provided.

(16114) NIVEN, J.E. & J.P.W. SCHARLEMANN,

2005. Do insects metabolic rates at rest and during flight scale with body mass? *Biol. Lett.* 1(3): 346--349, with electronic appendix. – (First Author: Dept Zool., Univ. Cambridge, Cambridge, CB2 3EJ, UK).
Energetically costly behaviours, such as flight, push physiological systems to their limits requiring metabolic rates (MR) that are highly elevated above the resting MR (RMR). Both RMR and MR during exercise (e.g. flight or running) in birds and mammals scale allometrically, although there is little consensus about the underlying mechanisms or the scaling relationships themselves. Even less is known about the allometric scaling of RMR and MR during exercise in insects. Data were analysed on the resting and flight MR (FMR) of 61 spp. that fly (incl. 11 odon. spp.) to determine whether RMR and FMR scale allometrically. RMR scaled with body mass to the power of 0,66 ($M^{0.66}$), whereas FMR scaled with $M^{1.10}$. Further analysis suggested that FMR scaled with 2 separate relationships; insects weighing less than 10 mg had 4-fold lower FMR than predicted from the scaling of FMR in insects weighing more than 10 mg, although both groups scaled with $M^{0.86}$. The scaling exponents of RMR and FMR in insects were not significantly different from those of birds and mammals, suggesting that they might be determined by similar factors. It is argued that low FMR in small insects suggests these insects may be making considerable energy savings during flight, which could be extremely important for the physiology and evolution of insect flight.

(16115) OTT, J., 2005. Libellen als Indikatoren des Klimawandels: Konsequenzen für Biodiversität und Naturschutz. *BundAmt NatSchutz Skripten* 131: 64--65. – (L.U.P.O., Friedhofstr. 28, D-67705 Trippstadt).
Recently, range expansions of Mediterranean sp. to central- and N Europe, and those of African spp. to S Europe were documented in many odon. taxa. Likewise, many spp. tend to occupy habitats at higher elevations. Also the alterations of biology and ecology (e.g. changes in voltinism and phenology) were noticed in many spp. Long-term investigations in various reference areas have clearly shown a trend towards the increase of mediterranean/southern elements in local communities. On the other hand, the spp. adapted to the mountain habitats, to bogs and to the upper stream sections are getting increasingly faced with unfavourable conditions, such as increased temperature and accelerated eutrophication. This is likely to trigger the decrease of biodiversity and, subsequently, alterations in the present ecological balance in the ecosystems concerned. The odon., therefore, are to be considered as relatively quickly responding indicators of environmental changes.

(16116) PISCART, C., J.-C. MORETEAU & J.-N BEISEL, 2005 Biodiversity and structure of macroinvertebrate communities along a small permanent salinity gradient (Meurthe River, France). *Hydrobiologia* 551: 227-236. – (Last Author: UFR SciFA, Lab. BFE, Univ. Metz, Campus Bridoux, Av. du Général Delestraint, F-57070 Metz).
Changes in the macroinvertebrate community were investigated over 10 months at 4 sites along a 19 km salinity gradient (0.21-2.6 g/l^{-1}) in a sixth-order stream, the Meurthe R., NE France. Abundances of Odon. and other insects contributed less than 2% to the benthic community at all sites. The abundances of Mollusca and Crustacea (and very slightly also those of Odon.) increased at the highest salinity site. Platycnemis pennipes, Coenagrion sp., Calopteryx splendens and Gomphus sp. are mentioned.

(16117) RELYEA, R.A., 2005. The impact of insecticides and herbicides on the biodiversity and productivity of aquatic comunities. *Ecol. Applns* 15(2): 618-627. – (Dept Biol. Sci., 101 Clapp Hall, Univ. Pittsburgh, Pittsburgh, PA 15260,, USA).
The impact of 4 globally common pesticides (2 insecticides: carbaryl [Sevin] and malathion; and 2 herbicides:: glyphosate [Roundup] and 2,4-D) on the biodiversity of aquatic communities containing algae and 25 animal spp. (incl. 3 odon. taxa) was examined. Species richness was reduced by 15% with Sevin, 30% with malathion, and 22% with Roundup, whereas 2,4-D had no effect. There were no pesticide effects on the survival of Anax junius and Lestes sp., and significant effects on the survival of Tramea sp. Survival of the latter was reduced with malathion and nearly reduced with 2,4-D.

