ODONATOLOGICAL ABSTRACTS

2000

(16379) ACHARYYA, S. & W.J. MITSCH, 2000. Macroinvertebrate diversity and its ecological implications in two created wetland ecosystems. *Annu Rep. Olentangy R. Wetland Res. Park* 2000: 65-76. – (Envir. Sci. Graduate Progr., Ohio St. Univ., USA; address not provided).
The macroinvertebrate diversity of 2 man-made experimental ponds (surface 1 ha each) in the Olentangy R. Wetland Research Park, Columbus, Ohio, was examined during 10-29 Oct. 2000. The odon. were identified as "Lestes" and "Libellula".

(16380) LYTLE, D.A., 2000. Biotic and abiotic effects of flash flooding in a montane desert stream. *Arch. Hydrobiol.* 150(1): 85-100. – (Dept Ecol. & Evol., Univ. Chicago, 1101 E 57th St., Chicago, IL 60637, USA).
Flash floods in desert streams can be more sudden, brief, and severe compared to floods in mesic streams. To determine their biotic and abiotic effects, substrate composition, organic detritus abundance, and aquatic animal taxonomic richness and abundance were measured 8-16 d before and 7 d after a flash flood in a 122 m reach of a montane desert stream (Chihuahuan Desert, Arizona, USA). The flash flood severely altered channel morphology by scouring and depositing substrates, but it did not change the overall abundance of any substrate particle size class. The flood removed most coarse detritus from the stream reach, although the quantity of organic particles <2 mm was unchanged. High losses were observed in most animal taxa (95% overall), and reach-wide taxonomic richness was reduced from 35 to 21 taxa. Ephemeroptera were entirely eliminated from the study reach, and so were Argia and Cordulegaster diadema. The overall odon. losses amounted to 87%. Compared to studies of flooding in mesic streams, this study suggests that flash floods in montane desert streams cause greater mortality in animal populations and remove more detritus. Ecologically, these high local mortality rates stress the importance of recolonization mechanisms. Evolutionarily, flash floods provide a strong selection pressure that may influence the genetic structure of populations.

2001

(16381) BONSEL, A., 2001. Hat Aeshna subarctica (Walker, 1908) in Nordostdeutschland eine Überlebungschance? Die Entwicklung zweier Vorkommen im Vergleich zum gesamten Bestand in Mecklenburg-Vorpommern. *Natur Landschaft* 76(6): 257-261. (With Engl. s.). – (Vasenbusch 15, D-18337 Gresenhorst).
The currently known (confirmed and unconfirmed) occurrence of A. subarctica in Mecklenburg-Western Pomerania (E Germany) is mapped and the history of the development of 2 populations is minutely outlined. The sp. is known from 11 sites, which are all threatened, therefore a medium-term extinction of A. subarctica in NE Germany seems a possibility.

(16382) LOHR, M. & H.-D. MITZKA, 2001. Die Libellenfauna der Weserrandsenke "Taubenborn" bei Höxter (Insecta: Odonata). *Egge-Weser* 14: 31-50. – (Tierökol. u. Landschaftsökol., Fachhochschule Lippe-Höxter, An der Wilhelmshöhe 44, D-37671 Höxter).
Between 1989-2001, 29 spp. were documented. The occurrence of appreciable populations of Brachy-

tron pratense, Cordulia aenea and Somatochlora metallica is emphasized. B. pratense, Crocothemis erythraea and Anax parthenope are recorded from the area for the first time; – Höxter, Germany.

(16383) RICHARDSON, J.M.L., 2001. A comparative study of activity levels in larval anurans and response to the presence of different predators. *Behav. Ecol.* 12(1): 51-58. – (Dept Zool., Univ. Toronto, 25 Harbord St., Toronto, ON, M5S 3G5, CA).
Time spent active was quantified for larvae of 13 anuran spp. (from 3 fam.) in 4 conditions: when no predator was present, and in the non-lethal presence of an odon. (Anax junius) larva, newt or fish predators. Spp., here classified as (fishless) "dragonfly pond" spp. (Hyla femoralis, H. gratiosa, H. versicolor, Rana clamitans, R. sylvatica), were found in many different "dragonfly ponds" (Florida, New Hampshire), but were never found in "fish ponds". The phylogenetic aspects of the anuran behaviour are also addressed.

(16384) RIEDEL, D., C. SANDKE & M. HOMEYER, 2001. *Ornithologische Kartierung 2001 im Naturschutzgebiet "Ruhraue bei Hattingen-Winz", Stadt Hattingen, Ennepe-Ruhr-Kreis: Kurzbericht mit Angaben zu weiteren Tiergruppen.* Biol. Station Ennepe-Ruhr. 31 pp. – (Authors' addresses not stated).
Includes an annotated list of 24 odon. spp. recorded from the Reserve; – Germany.

(16385) VAN BUSKIRK, J., 2001. Specific induced responses to different predator species in anuran larvae. *J. evol. Biol.* 14: 482-489. – (Inst. Zool., Univ. Zürich, Winterthurerstr. 190, CH-8057 Zürich).
Models of defence against multiple enemies predict that specialized responses to each enemy should evolve only under restrictive conditions. Nevertheless, tadpoles of Rana temporaria can differentiate among several predator spp. Small tadpoles used a refuge when Notonecta backswimmers were in the pond, but showed a weaker hiding response to adult Triturus alpestris newts and no response to Aeshna and Anax larvae. All predators caused a decline in feeding and swimming activity. Large tadpoles reserved the strongest behavioural response for dragonflies, while Triturus caused no response. The shift during development suggests that tadpoles distinguished among predators, rather than exhibiting a graded dosage response to a single cue associated with predation. Information on habitat distributions of predators suggests that they are regularly encountered, which would facilitate evolution of adaptive behavioural responses. Morphological responses to all predators were similar, perhaps because similar morphologies defend against all 4 predators. The evolutionary maintenance of specialized responses to multiple predators may be possible because adaptive responses do not conflict and the predators themselves do not interact strongly.

2002

(16386) EVANS, R., 2002. *Conservation assessment for selected dragonflies of the Allegheny National Forest.* USDA Forest Service, Eastern Region. 36 pp. – (Western Pennsylvania Conservancy, 209 Fourth Ave, Pittsburgh, PA 15222, USA).
The objective of this document is to provide background information and review the conservation status of several odon. spp. in the Allegheny National Forest, Pennsylvania. Helocordulia uhleri, Somatochlora elongata, Gomphus adelphus, G. descriptus, G. fraternus, G. quadricolor, G. viridifrons, Ophiogomphus mainensis and Stylurus scudderi are the focus of this report. The threats are outlined and management considerations are provided.

(16387) HAUSWIRTH, L., G.H. LOOS & R. JOEST, 2002. Übersicht über die Libellen (Odonata) des Kreises Soest: eine kommentierte Artenliste. *Inf. ArbGem. biol. Umweltschutz Kreis Soest* 25/26: 34-37. – (c/o UBU, Teichstr. 19, D-59505 Bad Sassendorf-Lohne).
A commented list of 47 spp., Soest distr., Rhineland-Westphalia, Germany.

(16388) MACAULAY, D., 2002. *Survey of Odonata in the Canadian Shield Natural Region of northeastern Alberta. 2. 2001 Survey of La Butte Creek and Fidler-Greywillow Wildland Parks.* Prepared for the Alberta Nat. Herit. Inform. Cent., Parks & Protected Areas Div., Alberta Community Development. ii+7 pp., 4 App. excl. – (Author's address not stated).
A commented list of 22 spp. Calopteryx aequabilis, Somatochlora cingulata and Leucorrhinia glacialis are uncommon in Alberta, Canada.

(16389) NOKKALA, S., A. LAUKKANEN & C. NOKKALA, 2002. Mitotic and meiotic chromosomes in Somatochlora metallica (Corduliidae, Odo-

nata): the absence of localized centromeres and inverted meiosis. *Hereditas* 136: 7-12. – (Lab. Genet., Dept Biol., Univ. Turku, FIN-20014 Turku).
Spermatogonial metaphase chromosomes were examined in S. metallica and Aeshna grandis, and the behaviour of ♂ meiotic chromosomes was studied in S. metallica. Both in S. metallica and A. grandis the mitotic metaphase chromosomes from cells treated with colchicine consisted of 2 equidistantly aligned chromatids, showing no primary constriction. In meiosis the chromosomes of S. metallica showed telokinetic activity during the first meiotic division, and kinetic activity was restricted in the middle parts of chromosomes during the second division. The kinetic behaviour of the chromosomes both in mitosis and meiosis showed that they were holocentric. One chiasma arises interstitially in each bivalent in S. metallica ♂ meiosis. The chiasmata retain their interstitial position at metaphase I and do not terminalize. At metaphase I bivalents co-orient with homologous telomere regions towards the opposite poles. Thus genuine dyads segregate at the first anaphase. Meiosis in these ♂ dragonflies is thus pre-reductional or conventional, not post-reductional or inverted, as has been previously proposed.

2003

(16390) ALBERTONI, E.F., C. PALMA-SILVA & F.A. ESTEVES, 2003. Natural diet of three species of shrimp in a tropical coastal lagoon. *Braz. Archs Biol. Technol.* 46(3): 395-403. – (First Author: Lab. Ecol., Depto Cienc. Morfo-Biol., Univ. Fed. Rio Grande, Campus Carreiros, Av. Itákia Km 8, BR-96201-900 Rio Grande, RS).
In Imboassica Lagoon, Macaé, Rio de Janeiro, Brazil, odon. larvae were found in 18.79% of Farfantepenaeus brasiliensis gut examined, representing 5.0% of the total volume of all dietary items. In F. paulensis and Macrobrachium acanthurus these values were 12.98% (2.97%) and 32.35% (6.35%), respectively.

(16391) BRUX, H., 2003. Sager Meere, Heumoor, Wehsandgebiete und Lethetal: Ergebnisse und Bilanz aus sechs Jahren Untersuchungen in einem kaum bekannten Gebiet. *Natur- Umweltschutz, Mellumrat* 2(1): 24-33. (With Engl. s.). – (IBL-Umweltplanung, Unterm Berg 39, D-26123 Oldenburg).
Includes a commented list of 26 odon. spp., as recorded since 1986 from the Sager Meer area, Lower Saxony, Germany. Ceriagrion tenellum and Orthetrum coerulescens are of particular local interest.

(16392) BURTON, T.M. & D.G. UZARSKI, 2003. *Development of indices of biotic integrity for Great Lakes coastal wetlands.* Final report to Michigan Great Lakes Protection Fund, Office of Great Lakes, Michigan Department of Environmental Quality. 159 pp. – (First Author: Depts Zool. and Fish & Wildlife, Michigan St. Univ., East Lansing, MI 48824, USA).
The objectives of this study were to test and develop macroinvertebrate (incl. odon.) and fish based biotic indicators of wetland ecological health that could be employed in a monitoring program by federal, state and local agencies to detect effects of anthropogenic disturbance on the biotic integrity of Great Lakes coastal wetlands.

(16393) CANNINGS, S.G., 2003. Status of Western River Cruiser, Macromia magnifica McLachlan, in British Columbia. *Wildlife Bull. Br. Columbia* B-111: vii+23 pp. – (353 Valleyview Crescent, Whitehorse, YT, Y1A 3C9, CA).
In British Columbia (Canada), M. magnifica is restricted to a few lakes and warm streams in the Fraser Valley, Shuswap Lake, Okanagan Valley and Christina Lake areas. Little is known of its biology and no real trend information is available. Possible threats include shoreline development (including loss of riparian vegetation), pesticide contamination, eutrophication and predation by introduced fish. Recommendations include more focused inventory, basic research into the sp. biology, maintenance of natural shorelines where possible and control of introduced predatory fish.

(16394) FABBRI, R. & M. PAVESI, 2003. Prima segnalazione per la Lombardia di Chalcolestes parvidens (Artobolevski, 1929) (Odonata: Lestidae). *Annali Mus. civ. Stor. nat. Ferrara* 6: 95-96. (With Engl. s.). – (First Author: Mus. Civico Storia Naturale, Via de'Pisis 24, I-44100 Ferrara).
The first C. parvidens records for Lombardy (Italy) are reported from Brescia and Mantova prov., and some notes on distribution and ecology of the sp. are provided.

(16395) KEFFORD, B.J., P.J. PAPAS & D. NUGEGODA, 2003. Relative salinity tolerance of ma-

croinvertebrates from the Barwon river, Victoria, Australia. *Mar. Freshw. Res.* 54(6): 755-765. – (First Author: Biotechnol. & Envir. Biol., Sch. Appl. Sci., RMIT Univ., P.O. Box 71, Bundoora, VIC 3083, AU).
The relative salinity tolerance (mS/cm^{-1}) to artificial seawater of macroinvertebrates from the Barwon R. was assessed by measuring the 72-h lethal concentrations to kill 50% of individuals (LC_{50}). The most sensitive group tested were Baetidae (Ephemeroptera; LC_{50} value range: 5.5-6.2 mS/cm^{-1}), the Odon. were among the most tolerant groups (30-55 mS/cm^{-1}).

