ODONATOLOGICAL ABSTRACTS

2001

(17085) BAYANOV, N.G. & E.A. FROLOVA, 2001. Fauna gidrobiontov Kerzhenskogo zapovednika. – [Aquatic fauna of the Kerzhenskiy Nature Reserve]. *Trudy gosud. prir. Zap. "Kerzhenskiy"* 1: 251-286. (Russ.). – (Authors' postal addresses not stated).
The Reserve is located in the province of Nizhniy Novgorod (Russia). Larvae of 19 odon. spp. were recorded. Of these, 16 spp. are listed, the remaining 3 spp. are probably referable to Leucorrhinia, the representatives of which are said to be common in the Reserve. – See also *OA* 17089.

(17086) DE PAUW, N. & S. HEYLEN, 2001. Biotic index for sediment quality assessment of watercourses in Flanders, Belgium. *Aquat. Ecol.* 35: 121-133. – (Lab. Envir. Toxicol. & Aquat. Ecol., Dept Appl. Ecol. & Envir. Biol., Univ. Ghent, Plateaustraat 22, B-9000 Gent).
The refinement of the Biotic Sediment Index (BSI) is described, based on the analysis of a data set of benthic macroinvertebrates from 440 sampling sites, located all over Flanders. The odon. were represented by Calopteryx, Ceriagrion (cf), Coenagrion, Gomphus, Ischnura, Nehalennia (cf), Orthetrum and Platycnemis.

(17087) GOYAUD, C., 2001. Atlas de répartition des libellules (Odonata) de Vendée (1985-2000). *Naturaliste vendéen* 1: 19-35, 1 col. pl. excl. (with Engl. s.). – (La Haute Chevillonnière, F-85310 La Chaize-le-Vicomte).
Distribution maps of 58 spp., as recorded in Vendée (France) during 1985-2000.

(17088) SILINA, A.E., 2001. Predvaritel'nye rezul'taty obsledovaiya makrozoobentosa ozera Pogonovo kak kormovoy bentosoyadnyh ryb. – [Preliminary results of the macrozoobenthos investigation of Lake Pogonovo as a food basis for benthophagous fish]. *Vest. voronezh. gosud. Univ.* (Him./Biol.) 2001(2): 147-154. (Russ.). – (Author's postal address not stated).
Coenagrion hastulatum and Ischnura elegans are recorded from Lake Pogonovo (Voronezh distr., Russia), Sept. 1998.

2002

(17089) ANUFRIEV, G.A. & N.G. BAYANOV, 2002. Fauna bezpozvonochnyh Kerzhenskogo zapovednika po rezul'tatam issledovaniy 1993-2001 godov. – [Invertebrate fauna of the Kerzhenskiy Nature Reserve, based on the 1993-2001 surveys]. *Trudy gosud. prir. Zap. "Kerzhenskiy"* 2: 152-354. (Russ.). – (Authors' postal addresses not stated).
A comprehensive and thoroughly annotated catalogue of 1263 invertebrate spp. recorded from the Reserve (Nizhniy Novgorod prov., Russia). The odon. are represented by 18 spp. – See also *OA* 17085.

(17090) BERENBAUM, M., 2002. Insects and windshields: a crash course. *Am. Entomologist* 48(1): 2-3. – (Dept Ent., Univ. Illinois, 320 Morrill Hall, 505 South Goodwin Ave, Urbana, IL 61801, USA).
With reference to publications by C.V. Stevani et al. (cf. *OA* 13725, 13726), the chemistry is explained of the damage caused by odon. eggs to automobile acrylo/melamine coating. Dragonflies often mistake the shiny reflective surface of automobiles for water and lay their eggs on them. The cause of damage is

the interaction of hydrogen peroxide (involved in egg sclerotization) with cysteine and cystine residues in the egg proteins in the presence of heat (up to 90° C on a car hood on a hot day) to form sulfonic and sulfinic acids by oxidation. These acids catalyze the hydrolysis of the clear-coat.

(17091) YOURTH, C.P., M.R. FORBES & R.L. BAKER, 2002. Sex differences in melanotic encapsulation responses (Immunocompetence) in the damselfly Lestes forcipatus Rambur. *Can. J. Zool.* 80: 1578-1583. (with Fr. s.). – (Second Author: Dept Biol., 2240 Herzberg Labs, Carleton Univ., 1125 Colonel By Dr., Ottawa, ON, K1S 5B6, CA).
A few studies have shown that ♂ and ♀ invertebrates differ in immunity and that these differences appear related to differences in sexual dimorphism and gender differences in life histories. Melanotic encapsulation of foreign objects in insects is one form of immunity. L. forcipatus is moderately sexually dimorphic, and much is known about patterns of mass gain in congeners relating to differences in life history between ♂♂ and ♀♀. In this study, ♀♀ were more immunoresponsive than ♂♂ under controlled temperatures, following emergence, and at a time when parasitic mites were challenging these hosts. However, ♂♂ and ♀♀ that overlapped in mass at emergence did not differ in their immune responses. ♂♂ in better condition at emergence were more immunoresponsive than lighter ♂♂, but this relation was not found in ♀♀. Sex differences in immune expression may have implications for how ♀♀ vs ♂♂ are able to deal with challenges from parasites, under varying environmental conditions.

2003

(17092) CAMPBELL, L.M., R.E. HECKY & S.B. WANDERA, 2003. Stable isotope analyses of food web structure and fish diet in Napoleon and Winam gulfs, Lake Victoria, East Africa. *J. Great Lakes Res.* 29(Suppl. 2): 243-257. – (First Author: Canada Centre Inland Waters, Environment Canada, 867 Lakeshore Rd, Burlington, ON, L7R 4A6, CA).
The mean values (incl. s. d.) for stable nitrogen ($\delta^{15}N$) and carbon ($\delta^{13}C$) isotopes are stated for "dragonfly nymphs" from Napoleon Gulf (SE Uganda) and Winam (Nyanza) Gulf (W. Kenya).

(17093) FATON, J.-M., 2003. *Inventaire des libellules (Odonata) de la "Crau humide" I site Natura 2000.* Conservatoire Etudes des Ecosystèmes de Provence / Alpes du Sud, Aix-en-Provence. 50 pp. – (Publishers: B.P. 304, F-13609 Aix-en-Provence).
A comprehensive treatment of the fauna (59 spp.) of a region in the delta of the Rhone (France), with emphasis on species ecology and conservation.

(17094) JONET, B., 2003. *A la découverte ... des libellules.* [Les livrets nature du CPIE du Pays de Soulaines]. CPIE, Soulaines-Dhuys. 11 pp. Brochure (14.8×20.7 cm). ISBN none. Price: € 2.- net. – (Publishers: Domaine de Saint-Victor, F-10200 Soulaines-Dhuys).
General on dragonflies and on the work with them, directed at nature lovers.

(17095) KOVÁCS, T. & A. AMBRUS, 2003. Data to the Odonata fauna of the Szigetkž. *Folia hist.-nat. Mus. matraensis* 27: 73-80. – (First Author: Mátra Mus., Kossuth u. 40, HU-3200 Gyöngyös).
922 records of 46 spp., collected during 1999-2002 from 31 localities are listed; – Hungary.

(17096) KRAVITZ, E.A. & R. HUBER, 2003. Aggression in invertebrates. *Current Opinion Neurobiol.* 13: 736-743. – (First Author: Dept Neurobiol., Harvard Med. Sch., 220 Longwood Ave, Boston, MA 02115, USA).
Includes a brief paragraph on odon., where dominance enhances feeding opportunities, but few physiological studies that relate specifically to aggression have been carried out.

(17097) McHATTIE, S.D.J., 2003. *Analysis of data on dispersal in southern damselflies (Coenagrion mercuriale).* BSc thesis, Biol630 Honours Project, Univ. Liverpool 41 pp. – (c/o Dr D.J. Thompson, Pop. & Evol. Biol. Res. Gr., Biosciences Bldg, Sch. Biol. Sci., Univ. Liverpool, Crown St., Liverpool, L69 7ZB, UK).
C. mercuriale is a rare sp. within the UK and it is known as a poor coloniser, the range over which it will travel is known to be very short. The main objective of this study was to find correlations between size of area and movement of individuals at 10 sites distributed around Hampshire, S England. The results show that there are definitely correlations between population density and distance travelled (activity) but there are no significant differences

between the studied sites with respect to rates of C. mercuriale travel. The sex of the individual has a significant effect on the activity of the insect but not on the rate of travel. It was noted that individuals crossed the road between Upper and Lower Crockford with great hesitancy and on no occasion was an individual seen traveling further than just over 1.5 km.