(16118) SCHMIDT, E.G., 2005. Libellen als Nutzniesser von Laubfrosch-Schutzgewässern im Kreis Coesfeld/Westmünsterland. *Abh. westf. Mus. Naturk.* 67(3): 223-240. (With Engl. s.). – (Coesfelder Str. 230, D-48249 Dülmen).
A detailed report on a decade (1993-2005) of systematic exploration of the odon. fauna of 3 ponds in a restored Hyla arborea area in the district of Coesfeld

(W Germany); see also *OA* 16120. 34 spp. were evidenced. The Hyla habitats are favoured particularly by southern spp. occurring in ponds that dry-up in summer, and by those of heath ponds. The assemblage includes a high number of red-listed spp.

(16119) SCHMIDT, E.G., 2005. Odonata-Libellen (imagines). *In*: B. Klausnitzer, [Ed.], *Exkursionsfauna von Deutschland*, [10th revised edn], Vol. 2, pp. 74-90, Elsevier (Spektrum), Heidelberg. – (Coesfelder Str. 230, D-48249 Dülmen).
Slightly amended text of the work listed in *OA* 13608. This is the sole currently commercially available key to central European spp. including a reference to the dark-winged Calopteryx splendens ♀.

(16120) SCHMIDT, E.G., 2005. Zur Libellenfauna (Odonata) eines kleinen Laubfrosch-Schutzgebietes bei Coesfeld (Westmünsterland, Nordrhein-Westfalen). *Entomologie heute* 17: 27-38. (With Engl. s.). – (Coesfelder Str. 230, D-48249 Dülmen).
Some tree frog (Hyla arborea) habitats were recently restored in Münsterland (Northrhine-Westphalia, W Germany). The frog requires similar ecological conditions as the southern and heath odon. spp. in central Europe, therefore the effect of restoration on the odon. fauna was examined in a small wetland area nr Coesfeld, repopulated by H. arborea. 28 odon. spp. were recorded, and the assemblage is analysed in detail. It is concluded that management measures required for the Hyla habitats are greatly promoting the odon. biodiversity as well.

(16121) SCHUTTE, C., G. JOOP, D.J. MIKOLAJEWSKI, E.C. MOSCH, K. SCHENK & B. WOHLFAHRT, 2005. Die FFH-Art Coenagrion mercuriale (Charpentier, 1840) (Odonata: Coenagrionidae) im Niedermoorgebiet "Grosses Bruch" in Niedersachsen. *Braunschweig. naturk. Schr.* 7(2): 345-354. (With Engl. s.). – (First Author: Bauernstr. 14, D-38162 Weddel).
The degenerated lowland moor, the Grosses Bruch, is situated ca 30 km SE of Wolfenbüttel, Lower Saxony, N Germany. Its odon. community (23 spp.) is described, with special reference to the habitat requirements of C. mercuriale and the conservation measures required.

(16122) TARBOTON, W. & M. TARBOTON, 2005. *A fieldguide to the damselflies of South Africa*. Tarboton, Modimolle. 96 pp. Softcover (16.8×23.8 cm). ISBN 0-620-33878-4. Price: € 74.53 net. – Orders to the Authors: Box 32, Modimolle-0510, SA).
The companion volume to the Anisoptera book, described in *OA* 14744. It covers all 67 spp. currently recognised as occurring in S Africa. With 312 col. illustrations, 97 line drawings and 65 distribution maps, it is organised and presented exactly as the previous work, but a brief appreciation of work and a col. phot. of Prof. Dr B.I. Balinsky (1905-1997) are added. With the publication of these 2 vols, the identification of S African spp. became an easy proposition also for a non-specialist. It is perhaps of some interest that in addition to the taxonomic nomenclature and Engl. common names, the appellations are provided for all spp. also in Afrikaans (= South African Dutch).