(16396) KLYM, M. & M. QUINN, 2003. *Introduction to dragonfly and damselfly watching*. Texas Parks and Wildlife, Austin/TX. 24 pp. – (Publishers: 4200 Smith School Rd, Austin, TX 78744, USA).
A brief introduction to some general aspects of odon. biology and to the Texas odon. families, with notes on field watching equipment and links to various sources of odonatol. information.

(16397) LANGE, L., 2003. Die Kleine Pechlibelle, Ischnura pumilio (Charpentier, 1825) und die Speer-Azurjungfer Coenagrion hastulatum (Charpentier, 1825), zwei für die Marschen des Kreises Steinburg seltene Libellen. *Bombus* 3(55/57): 217-218. – (Deichreihe 21, D-25599 Wewelsfleth).
Records: Steinburg distr. (Schleswig-Holstein, Germany).

(16398) SANZONE, D.M., J.L. MEYER, E. MARTI, E.P. GARDINER, J.L. TANK & N.B. GRIMM, 2003. Carbon and nitrogen transfer from a desert stream to riparian predators. *Oecologia* 134: 238-250. – (First Author: Ecosystems Cent., Marine Biol. Lab., Woods Hole, MA 02543, USA).
Natural abundance $\delta^{13}C$ and $\delta^{15}N$ values and an isotopic ^{15}N tracer addition were used to quantify the flow of carbon and nitrogen from aquatic to terrestrial food webs via aquatic insects emerging from Sycamore Creek, a Sonoran desert stream in central Arizona, USA. The results are consistent with the hypothesis that invertebrate insectivores (such as spiders and odon.) are facilitating the transfer of energy from aquatic and terrestrial habitats by consuming emerging aquatic prey along the stream edge, which, in turn increases the density and diversity of vertebrate predators in riparian zones.

(16399) ROQUE, F.O., S. TRIVINHO-STRIXINO, G. STRIXINO, R.C. AGOSTINHO & J.C. FOGO, 2003. Benthic macroinvertebrates in streams of the Jaragua State Park (Southeast of Brazil) considering multiple spatial scales. *J. Insect Conser.* 7: 63-72. – (First Author: Lab. Ent. Aquat., Depto Hydrobiol., Univ. Fed. São Carlos, Caixa Postal 676, BR-13565-905 São Carlos, SP).
The Park (ca 492 ha, alt. ca 900 m) is located in the city of São Paulo. In early dry season, 16 odon. genera were identified from 3 streams.

(16400) ROUSH, S.A. & J.P. AMON, 2003. Repopulation of restored wetland habitat by Odonata (dragonflies and damselflies). *Ecol. Restoration* 21(3): 174-179. – (Second Author: Dept Biol. Sci., Wright St. Univ., Dayton, OH 45435-0001, USA).
The results are outlined of the recent restoration of 4 wetland types in the Beaver Creek Wetlands, Greene co., Ohio, USA, viz. a seasonal marsh, a fen, a groundwater-fed marsh and a salamander pond. 26 odon. spp. were recorded from the 4 habitats. An annotated list of these is provided and the assemblage is discussed.

(16401) TOLONEN, K.T., H. HÄMÄLÄINEN, I.J. HOLOPAINEN, K. MIKKONEN & J. KARJALAINEN, 2003. Body size and substrate association of littoral insects in relation to vegetation structure. *Hydrobiologia* 499: 179-190. – (First Author: Dept Ecol., Karelian Inst., Univ. Joensuu, P.O. Box 111, FIN-80101 Joensuu).
The studies were conducted in a vegetated littoral zone of 3 basins in the Saimaa lake system, Finland. The species distribution traits were examined in relation to vegetation density. Dense macrophyte beds were thought to be dominated by invertebrate predators and open water by fish predators. In the case of invertebrate predator domination, large size and higher activity should be favoured traits among the prey spp. The odon. densities were higher among macrophytes than in open water, where they were possibly depleted by fish.

2004

(16402) ALLING, V., P. ANDERSSON, C. FRIDRIKSSON & C. RUBIO LIND, 2004. *Oskarshamn site investigation. Biomass production of Common reed (Phragmites australis), infauna, epiphytes, sessile epifauna and mobile epifauna. Common reed biotopes in Oskarshamn's model area.* Report on a

study conducted for Swedish Nuclear Fuel & Waste Management Co. (SKB). 19 pp., 4 App. excl. – (Client's address: Box 5874, S-102-40 Stockholm).
The aim of the study was to determine and estimate the total P. communis biomass, both standing crop and the rhizome biomass, in SKB's regional modelling area in Simpevarp, Oskarshamn, Sweden. The odon. biomass and abundance are stated at the suborder level.

(16403) BRODIN, T. & F. JOHANSSON, 2004. Conflicting selection pressures on the growth/predation-risk trade-off in a damselfly. *Ecology* 85(11): 2927-2932. – (Dept Ecol. & Envir. Sci., Anim. Ecol., Umeå Univ., S-90187 Umeå).
Activity is an important behavioural trait that in most animals mediates a trade-off between obtaining food for growth and avoiding predation. Active individuals usually experience a higher encounter rate with food items and predators and, as a consequence, grow faster and suffer higher predation pressure than less active individuals. Here it was investigated how predator-induced mortality and growth of Coenagrion hastulatum depend on activity at the level of the genotype. Larvae from 6 different C. hastulatum families were reared in 2 different predator treatments: predator present or absent. Families differed in activity, and active families grew to a significantly larger size than less-active families. Within families there was a plastic response to predators. Larvae reared without predators were more active and grew larger than larvae reared with a non-lethal predator. In the presence of a lethal predator the active families experienced higher mortality than the less active families. The results illustrate that the growth/predation-risk trade-off was mediated by activity and clearly show a cost of antipredator behaviour. They also suggest that variation in activity level might be genetically regulated and could explain why C. hastulatum are abundant in aquatic systems both with and without potential predators.

(16404) JANICKE, M., 2004. Libellen (Odonata) der Gewässer um Gera. *Veröff. Mus. Gera* (Naturw.) 31: 57-59. – (Am Tonteich 4, D-07607 Eisenberg).
A concise review of the odon. fauna (34 spp.) of the city of Gera area, E Thuringia, Germany.

(16405) LENCIONI, V., 2004. Survival strategies of freshwater insects in cold environments. *J. Limnol.* 63 (Suppl. 1): 45-55. – (Sect. Invert. Zool. & Hydrobiol., Mus. Tridentino Sci. Nat., Via Calepina 14, I-39100 Trento).
Has only a passing reference to the Odon. by referring to J.G. Irons et al. (1993, *Can. J. Zool.* 71: 98-108), where it is stated: "In northern temperate ponds [in Canada and the USA], Odon. can survive being encased in ice, although there is rarely 100% survival". Bibliographic references on which this statement is based are provided in the Irons et al. paper.

(16406) MULLER, J. & R. STEGLICH, 2004. Rote Liste der Libellen (Odonata) des Landes Sachsen-Anhalt. 2. Fassung, Stand: Februar 2004. *Ber. Landesamt. Umweltschutz Sachsen-Anhalt* 39: 212-216. – (First Author: Frankefelde 3, D-39116 Magdeburg).
Due to the numerous alterations in land use that have taken place in Sachsen-Anhalt (Germany) since the publication of the first Red List (cf. *OA* 10057) and which occasionally had a favourble effect on the occurrence of some spp., the preparation of the present, modified version was considered opportune. See also *OA* 10230 and 11277.

(16407) NJIRU, M., J.B. OKEYO-OWUOR, M. MUCHIRI & I.G. COWX, 2004. Shifts in the food of Nile tilapia, Oreochromis niloticus (L.), in Lake Victoria, Kenya. *Afr. J. Ecol.* 42: 163-170. – (First Author: Kenya Marine & Fish. Res. Inst., P.O. Box 1881, Kisumu City, Kenya).
Nile tilapia was introduced into Lake Victoria in the 1950s, and it currently represents one of the commercially most important fish sp. there. Originally it was known to be herbivorous, feeding mostly on algae, but it has apparently diversified its diet, to include insects, fish, algae and plant material. As shown by a systematic study of its food (Oct. 1998-Nov. 2000) with respect to size, habitat and season, the odon. represent 0.1-3.1% of the total food items in the O. niloticus gut from various zones in Lake Victoria.

(16408) ROQUE, F.O., S. TRIVINHO-STRIXINO, M. JANCSO & E.N. FRAGOSO, 2004. Records of Chironomidae larvae living on other aquatic animals in Brazil. *Biota neotrop.* 4(2): 1-9. (With Port. s.). – (First Author: Lab. Ent. Aquat., Depto Hydrobiol., Univ. Fed. São Carlos, Caixa Postal 676.3, BR-13565-905 São Carlos, SP).

49 cases of Chironomidae larvae living on hydrozoans, snails, aquatic insects and fishes are reported. The following are associated with Odon.: Corynoneura (Argia), Rheotanytarsus (Argia, Heteragrion, Castoraeschna, Elasmothemis cannacrioides, E. constricta, Libellulidae), and Thienemanniella (Argia modesta). Ecological relationships between Chironomidae and their hosts are discussed.

(16409) SCHNEIDER, W., 2004. Friedrich Moritz Brauer's und Johann Jakob Kaup's types of dragonflies (Insecta: Odonata) in the Hessisches Landesmuseum Darmstadt. *Darmstädt. Beitr. Naturg.* 13: 77-87. (With Germ. s.). – (Zool. Abt., Hessisches Landesmus., Friedensplatz 1, D-64283 Darmstadt).

The present status of 40 type specimens of 18 nominal odon. taxa described by F.M. Brauer and J.J. Kaup in 3 publications between 1866 and 1867 is presented. These taxa, here listed according to their original generic assignment, are: Neurobasis kaupi Brauer, 1867, Rhinocypha ustulata Kaup in B., 1867, Gynacantha rosenbergi Kaup in B., 1867, Diplax cora Kaup in B., 1867, Diplax denticauda Brauer, 1867, D. thoracanta Brauer, 1867, Perithemis duivenbodei Brauer, 1866, Polyneura decora Kaup in B., 1866, P. ramburii Kaup in B., 1866, Neurothemis pseudosophronia Brauer, 1867, N. innominata Brauer, 1867, N. diplax Brauer, 1867, Celithemis pygmaea Brauer, 1867, Tramea loewii Kaup in B., 1866, and T. rosenbergi Brauer, 1866. The types are deposited in the insect collections of the Hessisches Landesmuseum, Darmstadt (Germany) and the Natural History Museum, Vienna (Austria).

(16410) VANCE-CHALCRAFT, H.D., D.A. SOLUK & N. OZBURN, 2004. Is prey predation risk influenced more by increasing predator density or predator species richness in stream enclosures? *Oecologia* 139: 117-122. – (First Author: Dept Biol., East Carolina Univ., Greenville, NC 27858, USA).

The direct lethal impacts and the indirect effects predators have on prey characteristics, such as behaviour, have fitness consequences for the prey. Whether the level of predation risk that prey face in the presence of multiple predator spp. can be predicted from a null model that sums the risk from each predator sp. in isolation is unclear. In field enclosures, it was tested whether the predation risk experienced by Stenonema mayfly larvae from larval Boyeria vinosa, and Corydalus cornutus together matched the predictions of the multiplicative risk model. It was then compared whether any deviations from the model's predictions were larger in the presence of 2 predator spp. than in the presence of an equivalent density of individuals from either predator sp. alone, to determine if unique effects arise for the prey in the presence of multiple predator spp. It was also determined if prey moved preferentially into predator-free refuge spaces or decreased their movement in the presence of predators. Stenonema's risk of predation was reduced compared to the model's prediction, but no unique multiple predator sp. effects were present because this risk reduction was comparable in magnitude to the level exhibited in the presence of each predator sp. alone. The prey did not move into predator-free refuge spaces in the presence of predators in the field e n closures. Thus, these predators appear to interfere interspecifically and intraspecifically, which may facilitate the coexistence of the predators and the prey.

(16411) YUREWICZ, K.L., 2004. A growth/mortality trade-off in larval salamanders and the coexistence of intraguild predators and prey. *Oecologia* 138: 102-111. – (Dept Biol. Sci., Univ. Notre Dame, Notre Dame, IN 46556, USA).

A garden experiment was conducted that revealed strong differences between 3 guild members (larval salamanders Ambystoma laterale, A. maculatum and A tigrinum) in behaviour, morphology, and growth in the presence and absence of a shared top predator, the larval Anax longipes. All 3 spp. also reduced their activity and modified their tail fin depth, tail muscle length, and body length in response to non-lethal Anax. Spp. that act as intraguild predators were more active and could grow faster than their intraguild prey spp., but they also suffered higher mortality in laboratory predation trials with Anax. Survey data from natural communities were used to compare the distribution of Ambystoma spp. between ponds differing in abiotic characteristics and predatory invertebrate assemblages. An intraguild prey sp. (A. maculatum) was found more reliably, occurred at higher densities, and was more likely to persist late into the larval period in ponds with more diverse invertebrate predator assemblages. Taken together, these results indicate that top predators such as Anax may play an important role in influencing intraguild interactions among Ambystoma and ultimately their local distribution patterns.