(17098) MISERENDINO, M.L. & L.A. PIZZOLON, 2003. Distribution of macroinvertebrate assemblages in the Azul-Quemquemtreu river basin, Patagonia, Argentina. *N.Z.Jl Marine Freshw. Res.* 37: 525-539. – (Lab. Ecol. Acuát., Univ. Nac. Patagonia, Sarmiento 849, AR-9200 Esquel).
Longitudinal and seasonal changes in physical and chemical variables, and macroinvertebrate community structure-function were examined in the Azul-Quemquemtreu river system in the subantarctic forest of Patagonia. 7 sampling stations were established at altitudes 280-450 m. Aeshna variegata was the sole odon. sp. encountered. It was represented in samples from a single station, located in a small tributary of the Azul river.

(17099) PROKOP, J., 2003. Remarks on palaeoenvironmental changes based on reviewed Tertiary insect asociations from the Krušné hory piedmont basins and the České středohoř Mts in northwestern Bohemia (Czech Republic). *Acta zool. cracov.* 46 (Suppl.): 329-344. – (Dept Zool., Fac. Sci., Charles Univ., Vinična 7, CZ-12844 Prague-2).
The aim of the paper is to compare fossil entomofaunas from several periods within the Tertiary of NW Bohemia (incl. the Oligocene and Miocene Odon.) and to search for analogous palaeoenvironmental conditions in other areas. The results are correlated with the previously proposed palaeobotanical models.

2004

(17100) ADES, G.W.J. & R.C. KENDRICK, 2004. *Hong Kong fauna: a checklist of selected taxa (including dragonflies, butterflies, moths, ladybird & rove beetles, stick insects, freshwater fish amphibians, reptiles, birds and mammals)*. Kadoorie Farm & Botanic Garden Corp., Hong Kong. 91 pp.
The Odon. checklist (111 spp.) appears on pp. 4-6. For each sp., its general (extralimital) range is also stated.

(17101) CZERNIAWSKA-KUSZA, I., 2004. Use of artificial substrates for sampling benthic macroinvertebrates in the assessment of water quality of large lowland rivers. *Pol. J. environ. Stud.* 13(5): 579-584. – (Dept Land Prot., Opole Univ., Oleska 22, PO-45-052 Opole).
The results are compared between 2 different sampling techniques, viz.: nettings filled with brick as artifical substrate, and handnet sampling. In Platycnemis, Ischnura, Calopteryx, Ophiogomphus and Libellula, there was no difference between the 2 techniques, but Gomphus was not present on the artificial substrates.

(17102) MEIER, C., 2004. *Artenschutzmassnahmen für gefährdete Tierarten im Kanton Zürich. Aktionsplan Helmazurjungfer (Coenagrion mercuriale)*. Amt für Landschaft und Natur, Fachstelle Naturschutz, Zürich. 14 pp. – (Publishers: Neumühlequai 10, CH-8090 Zürich).
In Switzerland, C. mercuriale is currently known from 8 localities (alt. 400-800 m) in cantons Bern, Graubünden, Luzern, Obwalden and Zürich. In canton Zürich it occurs at 2 localities. The measures suggested for protection and advancement of the Zürich populations are outlined.

(17103) PEACOR, S.D. & E.E. WERNER, 2004. How dependent are species-pair interaction strengths on other species in the food web? *Ecology* 85(10): 2754-2763. – (First Author: Dept Fish. & Wildlife, Michigan St. Univ., 13 Natural Resources Bldg, East Lansing, MI 48824-1222, USA).
In part based on evidence derived from the work in which the odon. were involved. It is concluded that trait-mediated effects strongly influence species interactions and it is suggested that recent calls to quantify interaction strengths must be broadened to include examination of the variation in interaction strengths due to their dependence on densities of other spp. (most notably predators) in food webs.

(17104) STEGLICH, R. & J. MULLER, 2004. Die Tier- und Pflanzenarten nach Anhang IV der Fauna-Flora-Habitat-Richtlinie im Land Sachsen-Anhalt: Libellen (Insecta, Odonata). *Naturschutz Sachsen-Anhalt* 41: 23-30. – (First Author: Quittenweg 53, D-39118 Magdeburg).
Aeshna viridis, Gomphus flavipes and Leucorrhinia albifrons are briefly described. Their biology and ecology, general range, status in Sachsen-Anhalt (E

Germany) and threats are outlined, the Sachsen--Anhalt distribution is mapped and the required protective measures are suggested.

(17105) TOWERS, N.M., 2004. *Invertebrate community structure along a habitat-patch size gradient within a bog pool complex*. PhD thesis, Univ. Edinburgh. vii+152 pp.
The study was conducted at Forsinard, Flow co., NE Scotland, UK. 22 pools were sampled over 4 sampling periods in 1999. Among the 69 identified taxa, the odon. were represented by Coenagrion hastulatum, Aeshna juncea, Libellula quadrimaculata and Sympetrum danae.

(17106) TRIAPITSYN, S.V. & V.V. BEREZOVSKIY, 2004. Review of the genus Anagrus Haliday, 1833 (Hymenoptera: Myamaridae) in Russia, with notes on some extralimital species. *Far east. Entomologist* 139: 1-36. (With Russ. s.). – (Dept Ent., Univ. California, Riverside, CA 92521, USA).
29 Anagrus spp. are reviewed and their hosts are stated, where known. A. brocheri, A. incarnatus and A. subfuscus occur in odon. eggs. Sympecma paedisca is reported here for the first time as the host of A. brocheri.

2005

(17107) JAKŠIĆ, P., 2005. Biospeleological bibliography of the Balkan peninsula. *Acta ent. serb.* 9/10(1/2): 1-104. – (Dept Biol., Fac. Sci., Univ. Prishtina-Mitrovica, Mitrovica, Kosovo).
An impressive bibliography of ca 2500 titles, but still largely incomplete. A cross-referenced taxonomic index is not provided. – For the very few odon. records from the regional caves, see *OA* 9614 and B. Kiauta & M. Kotarac, 1995, *Notul. odonatol.* 4: 106-107.

(17108) JOHANSSON, F. & R. STOKS, 2005. Adaptive plasticity in response to predators in dragonfly larvae and other aquatic insects. *Proc. R. ent. Soc. 22nd Symp.* (Insect evolutionary ecology), pp. 347-370. – (First Author: Anim. Ecol., Dept Ecol. & Envir. Sci., Umeå Univ., S-90187 Umeå).
A review paper.

(17109) KUTRUP, B., E. CAKIR & N. YILMAZ, 2005. Food of the Banded newt, Triturus vittatus ophryticus (Berthold, 1846), at different sites in Trabzon. *Turk. J. Zool.* 29: 83-89. (With Turk. s.). – (First Author: Dept Biol., Fac. Arts & Sci., Karadeniz Techn. Univ., TR-61080 Trabzon).
The stomach contents was examined in 180 specimens from 3 localities in N Turkey. T. v. ophryticus forages on a great variety of prey, but rarely on odon. The remains of the latter were found only in specimens from 2 localities and represented 0.09% of the total diet volume.

(17110) LUCAS, E., 2005. Intraguild predation among aphidophagous predators. *Eur. J. Ent.* 102: 351-364. – (Gr. Rech. Ecol. Comportementale et Animale, Dépt Sci. Biol., Univ. Québec, C.P. 8888 Succ. Centre-ville, Montreal, QC, H3C 3P8, CA).
In a section on intraguild prey characteristics (mobility/immobility, predation strategy) and with reference to the paper listed in *OA* 9279, it is stated that larvae of Coenagrion hastulatum, which capture prey by ambush, are less frequently attacked by the intraguild predator Aeshna juncea than active--searching larvae of Leucorrhinia dubia.

(17111) MARTYNOV, V.V. & A.V. MARTYNOV, 2005. To the knowledge of dragonflies (Insecta, Odonata) of the Nature Reserve "Medobory" and surrounding areas. *Izv. harkov. ent. Obshch.* 12(1/2): 23-24. (Russ., with Engl. s.). – (Dept Zool., Fac. Biol., Donetsk Natn. Univ., Shchorsa 46, UKR-83050 Donetsk).
A review of the odon. fauna (25 spp.) of the Reserve, located in Gusiatinsky distr., Ternopol region, the Ukraine.