(16123) TRIAL, L., 2005. *Atlas of Missouri Odonata*. [Revised edn]. Missouri Dept Conserv., Columbia/MO. ii+158 pp. Softcover, spiral binding (21.2×27.8 cm). ISBN none. Price (incl. the 1st edn): € 34.- net. – (Author & Publishers: Missouri Dept Conserv., 1110 South College Ave, Columbia, MO 65201, USA).
Unlike most of the other odon. "atlases", this one is exactly what the title says: a collection of distribution maps of the 136 Missouri spp. (marked per county). In the map captions are stated: the geographical regions where the respective sp. occurs, the habitat, Nature Conservancy Global Rank and the Missouri rank, and the counties where the adults and/or larvae were collected are enumerated. A summary of collection dates (adults and larvae), per month, is also provided. Each sp. is treated on a single page. Adult collection records comprise the bulk (75%) of the data used to generate the Atlas. They come from literature, individuals' lists, collections and museum holdings, considered up to the end of 2004. Missouri lists 9 Species of Concern, and state ranking is determined here for each sp. considered to have valid records in the state. The concise and informative introductory chapters (pp. 1-16) deal with the Missoury geography, methodology, nomenclature used, biogeography, etc. The endemic spp. are Gomphus ozarkensis, Ophiogomphus westfalli and Somatochlora ozarkensis. The exhaustive state bibliography concludes the work. – The book is masterly styled throughout and could stand model for the preparation of similar works.

(16124) UTZERI, C. & C. D'ANTONIO, 2005 Insecta Odonata. *In*: S. Ruffo & F. Stoch, [Eds], Checklist e distribuzione della fauna italiana. *Memorie Mus. civ. Stor. nat. Verona* (II) 16: 131-132. – (First Author: Inst. Biol. Anim. & Uomo, Univ. Roma "La Sapienza", viale dell'Università 32, I-00185 Roma).
This is a supplementary publication to the work described in *OA* 10735. The principle features of biodiversity (89 spp. recorded from Italy), ecology, infraspeciation and conservation are briefly outlined. Of considerable interest is the information that the enzyme protein analysis suggests Ischnura genei and Somatochlora meridionalis are merely sspp. of I. elegans and S. metallica, respectively.

(16125) VANDEN BOSCHE, J.-P. & P. USSEGLIO-POLATERA, 2005. Characterization, ecological status and type-specific reference conditions of surface water bodies in Wallonia (Belgium) using biocenotic metrics based on benthic invertebrate communities. *Hydrobiologia* 551: 253-271. – (First Author: Centre Res. Nature Forêts & Bois, DGRNE, Ministère Région Wallonne, Av. Maréchal Juin 23, B-5030 Gembloux).
The river types in Wallonia (Belgium) are defined according to the system B of the European Water Framework Directive, taking into account obligatory and optional factors synthesized in 3 criteria, viz. "size", "slope" and "natural region". Under the hypothesis that benthic invertebrate assemblages would be specialized according to river type, a set of 627 faunal samples, originationg from an 11-yr sampling period, were tested to characterize river types with faunal assemblages. Platycnemis, Lestes, "Agrion" and Aeshnidae are among the taxa used in correspondence analyses.

(16126) VERSTRAEL, T., 2005. [In the margin of the Leucorrhinia albifrons discovery in the Netherlands]. *Vlinders* 20(4): 3. (Dutch). – (De Vlinder Stichting, P.O. Box 506, NL-6700 AM Wageningen).
A note by the Director of the Netherlands Butterfly Foundation, stressing the importance of fauna recording by non-professionals.

(16127) VLIEGENTHART, A., 2005. Butterflies in the Varnous mountains in Greece. *Vlinders* 20(4): 18-20. (Dutch, with Engl. s.). – (Author's address not stated).
The mountain ridge is situated in NW Greece and was visited during 13-16 June 2005. Calopteryx splendens balcanica is mentioned from the valleys, and Coenagrion ornatum, Anax parthenope and Libellula fulva from the Prespa area.

(16128) WATTS, P.C., S.J. KEMP, I.J. SACCHERI & D.J. THOMPSON, 2005. Conservation implications of genetic variation between spatially and temporally distinct colonies of the endangered damselfly Coenagrion mercuriale. *Ecol. Ent.* 30(5): 541-547. – (First Author: Anim. Genomics Lab., Biosci. Bldg, Sch. Biol. Sci., Liverpool Univ., Crown Str., Liverpool, L69 7ZB, UK).
Good conservation management is underpinned by a thorough understanding of species' historical and contemporary dispersal capabilities along with the possible adaptive or neutral processes behind any spatio-temporal genetic structuring. These issues are investigated with respect to the rare C. mercuriale, the only odon. sp. currently listed in the UK's Biodiversity Action Plan, in E Devon where its distribution has become fragmented. The 2 E Devon C. mercuriale populations, only 3.5 km apart, have accumulated strong differences in frequencies of alleles at 14 microsatellite loci as a consequence of poor adult dispersal and drift. There is no contemporary migration between sites. A genetic signature of population decline at both sites corresponds with known demographic reductions. C. mercuriale in E Devon are now significantly genetically less diverse than those from a population stronghold in the Itchen Valley. Colonies would benefit from improved connectivity between areas and possibly by a transfer of individuals from other ecologically similar areas. Becasue C. mercuriale has a semivoltine life cycle throughout the UK, the possibility that alternate-year cohorts are reproductively isolated is explored. Genetic differentiation among cohorts is an order of magnitude less than between sites, suggesting that some larvae delay their development into adults for a year and recruit to a different cohort. Probably this is the first study to document migration and gene flow between alternate-year cohorts in an odon. sp. From a conservation standpoint, the cohorts do not require separate management.