(16412) ZAWAL, A., 2004. Parasitizing of dragonflies by water mite larvae of the genus Arrenurus in the neighbourhood of Berlinek (NW Poland). *Zoologica Poloniae* 49(1/4): 37-45. (With Pol. s.). – (Dept Invert. Zool. & Limnol., Univ. Szczecin, Waska 14, PO-71-415 Szczecin).
557 specimens,referable to 25 odon. spp., were infested by 2218 Arrenurus larvae. Zygoptera were the preferred hosts, with the highest infestation in Enallagma cyathigerum (56.5%), followed by Coenagrion puella (53.6%), Ischnura elegans (46.9%) and C. pulchellum (41.9%), while only 2 Anisoptera spp. were infested, viz. Cordulia aenea (14.3%) and Sympetrum sanguineum (4.0%). The mites were attached to the ventral side of the odon. body, mostly to the proximal part of metathorax (910 larvae), mesothorax (464) and to the first abd. segment (200). The infestation was the highest in May and June, coinciding with the peak in mite hatching and odon. emergence.

2005

(16413) ABBOTT, J. & E.I. SVENSSON, 2005. Phenotypic and genetic variation in emergence and development time of a trimorphic damselfly. *J. evol. Biol.* 18: 1464-1470. – (Dept Anim. Ecol., Ecology Bldg, Lund Univ., S-223 63 Lund).
Although colour polymorphisms in adult organisms of many taxa are often adaptive in the context of sexual selection or predation, genetic correlations between colour and other phenotypic traits expressed early in ontogeny could also play an important role in polymorphic systems. Here, phenotypic and genetic variation in development time among ♀ colour morphs in the polymorphic Ischnura elegans were studied in the field and by raising larvae in a common laboratory environment. In the field, the 3 different ♀ morphs emerged at different times. Among laboratory-raised families, evidence was found of a significant correlation between maternal morph and larval development time in both sexes. This suggests that the phenotypic correlation between morph and emergence time in the field has a parallel in a genetic correlation between maternal colour and offspring development time. Maternal colour morph frequencies could thus potentially change as correlated responses to selection on larval emergence dates. The similar genetic correlation in ♂ offspring suggests that sex-limitation in this system is incomplete, which may lead to an ontogenetic sexual conflict between selection for early ♂ emergence (protandry) and emergence times associated with maternal morph.

(16414) ADITE, A., K.O. WINEMILLER & E.D. FIOGBE, 2005. Ontogenetic, seasonal, and spatial variation in the diet of Heterotis niloticus (Osteoglossiformes: Osteoglossidae) in the Sô river and Lake Hlan, Benin, West Africa. *Envir. Biol. Fishes* 73 : 367-378. – (Second Author : Sect. Ecol. & Evol. Biol., Texas A & M Univ., 2258 TAMU, College Station, TX 77843-2258, USA).
Aquatic invertebrates composed a large proportion of the diets of juvenils, while adults consumed a mixture of aquatic invertebrates, seeds and detritus. Odon. larvae tended to be more common in diets of fish from Lake Hlan (1.33-8.22% of the total volume consumed by <100-800 mm long fish) than in those from the Sô R. (0.20-1.00%; fish length 300-700 mm). Precise figures are stated for each size class of the fish.

(16415) ARRINGTON, D.A., K.O. WINEMILLER & C.A. LAYMAN, 2005. Community assembly at the patch scale in a species rich tropical river. *Oecologia* 144: 157-167. – (First Author: Perry Inst. Marine Sci., 100 N US Hwy 1, Jupiter, FL 33477, USA).
Structural complexity and proximity to source habitat (which influences colonization rate) were experimentally manipulated in the littoral zone of the Cinaruco R. (Venezuela), and significant effects of both factors on species diversity of fishes and macroinvertebrates (incl. Odon.) are demonstrated. Thus, the community assembly in shallow habitats of this tropical lowland river is influenced by physical habitat characteristics, the spatial distribution of habitat patches, and species interactions as habitats are saturated with individuals.

(16416) BRIED, J.T. & G.N. ERVIN, 2005. Distribution of adult Odonata among localized wetlands in East-central Mississippi. *SEast. Nat.* 4(4): 731-744. – (First Author: Nature Conservancy, Eastern New York Conserv. Off., 200 Broadway, Suite 301, Troy, NY 12180, USA).
Species richness and composition of adult Odon. were measured and habitat preferences inferred among man-made wetland sites and surrounding tracts of natural bottomland forest. Cumulative species richness and composition were described by

proportion coefficients and beta diversity indices. 42 spp. are documented. The open-canopy wetlands support higher diversity, and distinct odon. assemblages occur among different habitat types.

(16417) DELLA BELLA, V., M. BAZZANTI & F. CHIAROTTI, 2005. Macroinvertebrate diversity and conservation status of Mediterranean ponds in Italy: water permanence and mesohabitat influence. *Aquat. Conserv. Mar. Freshw. Ecosyst.* 15: 583-600. – (First Author: Dipto Biol. Anim. & Uomo, Univ. Roma "La Sapienza", Viale dell'Università 32, I-00185 Roma).
A monitoring programme was designed to determine the factors influencing pond spp. richness, and to analyse the variation in macroinvertebrate community structure within and among ponds. The main of these were hydroperiod length, depth, surface area, dissolved oxygen concentration and macrophyte spp. richness. Temporary ponds contained a smaller number of taxa than permanent ponds. The total number of odon. spp. was higher in macrophyte beds than in both littoral and central sediments. 16 odon. spp. are listed.

(16418) DINGER, E.C., A.E. COHEN, D.A. HENDRICKSON & J.C. MARKS, 2005. Aquatic invertebrates of Cuatro Ciénegas, Coahuila, México: natives and exotics. *SWest Nat.* 50(2): 237-246. (With Span. s.). – (Merriam-Powell Cent. Ecol. Res., Dept Biol., Northern Arizona Univ., Flagstaff, AZ 86011, USA).
A revised and abridged version of the first part of the M.Sci thesis listed in *OA* 16275. Here, 24 odon. spp. are listed with the resprective habitat preferences, seasonality and distributional data.

(16419) DONOVAN, E., 1798 [reprint 2005]. *An epitome of the natural history of the insects of China, comprising figures and descriptions of upwards of one hundred new, singular, and beautiful species together with some that are of importance in medicine, domestic economy, &c.* Elibron Classics, Adamant Media Corp. Not paginated. Softcover (12.9 × 20.4 cm). ISBN 1-4021-4725-2.
This is an unabridged facsimile replica edn of the 1798 book. With references to Linnaeus and Fabricius, Libellula clavata, L. indica, L. 6-maculata, L. chinensis, L. ferruginea and L. fulvia are described and illustrated in col.

(16420) EGGERS, T.O., 2005. Wirkung extremer Wasserstände auf die Benthozönose der Mittleren Elbe. *Dt. Ges. Limnol. TagBer.* 2004: 314-318. (With Engl. s.). – (Zool. Inst., Tech. Univ. Braunschweig, Spielmannstr. 8, D-38092 Braunschweig).
In the summer of 2002, the discharge of the Elbe R. was very high, while it was very low in 2003. The 2 extreme discharges influenced the aquatic macroinvertebrate assemblage significantly. In Gomphus flavipes, a very pronounced decline of mean abundance took place after high water, and the abundance remained significantly below the normal also in autumn. Apparently, G. flavipes is not adapted to the substantial high water sediment displacements.

(16421) GADE, G. H.G. MARCO, 2005. The adipokinetic hormones of Odonata: a phylogenetic approach. *J. Insect Physiol.* 51: 333-341. – (Zool. Dept, Univ. Cape Town, Private Bag, Rondebosch-7701, SA).
Adipokinetic neuropeptides from the corpora cardiaca of the major odon. fam. were identified. Sequence assignment revealed that all spp. always contain a single adipokinetic peptide, which is always an octapeptide. The Zygoptera contain the peptide code-named Psein-AKH, the Anisozygoptera and Aeshnidae, Cordulegastridae and Macromiidae have Anaim-AKH, whereas Gomphidae, Corduliidae and Libellulidae contain Libau-AKH. When these data are interpreted in conjunction with the existing odon. phylogenies, they supoport the following: (1) Zygoptera are monophyletic (not paraphyletic); – (2) Anisozygoptera and Anisoptera are sister groups and contain the ancestral Anaim-AKH, which is independently and convergently mutated to Libau-AKH in Gomphidae and Libellulidae; – and (3) the Corduliidae are of special interest; only Corduliidae s. str. appear to contain Libau-AKH, other spp. placed into this fam. by most authorities contain the ancestral Anaim-AKH. Possibly, the assignments of AKHs can untangle the paraphyly of this family.

(16422) HEWITT, S., D. ATTY, J. PARKER, J. READ & M. SINCLAIR, 2005. *Survey of the insects of exposed riverine sediments on the rivers Eden and Derwent in Cumbria in 2004.* Report to English Nature and the Environment Agency. ii+55 pp. Softcover, spiral bound (21.0×29.5 cm).
The survey was undertaken to establish the invertebrate interest of several shingle banks where shingle has been extracted recetnly and/or where extraction

is expected. 10 sites were sampled. Enallagma cyathigerum and Sympetrum striolatum are recorded from a single site each; – Cumbria, UK.

(16423) HOFMANN, T.A. & C.F. MASON, 2005. Habitat characteristics and the distribution of Odonata in a lowland river catchment in eastern England. *Hydrobiologia* 539: 137-147. – (Dept Biol. Sci., Univ. Essex, Wivenhoe Park, Colchester, Essex, CO4 3SQ, UK).
The study was conducted along the Stour R. There was a longitudinal distribution of Odon., with larval assemblages being influenced directly by marginal flow velocity, biochemical oxygen demand (BOD) and phosphate concentrations and indirectly by shade and cover of floating vegetation. Adult populations responded directly to shade, reed cover, amenity-managed land use and bank height, and indirectly to BOD and ammonia concentrations. Distribution patterns were strongly associated with both natural changes along the river system and management impacts. River management practices locally disrupted the natural displacement of species along the river, but whilst some forms of human interference on river systems were beneficial to species richness, the effects on stenotopic species were disadvantageous. To conserve Odon. management emphasis should be on the maintenance of suitable conditions for river specialists.

(16424) HOPEMAN, M.M. & Z.R. ABRAMSON, 2005. Sexual dimorphism in the Dark-winged damselfly Calopteryx maculata. *Univ. Mich. undergrad. Res. Forum* 2005(2): 28-30. – (Author's addresses not stated).
It is argued that there is no correlation between the degree of wing pigmentation and ♂ mating or territorial success in C. maculata. ♀♀ were selective of territories but not of ♂♂. It is suggested that the degree of wing pigmentation may play a role in species recognition by ♀♀.

(16425) HUFNAGEL, L. & M. GAAL, 2005. Seasonal dynamic pattern analysis in service of climate change research. A methodical case-study: monitoring and simulation based on an aquatic insect community. *Appl. Ecol. envir. Res.* 3(1): 79-132. – (Dept Math. & Informatics, Corvinus Univ. Budapest, Villányi út. 29-43, H-1118 Budapest).
The study was conducted at a section of the Szilas stream, Budapest, Hungary, and deals with the seasonal coenological changes of aquatic and semi-aquatic Heteroptera. In the faunal exploration, 11 odon. spp. were recorded.

(16426) JOOP, G., 2005. *Maintenance of female colour polymorphism in the coenagrionid damselfly Coenagrion puella*. PhD thesis, Tech. Univ. Braunschweig, Braunschweig. 115 pp. (With Germ. s.). – (Author: Wabestr. 33, D-38106 Braunschweig).
In C. puella, ♂♂ are blue while ♀♀ show 3 colour morphs: green, blue and intermediate. The inquire into the mechanisms responsible for the maintenance of these in natural populations is the subject of this work. 10 behavioural, structural and physiological parameters that could possibly play a role in the process were identified, and their possible impacts are discussed. While the importance of reproductive strategies is emphasized, the maintenance is achieved by the combination of all parameters. The assumed degree of influence of each of these is tentatively indicated. – Female colour polymorphism is a widespread phenomenon in Coenagrionidae. Based on molecular evidence, it seems it has evolved within the family several times.