(17112) ROBB, T. & M.R. FORBES, 2005. On understanding seasonal increases in damselfly defence and resistance against ectoparasitic mites. *Ecol. Ent.* 30: 334-341. – (First Author: Dept Ecol. & Evol. Biol., Univ. Toronto, 25 Willcocks St., Toronto, ON, M5S 3B2, CA).
Defence against parasites and pathogens can be essential, yet not all hosts respond similarly to parasitic challenge. Environmental conditions are thought to explain variation in host responses to parasites. Lestes forcipatus emerging later in the season have shown higher resistance to the mite, Arrenurus planus, than hosts emerging earlier. This study was undertaken to determine whether variation in environmental temperatures characteristic of early vs late emergence times, degree or costs of mite parasitism, and/or size of newly emerged

adults could explain seasonal variation in defence and resistance to ectoparasitic mites. Damselflies from early vs late emergence groups differed in size at emergence and mite intensity. In general, early hosts were larger and had more mites than later hosts. However, only experimental temperatures experienced by damselflies at emergence influenced defence and resistance against mites and not host size or degree of parasitism. More specifically, hosts from early and late emergence groups did not differ in defence and resistance when held at the same temperatures in incubators. Housing at a high temperature, indicative of later in the season, was associated with higher defence and resistance for damselflies from both early and late emergence groups. These results indicate that daily temperatures in relation to emergence timing can account for seasonal increases in resistance for this temperate insect. Seasonal increases in resistance may be expected for other temperate insect-parasite associations and should have important implications for the phenology of parasites and for seasonal variation in parasite-mediated selection.

(17113) SCHIEL, F.-J. & K. WESTERMANN, 2005. Daten für Schwarzen Heidelibelle (Sympetrum danae) in der südlichen Oberrheinebene. *Naturschutz südl. Oberrhein* (Beih.) 1: 30-31. – (First Author: Turenneweg 9, D-77880 Sasbach).
A review of the 1979-2004 S. danae records from the Upper Rhine plains, SW Germany.

(17114) TERNOIS V., E. PRADIN & C. GAUTIER, 2005. Atlas préliminaire des odonates du Parc naturel régional de la Forêt d'Orient (1998-2005). *Cour. scient. PnrFO* 28: 84 pp. – (First Author: Centre Permanent d"Initiatives pour l'Environnement du Pays de Soulaines, Domaine de Saint-Victor, F-10200 Soulaines-Dhuys).
A monographic treatment of the fauna (51 spp.) of the Park (Champagne-Ardenne, France).

(17115) WESTERMANN, E. & K. WESTERMANN, 2005. Erfolgreiche Fortpflanzung des Frühen Schilfjägers (Brachytron pratense) in Wiesengräben des NSG Elzwiesen. *Naturschutz südl. Oberrhein* (Beih.) 1: 32. – (Buchenweg 2, D-79365 Rheinhausen).
B. pratense adults and exuviae are reported from grassland ditches in distr. Emmendingen (Baden-Württemberg, SW Germany). The habitat is described.

(17116) WESTERMANN, E. & K. WESTERMANN, 2005. Grosser Bestand der Hufeisen-Azurjungfer (Coenagrion puella) in Wiesengräben des NSG Elzwiesen. *Naturschutz südl. Oberrhein* (Beih.) 1: 32. – (Buchenweg 2, D-79365 Rheinhausen).
Subsequent to the Erythromma lindenii invasion during the past 20-30 yr, the formerly abundant and widespread C. puella suffered considerable losses, particularly so in Altrhein and in man-made ponds (Baden-Württemberg, SW Germany). As reported here, grassland ditches in Nature Reserve Elzwiesen (distr. Emmendingen), where E. lindenii is very rare, harbour a very large C. puella population.

(17117) WESTERMANN, K., 2005. Erfolgreicher Schlupf des Plattbauchs (Libellula depressa) in einem Wassertank. *Naturschutz südl. Oberrhein* (Beih.) 1: 33. – (Buchenweg 2, D-79365 Rheinhausen).
A note on the emergence of L. depressa in a metal garden tank (2.0 × 1.0 × 0.8 m; water collumn ca 10 cm).

(17118) WESTERMANN, K. & E. WESTERMANN, 2005. Erfolgreiche Fortpflanzung der Braunen Mosaikjungfer (Aeshna grandis) am Windgefällweiher, 966 m NN. *Naturschutz südl. Oberrhein* (Beih.) 1: 33. – (Buchenweg 2, D-79365 Rheinhausen).
The hitherto undocumented successful A. grandis reproduction at higher elevations in the Black Forest (SW Germany) is here confirmed by an exuviae, recorded 20-VII-2003 at an elevation of 966 m.

2006

(17119) BUCHWALD, R., 2006. Libellen, Kleinode unserer Gewässer. *Ökoporträt* 40, 4 pp. Naturschutzverband Niedersachsen & Biologische Schutzgemeinschaft Hune Weser-Ems. – (Author: Inst. Biol. & Umweltwiss., Univ. Oldenburg, D-26111 Oldenburg).
General, with bibl. references.

(17120) CICEK, K. & A. MERMER, 2006. Feeding biology of the Marsh frog, Rana ridibunda Pallas, 1771 (Anura, Ranidae), in Turkey's Lake District. *NWest. J. Zool.* 2(2): 57-72. – (First Author: Zool. Sect., Dept Biol., Fac. Sci., Ege Univ., TR-35100

Izmir).
The stomach contents was examined in 82 specimens from 5 sites in the Lake District of central Anatolia. Odon. were found in 24.39% of specimens and represented 8.67% of the diet volume.

(17121) ESCOTO ROCHA, J., A. ESCOTO MORENO & L. DELGADO SALDIVAR, 2006. Odonata des los estados de Guanajuato, Jalisco y San Luis Potosi, depositados en la colección entomológica de la Universidad Autónoma de Aguascalientes. *Investigatión y Ciencia*, Aguascalientes 14(34): 31-35. – (Depto Biol., Centro Cienc. Básicas, Univ. Autón. Aguascalientes, Mexico).
16 spp. from the 3 Mexican states are listed, the precise localities and collection dates are not stated.

(17122) GOYAUD, C., 2006. Les libellules disparaissent ... *Lettre Naturalistes vendéens* 26: 107. – (La Haute Chevillonnière, F-85310 La Chaize-le-Vicomte).
The observations on the effects of drought on some spp. in Vendée (France) are briefly described.

(17123) HOTTINGER, H., 2006. Wiederfund der Vogel-Azurjungfer (Coenagrion ornatum Selys, 1850) in Niederösterreich (Odonata, Coenagrionidae). *Beitr. Entomofaunistik* 7: 151-154. (With Engl. title). – (Inst. Zool., Univ. Bodenkultur, Gregor Mendel-Str. 33, A-1180 Wien).
Recent C. ornatum records from Lower Austria (Au-Hof in Leithagebirge: a small population, 14-VI-2006; Puysdorf vicinity: 1 specimen, VII-2004) and Vienna (a single specimen in 2004 and 2005).

(17124) KOGNITZKI, S. & K. WESTERMANN, 2006. Erste Bodenständigkeitsnachweise der Fledermaus-Azurjungfer (Coenagrion pulchellum) im höheren Schwarzwald. *Naturschutz südl. Oberrhein* 4: 227-228. (With Engl. s.). – (First Author: Lenzkircher Weg 8, D-79868 Feldberg-Falkau).
The evidence is presented on breeding of C. pulchellum in 2 ponds in SE Black Forest, situated at an elevation of 730 and 830 m respectively. These are the highest breeding sites of this sp. in the state of Baden-Württemberg (SW Germany).

(17125) ROBB, T. & M.R. FORBES, 2006. Age-dependent induction of immunity and subsequent survival costs in males and females of a temperate damselfly. *BMC Ecology* 6: 15, 13 pp. DOI: 10.1186/1472-6785-6-15. – (First Author: Dept Ecol. & Evol. Biol., Univ. Toronto, 25 Willcocks St., Toronto, ON, M5S 3B2, CA).
The purpose of this study was to examine immune expression and associated survival costs for 2 age groups (newly emerged and sexually mature individuals) of Enallagma boreale. Survival was assessed for experimentally challenged and control damselflies, housed initially at 22°C and then subjected to low temperatures (15°C) associated with reduced foraging activity and food deprivation. Experimental conditions emulated natural local variation in bouts of good weather followed by inclement weather (successions of days with hourly mean temperatures around 15°C and/or rainy weather). – At least one of 3 immune traits was induced to higher levels for both newly emerged and mature E. boreale challenged by Lippopolysaccharide (LPS) relative to saline-injected controls, when housed at 22°C. The immune traits assayed included haemocyte concentration, Phenoloxidase activity and antibacterial activity and their induction varied among ages and between ♂♂ and ♀♀. For matures, those injected with LPS had lowered survivorship compared to saline-injected controls that were housed initially at 22°C and subsequently at 15°C. Newly emerged LPS-injected damselflies did not show reduced survivorship relative to newly-emerged controls, despite showing immune induction. – Reduced longevity following induction of immunity was observed for reproductively mature damselflies, but not for those newly emerged. Costs of resistance depend only partly on the immune trait induced and more on the age (but not sex) of the host. In 4 years, bouts of inclement weather following good days were often observed and they occurred primarily during the emergence and also during the flight periods of E. boreale. The duration of these bouts appears sufficient to compromise survival of mature damselflies that responded immunologically to LPS challenge. It is further suggested the environmental conditions likely experienced by different ages of damselflies, following resistance expression, have influenced optimal immune investment by individuals in different age classes and the likelihood of detecting costs of resistance.