(16129) ZESSIN, W., 2005. Bericht über das 16. Internationale Symposium der Odonatologie vom 26. Juli bis 4. August 2004 in Banzkow und Schwerin, Mecklenburg-Vorpommern. *Mitt. naturf. Ges. West-*

-*Mecklenburg* 5(1): 22-29. – (Lange Str. 9, D-19230 Jasnitz).
A detailed and well-illustrated account of the proceedings of the Symposium. Appended is the text of the welcome address by *U. Jueg*, the president of the Naturforschende Gesellschaft West-Mecklenburg. – See also *OA* 16133.

(16130) ZESSIN, W., 2005. Bilder aus der Geschichte des Schweriner Zoos (15). *Ursus*, Schwerin 11(1): 81-84. – (Zool. Garten Schwerin, Waldschulweg 1, D-19061 Schwerin).
Includes 2 phot., with comprehensive informative captions, taken during the visit to the Zoo by the participants of the 16th Int. Symp. Odonatol., on 28 July 2004.

(16131) ZESSIN, W., 2005. Die Kraft des Vergangenen. *Virgo / MittBl. ent. Ver. Mecklenburg* 8(1): 1. – (Lange Str. 9, D-19230 Jasnitz).
Editorial, with references to the 16th Int. Symp. Odonatol., SIO and *Odonatologica*.

(16132) ZESSIN, W., 2005. Die Libellenfauna des Flusses Warnow in Mecklenburg. *Virgo / MittBl. ent. Ver. Mecklenburg* 8(1): 26-27. – (Lange Str. 9, D-19230 Jasnitz).
The occurrence of 11 spp. on the Warnow R., is specified as to the stream section where they occur and some annotations and comments are provided.

(16133) ZESSIN, W., 2005. Eindrücke vom XVI Internationalen Symposium der Odonatologie (S.I.O.) vom 25. Juli bis 4. August 2004 in Banzkow/Schwerin, Deutschland. *Virgo / MittBl. ent. Ver. Mecklenburg* 8(1): 5-20. – (Lange Str. 9, D-19230 Jasnitz).
An exhaustive and richly illustrated report on the Symposium, by the Organizing Secretary. It includes the lists of the organizing personnel, of the participants and of the odon. spp. recorded during the mid-symposium field trips and the post-symposium tour. The titles of oral presentations and posters are listed, and the abstracts of 2 presented papers are published here for the first time (in Engl.). The proceedings of the Symposium and of the associated activities are documented by 47 photographs. Appended are the reproductions of 7 dragonfly illustrations, made by the pupils of Goethe-Gymnasium, Ludwigslust. – See also *OA* 16129; for the abstracts of papers, see *OA* 15335.

(16134) ZESSIN, W., 2005. Eine unwahrscheinliche Erfolgsbilanz: die Evolution der Libellen. *Virgo / MittBl. ent. Ver. Mecklenburg* 8(1): 54-66, 70. – (Lange Str. 9, D-19230 Jasnitz).
The evolution of the order is briefly outlined and reconstructions of the Carboniferous spp., Namurotypus sippeli, Erasipteroides valentini and Zessinella siope, are reproduced. The venation of palaeozoic (Carpentertypus durhami, Stephanotypus schneideri), mesozoic (Protomyrmeleon brunonis, Obotritagrion petersi, Paraobotritagrion tenuiformis, Zirzipanagrion quadriordinem) and extant (Epiophlebia superstes, Microgomphus, Macrogomphus, Lamelligomphus, Sieboldius) spp. is illustrated, and some venational details of various Carboniferous, Permian, Jurassic and extant taxa are also figured. It is emphasized that small differences in venation can indicate appreciable differences in larval and adult morphology.