(16427) JORDAN, S., C. SIMON, D. FOOTE & R.A. ENGLUND, 2005. Phylogenetic patterns of Hawaiian Megalagrion damselflies (Odonata: Coenagrionidae) correlate with Pleistocene island boundaries. *Mol. Ecol.* 14: 3457-3470. – (First Author: Dept Biol., Bucknell Univ., Lewisburg, OA 17837, USA).
The Pleistocene geological history of the Hawaiian Islands is becoming well understood. Numerous predictions about the influence of this history on the genetic diversity of Hawaiian organisms have been made, including the idea that changing sea levels would lead to the genetic differentiation of populations isolated on individual volcanoes during high sea stands. Here, DNA sequence data from 2 closely related, endemic spp. are analysed in order to test these predictions, and generate novel insights into the effects of Pleistocene glaciation and climate change on island organisms. M. xanthomelas and M. pacificum are currently restricted to 5 islands, including 3 islands of the Maui Nui super-island complex (Molokai, Lanai and Maui) that were connected during periods of Pleistocene glaciation, and Hawaii island, which has never been subdivided. Maui Nui and Hawaii are effectively a controlled, natural experiment on the genetic effects

of Pleistocene sea level change. Well-defined morphological species boundaries are confirmed using data from the nuclear EF-1α gene and it is shown that the spp. are reciprocally monophyletic. Phylogeographic analyses are perfomed of 663 base pairs (bp) of cytochrome oxidase subunit II (COII) gene sequence data from 157 individuals representing 25 populations. The results point to the importance of Pleistocene land bridges and historical island habitat availability in maintaining inter-island gene flow. It is also proposed that repeated bottlenecks on Maui Nui caused by sea level change and restricted habitat availability are likely responsible for low genetic diversity there. An island analogue to northern genetic purity and southern diversity is proposed, whereby island with little suitable habitat exhibit genetic purity while islands with more exhibit genetic diversity.

(16428) KEFFORD, B.J., C.G. PALMER & D. NUGEGODA, 2005. Relative salinity tolerance of freshwater macroinvertebrates from the south-east Eastern Cape, South Africa compared with the Barwon Catchment, Victoria, Australia. *Mar. Freshw. Res.* 56: 163-171. – (First Author: Biotechnol. & Envir. Biol., Sch. Appl. Sci., RMIT Uiv., P.O. Box 71, Bundoora, VIC 3083, AU).
The salinity tolerance was assessed as outlined in *OA* 16395, and compared with the results given in that paper. 16 odon. taxa are considered.

(16429) KNIGHT, T.M., M.W. McCOY, J.M. CHASE, K.A. McCOY & R.D. HOLT, 2005. Trophic cascades across ecosystems. *Nature, Lond.* 437(6 Oct.): 880-883. – (Dept Zool., Univ. Florida, Gainesville, FL 32611, USA).
The study at 8 ponds in Putnam co., Florida, USA has shown that fish indirectly facilitate terrestrial plant reproduction through cascading trophic interactions across ecosystem boundaries. Fish reduce larval odon. abundance in ponds, leading to fewer adult dragonflies nearby. Adult odon. consume insect pollinators and alter their foraging behaviour. As a result, plants near ponds with fish receive more pollinator visits and are less pollen limited than plants near fish-free ponds. The results confirm that strong species interactions can reverberate across ecosystems, and emphasize the importance of landscape-level processes in driving local species interactions.

(16430) LOHR, M., 2005. Das Naturschutzgebiet "Auf dem Berenbruch" bei Fürstenau. *Beitr. Naturk. Egge Weser* 17: 92-97. – (Tierökol. u. landschaftsökol., Fachhochschule Lippe-Höxter, an der Wilhelmshöhe 44, D-37671 Höxter).
22 odon. spp. are listed from the Reserve; – Höxter area, Germany.

(16431) MACAULAY, D., 2005. *Survey of the odonate fauna in Birch Mountains Wildland Park.* Prepared for the Alberta Nat. Herit. Inform. Cent., Parks & Protected Areas Div., Alberta Community Development. ii+11 pp., 3 App. excl. – (Author's address not stated).
The Park is located in the Subarctic Subregion of Alberta (Canada), containing extensive bogs, numerous ponds, streams and lake habitats. The survey was conducted in 2004 with the purpose to provide an annotated summary of the odon. spp. that occur in the Park, including notes on such parameters as relative abundance, distribution patterns, range extensions and any other relevant biological or behavioural information. In all, 5 Zygoptera and 15 Anisoptera spp. were recorded; most of these have wide distribution across Canada. Several spp., however, were rare or uncommon or are known to have restricted ranges in Alberta. Some of the uncommon spp. were Calopteryx aequabilis, Somatochlora albicincta and S. minor. C. aequabilis and S. minor were found along slow-moving streams, whereas S. albicincta preferred isolated bog ponds. S. forcipata, S. franklini and S. kennedyi were rare discoveries; all 3 were collected in boggy wetlands. S. kennedyi is new to Alberta. Aside of a site-annotated checklist of the recorded spp., a complete data list for all collected specimens is provided.

(16432) MANCI, C.O., 2005. Preliminary research on damselfly and dragonfly distribution (Insecta: Odonata) in Pădurea Verde (Timisoara) and surrounding areas. *Bul. Inf. Ent.* 16: 83-88. (Romanian, with Engl. s.). – (Acad. Remus Radulet 13, bl. 119, ap. 7, RO-300281 Timisoara).
A commented list of 35 spp., incl. Coenagrion ornatum and Gomphus flavipes; – NE of Timisoara, Romania.

(16433) McCAULEY, S.J., 2005. Relationship between habitat distribution, growth rate, and plasticity in congeneric larval dragonflies. *Can. J. Zool.* 83: 1128-1133, 1264 (erratum). (With Fr. s.). – (Dept

Ecol. & Evol. Biol., Univ. Michigan, 830 North University Ave, Ann Arbor, MI 48109-1048, USA).
The above relationship was examined in larval Libellula incesta, L. luctuosa and L. pulchella. Growth rates were compared under 3 conditions, viz. (i) in the absence of predation risk, (ii) in the presence of sunfish, Lepomis macrochirus, and (iii) in the presence of invertebrate predators, principally larval Anax junius. It was assessed how the habitat distributions of the 3 odon. spp. were related to growth rates and to the level of growth plasticity under different levels of percieved predation risk. There was a negative relationship between growth rate and the frequency with which spp. coexist with sunfish. Growth-rate plasticity was limited and does not appear to be important in determining the ability of spp. to coexist with alternative top predator types. Only L. pulchella exhibited growth-rate plasticity, decreasing growth in response to the predator with which it most commonly coexists (Anax), but not to the sp. which poses the greatest predation risk (sunfish). A comparison of growth rates and activity levels in the presence and absence of these predators suggests that growth and activity level parallel each other in these spp.

(16434) OLBERG, R.M., A.H. WORTHINGTON, J.L. FOX, C.E. BESSETTE & M.P. LOOSEMORE, 2005. Prey size selection and distance estimation in foraging adult dragonflies. *J. comp. Physiol.* (A) 191: 791-797. – (First Author: Dept Biol. Sci., Univ. Coll., Schenectady, NY 12308, USA).
To determine whether perching dragonflies visually assess the distance to potential prey items, presented artificial prey, glass beads suspended from fine wires, was presented to perching dragonflies in the field. The responses of freely foragig Libellula luctuosa and Sympetrum vicinum to beads ranging from 0.5 mm to 8 mm in diameter were videotaped recording whether or not the dragonflies took off after the beads, and if so, at what distance. The results indicated that dragonflies were highly selective for bead size; the smaller Sympetrum preferred beads of smaller size and the larger Libellula preferred larger beads. Each sp. rejected beads as large or larger than their heads, even when the beads subtended the same visual angles as the smaller, attractive beads. Since bead size cannot be determined without reference to distance, it is concluded that dragonflies are able to estimate the distance to potential prey items. The range over which they estimate distance is about 1 m for the larger Libellula and 70 cm for the smaller Sympetrum. The mechanism of distance estimation is unknown, but it probably includes both stereopsis and the motion parallax produced by head movements.

(16435) PAULSON, D., 2005. Dragonflies in the canopy. *What's up? / Newsl. int. Canopy Network* 12(1): 7-8. – (1724 NE 98 St., Seattle, WA 98115, USA).
Very little is known how dragonflies use 3-dimensional space in forests. The results are presented of scanning the canopy with binoculars from ground level during dry-season visits to undisturbed rainforest sites in S Venezuela and S Peru. In Venezuela numerous libellulids were seen high in the trees, viz. Erythrodiplax, Micrathyria, Orthemis, Zenithoptera. In Peru, there were Zenithoptera, Micrathyria, Misagria and Orthemis, but Erythrodiplax in that forest usually perched low. The peculiar behaviour of Z. fasciata is described. On a vertical wall of foliage at a sandy stream in Peru, Argia, Hetaerina, Heteragrion and Heliocharis were observed.

(16436) RUDISILL, T. & D. BASS, 2005. Macroinvertebrate community structure and physicochemical conditions of the Roman Nose Spring system. *Proc. Okla. Acad. Sci.* 85: 33-42. – (First Author: Dept Envir. Quality, 707 N. Robinson, Oklahoma city, OK 73101, USA).
Roman Nose St. Park is located in Blaine co., Oklahoma. 5 odon. taxa are listed at the genus (Argia, Calopteryx, Hetaerina) and family (Gomphidae, Libellulidae) levels. Total number of individuals and percent composition are stated for springs in the Park (Jan.-Nov. 2002).

(16437) RYCHŁA, A., 2005. Dragonflies (Odonata) of standing waterbodies from the Landscape Park "Łuk Muzakowa" (district Lubuskie), covering species diversity and their protection. *Chronmy Przyr. Ojczysta* 81(6): 67-80. (Pol., with Engl. s.). – (Płoty ul. Osiedlowa 12, PO-66-016 Czerwieńsk).
During 2000-2001 and 2003, 39 spp. were recorded (of which 25 spp. breeding) from 28 anthropogenic water bodies in various succession stages. An annotated checklist is provided, the fauna is discussed, and conservation status of noteworthy spp. is stated.

(16438) SCHMIDT, B. & I. STRANG, 2005. *Seltene*

Libellen am Bodensee: Arten der Flüsse und Brandungsufer. ArbGem. Bodensee Ufer (Thema des Monats August 2005): 3 pp. – (First Author: Büro Tierökol., Alpenstr. 27, D-88045 Friedrichshafen).
Current records of Boyeria irene, Gomphus vulgatissimus, Onychogomphus forcipatus and Ophiogomphus cecilia from the German bank of Lake Constance (= Bodensee). From localities at the Swiss side of the lake, G. vulgatissimus and O. forcipatus are mentioned. The occurrence of B. irene was so far known in Germany only from Garmisch-Partenkirchen, recorded in 2002.

(16439) SCHNEIDER, A., 2005. Die Libellenfauna des Grossen Serrahnsees und des Schweingartensees (Müritz-Nationalpark): Inventarisierung und naturschutzfächliche Bewertung. *NaturschutzArb. Mecklenburg-Vorpommern* 48(2): 41-49. – (Neuendorfer Str. 2 c, D-17373 Ueckermünde).
32 spp. are listed and the fauna is analysed. The occurrence of Epitheca bimaculata and Leucorrhinia pectoralis is emphasized.

(16440) SOLA, E., I.K. WIDYANINGRUM & S. MULYATI, 2005. *A photographic guide to the common insects of Gunung Halimun-Salak National Park*. Taman Nasional Gunung Halimun-Salak. Softcover (14.5×21.8 cm). ISBN 979250240-8. (Bilingual: Engl./Indonesian).
The guide presents some of the common insects occurring in the National Park, W Java, Indonesia. The odon. are represented by 10 spp. These are briefly described, and information on the respective habitats and a col. portrait are provided for each sp. In addition to taxonomic names the Indonesian vernacular names are also stated.

(16441) SUBRAMANIAN, K.A., K.G. SIVARAMAKRISHNAN & M. GADGIL, 2005. Impact of riparian land use on stream insects of Kudremukh National Park, Karnataka state, India. *J. Insect Sci.* 5: 49 [10 pp.]; available online: insectscience.org/5.49. – (First Author: Cent. Ecol. Sci., Indian Inst. Sci., Bengalore-560012, India).
The differences of insect assemblages, due to varied riparian land use, are discussed. The distribution of 7 odon. taxa (identified to gen. or fam. only) across 9 riparian land use types is shown in a tab.

(16442) THOMAS, J.A., 2005. Monitoring change in the abundance and distribution of insects using butterflies and other indicator groups. *Phil. Trans. R. Soc.* (B) 360: 339-357. – (NERC Cent. Ecol. & Hydrobiol., Dorset Lab., Winfrith Technology Cent., Dorchester, DT2 8ZD, UK).
4 schemes, used successfully to assess change in British butterflies, that are increasingly being applied across the world are described. It is recommended that similar schemes be extended to other popular groups, incl. Odon. A range of schemes designed to monitor change in communities of aquatic macroinvertebrates is also outlined.