(17126) ROBB, T. & M.R. FORBES, 2006. Sex biases in parasitism of newly emerged damselflies. *Ecoscience* 13(1): 1-4. (With Fr. s.). – (Second Author: Dept Biol., Carleton Univ., 1125 Colonel By Dr.,

Ottawa, ON, K1S 5B6, CA).
There are several examples of sex-biased parasitism of invertebrate hosts. Sex biases in parasitism could be explained by differences between ♂♂ and ♀♀ either in exposure to or susceptibility to parasites. In Lestes disjunctus there was a ♀ bias in mean intensity of parasitism by larval Arrenurus pollictus mites for newly emerged individuals sampled over emergence periods in both 2002 and 2003. This bias could not be explained by host body size and timing of emergence, factors thought to influence exposure of host larvae to larval mites. A novel explanation is suggested for sex-biased parasitism, based on differences in developmental trajectories of larval ♂ and ♀ hosts, which should influence frequency of contact by larval mites. This explanation may help explain ♀-biased parasitism in other lestids, which should be exaggerated for early emerging spp. with compressed emergence periods. Further work is needed to test this novel explanation and determine whether it is applicable to other invertebrate host--parasite associations where parasites first come into contact with immature stages of hosts.

(17127) SAVARD, M., 2006. Un bel example d'atlas pratique pour la conservation de la biodiversité des insectes à l'échelle humaine! *Bull. Entomofaune* 33: 12-14. – (Author's address not stated).
An appreciative book review of the volume described in *OA* 16312, with detailed description of the work and much background information.

(17128) SZCZESNY, B., 2006. Some groups of benthic invertebrates in the streams of the Magurski National Park in the Beskid Niski Mts (northern Carpathians). *Nat. Conserv.* 61: 9-27. – (Inst. Nat. Conserv. Pol. Acad. Sci., Mickiewicza 33, PO-31-120 Kraków).
"Gomphus sp." was collected from a tributary of the Barani stream (alt. 630 m), W. Carpathians, Poland.

(17129) TAM, T.-w. & V.L.F. LEE, 2006. 17th International Symposium of Odonatology at Hong Kong Wetland Park. *Hong Kong Biodiv.* 12: 16. – (First Author: Agric., Fish. & Conserv. Dept, 7/F, Cheung Sha Wan Government Offices, 303 Cheung Sha Wan Rd, Kowloon, Hong Kong, China).
A brief account on the organisation and work of the Symposium, with a reference to the respective website.

(17130) WESTERMANN, K., 2006. Auswirkungen des winterlichen Abstaus von drei Teichen des höheren Schwarzwaldes auf Libellenbestände und Makrophyten. *Naturschutz südl. Oberrhein* 4: 219-226. (With Engl. s.). – (Buchenweg 2, D-79365 Rheinhausen).
In 3 ponds in S and SE Black Forest (Germany), the effects of partial or complete winter discharge on odon. were studied. The fact that many spp. do not tolerate a regular annual discharge was confirmed.

(17131) WESTERMANN, K., 2006. Die Eiablagegehölze der Gemeinen Weidenjungfer (Lestes viridis) am südlichen Oberrhein und im Schwarzwald. *Naturschutz südl. Oberrhein* 4: 239-244. (With Engl. s.). – (Buchenweg 2, D-79365 Rheinhausen).
37 bush- and tree spp. used for oviposition by L. viridis in the Upper Rhine (Germany) were listed in the paper described in *OA* 13737. Here, for the same region, 12 spp. are added.

(17132) WESTERMANN, K., 2006. Erster Bodenständigkeitsnachweis der Westlichen Keiljungfer (Gomphus pulchellus) für den höheren Schwarzwald. *Naturschutz südl. Oberrhein* 4: 235-237. (With Engl. s.). – (Buchenweg 2, D-79365 Rheinhausen).
A successful reproduction of G. pulchellus is recorded from Hinterzarten (alt. 880 m) in Black Forest (SW Germany). This is the highest-known breeding site of this sp. in central Europe.

(17133) WESTERMANN, K. & E. WESTERMANN, 2006. Zum Status der Blauen Federlibelle (Platycnemis pennipes) im höheren Schwarzwald. *Naturschutz südl. Oberrhein* 4: 229-234. (With Engl. s.). – (Buchenweg 2, D-79365 Rheinhausen).
In the Black Forest (SW Germany), there exists an autochthonous P. pennipes population, which consists of at least 3 large subpopulations (Hinterzarten, Titisee, Lenzkirch; alt. 832-880 m). Most waters of the southern and central Black Forest, at elevations above 800 m, are not colonized by this sp.

(17134) WESTERMANN, K. & E. WESTERMANN, 2006. Zur Phänologie der Gebänderten Heidelibelle (Sympetrum pedemontanum) im NSG "Elzwiesen" in den Jahren 2003 bis 2005. *Naturschutz südl. Oberrhein* 4: 251-257. (With Engl. s.).

– (Buchenweg 2, D-79365 Rheinhausen).
The periods of S. pedemontanum emergence and flight activity are in Baden-Württemberg (SW Germany) much more extended than known formerly. The earliest tenerals were seen on 19-VI-2005, and the latest on 20-IX-2004. The maximum adult life span amounts to at least 56 days. The last tandems occurred on 8-XI-2005, and the last individuals (♂ ♂) on wings were sighted on 11-XI-2005. The latest oviposition was recorded on 3-XI-2005.

(17135) WINKEL, S., M. SCHROTH & M. KUPRIAN, 2006. Seltene Libellenart im Rhein-Main-Gebiet wieder heimisch: Kleine Zanglibelle profitiert von Klimaerwärmung und verbesserter Wasserqualität. *Mitt. Zentrum Regionalgesch.* 31: 51-53. – (First Author: Pommernstr. 7, D-63069 Offenbach).
On recolonization of Onychogomphus forcipatus in Hessen (Germany), assumed to be due to the recently generally improved water quality and to the warming up of the climate. See also *OA* 17062.

(17136) ŽIVIĆ, I., Z. MARKOVIĆ & M. BRAJKOVIĆ, 2006. Influence of the temperature regime on the composition of the macrozoobenthos community in a thermal brook in Serbia. *Biologia*, Bratislava 61(2): 179-191. – (First Author: Fac. Biol., Univ. Belgrade, RS-11000 Beograd).
Hydrological investigations of a highland stream, the Toplica (a tributary of the Danube) and of its thermal tributary, the Termalni brook, were carried out at the spa of Banja Vrujci (Serbia), from Apr. 2000 to Jan. 2001. The Termalni brook has an average annual temperature of 23.5-25.8°C. Gomphus vulgatissimus, Onychogomphus forcipatus, Cordulegaster boltonii and Orthetrum albistylum are recorded from the Toplica, and O. forcipatus from the Termalni brook.

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(17137) ANDERSON FULAN, J. & R. HENRY, 2007. Temporal distribution of immature Odonata (Insecta) on Eichhornia azurea (Kunth) stands in the Camargo lake, Paranapanema river, São Paulo. *Revta bras. Ent.* 51(2): 224-227. (Port., with Engl. s.). – (Depto Zool., Inst. Biocien., UNESP, Caixa Postal 510, BR-18618-000 Botucatu, SP).
The odon. abundance and richness were studied during March 2004 – March 2005. Taxa are identified to the genus only. The greatest abundance and richness occurred during the dry period; the Coenagrionidae were most abundant throughout the entire study. The abundance of Aeshnidae and Libellulidae was low, particularly so in the dry period. Water surface temperature, pluviosity and the E. azurea biomass were the main environmental features affecting the abundance.

(17138) BARBARIN, J.-P., 2007. Sur la présence de Leucorrhinia pectoralis (Charpentier, 1825) dans le Cantal torbière du Jolan, Ségur-les-Villas. *Arvernsis* 39/40: 1-8. – (Soc. Hist. Nat. Alcide d'Orbigny, 12 place des écoles, F-63160 Billom).
Observations on L. pectoralis at the Jolan Marsh (Auvergne, France), with description of the exuviae.

(17139) BARBARIN, J.-P., F. BRONNEC & E. BOITIER, 2007. Observations de libellules rares dans le Puy-de-Dôme au cours de la saison 2006 et 2007. *Arvernsis* 39/40: 13-20. (Second Author: Ch. de ruisseau, F-63800 La Roche-Noire).
Annotations on Lestes virens vestalis, Aeshna isosceles, Anax parthenope, Onychogomphus uncatus, Cordulegaster bidentata, Leucorrhinia pectoralis and Libellula fulva from Le Puy-de-Dôme (Auvergne, France).