(16135) ZESSIN, W., 2005. Hund als Eiablageplatz einer Edellibelle (Insecta, Odonata, Aeshnidae). *Virgo / MittBl. ent. Ver. Mecklenburg* 8(1): 67. – (Lange Str. 9, D-19230 Jasnitz).
After having taken a refreshing bath in a garden pond, the Author's black sheepdog retired to the spotty shadow of a nearby willow. From among a number of Aeshna cyanea that were active over the pond, a ♀ landed on the dog and attempted to oviposit in the fur.

(16136) ZHU, H.-q. & S. CHEN, 2005. A new species of the genus Macromia Rambur (Odonata: Corduliidae) from Beijing area, China. *Entomotaxonomia* 27(3): 161-164. (Chin., with Engl. s.). – (First Author: Shanxi Univ., 42-38, Taiyuan, Shanxi-030006, P.R. China).
M. beijingensis sp. n. is described, illustrated and compared with the similar M. amphigena fraenata. Holotype ♂: Zhuijiuyu, Changping region, Beijing, 21-VI-2002.

2006

(16137) *ABSTRACTS [of papers presented at the] 7th SOUTH ASIAN SYMPOSIUM OF ODONATOLOGY AND RECENT TRENDS IN ZOOLOGY*, 2006. Dept Zool., Hislop Coll., Nagpur & Sth Asian Council Odonatol., Nagpur. viv+96 pp. Edited by R.J. Andrew. – (Dept Zool., Hislop Coll., Civil lines, Nagpur-440 001, MS, India).

[Odonatol. titles:] *Andrew, R.J., L. Kodhe & S.S. Kurup*: Changes in the egg shell ultrastructure of Bradinopyga geminata (Rambur) (Anisoptera: Libellulidae) induced by paper mill effluent (p. 1); – *Arunachalam, A. & M.A. Subramanian*: Impact of tannery effluent on biochemical constitutions in the gonadial tissue of male larvae of Bradinopyga geminata (Rambur) (p. 2); – *Bakare, S.S., R.J. Andrew & D.B. Tembhare*: Spermatogenesis, intragenital transport and storage of sperm-bundle in Anax guttatus (p. 3); – *Biswas, M. & B. Suri Babu*: A note on the mortality of odonates due to spiders (p. 4); – *Chandrakar, M.*: Odonata fauna of the Melghat region, district Amravati (MS) (p. 5); – *Emiliyamma, K.G.*: Taxonomic studies on Odonata of Kerala, India (p. 6): – *Gunasekaran, M. Thomas & M. Daniel*: Comparative studies on the genital and sub-genital abdominal segments of five species of dragonflies (Anisoptera: Odonata) (p. 7); – *Joseph, J. & M. Thomas*: A study on fluctuating asymmetry in the wings of Pantala flavescens (Fabricius) (p. 8); – *Kodhe, L., R.J. Andrew & E. Balmik*: Changes induced by paper mill effluent on the neurosecretion and midgut protease activities in the larva of Bradinopyga geminata (Rambur) (p. 9); – *Kulkarni, P.P. & S.S. Talmale*: An account of Odonata from five conservation areas and two wetlands of Maharashtra, India (p. 10); – *Patankar, N.V. & R.J. Andrew*: Observation of Pantala flavescens (Fabricius) in central India: condition of the adults (p. 11); – *Patankar, N.V. & D.B. Tembhare*: Hormonal control of midgut digestive enzyme activity on Tramea virginia (Rambur) (p. 12); – *Prabhu, M., D. Chitra & A. Reniprabha*: Effect of Panchakavya on growth and biochemistry in the larvae of Macromia cingulata (Rambur) (p. 13); – *Prabha, A.R. & M.A. Subramanian*: Impact of paper and pulp mill effluent on the organic reserves in the haemolymph of larvae of Bradinopyga geminata (Rambur) (p. 14); – Effect of paper and pulp mill effluent on the organic constituents in the haemolymph of larvae of Bradinopyga geminata (Rambur) (p. 15); – Disturbance of adult exclusion by paper and pulp mill effluent in the larvae of Bradinopyga geminata (Rambur) (p. 16); – Changes in electrophoretic pattern of haemolymphproteins in the larvae of Bradinopyga geminata (Rambur) under the toxicity of paper and pulp mill effluent (p. 17); – *Sasikumar, K.K. Krishnasami & M.A. Subramanian*: Combined toxicity of industrial effluents on the larvae of Bradinopyga geminata (Rambur) (p. 18); – *Sharma, G.R. Sundararaj & L.R. Karibasvaraja*: Species diversity of odonates in sandal rich ecosystem of Karnataka and reproductive behaviour of Orthetrum pruinosum neglectum (Rambur) (p. 19); – *Kumar Shrestha, T.*: Wilderness and biodiversity of dragonflies in terra nipalensis (p. 20); – *Kumar Shrivastava, V.*: Studies on the zygopteran sperm material (p. 21); – *Mitra, T.R.*: A note on zoogeography of Odonata fauna of the Andaman islands (p. 22); – *Walia, G.K. & R. Sandhu*: Status of m-chromosomes in dragonfly cytotaxonomy (p. 23); – *Wazalwar, S.M.*: Stomodial armature in the larvae of Brachythemis contaminata (F.) (p. 24); – *Subramanian, M.A.*: Odonates in toxicological research (p. 90); – *Daniel, B.A.*: Workshop on conservation strategy and action plan for odonates of South Asia (p. 92).