(16443) UHIA, E. & A. CORDERO RIVERA, 2005. Male damselflies detect female mating status: importance for postcopulatory sexual selection. *Anim. Behav.* 69(4): 797-804. – (Depto Ecol. & Biol. Anim., Univ. de Vigo, EUET Forestal, Campus Universitario, ES-36005 Pontevedra).
The existence of postcopulatory sexual selection is now clearly established in many animal spp. In odon., ♂♂ remove sperm during copulation from the bursa copulatrix and (when physically accessible) from the spermatheca. 9 Platycnemis, Lestes, Sympecma and Enallagma spp. were used to test the relative importance of sperm competition and cryptic ♀ choice for copulation duration in laboratory experiments. If long copulations evolved only because of sperm competition, ♂♂ should prolong copulation with previously mated ♀♀, and use this extra time to remove/displace the stored sperm. In spp. without a spermatheca (or when it is physically inaccessible), copulation duration should be similar in mated and virgin ♀♀. The cryptic ♀ choice hypothesis predicts that copulations should be prolonged (acting as copulatory courtship) when ♂♂ cannot physically remove sperm from the spermatheca but not if ♀♀ do not have a spermatheca. It was found that ♂ Zygoptera can detect the mating status of ♀♀ probably using chemical sensilla in their genitalia. Copulation duration with mated ♀♀ was almost twice as long as with virgins in spp. with a spermatheca, but this behaviour was probably not the result of sperm competition, because in the model spp., ♂♂ could not remove sperm from this organ. The duration of copulation did not increase in spp. without a spermatheca. It is concluded that even in odon., where sperm removal is widespread, ♀♀ have retained control over sperm reserves in their spermatheca(e), and ♂♂ prolong copulation with mated ♀♀ to elicit rival sperm ejection and/or to induce ♀♀ to use their sperm in fertilization.

(16444) VAMOSI, S.M., 2005. On the role of enemies in divergence and diversification of prey: a review and synthesis. *Can. J. Zool.* 83: 894-910. (With Fr. s.). – (Dept Biol. Sci., Univ. Calgary, 2500 University Dr. NW, Calgary, AB, T2N 1N4, CA).
In this review, the odon. are represented by N American Enallagma, the information of which, as mainly presented in papers listed in *OA* 7532, 7297, 10708, 11597 and 13303, is summarized.

(16445) VAN DOORSLAER, W. & R. STOCKS, 2005. Growth rate plasticity to temperature in two damselfly species differing in latitude: contributions of behaviour and physiology. *Oikos* 111(3): 599-605. – (Lab. Aquat. Ecol., Univ. Leuven, Bériotstraat 32, B-3000 Leuven).
Plasticity in growth rate may be driven by behavioural and physiological mechanisms. Although these underlying mechanisms have direct implications for the importance of ecological and physiological costs associated with rapid growth, the contribution of behaviour and physiology to temperature-mediated plasticity in growth rate has largely been neglected. Here, the temperature-dependence of growth rate and its underlying behavioural and physiological mechanisms were studied in Coenagrion hastulatum and C. puella, that differ in latitudinal distribution. Larvae were reared from the egg stage at three temperatures (17, 22 and 27°C). Within each sp., growth rates showed a quadratic response curve with an optimum at 22°C. Behaviour, as measured by food intake, and physiology, as measured by growth efficiency and heartbeat a proxy for metabolic rate, jointly contributed to this temperature-induced plasticity in growth rate. At each temperature, growth rates were higher in the northern species. In line with the few other studies that compared northern and southern populations, both an increased food uptake and growth efficiency caused this pattern. Together with previous studies that focused on the population level, the results tentatively suggest that not only the latitudinal patterns in growth rate but also the mechanistic basis are similar at the species and at the population level.

(16446) VAN DOORSLAER, W. & R. STOKS, 2005. Thermal reaction norms in two Coenagrion damselfly species: contrasting embryonic and larval life-history traits. *Freshw. Biol.* 50: 1982-1990. – (Lab. Aquat. Ecol., Univ. Leuven, Bériotstraat 32, B-3000 Leuven).
The temperature-dependence of important life-history traits both at the embryonic (egg hatching success, embryonic development time and hatchling size) and the larval stage (larval growth rate, larval survival and larval size after 100 days) were studied in Coenagrion hastulatum and C. puella, that differ in latitudinal distribution. Larvae were reared in the laboratory from the egg stage at four temperatures (12, 17, 22 and 27°C). – The observed patterns of thermal plasticity in embryonic traits showed that the northern sp. was more successful than the southern sp. at lower temperatures, in line with the pattern of temperature adaptation in thermal reaction norms. – At the larval stage, no consistent pattern of latitudinal compensation was found. The thermal family reaction norms indicate, however, the potential for latitudinal compensation to evolve. An ontogenetic shift in thermal optima for larval growth rate, with a higher optimal temperature for growth rate during the first 2 weeks of the larval stage was observed. – This is the first indication of the existence of latitudinal compensation at the interspecific level in an invertebrate; it is stage-specific, being present only in the embryonic stage. It is argued that compensation in the embryonic stage may be much more likely than in the larvae and stress the importance of including more than one life-history stage when drawing conclusions about the adaptiveness of patterns in thermal reaction norms.

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(16447) *ATROPOS* (ISSN 1478-8128), No. 28 (May 2006), 29 (Oct. 2006). – (c/o M. Tunmore, 26 Tinker Lane, Maltham, Holmfirth, W Yorks, HD9 4EX, UK).
[Odon. articles]: [No. 28]: *Tunmore, M.*: Tales of Atropos (pp. 13-16; Coenagrion mercuriale record: New Forest, 20-VII-1998); – *Parr, A.*: Identification workshop: forms of Lesser emperor Anax parthenope Selys (pp. 17-18); – The changing trends of Britain's Odonata (pp. 27-31). – [No. 29]: *Parr, A.*: Odonata attracted to artificial light (pp. 38-42); – Dragonfly news, summer 2006 (pp. 45-47); – [book review] Field guide to the dragonflies of Britain and Europe, by K.-D.B. Dijkstra (pp. 59-60); – *Sears, J.*: RSPB and Southern damselfly Coenagrion mercuriale conservation (pp. 70-71).

(16448) BAIXERAS, J., J.M. MICHELENA, P. GONZALEZ, F. OCHARAN, C. QUIRCE, M.A.

MARCOS, E. SOLER, J. DOMINGO, S. MONTAGUD, A. GUTIERREZ & M. ARLES, 2006. *Les libèl-lules de la Comunitat Valenciana.* Generalitat Valenciana, València. 170 pp. Softcover (16.8 × 23.8 cm). ISBN 84-482-4248-3. (Catalan, with Engl. & Span. s's). – (First Author: Inst. Cavanilles de Biodiversitat i Biologia Evolutiva, Univ. València, A.C. 2085, ES-46071 València).
A handbook on the odon. fauna (58 spp.) of Valencia (Spain), ddicated to the memory of the Valencian odonatologist, Carlos Bonet Betoret (1955-2004). – In the introductory chapters, the history of odonatol. exploration of Valencia is outlined, habitat types are described, and the aspects of conservation are addressed. In the systematic part, a brief (field) description of each sp. is followed by sections on biology, distribution, habitats, current status and on conservation. A field portrait and a distribution map are provided for all spp., and a phot. of the habitat for most of them. – A beautifully produced regional monograph of extralimital interest.

(16449) BAMBARADENIYA, C.N.B., [Ed.], 2006. *Fauna of Sri Lanka: status of taxonomy, research and conservation.* IUCN Sri Lanka & Govern. Sri Lanka, Colombo. viii + 308 pp. ISBN 955-8177-51-2. – (Available from: IUCN Sri Lanka, 53 Horton Pl., Colombo-7, Sri Lanka).
[Odonatol. titles]: *Wijesekara, A.*: An overview of the taxonomic status of class Hexapoda (Insecta) in Sri Lanka (pp. 3-11; Odon. p. 4); – *Bedjanič, M.*: Current status of taxonomy, research and conservation of dragonfly fauna (Insecta: Odonata) of Sri Lanka (pp. 20-34; includes a checklist of the hitherto known spp.).

(16450) BOYERO, L., P.A. RINCON & J. BOSCH, 2006. Case selection by a limnephilid caddisfly, Potamophylax latipennis (Curtis) in response to different predators. *Behav. Ecol. Scoiobiol.* 59: 364-372. – (First Author: Sch. Trop. Biol., James Cook Univ., Townsville, QLD 4810, AU).
It was tested whether P. latipennis larvae vary their responses to the presence of different predators (Cordulegaster larvae, fire salamander larvae or brown trout) by choosing organic or mineral cases. Both case types were offered to the trichopteran larvae and differences in predation risk were simulated by using water conditioned with chemicals from the different predators. Cues from Cordulegaster and trout elicited a marked increase in the preference for mineral cases, while cues for salamander larvae did not trigger a significant change in case selection relative to control. The dissimilar pattern is consistent with the different hunting techniques of the 3 predators.

(16451) BUCZYŃSKI, P., K. LEWANDOWSKI & N. WISSIG, 2006. Materials to the knowledge of dragonflies (Odonata) of the river Narew valley in the vicinity of Drozdowo (north-eastern Poland). *Drozdow. Zesz. przyr.* 2006(3): 5-12. (Pol., with Engl. s.). – (First Author: Dept Zool., UMCS, Akademicka 19, PO-20-033 Lublin).
During 1985-1987 and 2003-2004, 32 water bodies were systematically examined and 33 spp. recorded. Among these Coenagrion lunulatum, Gomphus flavipes, Ophiogomphus cecilia, Aeshna juncea and A. viridis are locally most interesting. From the odon. conservation point of view, the Narew R., oxbow lakes, and permanent small eutrophic and dystrophic water bodies constitute the most valuable habitats.

(16452) COSTA, J.M., L.O.I. DE SOUZA & J. MUZÓN, 2006. Descriptions of three new species of Odonata from Brazil. *Zootaxa* 1314: 53-68. – (First Author: Depto Ent., Mus. Nac., UFRJ, Quinta da Boa Vista, São Cristavão, BR-20940-040 Rio de Janeiro, RJ).
Oxyagrion zielmae sp. n. (holotype ♂: Mato Grosso do Sul, Costa Rica, Córrego Ribeirão da Laje, 29-X-2004), Lestes fernandois sp. n. (holotype ♂, allotype ♀: Maranhão, Imperatriz, 5/6-VII-2005) and Perithemis capixaba sp. n. (holotype ♂: Espirito Santo, Mutum Preto, 1-IX-1971) are described, illustrated and their affinities are pointed out. Keys to the adult ♂ ♂ of the Brazilian Lestes and Perithemis spp., and to Oxyagrion spp. lacking blue spots and with dorsum of abdominal segment 10 without horns are also provided.

(16453) DE KNIJF, G., A. ANSELIN, P. GOFFART & M. TAILLY, [Eds], 2006. *De libellen (Odonata) van België: verspreiding, evolutie, habitats.* – [*The dragonflies (Odonata) of Belgium: distribution, faunal evolution, habitats*]. Gomphus, Perike-Brakel & Instituut voor Natuur- en Bosonderzoek, Brussel. 368 pp. Softcover (17.0 × 24.0 cm). ISBN 90-403-0249-9. (Dutch, with comprhensive, chapter-wise Engl. & Germ. s's). – (Distributor: Natuurpunt vzw, Coxiestraat 11, B-2800 Mechelen).

A monumental monograph on the odon. fauna (69 spp.) of Belgium, with Forewords by *E. Kuijken* en *H. Dumont*; for the latter see *OA* 16458). The book is organized into 12 main chapters. Aside of a comprehensive list of bibliographic references, there is a separate national bibliography, listing more than 750 titles (1820-1 Oct. 2005). Thoroughly documented Red Lists of Flanders and Wallonia are also provided. – A concise synopsis on odon. biology, ecology and behaviour is followed by an outline of the history of odonatol. exploration in Belgium, and by a detailed account on the organisation and results of the present atlas-project. The spp. texts (with a separate Engl. introduction on pp. 67-70) are structured uniformly, and contain sections on global range, current distribution and its trends in Belgium, on habitats, phenology, and a concise bibliography on the respective sp. For each sp. a historical and a 1990-2000 distribution map, a phenology graph and a field portait are provided. The comprehensive chapter on odon. habitats in Belgium will be certainly of a considerable extra limital interest as well. Various aspects of the fauna are thoroughly documented and analysed, and suggestions for conservation and management are given. – No doubt, the book certainly ranks among the very best national treatments so far published.

(16454) DEUBEL, T., S. WANKE, C. WEBER & F. WEDEKIND, 2006. Modelling and manufacturing of a dragonfly wing as basis for bionic research. *Int. Design Conf., Dubrovnik*, pp. 215-220. – (Second Author: Inst. Engin. Design, Saarland Univ., Bldg A 42, P.O. Box 151150, D-66041 Saarbrücken).
In order to study the exact properties of the odon. wing, it is necessary to reproduce the geometry of the wing at a large scale. The modelling is here described.