(17140) BOGUT, I., J. VIDAKOVIC, G. PALIJAN & D. ČERBA, 2007. Benthic macroinvertebrates associated with four species of macrophytes. *Biologia*, Bratislava 62(5): 600-606. – (Dept Biol., Strossmayer Univ., Ljudevita Gaja 6, HR-31000 Osijek).
The study was carried out in the Čonakut Channel, located within the Kopački Rit Nature Park, Croatia. Only Zygopt. larvae are suborder-wise considered. The mean number of individuals per 100 g dry weight of macrophytes (± s.d.) was as follows: Nymphoides peltata: 3 ± 5, Ceratophyllum demorsum: 33 ± 75, Polygonum amphibium: 23 ± 50, and in Carex sp.: 0.

(17141) BOUWMAN, J., P. DE BOER, E. VAN HIJUM & G. HYLKEMA, 2007. Wyldemerk, eerste officiële libellenreservaat. – ["Wyldemerk", the first formal dragonfly reserve in the Netherlands]. *Vlinders* 22(3): 18-19. (Dutch). – (First Author: De Vlinderstichting, P.O. Box 506, NL-6700 AM Wageningen).

Located near the village of Balk in the Gaasterland distr. (Friesland prov., The Netherlands), the Reserve has a surface of ca 31 ha, and was formally opened as the first national Dragonfly Reserve on 12 May 2007. Its numerous ponds and other wetland habitats originate in sand extraction in the 1960s. Since then, the area developed into a highly diversified park-like landscape. It harbours 34 odon. spp., incl. the nationally rare Aeshna isosceles, Brachytron pratense and Leucorrhinia pectoralis. The visitor paths are provided with dragonfly information tablets.

(17142) CARVALHO, A.L., 2007. Recommendations for collecting, rearing, and storing larvae of Odonata. *Arqs Mus. nac. Rio de J.* 65(1): 3-15. (With Port. s.). – (Depto Ent., Mus. Nac., UFRJ, Quinta da Boa Vista, São Cristóvão, BR-20940-040 Rio de Janeiro).
Methods for all the steps of the work related to the manipulation of odon. larvae in the field and in the laboratory are outlined in detail and with special reference to rearing. The cheap and easily available equipment is indicated.

(17143) COTREL, N., M. GAILEDRAT, P. JOURDE, L. PRÉCIGOUT & E. PRUD'HOMME, [Eds], 2007. *Liste rouge des libellules menacées du Poitou-Charentes. Statut de conservation des odonates et priorités d'actions. Juin 2007.* Poitou-Charentes Nature, Fontaine-le-Comte. 48 pp. ISBN 2-9515017-8-1. – (Publishers: 14 rue Jean Moulin, F-86240 Fontaine-le-Comte).
A comprehensively documented Red List and Action Plan for Odon. of Poitou-Charentes, France (70 spp.).

(17144) CZERNIAWSKA-KUSZA, I. & K. SZOSZKIEWICZ, 2007. *Biological and hydromorphological assessment of running waters: an example of the Mala Panew river.* Katedra Ochrony Powierzchni Ziemi, Univ. Opole. 71 pp. ISBN 83-920464-1-2. (Pol., with Engl. s.).
Calopteryx sp., Gomphus sp. and Onychogomphus sp. larvae are recorded from 3 sampling stations on this tributary of the Odra; Poland. – (*Abstractor's Note*: According to a personal communication from Dr P. Buczyński who visited the site, "Onychogomphus" is most probably referable to Ophiogomphus cecilia).

(17145) DELASALLE, J.-F., 2007. [? date not stated]. *Atlas préliminaire des odonates de Picardie (1970-2006). Réactualisation de la version 2003.* Picardie Nature, Amiens. 11 pp. – (Author: 30 rue Jule Lardière, B.P. 25, F-80800 Corbie; – Publishers: 14 place Vogel, B.P. 835, F-80000 Amiens).
Distribution maps (up to 2006 incl.) of 59 spp.; – Picardie, France.

(17146) DOUCET, G., 2007. *Les odonates des tourbières de Haute-Saône (70): Recherche des différente cortèges et caractérisation des habitats larvaires. Example de la leucorrhine à gros thorax, Leucorrhinia pectoralis (Charpentier, 1825). Quelle méthode pour un suivi en routine de ces milieux?* Espace Naturel Comtois, Besançon & O.P.I.E., Besançon. 85 pp. (With Engl. s.). ISBN none. – (For a copy apply to: O.P.I.E., Insectarium, Mus. Hist. Nat., La Citadelle, F-250000 Besançon).
The fauna (48 spp.) of 8 rised bogs in Haute-Saône (France) is described and analysed, based on the sampling of exuviae. New populations of Epitheca bimaculata and Leucorrhinia pectoralis are recordeed, and 3 groups of spp. are defined.

(17147) FATON, J.-M. & C. DELIRY, 2007. Libellules le long du Rhône. *Courrier Épines drômoises* 139: 22-24, pl. on p. 27). – (First Author: Les Garis, F-26120 La Baume Cornillane).
A descriptionof some habitats and their odon. fauna along the Rhone, France.

(17148) FIGUEIREDO LACERDA, C.H., 2007. *Influência da turbidez, macrófitas aquáticas e tamanho das ninfas na predação de larvas de Piaractus mesopotamicus e Oreochromis niloticus por odonata Pantala flavescens.* Diss. Mestrado, Univ. Estad. Maringá Maringá-Paraná. 52 pp. (Port., with Engl. s.). – (Author's address not stated).
As shown experimentally, with the increased water turbidity predation pressure by P. flavescens larvae on larvae of the 2 fish spp. decreases. The survival rate in the latter also increases in the presence of aquatic plants Egeria najas and Pistia stratiotes. Likewise, the presence of Salvinia auriculata in the experimental aquaria had a favourable effect on the survival of O. niloticus larvae.

(17149) GALL, M., 2007. *Vorkommen der Helm-Azurjungfer (Coenagrion mercuriale) bei Gelnhausen.* NABU Kartierungs-Bericht, 7 pp. – (Bahnhofstr.

47, Ostheim, D-35510 Butzbach).
A report on the assessment of the C. mercuriale abundance in the protected area, "Kinzigaue bei Gelnhausen", Hessen, Germany. During 8 June-12 July 2006, 88 ♂ and some copulating pairs were recorded along a stretch of 140 m. The entire 2006 population is estimated at ca 300 adult individuals. The required management measures are specified.

(17150) GNIATKOWSKI, J., 2007. Dragonflies (Odonata) in the nearby of Czestochowa. *Biul. czestochow. Koła ent.* 6: 7-8. – (ul. Oskara Lange 7/97, Czestochowa, Poland).
A list of 23 spp. from the Czestochowa area (Poland), with observation dates and statements on the abundance.

(17151) GOSDEN, T.P. & E.I. SVENSSON, 2007. Female sexual polymorphism and fecundity consequences of male mating harassment in the wild. *PLos ONE* 2(6): e580. DOI: 10.1371/journal.pone.0000580. – (First Author: Dept Anim. Ecol., Lund Univ., Ecology Bldg, SE-223-62 Lund).
Genetic and phenotypic variation in ♀ response towards ♂ mating attempts has been found in several laboratory studies, demonstrating sexually antagonistic co-evolution driven by mating costs on ♀ fitness. Theoretical models suggest that the type and degree of genetic variation in ♀ resistance could affect the evolutionary outcome of sexually antagonistic mating interactions, resulting in either rapid development of reproductive isolation and speciation or genetic clustering and ♀ sexual polymorphisms. However, evidence for genetic variation of this kind in natural populations of non-model organisms is very limited. Likewise, there is lack of knowledge on ♀ fecundity consequences of matings and the degree of ♂ mating harassment in natural settings. Here are presented such data from natural populations of a colour polymorphic Ischnura elegans. Using a novel experimental technique of colour dusting ♂ ♂ in the field, it is shown that heritable ♀ colour morphs differ in their propensity to accept ♂ mating attempts. These morphs also differ in their degree of resistance towards ♂ mating attempts, the number of realized matings and in their fecundity-tolerance to matings and mating attempts. These results show that there may be genetic variation in both resistance and tolerance to ♂ mating attempts (fitness consequences of matings) in natural populations, similar to the situation in plant-pathogen resistance systems. ♂ mating harassment could promote the maintenance of a sexual mating polymorphism in ♀ ♀, one of few empirical examples of sympatric genetic clusters maintained by sexual conflict.