(16138) *AGRION, PURLEY*. Newsletter of the Worldwide Dragonfly Association (ISSN 1476--2552), Vol. 10, No. 1 (Jan. 2006). – (c/o J. Silsby, 38 Astoria House, 116 High Str., Purley, Surrey, CR8 2XT, UK).

[Selected articles:] *Ubukata, H.*: Letter from our new President (pp. 1-2; incl. some autobiographic information); – *Pritchard, G.*: The 4th WDA International Symposium of Odonatology (pp. 2-4; report); – *Kosterin, O.*: A journey of a dilettante (pp. 5-7; Thailand records); – *Villanueva, R.*: News from Mindanao (pp. 9-10; notes on Rhinocypha); – *Dow, R.*: Looking for Odonata in Sarawak's Kalabit Highlands (p. 10; records); – *Wilson, K.*: Commercial Odonata fishery at Cao Hai, Guizhou province, southwest China (pp. 11-12); – *Reels, G.*: Hainan, China, August 2005 (pp. 12-13; records).

(16139) *ARGIA*. The news journal of the Dragonfly Society of the Americas (ISSN 1061-8503), Vol. 17, No. 4 (1 Jan 2006). – (c/o Dr & Mrs T.W. Donnelly, 2091 Partridge Lane, Binghamton, NY 13903, USA).

[Scientific articles:] *Blust, M.*: What a day! (pp. 4-5; Vermont records); – *Paulson, D.*: Gynacantha mexicana at Communal Roost in South Texas (pp. 5-6); – *Sibley, F.C. & J. Daigle*: return to Red October (pp. 6-8; records from the Keys, FL); – *Sibley, F.*: Nebraska summer (pp. 8-10; records); – *Gordon, S. & C. Kerst*: 2005 Aeshna blitz (pp. 10-12; Oregon records); – *Harp, G.L.*: The Shirey Bay Rainey Brake Wildlife Management Area BioBlitz (pp. 12--13; Arkansas records); – *Tennessen, K.*: Ecuador expedition, 5 (p. 15); – *Craves, J.*: Odonata in cen-

tral Panama (pp. 15-16); – *Paulson, D.*: Dragonfly graveyards (p. 17); – *Novak, P.*: New York dragonfly and damselfly survey: an update (pp. 17-19); – *Bridgehouse, D.W.*: Significant range extension for Somatochlora brevicincta in Nova Scotia (pp. 19-20); – *Hutchings, G.E. & D.A. Halstead*: Southern boreal forest observations of Somatochlora williamsoni: is their range extending northward? (pp. 20-21); – *Bailowitz, R. & L. Stevens*: Argia hinei in Utah (p. 21); – *Bailowitz, R.*: Macrodiplax balteata in Nevada (p. 22); – *O'Brien, M.*: Archilestes grandis in Michigan (p. 22); – *Strickland, G. & J. Strickland*: First record of Gomphus australis for Louisiana (p. 22); – *Cannings, R.A., P.M. Catling & P.M. Brunelle*: New subspecific status for Macromia rickeri Walker (p. 23); – *Harp, G.L.*: Dragonfly records from the Hiawatha National Forest, Michigan (p. 24); – *Catling, P.M.*: Zebra mussels on dragonfly larvae, from Ontario (p. 25); – *Grimes, B.*: Robber fly predation on dragonfly (p. 26); – *Catling, P.M., R.A. Cannings & P.M. Brunelle*: An annotated checklist of Odonata of Canada update, November 2005 (pp. 26-28).