(16455) DIJKSTRA, K.-D.B., 2006. The Atoconeura problem revisited: taxonomy, phylogeny and biogeography of a dragonfly genus in the highlands of Africa (Odonata, Libellulidae). *Tijdschr. Ent.* 149: 121-144. – (Gortestraat 11, NL-2311 MS Leiden).
The genus Atoconeura previously comprised 2 spp.; one with 5 sspp. Principal Component Analysis of 33 characters of 148 specimens and cladistic analysis of 28 characters revealed 6 discrete taxa, partly with narrowly overlapping ranges. Sspp. aethiopica, kenya and pseudeudoxia of biordinata are raised to specific rank; the synonymy of chirinda with biordinata is confirmed; A. luxata sp. n. is described from West Africa (holotype ♂: Cameroon SW, Meme, Atop, nr Ngusi, alt. 250 m, 4-IX-1997; deposited in Coll. Graham Vick, Little London, UK). A key to the spp. is provided and the poorly known behaviour, ecology and biogeography are discussed. The author has not witnessed oviposition; one report suggests that it may be perched, solitary and epiphytic, which is unusual within the family. The spp. are largely restricted to streams above 1000 m, except A. luxata sp. n. that is only known below that altitude, but always at the foot of highlands. 4 spp. demonstrate a distribution pattern recalling a 'ring species' in highlands, circling Lake Victoria and the dry N of Tanzania. The phylogeny suggests an expansion of the genus from the western lowlands to the easter highlands, or vice versa, followed by an expansion through the Albertine Rift and Eastern Arc Mts to the Kenyan and ultimately Ethiopian highlands. Especially in the case of a western origin there appears to have been a tendency of the spp. to occur at increasing altitudes in the course of their evolution.

(16456) [DIJKSTRA, K.-D.B.] DE BOO, M., 2006. Kijk, een watersnuffel. *NRC Handelsbl.* 36(303): 49; issue of 24 Sept. (Dutch). – (c/o K.-D.B. Dijkstra, Naturalis, P.O. Box 9517, NL-2300 RA Leiden).
An interview with K.-D.B. Dijkstra, the organiser and Editor of the volume described in *OA* 16332.

(16457) DIJKSTRA, K.-D.B., F. SUHLING & O. MÜLLER, 2006. Review of the genus Zygonoides, with description of the larvae and notes on "zygonychine" Libellulidae (Odonata). *Tijdschr. Ent.* 149: 275-292. – (First Author: Gortestraat 11, NL-2311 MS Leiden).
Zygonoides Fraser, 1957, formerly considered a subgenus of Olpogastra Karsch, 1895, is reinstated as a genus. It comprises Z. fuelleborni (Grünberg, 1902), Z. fraseri (Pinhey, 1956), Z. lachesis (Ris, 1912) and Z. occidentis (Ris, 1912). The latter was formerly considered a subspecies or form of Z. fuelleborni, but is found to be a good sp. nr Z. fraseri. The larvae of Z. fuelleborni, Z. fraseri and Z. occidentis are described. Adult and larval characters are compared with those of the other 'zygonychine' genera Celebothemis, Olpogastra, Onychothemis, Zygonychidium and Zygonyx. Identification, distribution and ecology of the spp. are outlined.

(16458) DUMONT, H., 2006. Woord vooraf. – [Foreword]. *In*: G. De Knijf et al., [Eds], *De libellen (Odonata) van België* ..., pp. 11-13, Gomphus, Perike-Brakel & Inst. Natuur- en Bosonderzoek, Brussel. (Dutch). – (Dept Anim. Ecol., Univ. Gent, Ledeganckstraat 35, B-9000 Gent).
An attractive text, containing some autobiographic details concerning the informal "premier colloque belge des libellulistes" (Denderleeuw, 1965), foundation of the SIO (Gent, 1971), and the stimulating (side) impact of the latter on the subsequent development of odon. faunistics in Belgium. Logical, nonetheless worthwhile mentioning is the explanation of the current absence of some northern and eastern spp. in Belgium.

(16459) ENGDAHL, A., 2006. Bottenfauna: en undersökning av bottenfauna i Göteborgs kommun 2005. – [A survey of the benthic fauna in the Göteborg municipality]. *Göteborgs Stad Miljöförvaltningen* (R) 2006(2): 1-56. (Swedish). – (Author's address not stated).
8 localities in the city area of Göteborg (Sweden) were surveyed. Some odon. taxa are reported from 3 localities, Coenagrion hastulatum is the sole taxon identified at the species level.

(16460) FENG, H.-Q., K.-M. WU, Y.-X. NI, D.-F. CHENG & Y.-Y. GUO, 2006. Nocturnal migration of dragonflies over the Bohai Sea in northern China. *Ecol. Ent.* 31: 511-520. – (Second Author: State Key Lab. Biol. Plant Diseases & Insect Pests, Inst. Plant Prot., Chin. Acad. Agric. Sci., Beijing-100094, China).
A sudden increase and subsequent sharp decrease of odon. catches, in a searchlight trap, with Pantala flavescens predominating, observed at Beihuang Island in the centre of the Bohai Gulf, in 2003 and 2004, indicated a seasonal migration over the sea during the night in China. The movements were associated with the onset of fog. Simultaneous radar observations indicated that the nocturnally migrating dragonflies generally flew at altitudes of up to 1000 m above sea level, with high density concentrations at about 200-300 or 500 m; these concentrations were coincident with the temperature inversion. During early summer, the dragonflies oriented in a downwind direction, so that the displacement direction varied between different altitudes. In contrast, during late summer, they were able to compensate for wind drift, even headwind drift, so as to orient south-westward no matter how the wind changed, and thus the displacement direction was towards the SW. The duration of flight, estimated from the variation of area density derived from radar and hourly catches in the searchlight trap through the night, was about 9-10 h. The displacement speed detected using radar was ≈ 5-11 m s^{-1}. Therefore, the dragonflies might migrate 150-400 km in a single flight. They were thought to originate in Jiangsu prov. and they migrated into NE China to exploit the temporary environment of paddy fields in early summer. Their offspring probably migrated back S during late summer and autumn.

(16461) FLENNER, I. & K. OLNE, 2006. *Differences in exocuticle thickness in Leucorrhinia dubia (Odonata) larvae from habitats with and without fish.* Degree Project in Biol., Sch. Business & Engineering, Halmstad Univ., Halmstad. 14 pp. – (Authors addresses not stated).
Significantly thicker exocuticle was found on profemur in larvae with head width >4.5 mm, from lakes with fish. The smaller larvae from the same habitat show a tendency to have thinner exocuticle on profemur. The large individuals from lakes populated by fish have slightly thicker exocuticle on pronotum than those of similar size from fish-free lakes.

(16462) FLIEDNER, H., 2006. Die wissenschaftlichen Namen der Libellen in Burmeisters "Handbuch der Entomologie", *Virgo/MittBl. ent. Ver. Mecklenburg* 9(1): 5-23. – (Louis-Seegelken-Str. 106, D-28717 Bremen).
The sources (personal contacts, literature, collections), used by H.C. Burmeister for preparation of the odon. part in his 1839 "*Handbuch der Entomologie*" (Vol. 2), are outlined, and the etymology of taxonomic names listed therein is explained.

(16463) FRANK, M., 2006. Erstfund der Feuerlibelle (Crocothemis erythraea) in Mecklenburg-Vorpommern (Odonata, Libellulidae). *Virgo/MittBl. ent. Ver. Mecklenburg* 9(1): 69-70. – (Lion-Feuchtwanger-Str. 25, D-55129 Mainz).
C. erythraea is new for Mecklenburg-Vorpommern, E. Germany: several ♂ were recorded at Schönberg, NW Mecklenburg, on 31-VII/3-VIII-2006.

(16464) GERAEDS, R.P.G. & V.A. VAN SCHAIK, 2006. Dragonflies in the valley of the river Roer, 1: Damselflies (Zygoptera). *Natuurh. Maandbl.* 95(9):

197-203. (Dutch, with Engl. s.). – (First Author: Bergstraat 70, NL-6131 AW Sittard).
During a systematic odon. survey of the Roer Valley, the Netherlands (2000-2005), 15 Zygoptera spp. were recorded. These are here listed and discussed.

(16465) HECKMAN, C.W., 2006. Encyclopedia of South American aquatic insects: Odonata-Anisoptera. Illustrated keys to known families, genera, and species in South America. Springer, Dordrecht. vi + 725 pp. Hardcover (16.5 × 24.5 cm). ISBN 1-4020--4801-7. – (Publishers: P.O. Box 17, NL-3300 AA Dordrecht).
The appearance of this volume, almost simultaneously with that of R.W. Garrison et al. (*OA* 16339), came as a surprise to most workers on the neotropical odon. taxonomy. The more so as its Author was known in the odonatological world mainly by his publications on aquatic communities, where the odon. did not represent the main subject of the treatment (cf. *OA* 3925, 6784, 12131). – The book is providing a set of descriptive keys to the adults of most of the currently known S American spp. and to the hitherto known larvae, supported by 793 numbered figs/fig. groups. The keys will be certainly welcome, though the couplets are often long and the diagnostic features not always clearly defined. They are printed in a non-conventional lay-out and are not very easy to use. The text is based on over 500 primary publications, published up to 2005, which constitute probably some 50% of the relevant literature on neotropical odon. taxa. The compilation of bibliography and the construction of keys are a hard proposition for a single worker, but they make the book a useful tool for basic orientation. – The manuscript does not seem to have been reviewed by a qualified reviewer prior to its publication, hence various shortcomings that could easily be avoided. The book may not be a "work of excellence", but it is a publication that doubtlessly required enormous efforts for its preparation; it gives a welcome review of the subject and, above all, the much needed keys that will certainly trigger, accelerate and facilitate the work on S American Anisoptera taxonomy.

(16466) HERNANDEZ, K.M., B.A. REECE & N.E. McINTYRE, 2006. Effects of anthropogenic land use on Odonata in playas of the southern High Plains. *West. N. Am. Nat.* 66(3): 273-278. – (Third Author: Dept Biol. Sci., Texas Tech. Univ., Lubbock, TX 79409-3131, USA).
Playas are ephemeral wetlands that are the only source of aboveground freshwater in the southern Great Plains, USA, making them of vital importance to aquatic and amphibious animals. Playas are also highly threatened from anthropogenic land use (chiefly agriculture, which decreases hydroperiod through increased sedimentation). Community structure of adult odon. was examined in playas differing in the 2 main regional forms of surrounding land use (cropland vs grassland). Analysis of odon. diversity revealed high overlap between cropland and grassland playas. Traditional species-area theory did not fit observed patterns, as there appears to be a threshold playa size that supports maximal odon. diversity; this nonlinear response may reflect a tradeoff between hydroperiod and availability of emergent vegetation that is required for perching and oviposition. Since agriculture effectively reduces playa depth but not size of the overall playa watershed, this may mean that cropland playas serve as "ecological traps". This property has important implications for regional odonate diversity.

(16467) HEVERS, J., 2006. Die entomologische Sammlungen des Staatlichen Naturhistorischen Museums in Braunschweig. *Braunschweig. naturk. Schr.* 7(3): 697-757. (With Engl. s.). – (Staat. Naturhist. Mus., Pockelstr. 10, D-38112 Braunschweig).
16 entomological collections of the State Museum of Natural History of Braunschweig (Germany) are described. The small odon. collection (675 specimens, referable to 87 spp.) was set up, revised and identified by Dr G. Jurzitza (1966/67). Most of the material is of German and French provenance; there are 20 spp. from Ceylon, and some from Taiwan, Japan, Canada and the USA. A biographic sketch and a portrait of Dr Jurzitza appear on p. 742.

(16468) HOANG, D.H. & Y.J. BAE, 2006. Aquatic insect diversity in a tropical Vietnamese stream in comparison with that in a temperate Korean stream. *Limnology* 7: 45-55. – (First Author: Lab. Zool., Fac. Biol., Univ. Nat. Sci. Vietnam, Natn. Univ. Ho Chi Minh City, HCMC, Vietnam).
32 gen. (pertaining to 11 odon. fam.) are listed from the Dak Pri stream in S Vietnam, and 5 gen. (all Gomphidae) from the Gapyeong stream in central Korea. The differences in biodiversity are discussed.

(16469) HOUARD, X., 2006. Appel à contribution pour un atlas des odonates de Normandie. *Bull. Soc. Linn. Normandie* 119: 86. – (2 bis, rue Bachelet, F-76350 Oissel).
A call for odon. records from Normandy (France), required for the atlas, now under preparation by the CERCION (= Collectif d'Etudes Régional pour la Cartographie et l'Inventaire des Odonates Normands). For a newsletter of the same name apply to the Author. So far 6400 records are available for 56 spp., provided by 80 contributors. Sympetrum depressiusculum and S. pedemontanum are new for the region. The current status of odonatol. exploration of Normandy is shown in a map.

(16470) LENCIONI, F.A.A., 2006. *Damselflies of Brazil: an illustrated identification guide*, Vol. 2: *Coenagrionidae*. All Print Editora, São Paulo. viii+419 pp., 22 col. pls incl. Hardcover (17.2 × 24.0 cm). ISBN 85-7718-034-4. (Engl. with an abridged text of the book in Port., on pp. 353-419). – (Orders to: book@zygoptera.bio.br).
For the description of Vol. 1, see *OA* 15868. – The present vol. is organized in the same way, treating all 154 coenagrionid spp. currently known from Brazil. The main text is followed by 4 Appendages, viz. (1) species of non-Coenagrionidae described since the publication of the first volume (i.e. 11 spp.; pp. 223-235); – (2) illustrations of 46 described larvae (pp. 237-294); – (3) a description of the larva of Mecistogaster asticta, including notes on its biology (pp. 295-304); and – (4) 43 col. images (phot. and specimen scans) of Brazilian spp. (pp. 305-328). The book has 1570 illustrations, of which 380 are original. Based on examination of the ♂ syntype of Leptagrion? obsoletum Selys, 1876, this is considered a senior synonym of Helveciagrion chirihuanum (Calvert, 1909). The status of Leptagrion auricipes St. Quentin, originally relegated to synonymy, is re-examined and illustrated here. – This monumental "guide" will most significantly facilitate the work on Brazilian (and neotropical) Zygopt. taxonomy; its usefulness can be hardly exaggerated.