(17152) HENRIQUES-DE-OLIVEIRA, C., D.F. BAPTISTA & J.L. NESSIMIAN, 2007. Sewage input effects on the macroinvertebrate community associated to Typha domingensis Pers in a coastal lagoon in southeastern Brazil. *Braz. J. Biol.* 67(1): 73-80. (With Port. s.). – (First Author: Lab. Ent., Depto Zool., Inst. Biol., Univ. Fed. Rio de J., Caixa Postal 68044, BR-21944-970 Cidade Universitária, Rio de Janeiro, RJ).
The study was conducted at Imboassica Lagoon, located in an urban zone in the municipality of Macaé, Rio de Janeiro, and 2 stations were sampled, viz.: A (fecal coliform concentrations above 2500/100 ml) and B (ca 500/100 ml). The respective numbers of odon. individuals recovered at the 2 stations were: unidentified Coenagrionidae 6/147, Micrathyria spp. 0/14, Miathyria sp. 0/1, Perithemis sp. 3/5, and Brachymesia sp. 2/6.

(17153) HORNSCHEMEYER, T. & J. WILLKOMMEN, 2007. The contribution of flight system characters to the reconstruction of the phylogeny of the Pterygota. *Arthrop. Syst. Phylog.* 65(1): 15-23. – (First Author: Inst. Zool. & Antropol., Berliner Str. 28, D-37037 Göttingen).
A summary is presented of the current state of knowledge on autapomorphies of the flight system in high-level taxa of the Pterygota. The review shows that the wing base and the flight muscles are providing valuable evidence that could help to resolve the currently open questions of phylogenetic relationships among the Pterygota. Detailed comparisons of flight systems in Ephemeroptera, Odon. and Neoptera are still required.

(17154) KANDIBANE, M., S. RAGURAMAN & N.R. MAHADEVAN, 2007. Diversity and community structure of aquatic arthropods in an irrigated rice ecosystem of Tamil Nadu, India. *Asian J. Plant Sci.* 6(5): 741-748. – (Dept Agric. Ent., Tamil Nadu Agric. Univ., Coimbatore-641003, Tamil Nadu, India).
The inventory, diversity and community structure of aquatic arthropods were studied in weeded and partially weeded rice ecosystems under irrigated

condition, during the rabi period of the crop, in the vicinity of Madurai, Tamil Nadu, S India. 12 odon. spp. were recorded. Agriocnemis femina, Crocothemis servilia, Diplacodes trivialis and Pantala flavescens were dominant in both ecosystems, though significantly more so in the partially weeded habitats. Anax guttatus, Rhyothemis variegata and Trithemis sp. were absent in weeded ecosystems.

(17155) LOCKWOOD, M., 2007. Els odonats del Parc Natural de la Zona Volcanica de la Garrotxa. *Ann. Delegació Garrotxa* 2: 49-53. (Catalonian). – (La Devesa 3/1a, ES-17850 Besalú).
A commented list of 35 spp. from 3 localities in the Park, NE Spain.

(17156) LOCKWOOD, M., E. SOLER I MONZO & P. MÜLLER, 2007. Primera cita de Cordulia aenea Leach, 1815 [sic!] (Odonata: Corduliidae) para España. *Boln Soc. ent. aragon.* 41: 471-472. (With Engl. s.). – (First Author: La Devesa, 3/1a, ES-17850 Besalú).
In La Vall d'Aiguamotx (alt. 1800 m), 4-5 C. aenea individuals were sighted at a lake on 5-VII-2006. On 14-VI-2007, 12 exuviae were collected and on 10-VII-2007 an adult ♀ was taken. The sp. was not previously recorded from Spain. The occurrence of Somatochlora metallica in the area is also discussed.

(17157) MALIKOVA, E.I., O.E. KOSTERIN & V.V. DUBATOLOV, 2007. A dragonfly (Odonata) collection from the Bolshekhekhtsirskii State Nature Reserve (Khabarovskii krai, Russia), 2: Seasons 2006 and 2007. *Zhivotni Mir Dal'nogo Vostoka* 6: 5-9. (With Russ. s.). – (Second Author: Inst. Cytol. & Genet., SB RAS, Lavrentieva 10, RUS-630090 Novosibirsk).
A commented list of 36 spp; Far East, Russia. Stylurus occultus and Macromia daimoji were not previously reported from Russia.

(17158) MATUSHKINA, N.A., 2007. Regular egg-positioning by an aeshnid species (Odonata, Aeshnidae) with comments on its phylogenetic value. *Vest. Zool.* 41(5): 457-462. (With Russ. s.). – (Dept Zool., Fac. Biol., Shevchenko Univ., Volodymirska 64, UKR-01033 Kiev).
Prolarvae and first instar larvae of an Aeshna sp. or Anaciaeschna isosceles were reared from an endophytic egg-clutch, with eggs positioned in line or zigzag in stems of Myriophyllum spicatum in central Ukraine. Descriptions of the prolarva and the first instar larva, information on the distance between the eggs in the clutch, and a discussion on the evolution of the endophytic oviposition behaviour in Odon. are provided.

(17159) NAKAHARA, M. & Y. TSUBAKI, 2007. Function of multiple sperm-storage organs in female damselflies (Ischnura senegalensis): difference in amount of ejaculate stored, sperm loss, and priority in fertilization. *J. Insect. Physiol.* 2007, 9 pp. DOI: 10.1016/j. jinsphys.2007.05.014. – (First Author: Natn. Inst. Envir. Stud., 16-2 Onogawa, Tsubaka, Ibaraki, 305-8506, JA).
Changes in the number of sperm were studied within 2 kinds of ♀ sperm-storage organs, viz. the bursa copulatrix and the spermatheca. The number of sperm was counted within each storage organ and the viability was tested after a single copulation in ♀♀ kept for 7 d with and without oviposition. Sperm was also counted and its viability tested in ♀♀ that underwent an interrupted second copulation after the sperm removal stage, and after subsequent oviposition. The results show that the bursa copulatrix and spermatheca have different sperm storage roles. Immediately after copulation, most eggs appear to have been fertilized with bursal sperm, which were positioned near the fertilization point. By 7 d after copulation, a greater proportion of spermathecal sperm was used for fertilization, as the number of bursal sperm had decreased. It is hypothesized that ♀♀ use the spermatheca for long-term storage and the bursa copulatrix for short-term storage: bursal sperm are more likely to be used for fertilization, but may have a higher risk of mortality due to sperm removal by a copulating ♂ and/or sperm expelling by the ♀, whereas spermatheca sperm are safer but will be used for fertilization only after their release from the spermatheca.

(17160) NOLAN, L., I.D. HOGG, D.L. SUTHERLAND, M.I. STEVENS & K.E. SCHNABEL, 2007. Allozyme and mitochondrial DNA variability within the New Zealand damselfly genera Xanthocnemis, Austrolestes and Ischnura (Odonata). *N. Z. Jl Zool.* 34: 371-380. – (Second Author: Cent. Biodiv. & Ecol. Res., Dept Biol. Sci., Univ. Waikato, P.B. 3105, Hamilton-3240, NZ).
A. colensonis, I. aurora, X. tuanuii and X. zealand-

ica were collected from North, South and Chatham Isls. Using 11 allozyme loci and the mitochondrial cytochrome c-oxidase subunit I (COI) gene, all taxa were clearly discernible. Evidence was found for low to moderate differentiation among locations based on allozyme (mean $F_{ST} = 0.09$) and sequence (COI) divergence (< 0.034). No obvious patterns with respect to geographic location were detected although slight differences were found between New Zealand's main islands (North Is., South Is.) and the Chatham Isls for A. colensonis (sequence divergence 0.030-0.034). Limited intraspecific genetic variability was also found based on allozyme data (H_{exp} < 0.06 in all cases). It is concluded that levels of gene flow/dispersal on the main islands may have been sufficient to maintain the observed homogeneous population structure, and that genetic techniques, particularly the COI gene locus, will be a useful aid in future identifications.

(17161) *ODONAT'INFOS.* Lettre d'information de la Société Limousine d'Odonatologie (ISSN none), Nos 12 (Oct. 1999), 13 (July 2001), 14 (March 2002), 15 (Apr. 2003), 16 (Nov. 2003), 17 (June 2004), 18 (May 2005), 19 (Feb. 2006), 20 (Apr. 2007), 21 (Nov. 2007). – (SLO, Maison de la Nature, 11 rue Jauvion, F-87000 Limoges).
Contains Society news, notifications, and (mostly short and anonymous) notes on the local fauna. No. 18 has the Red List of the Limousin Odon. (pp. 2-3; 33 spp.), and the features separating Lestes v. virens from L. v. vestalis are illustrated in No. 20 (p. 3).