(16140) *ATROPOS* (ISSN 1478-8128), No. 27 (Feb. 2006), – (c/o M. Tunmore, 36 Tinker Lane, Maltham, Holmfirth, W Yorks, HD9 4EX, UK).
[Odon. articles:] *Parr, A.*: Migrant dragonflies in 2005, including recent decisions and comments by the Odonata Recorders Committee (pp. 33-38); – Reports from coastal stations, 2005: *Scott, M.A., W.J Scott & T.R. Scott*: Longstone Heritage Centre, St Mary's, Isles of Scilly (pp. 47-49); – *Knill-Jones, S.*: Isle of Wight (pp. 56-57); – *Hunter, I.*: Elms Farm, Icklesham, East Sussex (pp. 59-60); – *Clancy, S.*: Dungeness area, Kent (pp. 60-62); – *Jarman, N.*: Kingsdown Beach, Kent (pp. 62-63); – *Solly, F.*: Isle of Thanet (pp. 64-65); – *Dewick, S.*: Curry Farm, Bradwell-on-Sea, Essex (pp. 66-67); – *Odin, N.*: Landguard Bird Observatory, Suffolk (p. 67); – *Deans, M.*: Bawdsey Pensinsula, Suffolk (pp. 68-69); – *Harvey, R.*: Minsmere RSPB Nature Reserve, Suffolk (pp. 69-70); – *Bowman, N.*: Eccles-on-sea, Norfolk (pp. 70-71); – *Troake, P.*: Gibraltar Point, Lincolnshire (pp. 71-72); – *Spence, B.*: Spurn Point, East Yorkshire (pp. 72-73); – *Morgan, L.*: Skomer Island NNR, Pembrokeshire (pp. 74-75); – News: *Smallshire, D.*: Dragonfly conservation from the BDS: Devon key sites survey, 2005 (pp. 83-84).

(16141) *BRACHYTRON* (ISSN 1386-3460), Vol. 8, Nos 1 (June 2005), 2 (Febr. 2006). (Dutch, with Engl. s's). – (c/o R. Manger, Stoepveldsingel 55, NL-9403 SM Assen).
[No. 1]: *van Eijk, J.L. & R. Ketelaar*: Rapid colonisation of Cercion [= Erythromma] lindenii in the Netherlands (pp. 3-8); – *van de Haterd, R.J.W.*: Brachytron pratense and Cordulia aenea as water quality indicators (pp. 9-14); – *Goudsmits, K. & V.J. Kalkman*: Rare dragonflies in the Netherlands in 1999, 2000 and 2001 (pp. 15-23); – *de Boer, E.P.*: Predation of Aeshna juncea on A. mixta (pp. 24-26); – *Courbois, M.*: The fourth population of Somatochlora arctica in the Netherlands (pp. 27-28); – *Dijkstra, K.-D.B.*, [book review] R.R. Askew, 2004, The dragonflies of Europe, revised edition (pp. 29-30). – [No. 2]: *Koops, R.-J., D. Schut & D. Groenendijk*: Ecological differences between Leucorrhinia dubia and L. rubicunda (pp. 3-11); – *Krekels, R.*: Nature photography: dragonflies in the picture, 1: imagines (pp. 12-19); – *Dijkstra, K.-D.B.*: The blue-eyed damselfly: why "Cercion" should be called Erythromma lindenii (pp. 20-24); – *Gerard, J.*: Stratiotes aloides and Aeshna viridis in the Peizermaden (pp. 25-30).

(16142) ENDERSBY, I., 2006. *Bibliography of Victorian dragonflies (Insecta: Odonata)*. Arthur Rylah Inst. Envir. Res. (Tech. Rep. 157), Dept Sustainability & Environment, Melbourne. iv+29 pp. ISBN 1-74152-439-3. – (Author: 56 Looker Rd, Montmorency, VIC 3094, AU).
The 74 spp. known from the state of Victoria, Australia are listed along with citations of primary publications and synonyms under which they were reported therein. This is crossreferenced to bibliography, covering all the references that cite at identified species' level the occurrence within Victoria. In Appendix, type localities within Victoria are stated for 21 spp.