(16471) LIECKWEG, T. & R. NIEDRINGHAUS, 2006. Eine neue Sammlung westafrikanischer Odonaten des Überseemuseums Bremen. *Jb. Überseemus. Bremen* 13: 67-88. (With Engl. s.). – (Inst. Biol. u. Umweltwiss., Univ. Oldenburg, Postfach 2503, D-26111 Oldenburg).
A detailed account of the inventory of a collection of over 2000 specimens, referable to 131 spp. from Ghana, Togo, Benin, Nigeria and Cameroon, recently acquired by the Überseemuseum of Bremen, Germany.

(16472) LYONS, R., 2006. Dan Hull gets county record. *Oregon Coast Photogr. Ass. Proof Sheet* 14(2): 1. – (pondhawk@uci.net).
Libellula saturata is recorded from Coos co., Oregon, USA.

(16473) *MALANGPO*. Newsletter of the Thai National Office of SIO, Bangkok (ISSN 1381-5245), No. 21 (Nov. 2006). – (Orders to the Eds of *Odonatologica*, P.O. Box 256, NL-3720 AG Bilthoven).
Pinratana, A.: Editorial (p. 211); – *Kosterin, O.E. & N.E. Vikhrev*: Odonata seen during three days in a populated lowland part of Cambodja (pp. 212-217; with commented list of records); – *Benstead, P.*: Casual observations of Odonata in Cambodia in 2005 and 2006 (pp. 218-220).

(16474) MANCI, C.O., 2006. Investigations on the dragonflies (Insecta: Odoanta) occurring in Mures Floodplain Natural Park. *Scient. Annls Danube Delta Inst. Tulcea* 12: 69-74. (With Romanian s.). – (Acad. Remus Radulet 13, bl. 119, ap. 7, RO-300281 Timisoara).
Based on 2×2 km UTM-squares, maps are presented on the occurrence of 36 spp. in the Park, Romania.

(16475) MARQUES, M.T., J. ADIS, G.B. DOS SANTOS & L.D. BATTIROLA, 2006. Terrestrial arthropods from tree canopies in the Pantanal of Mato Grosso, Brazil. *Revta bras. Ent.* 50(2): 257-267. (With Port. s.). – (First Author: Depto Biol. & Zool., Inst. Biociências, Univ. Fed. Mato Grosso, Av. Fernando Correa da Costa s/n, Coxipó, BR-78060-900 Cuiabá, MT).
The arthropod assemblage of 3 Vochysia divergens trees was examined by fogging their canopies with Lambdacialotrine 0.5% during high water (Feb.; aquatic phase, forest inundated) and low water (Sept./Oct.; terrestrial phase, forest not inundated) seasons. Only in the canopy of 1 tree 2 odon. individuals were recorded, during low water. The names of the spp. are not stated.

(16476) McCAULEY, S.J., 2006. The effects of dispersal and recruitment limitation on community

structure of odonates in artificial ponds. *Ecography* 29(4): 585-595. – (Cent. Pop. Biol., One Shield Ave, 2320 Storer Hall, Univ. California, Davis, CA 95616, USA).

The effects of isolation on the structure of both adult and larval Anisoptera communities forming at physically identical artificial ponds (cattle tanks in SE Michigan, USA) were examined over 2 yr. Isolation, whether measured by distance to the nearest source habitat or by connectivity to multiple sources, was significantly negatively related to the species richness of dragonflies observed at and collected in these ponds. These results indicate that dispersal and recruitment limitation acted as filters on the richness of communities at the ponds. The richness of larval recruits in ponds was lower than the richness of adult dispersers observed at ponds, and distance from a source habitat explained a greater fraction of the variation in larval than adult richness (83 and 50%, resp.). These results and a ♂ biased sex-ratio in adults observed at the ponds suggest that isolated habitats may be more recruitment limited than observations of dispersers would suggest. A Mantel test indicated there was a spatial componenet to the composition of communities forming in tanks, and that distance between tanks and community dissimilarity (1-Jaccard's) were significantly positively related ($r = 0.52$). This pattern suggests that their position with respect to alternative source environments influenced the composition of the communities that recruited into these ponds. These results provide further evidence of recruitment limitation in this system. Results from this study highlight the importance behaviourally limited dispersal may have in taxa morphologically capable of broad dispersal and suggest that the role of dispersal and recruitment limitation may be critical in shaping community structure across habitat gradients that include variation in habitat duration.

(16477) McGUFFIN, M.A., R.L. BAKER & M.R. FORBES, 2006. Detection and avoidance of fish predators by adult Enallagma damselflies. *J. Insect Behav.* 19(1): 77-91. – (Second Author: Dept Zool., Univ. Toronto, Toronto, ON, M5S 3G5, CA).

Reproductive success of iteroparous insects depends on their own survival as well as that of their offspring and thus adults should consider risk of predation to both themselves and their offspring when selecting a suitable place to lay eggs. Species composition of Enallagma from sites in E Ontario (Canada) was surveyed and it was found, that similar to studies in Michigan (USA), E. boreale does not co-exist with fish, whereas E. signatum is apparently restricted to sites with fish. E. ebrium is found at fish and fishless sites. Laboratory experiments on these spp. showed no effect of chemical cues of fish presence on propensity to oviposit or number of eggs released. By using field enclosures, it was found adult E. ebrium could detect and avoid fish during visits to a site, but ♀♀ visiting fish sites did not significantly reduce oviposition duration.

(16478) [MIELEWCZYK, S.] BERNARD, R., P. BUCZYŃSKI & G. TOŃCZYK, 2006. Dr Stefan Mielewczyk (1933-2005). *Wiad ent.* 25(1): 43--54. (Pol., with Engl. s.). – (First Author: Dept Gen. Zool., UAM, Umultowska 89, PO-61-614 Poznan).

A concise biography and appreciation of work are followed by his complete bibliography (150 titles, 57 related to the Odon.). Dr S. Mielewczyk was a representative of the vanishing school of classical naturalists, a distinguished aquatic entomologist and odonatologist, Founding Member of Societas Internationalis Odonatologica .... The peculiarities of his work were: an unusual carefulness in the application of methods, the collecting of large material, and a critical and detailed analysis of data. His publications are characterised by extraordinarily careful language and terminology. His great knowledge of odon. spp. and their habitats is recognizable in the use of a very accurate autecological typology.

(16479) *ODONATRIX*. Bulletin of the Odonatological Section of the Polish Entomological Society (ISSN 1733-8239), Vol. 2, Suppl. 1 (Oct. 2006). (Pol., with Engl. s's). – (c/o Dr P. Buczyński, Dept Zool., UMCS, Akademicka 19, PO-20-033 Lublin).

Buczyński, P., G. Tończyk, B. Daraz, E. Djatlova, W. Michalczuk, A. Miszta, B. Szpala, J. Szymański & J. Tondys: Dragonflies collected during the 3rd National Symposium of Odonatology of the Polish Entomological Society (Zwierzyniec, September 15--17, 2006) (pp. 1-12); – *Tończyk, G.*: 3rd national Symposium of Odonatology of the Polish Entomological Society (pp. 13-16).

(16480) OTT, J., 2006. Der Zweifleck, Epitheca bimaculata (Charpentier, 1825), nun auch am Gelterwoog bei Kaiserslautern (Insecta: Odonata: Corduliidae). *Fauna Flora Rheinland-Pfalz* 10(4): 1339-1347. (With

Engl. s.). – (LUPO, Friedhofstr. 28, D-67705 Trippstadt).
Recently, Epitheca bimaculata is increasing its range. A population from the lake Gelterswoog nr Kaiserslautern, Rhineland-Palatinate, Germany, is brought on record.

(16481) OTT, J., 2006. Die Arktische Smaragdlibelle, Somatochlora arctica (Zetterstedt, 1840), in der Pfalz: übersehen oder kurz vor dem Aussterben? (Insecta: Odonata: Corduliidae). *Fauna Flora Rheinland-Pfalz* 10(4): 1323-1338. (With Engl. s.). – (LUPO, Friedhofstr. 28, D-67705 Trippstadt).
In Palatinate (Germany), serveral breeding sites of Somatochlora arctica were recently degraded or destroyed; the sole currently known autochthonous population is located S of Trippstadt. Since it is possible the sp. was overlooked by recent surveys, it is suggested to include it in the Special Species Protection Programme for moorland odon. in the Palatinate.

(16482) OTT, J., 2006. Die Südliche Binsenjungfer, Lestes barbarus (Fabricius, 1798), erobert den Pfälzerwald (Insecta: Odonata: Lestidae). *Fauna Flora Rheinland-Pfalz* 10(4): 1315-1321. (With Engl. s.). – (LUPO, Friedhofstr. 28, D-67705 Trippstadt).
In 2005, L. barbarus was discovered for the first time in the central Palatinate Forest, nr Fischbach. In 2006, this was a large breeding colony. The origin of the population is discussed, and the occurrence of the sp. nr Kaiserslautern is brought on record; – Germany.

(16483) NATTRASS, R., 2006. Dragonflies! *Newsl. Qld Frog Soc.* 2006(Winter): 5. – (c/o Queensland Frog Soc., P.O. Box 7017, East Brisbane, QLD 4169, AU).
A note on biology of Orthetrum villosovittatum; – SE Queensland, Australia.

(16484) NOVELO-GUTIERREZ, R., 2006. The larva of Macrothemis ultima González-Soriano, 1992 (Odonata: Anisoptera: Libellulidae). *Trans. Am. ent. Soc.* 132(1/2): 151-156. – (Depto Ent., Inst. Ecol., A.C., Apartado Postal 63, MX-91070 Xalapa, Veracruz).
The description and illustrations are based upon larvae reared until emergence. The larva is similar to M. aurimaculata; a key is provided.

(16485) PASS, G., B.-A. GEREBEN-KRENN, M. MERL, J. PLANT, N.U. SZUCSICH & M. TÖGEL, 2006. Phylogenetic relationships of the orders of Hexapoda: contributions from the circulatory organs for a morphological data matrix. *Arthropod Syst. Phylog.* 64(2): 165-203. – (First Author: Dept evol. Biol., Univ. Vienna, Althanstr. 14, A-1090 Wien).
Discussions of phylogenetic studies based on morphological data focus mainly on results of the cladistic analysis, while selection and evaluation of characters themselves are often underrepresented. The present paper is addressing this with a survey of characters of the circulatory organs in order to contribute to the analysis of phylogenetic relationships of insect orders. It is based on examination of literature and on numerous unpublished data. Of 38 variable traits of dorsal vessel and various accessory circulatory organs, 11 are selected as potentially informative at supraordinal level.

(16486) PROCTOR, H. & A. GRIGG, 2006. Aquatic invertebrates in final void water bodies at an open-cut coal mine in central Queensland. *Aust. J. Ent.* 45(2): 107-121. – (First Author: Dept Biol. Sci., Univ. Alberta, Edmonton, AB, T6G 2E9, CA).
The diversity of aquatic invertebrates colonising water-filled final voids produced by an open-cut coal mine nr Moura, Qld, Australia is described. The taxa are listed at fam. level only; Odon.: Coenagrionidae, Hemicorduliidae (incl. also Urothemistidae and Libellulidae) and Lindeniidae. It is concluded that ponds formed in final voids at this mine have the potential to provide habitat for many taxa typical of lentic inland water bodies in central Queensland.

(16487) PROESS, R., 2006. Verbreitungsatlas der Libellen des Grossherzogtums Luxemburg. *Ferrantia* 47: 1-164. (With Engl. & Fr. s's). – (Mus. Natn. Hist. Nat., 25 rue Münster, L-2160 Luxembourg).
The knowledge on the odon. fauna (62 spp.) of the Grand Duchy of Luxemburg is summarized. For each sp. its habitat requirements are outlined, and the historical and current (after 1980) occurrence in Luxemburg are stated and mapped. The odon. habitat types in Luxemburg are reviewed and the information on odon. conservation is provided.

(16488) ROWE, R.J., 2006. Odonata (damselflies and dragonflies): key to nymphs. *In*: M.J. Winterbourn, K.L.D. Gregson & C.H. Dolphin, *Guide to*

the aquatic insects of New Zealand, pp. 14-17, *Bull. ent. Soc. N.Z.* 14 (108 pp.). – (Dept Zool. & Trop. Ecol., Sch. Trop. Biol., James Cook Univ., Townsville, QLD 4811, AU).
An illustrated key to the larvae of the New Zealand and the Chatham Isls spp., with bibliographic references.