(17162) OLIAS, M. & A. GUNTHER, 2007. Alpen-Smaragdlibelle (Somatochlora alpestris) bodenständig im Hochmoor bei Deutscheinsiedel im Osterzgebirge: Entwicklung der Libellenfauna des Deutscheinsiedler Moores nach Revitalisierungsmassnahmen. *Mitt. NatschutzInst. Freiburg* 2007(3): 40-45. – (Naturschutzinst. Freiburg, Waisenhausstr. 10, D-09599 Freiburg).
19 spp. are listed from Deutscheinsiedel Rised Bog (distr. Freiburg, Saxony, Germany) and the local breeding of Somatochlora alpestris is documented.

(17163) OLIVEIRA, L.B., C.O. CONTE & S. FAVERO, 2007. Diversidade e abundância de Odonata (Insecta) em uma região do Pantanal do Negro, Mato Grosso do Sul. *Anais 8 Congr. Ecol. Brasil*, Caxambu/MG, pp. 1-2. – (Authors' postal address incomplete).
The samples were taken at Baia da Sede and at Corixo do Pau-Seco, MS, Brazil and were identified to the family level only, viz. 176 adults of Coenagrionidae, Corduliidae and Libellulidae, and 389 larvae of Coenagrionidae, Lestidae, Aeshnidae, Cordulegastridae and Libellulidae. The Shannon-Wiener diversity index was calculated for adults (1.502) and larvae (0.8205).

(17164) *RUNDBREIEF ARBEITSKREIS LIBELLEN NRW [Nordrhein-Westfalen]* (ISSN none) No. 14 (14 Jan. 2007). – (c/o K.-J. Conze, Listerstr. 13, D-454147 Essen).
Presents a brief report on the activities in 2006 and an outline of the projects for 2007.

(17165) SUHLING, F. & A. MARTENS, 2007. *Dragonflies and damselflies of Namibia.* Gamsberg Macmillan, Windhoek. vi+ 280 pp. Softcover (14.7×20.9 cm). ISBN 978-99916.0.764.1. – (Publishers: P.O. Box 22830, Windhoek, Namibia).
Despite the prevailing arid nature of the country, the Namibian odon. fauna is surprisingly rich and relatively well explored. The latter is largely due to the field work of the present authors and their colaborators. The book covers the 127 spp. currently known to occur in Namibia, while the identification keys include also the fauna of the neighbouring Botswana and S Angola, bringing the number of the treated spp. up to 149. The general part (pp. 1-66) includes chapters on odon. biology and ecology, habitats and their assemblages in Namibia, and on recording the adults and collecting the exuviae and larvae. The concise and uniformly styled species accounts include the description and sections on etymology of the taxonomic name (contributed by Dr H. Fliedner), distribution, ecology and behaviour, and on threats and conservation. All taxa are keyed, and a basic key is provided also for the (still largely unknown) larvae. The regional bibliography is comprehensive, and the text is adequately illustrated throughout. – This is a very valuable work and the first book of its kind for an African country.

(17166) TAKEGAWA, Y., H. FUKUDA, K. TOTSEKA, H. KIMOTO & A. TAKETO, 2007. Phylogenetic relationship among several Japanese Odonata species inferred from mitochondrial DNA sequences. *Mem. Fukui Inst. Technol.* 37: 235-242. –

(Authors' postal addresses not stated).
Mnais pruiosa is roughly classified into nawai and the pruinosa-costalis groups. Somatochlora viridiaenea and atrovirens are identical. Sympetrum frequens differs from S. depressiusculum in a single nucleotide, which is considered to be within the individual variation or a feature of polymorphism.

(17167) TUDANOV, R.A., 2007. About animals' death on roads as a result of road accidents. *Vest. udmurtsk. Univ.* 2007(10): 39-46. (Russ., with Engl. s.). – (GOUVPO, Udmurtskiy gosud. Univ., Universitetskaya 1/korp. 1, RUS-426034 Ishevsk).
A systematic survey of animals killed by traffic was carried out during 2006 and 2007 along 1 km sections of the roads: Yelabura-Perm', Izhevsk-Sarapul and Izhevsk-Shaberdino (Russia). In the grassland landscape, 6154 insect individuals (incl. 130 odon.) were found killed, while in forest sections these figures were 3082 (103). In late summer, the odon. were mostly represented by Aeshna, Libellula and Sympetrum spp.

(17168) UBUKATA, H . & Y. KURAUCHI, 2007. Assessment of lake environment using dragonfly assemblage: a case study at Lake Takkobu, Kushiro Marsh, northern Japan. *Jap. J. Limnol.* 68: 131-144. (Jap., with Engl. s.). – (First Author: Dept Sci. Educ., Hokkaido Univ., Shiroyama 1-15-55, Kushiro, Hokkaido, 085-8580, JA).
A periodical census of mature Odon. was conducted at 11 sites along the shore of the lake (Hokkaido) in 2004, resulting in 2572 individuals of 18 spp. Odon. abundance was analyzed in relation to the following environmental factors: width of reed bed, water depth, coverage of aquatic macrophytes, ratios of gravels (≥2 mm) and silt (≤0.075 mm). The 2-dimensional pattern in the dispositions of investigation sites observed on a detrended correspondence analysis (DCA) diagram of odon. broadly coincided with that of an actual pattern on the map, whereas this was not the case for that of a DCA diagram of the environmental factors. As the result of a canonical correspondence analysis (CCA) using both odon. and environmental data, the investigation sites were separated into 4 clusters: deep sites with rich aquatic macrophytes and wide reed beds; deep sites scarce in macrophytes; shallow sites with poor macrophytes and narrow reed beds; and shallower sites with an abundance of macrophytes. Based on the results of the CCA, most odon. spp. are selected as possible indicators of the environmental conditions of the lake: e.g., Cercion calamorum, Enallagma circulatum and 6 other spp. as those preferring sites rich in aquatic macrophytes, E. circulatum, Ephitheca bimaculata sibirica and 5 others as those favouring wider reed beds and deeper water; Sympetrum striolatum imitoides Bartenef, Trigomphus melampus and 3 others as those preferring sites scarce in macrophytes; Orthetrum albistylum speciosum preferring the shallowest water with the fewest macrophytes and reed beds; and T. melampus and Sympetrum croceolum favouring deeper water. Some other factors that may influence the odon. microdistribution in the lake are discussed.

(17169) VAN GOSSUM, H., C.D. BEATTY, S. CHARLAT, H. WAQA, T. MARKWELL, J.H. SKEVINGTON, M. TUIWAWA & T.N. SHERRATT, 2007. Male rarity and putative sex-role reversal in fijian damselflies (Odonata). *J. trop. Ecol.* 23: 591-598. – (First Author: Evol. Biol. Gr., Univ. Antwerp, Groenenborgerlaan 171, B-2020 Antwerp).
Behavioural sex-role reversal occurs when ♂♂ and ♀♀ exchange their standard roles in territorial defence or parental care. One circumstance under which sex-role reversal may occur is when ♂♂ are a limiting resource, so that ♀♀ have to compete for access to mates. Here a report is presented on ♂ rarity and ♂ and ♀ behaviour of spp. within the genus Nesobasis, endemic to Fiji. Earlier reports suggested that, in some members of this genus ♂♂ were seldom observed and that ♀♀ of these spp. were consequentially territorial, a phenomenon described as 'sex-role reversal'. Quantitative estimation of the ratio of adult ♂♂ to ♀♀ at 15 localities in 13 Nesobasis spp. (1489 individuals) indicated that ♂♂ were extremely rare in some spp., yet common in others. This interspecific variability in ♂ rarity cannot be explained by elevation or habitat. Formal observations of 3 spp. with abundant ♂♂ revealed that ♂♂ of these were highly territorial: they physically challenged intruders while remaining within a confined area. By contrast, in 3 spp. where ♂♂ were consistently rare or absent, ♀♀ were not territorial: instead, they moved widely and were primarily engaged in oviposition. While the underlying reason for the unusual rarity of ♂♂ at oviposition sites in some spp. is unknown, it is clear that this rarity has not provided sufficient selection pressure to generate genuine sex-role reversal.

(17170) VANAPPELGHEM, C., [Ed.], 2007. *Compte rendu de la réunion Groupe Odonates Nord-Pas-de-Calais* le 12 décembre 2007. 9 pp. – (Postal address not stated; – *odonates@gon.fr*)
[Subjects treated]: "Bilan de l'année 2007" (p. 1); – "Critères de distinction visibles entre Leucorrhinia dubia et L. rubicunda" (p. 1); – "Etat des prospections" (pp. 2-4); – "Suivi des objectifs définis lors de la dernière réunion" (pp. 4-5); – "Actualités de la Société Française d'Odonatologie" (pp. 5-6); – "Sorties communes 2008" (p. 6); – "Points divers" (pp. 7-8); – "Grille d'attribution d'un indice d'autochtonie aux odonates dans le cadre du nouvel atlas régional des odonates" (p. 9).