(16143) FERRO, M.L. & R.W. SITES, 2006. Description of the larva of Gomphidictinus perakensis (Laidlaw) (Odonata: Gomphidae), with distributional notes. *Proc. ent. Soc. Wash.* 108(1): 76-81. – (Enns Ent. Mus., Dept Ent., Univ. Missouri, Columbia, MO 65211, USA).
The final instar is described and illustrated from exuviae and larvae collected in Chiang Mai, Kanchanaburi, Prachuap Khiri Khan and Surat Thani provinces, Thailand. Information is provided on additional collections of adults, larvae and exuviae from Thailand.

(16144) HANCOX, J., 2006. Dragonfly year. *Potteric Carr Nature Reserve Recorder* 9: 3. – (57 Braithwell Rd, Ravenfield, Rotherham, S65 4LH, UK).
A summary of the 2005 records of 18 spp. at Potteric Carr Nature Reserve, Yorkshire, UK.

(16145) [HANCOX, J.], 2006. Early and late dates 1998-2005. *Potteric Carr Nature Reserve Recorder* 9: 9. – (57 Braithwell Rd, Ravenfield, Rotherham, S65 4LH, UK).
The 1998-2005 means of the first and last flying period dates are presented along with the 2005 actual dates for 17 odon. spp. at Potteric Carr Nature Reserve, Yorkshire, UK.

(16146) SALUR, A. & S. KIYAK, 2006. An interesting dragonfly record, Pseudagrion syriacum (Selys, 1887), from Turkey (Odonata: Coenagrionidae). *Munis Ent. Zool.* 1(1): 171-172. – (Dept Biol., Corum Sci. & Arts Fac., Gazi Univ., TR-19030 Corum).
This is only the second record for Turkey: several ♂, 1 ♀: Hatay, Iskenderun (Arsuz-Kepirce), 15-V-2003, 19-V-2004.

(16147) *SOUVENIR [of the] 7th SOUTH ASIAN SYMPOSIUM ON ODONATOLOGY AND RECENT TRENDS IN ZOOLOGY*, 2006. Dept Zool., Hislop Coll., Nagpur & Sth Asian Council Odonatol., Nagpur. xiv+22 pp. Edited by R.J. Andrew. – (Editor: Dept Zool., Hislop Coll., Civil lines, Nagpur-440 001, MS, India).
After the lists of members of the Org. Committee and of the South Asian Council of Odonatology, follow the address of the Convener (R.J. Andrew; p. iii) and Messages to the Symp. by various personalities, incl. *T.R. Mitra* (p. v). The history of the host institution and of the city of Nagpur is outlined in 3 chapters (pp. xiii-xiv, 1-8). The odonatol. chapters are: *D.B. Tembhare*: Societas internationalis odonatologica (SIO) (pp. 9-10); – *R.J. Andrew*: South Asian Council of Odonatology (SACO) (pp. 11-12); – Odonatology, the study of dragonflies and damselflies (pp. 13-16); – and *Anonymous*: Nagpur University School of Odonatology (pp. 17-22). The latter includes the complete bibliography of the School (1974-2005: 5 PhD dissertations and 46 research papers). – For abstracts of papers presented at the Symp., see *OA* 16137.

ERRATUM

Figure 1 on p. 174 of

> A. MITCHELL & M.J. SAMWAYS, 2005, The morphological 'forms' of *Palpopleura lucia* (Drury) are separate species as evidenced by DNA sequencing (Anisoptera: Libellulidae). *Odonatologica* 34(2): 173-178

is incorrect and should be replaced by the figure below. The authors apologize to readers for this inconvenience.

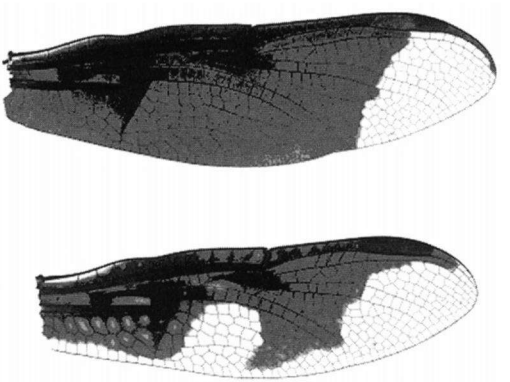

Fig. 1. Wing patterning of *Palpopleura l. lucia* (above) and *P. l. portia* (below).