(16489) SAITO, Y., M. OWADA, S. KATO & S. INOUE, 2006. Monitoring Survey (2001-2005) of dragonflies (Odonata) of the Imperial Palace, Tokyo, central Japan. *Mem. natn. Sci. Mus. Tokyo* 43: 383-406. (Jap., with Engl. s.). – (First Author: Hirai 5-26-12, Edogawa, Tokyo, 132-0035, JA).
The monitoring of the odon. fauna of the Imperial Palace gardens (surface ca 115 ha), central Tokyo was conducted during 1996-2000 (cf. *OA* 13832) and it was continued during 2001-2005, when 33 spp. were recorded, of which 6 spp. for the first time. Ceriagrion nipponicum, Trigomphus melampus and Aeschnophlebia longistigma are rare in urban Tokyo, but they are abundant in the Palace gardens. Rhyothemis fuliginosa, also rare in Tokyo, is gradually (since 2002) increasing its population strength.

(16490) SCHMIDT, E.G., 2006. Schlüsselfaktoren der Habitatpräferenz bei der südkontinentalen Sumpfheidelibelle Sympetrum depressiusculum (Selys, 1841) im atlantischen NW Deutschland und ihre Anwendung für Naturschutz-Massnahmen (Odonata: Libellulidae). *Virgo/MittBl. ent. Ver. Meklenburg* 9(1): 24-29, cover phot. excl.). – (Coesfelder Str. 230, D-48249 Dülmen).
The breeding habitat requirements of S. depressiusculum in NW Germany are outlined and analysed. The required pond drought in winter and a slow rise of watertable in late spring do not occur in natural water bodies, while they do represent a significant feature of carp-breeding fishponds. Consequently, in NW Germany (e.g. the Münsterland region), the sp. is confined to the ponds managed for carp breeding. The implications of this phenomenon for maintenance and conservation of the dragonfly are pointed out.

(16491) SILVEIRA, M.P., D.F. BUSS, J.L. NESSIMIAN & D.F. BAPTISTA, 2006. Spatial and temporal distribution of benthic macroinvertebrates in a southeastern Brazilian river. *Braz. J. Biol.* 66(2B): 623-632. (With Port. s.). – (First Author: Embrapa Environment, P.O. Box 69, BR-13820-000 Jaguariúna, SP)
5 sites were sampled along the longitudinal gradient of the Sana R., in the low region of the Macaé R. basin (alt. 420-160 m), Atlantic Forest area, Rio de Janeiro. 10 odon. gen. were identified. Elasmothemis and Brechmorhoga were dominant in April, Argia in August, and a Megapodagrionidae sp. in February. Argia, Haeterina and Megapodagrionidae sp. occurred exclusively in pool litter (Elasmothemis had a preference for that habitat), Brechmorhoga on stone substrate, and Gomphus and Erpetogomphus in riffle litter.

(16492) *1st SLOVENIAN ENTOMOLOGICAL SYMPOSIUM: BOOK OF ABSTRACTS*, 2006. (Edited by J. Prešeren). Slovenian Ent. Soc. & Slovenian Mus. Nat. Hist., Ljubljana, 82 pp. ISBN 10 961-90337-2.8. (Bilingual: Slovene/Engl.). – (Available from: Sloven. Mus. Nat. Hist., Prešernova 20, P.O. Box 290, SI-1001 Ljubljana).
[Odonatol. titles:] *Bedjanič, M.*: Dragonfly fauna of Sri Lanka: zoogeography and species conservation aspect (Insecta: Odonata) (pp. 4-5); – *Bogdanović, T., M. Franković & B. Viljetić*: Dragonfly fauna of upper Drava river (pp. 6-7); – *Kotarac, M., A. Šalamun, M. Podgorelec & M. Govedič*: Assessment of population size of Cordulegaster heros at Goričko, NE Slovenia (Odonata: Cordulegastridae) (pp. 38-39); – *Bogdanović, T. & M. Franković*: List of the historic record of dragonfly species in Croatia (Insecta; Odonata) (pp. 68-69); – *Franković, M. & T. Bogdanović*: Croatian vernacular names for dragonflies: review and discussion proposal (pp. 72-73).

(16493) TYRRELL, M., 2006. *The dragonflies of Northamptonshire: breeding species, their distribution and conservation*. Northants Dragonfly Group BDS, Ellington/Cambs. 80 pp. Softcover (21.0 × 29.4 cm). ISBN 0-9552340-0-X.
An attractive and informative, slim volume on the 23 spp. recorded in the county between 1980-2005. Of the confirmed breeding spp., none are rare or endangered. Of particular interest are the descriptions of the main odon. habitats in the county. For each sp., information is provided on its county status and conservation, and on habitat preferences and distribution, enhanced by a col. portrait, adult phenology graph and by a county distribution map. The sections on habitat preferences will be of interest to

extra-limital and non-British workers as well.

(16494) WILSON, K.D.P., 2006. New Planaeschna record from Hong Kong (Odonata: Aeshnidae). *Porcupine* 34: 5-6. – (18 Chatsworth Rd, Brighton, BN1 5DB, UK).
The genus was so far not known from Hong Kong. Here a ♀ is placed on record, taken 30-X-2005 at San Uk Ha, Wu Kau Tang, during a crepuscular odon. survey. It probably represents an undescribed sp., close to P. risi. Its structural features are illustrated, but the sp. is neither described nor named.

(16495) XU, Q.-h., 2006. A new species of the genus Cephalaeschna (Odonata: Aeshnidae) from Fujian province, China. *Entomotaxonomia* 28(2): 94-96. (Chin., with Engl. s.). – (Zhangzhou Educ. Coll., Zhangzou, Fujian-363000, China).
Cephalaeschna shaowuensis sp. n. is described and illustrated. Holotype ♀: Fujian prov., Shaowu city, 19-VII-2004; deposited in Zhangzhou Education Coll., Fujian, China. Diagnostic characters separating it from C. risi are outlined.

(16496) ZESSIN, W., 2006. Bericht über den 3. Weltkongress Fossile Insekten vom 7.-11. Februar 2005 in Pretoria, Südafrika. *Virgo/MittBl. ent. Ver. Mecklenburg* 9(1): 55-66. – (Lange Str. 9, D-19230 Jasnitz).
A very detailed and richly illustrated report on the 3rd International Congress of Palaeoentomology, giving the entire program and providing postal addresses of all participants. Various (oral and poster) presentations dealt with the odon., e.g. by *A. Arillo & A. Nel, R.J. Beckemeyer, M. de Andrade-Morraye* et al., *W. Zessin*, etc.

(16497) ZESSIN, W., 2006. Zwei neue Insektenreste (Megasecoptera, Odonatoptera) aus dem Westfalium D (Oberkarbon) des Piesberges bei Osnabrück, Deutschland. *Virgo/MittBl. ent. Ver. Mecklenburg* 9(1): 37-45. – (Lange Str. 9, D-19230 Jasnitz).
Piesbergtupus hielscheri sp. n., gen. n. (Meganeuridae, Piesbergtupinae subfam. n.) is described from Westphalian D (Upper Carboniferous) of Piesberg, N of Osnabrück, Lower Saxony, Germany. For Stephanotypus schneideri Zessin, 1983 (Meganeuridae), a new subfam., Stephanotypinae subfam., n., is erected.

(16498) ZHANG, B.-L., G. FLECK, D.-Y. HUANG, A. NEL, D. REN, X.-D. CHENG & Q.-B. LIN, 2006. New isophlebioid dragonflies (Odonata: Isophlebioptera: Campterophlebiidae) from the Middle Jurassic of China. *Zootaxa* 1339: 51-68. – (Dr A. Nel, Entomologie, Mus. Natn. Hist. Nat., 45 rue Buffon, F-75005 Paris).
Amnifleckia guttata gen. n., sp. n., A. splendida sp. n., and Parabrunetia celinea gen. n., sp. n. are described from Daohugou (Inner Mongolia, China). Their close affinities with the genus Pternopteron (from Dogger of Kirgizia) suggest a similar age for the Daohugou fauna.

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(16499) *ODONATOLOGICAL ABSTRACT SERVICE* (ISSN 1438-0269), No. 19 (Feb. 2007), 60 pp. – (Distributor: M. Schorr, Schulstr. 7b, D-54314 Zerf).
Abstracts Nos 5438-6080 of works published in 1997-2007.

(16500) TYAGI, B.K., [Ed.], 2007. *Odonata: biology of dragonflies*. Festschrift [...] dedicated to Professor Dr Bastiaan Kiauta [...], the Doyen of Odonatology & the Patron of International Odonatological Foundation (SIO). Scientific Publishers (India), Jodhpur. xx + 366 pp., frontispiece (portrait) & 17 col. pls excl. ISBN 81-7233-482-6. Hardcover (16.5 × 24.5 cm). Published 17 January. Price: GBP 60.- net approx. – (Scientific Publishers, 5A, New Pali Rd, P.O. Box 91, Jodhpur-342-001, India).
Moore, N.: Before and after 1971: a personal tribute to Bastiaan Kiauta (p. iii); – *Inoue, K.*: Foreword (pp. v-vi); – *Tyagi, B.K.*: Preface (pp. vii-x); – Acknowledgement (p. xi); – List of contributors (pp. xiii-xv); – *Tyagi, B.K.*: Professor Bastiaan Kiauta: an extraordinary and outstanding odonatologist [pp. 1-24 (incl.: *Tyagi, B.K.*: Glimpses into Prof.Dr Bastiaan Kiauta's life and odonatological achievements (pp. 2-8), and – *Kiauta, M.A.J.E.*: Odonatological bibliography of Dr B. Kiauta, 1954-2006 (pp. 8-24)]; *Machado, A.B.M.*: Studies on neotropical Protoneuridae, 20: Neoneura kiautai spec. nov. from southeastern Brazil (Zygoptera: Protoneuridae) (pp. 25-32); – *Theischinger, G. & S.J. Richards*: Three new damselfly species from Papua New Guinea (Zygoptera: Megapodagrionidae, Coenagrionidae) (pp. 33-43); – *Dumont, H.J.*: Dragonflies from the Okavango Swamps (Botswana, southern Africa)

in winter (pp. 45-50); – *Marinov, M., B. Grebe & Y. Kutsarov*: Cordulegaster insignis (Schneider, 1845) in Bulgaria, with notes on its biology and ecology (pp. 51-61; 2 col. pls excl.); – *Brockhaus, T., S.G. Butler, R.G. Kemp & G.S. Vick*: The dragonfly fauna of the Shivapuri Hills, Nepal (Odonata: Zygoptera, Anisozygoptera, Anisoptera) (pp. 63-72; 2 col. plx excl.); – *Haritonov, A. Yu.*: The composition and history of Siberian odonate fauna (pp. 73-87); – *Popova, O.N.*: The dragonflies of forest-steppe in West Siberia: fauna, ecology and biology (pp. 89--104); – *González Soriano, E. & R. Novelo Gutiérrez*: Odonata of Mexico revisited (pp. 105-136); – *Cannings, R.A., L.R. Ramsay & S.G. Cannings*: Odonata inventories in British Columbia, Canada: determining the conservation status of Odonata species (pp. 137-151, 4 col. pls excl.); – *Mola, L.M.*: Cytogenetics of American Odonata (pp. 153-173, 1 col. pl. excl.); – *Beukema, J.J.*: Are the observed dispersal capacities in damselfly species sufficient to cope with the ongoing rapid shift of climate zones? (pp. 175-182); – *Pérez, L., D. Monroy & E. Realpe*: Local assemblage patterns of odonates in Central Choco, Colombian Pacific (pp. 183-199); – *Ott, J.*: The expansion of Crocothemis erythraea (Brullé, 1832) in Germany: an indicator of climatic changes (pp. 201-222, 2 col. pls excl.); – *Irusta, J.B. & A. Araújo*: Adaptationist approach of reproductive behaviour in Libellulidae: a case report on Diastatops obscura (Fabricius) (pp. 223-240); – *Stoks, R. & M. De Block*: Causes and costs of lamellae autotomy in damselfly larvae: a review (pp. 241-255); – *Subramanian, K.A.*: Endemic odonates of the Western Ghats: habitat distribution and conservation (pp. 257-271, 2 col. pls excl.); – *Miller, P.L.*, Dragonflies of the Madurai Kamaraj University Campus (Tamil Nadu, India) (pp. 273-322); – *Mitra, A.*: Larval and adult behavioural patterns of some odonate species from Dehradun valley (pp. 323-341, 2 col. pls excl.); – *Cuong, D.M.*: Coeliccia hoanglienensis spec. nov., a new platycnemidid damselfly from Hoang Lien mountains in the North of Vietnam (Zygoptera: Platycnemididae) (pp. 343-348); – *Kiran, C.G. & F.K. Kakkassery*: Observations on mating and oviposition behaviour of Tetrathemis platyptera Selys, 1878 (pp. 349-356); – *Jović, M.*: About the Odonata ethnic names in the Serbian linguistic area (pp. 357--362); – *Barta, D.*: Discovering the dragonfly wealth of Kerala, the god's own land, in South India: a travelogue (pp. 363-366; 2 col. pls excl.).