(17171) VON HOLDT, E., 2007. Bemerkenswerte Libellenfunde im Sommer 2006. *Hannover. Vogelschutzver. Info* 2007(1): 23-24. – (Author's address not stated).
Annotations on the observations on Erythromma lindenii, Aeshna affinis, Crocothemis erythraea and Orthetrum brunneum in the Hannover area, in 2006 (Germany).

(17172) YEH, W.-C., H.-I. CHIOU, H.-C. TANG, J.-H. WU & S.-L. CHEN, 2007. Three species of dragonflies newly recorded to Taiwan. *Endemic Species Res.* 9(2): 53-62. (Chin., with Engl. s.). – (First Author: Div. Forest Prot., Taiwan Forestry Res. Inst., 53 Nanhai Rd, Taipei-100, Taiwan).
Rhyothemis fuliginosa, Sympetrum cordulegaster and S. depressiusculum are brought on record. Their morphology, habits and habitats are briefly described, and the taiwanese members of the 2 gen. are keyed.

2008

(17173) *AGRION, WDA*. Newsletter of the Worldwide Dragonfly Association (ISSN 1476-2552). Special issue in memory of Philip Steven Corbet, 21 May 1929-13 February 2008. (May 2008).
Wilson, K.: Editorial (p. 2); – *Jödicke, R.*: International Journal of Odonatology: Philip Corbet Memorial Issue (p. 2); – *Philip Steven Corbet: summary of career history* (p. 3); – *Corbet, S.A.*: Philip's family background and early years (pp. 4-5); – *Lowe-McConnell, R.*: Philip Corbet's Uganda days (pp. 6-7); – *Pritchard, G.*: Philip in Canada (pp. 8-10); – *Corbet, P.S.*: Entomological reflections (pp. 10-14); – *Rowe, R.*: Philip Corbet's New Zealand years (pp. 15-16); – *Parr, M.J.*: Philip's later years (pp. 17-19); – *Corbet, P.S.*: Philip S. Corbet's obituary notes (pp. 20-22); – *Danks, H.V.*: Philip S. Corbet's retirement, 1999 (pp. 23-24); – *Pritchard, G.*: Philip, the conscience of the WDA (pp. 25-26); – *Reels, G.*: Dragonflies: behaviour and ecology of Odonata by Philip S. Corbet. A summary of reviews (pp. 27-28); – *Brooks, S.*: Philip Corbet and the British Odonata (pp. 29-30).

(17174) ARGYROUDI, A., Y. CHATAINIKOLAU, K. POIRAZIDIS & M. LAZARIDOU, 2008. Do intermittent and ephemeral Mediterranean rivers belong to the same river type? *Aquat. Ecol.* 2008: 12 pp. DOI: 10.1007/s10452-008-9176-9. – (First Author: Dept Zool., Sch. Biol., Aristotle Univ., GR-54124 Thessaloniki).
The benthic invertebrate communities and ecological quality were examined in 7 intermittent and 4 ephemeral rivers in Dadia National Park, NE Greece. The FUSSY clustering analysis produced 3 clusters. Cluster A was composed of the low flow intermittent sites. According to Simper Analysis, it was characterized mostly by Chironomidae (40.62%) and Platycnemididae (21.99%). For clusters B (High flow intermittent sites) and C (ephemeral sites) no odon. are mentioned. Taxa are identified to the family level only.

(17175) BALIAN, E.V., H. SEGERS, C. LÉVÈQUE & K. MARTENS, 2008. The freshwater animal diversity assessment: an overview of the results. *Hydrobiologia* 595: 627-637. (First Author: Freshw. Lab., Roy. Belg. Inst. Nat. Sci., Vautierstraat 29, B-1000 Brussels).
The current status of odon. (spp./gen.) diversity is as follows: World (5680/642), Palaearctic (560/137), Nearctic (451/89), Afrotropical (1636/132), Neotropical (889/186), Oriental (1655/235), Australian (870/169), Pacific Oceanic Islands (168/47), and the Antarctic region (1/1).

(17176) BEDJANIČ, M., 2008. *Okoljsko poročilo za načrt ureditve Kobilarne Lipica. Inventarizacija zavarovanih, ogroženih in redkih vrst kačjih pastirjev (Odonata), kobilic (Saltatoria), bogomolk (Mantodea) in medicinske pijavke (Hirudo medicinalis compl.) na območju Kobilarne Lipica, z oceno ogroženosti in presojo vplivov načrtovane ureditve.* Vnesno poročilo. – [*Environmental report for the restructuring plan of the Lipica Stud Farm. Inventari-*

sation of the legally protected, menaced and rare species of Odonata, Saltatoria, Mantodea and Hirudo medicinalis compl. in the area of the Lipica Stud Farm, with an assessment of threats and considerations on the impact of the proposed restructure plan. Interim report]. Prepared for the Scient. Res. Cent., Slovenian Academy of Sciences and Arts, Ljubljana. 12 pp. (Slovene). – (Author: Kolodvorska 21/B, SI-2310 Slovenska Bistrica).

The Lipica Stud Farm established in 1580 by Archduke Charles of Austria, located near Sežana in SW Slovenia, in the original home of the world-famous Lipizzan horses. The present interim report represents the first phase of the research task; it is based on the hitherto known (published and unpublished) evidence on the local occurrence of the animal groups concerned, and provides the framework of legal regulations that are applicable to them. The required fieldwork is expected to be completed during the 2008 season, whereupon the updated inventory of taxa and the detailed conservational assessment will be provided.

(17177) BORDJAN, D., 2008. ... vse to je naredilo name tak vtis [...]. *Svet Ptic* 14(1): 40-41. (Slovene). – (Author's address not stated).

Impressions on avifauna of the Medvedce retention reservoir (nr Pragersko, Slovenia), with a photograph of 2 Sympecma fusca tandems.

(17178) *BUTLLETI DEL PROJECTE ATLAS DELS ODONATS DE CATALUNYA* (ISSN none), Nos 1 (Jan. 2007), 2 (Feb. 2007), 3 (Apr. 2007), 4 (Oct. 2007), 5 (Feb. 2008), 6 (March 2008). Published by "Grup d'estudi dels odonats de Catalunya, 'Oxygastra'". (Catalonian). – (Editor & editorial address not stated).

[No. 1]: *Anonymous*: Introducció (p. 1); – Atlas dels odonats de Catalunya: estat de propecció (p. 2); – Atlas dels odonats de Catalunya: proposta d'organigrama (p. 3); – Visita de Francisco Ocharan Larondo y Antonio Torralba Burrial (p. 4; portraits incl.). – [No. 2]: *Anonymous*: Primers cites per al 2007 (p. 1); Metodologia en el treball de camp: primera aproximació (pp. 2-3); – Espècies interessants, 1: Brachytron pratense (p. 4); – Collaboració d'Oxygastra amb la base de dades ArttoCat (p. 5). – [No. 3]: *Anonymous*: Resum de dades de 2006 (p. 1); – La nova base de dades (pp. 1-3); – Espècies interessants, 2: Coenagrion pulchellum (p. 4); – Les exúvies (p. 5). – [No. 4]: *Anonymous*: Noves espècies per a Catalunya, 1: Cordulia aenea (p. 1); – Noves espècies per a Catalunya, 2 & 3: Macromia splendens i Gomphus graslinii (pp. 2-3). – [No. 5]: *Maynou, X.*: Catàleg d'odonats de l'Estany de Montcortès (Pallars Sobirà): primers resultats (pp. 1-3); – *Martin, R.*: Espècies interessants: Onychogomphus costae (pp. 3-4); – *Novitats bibliogràfiques de 2007* (p. 5). – [No. 6]: *Maynou, X.*: Emerrgència massiva d'Anax imperator (pp. 1-2); – *Martin, R.*: Els odonats de la Garrotxa (p. 3); Espècies interessants: Anax ephippiger (pp. 4-7); – La colonització d'hàbitats de nova creació (pp. 8-10); – Què passa amb Sympetrum striolatum? (p. 10).

(17179) GASSMANN, D. & M. HÄMÄLÄINEN, 2008. Asthenocnemis linnaei, a new damselfly species from Dumaran island, Philippines (Odonata, Platycnemididae). *Zool. Med. Leiden* 82(5): 35-41. – (First Author: Naturalis, P.O. Box 9517, NL-2300 RA Leiden).

The new sp. is described from the Philippine island of Dumaran in the NE Palawan subregion. Holotype ♂: Araceli, Opoy Hill, Mawringin, 28/30-III-1997; deposited at RMNH, Leiden. Notes on the taxonomic history of the genus Asthenocnemis are provided.

(17180) HACET, N. & N. AKTAÇ, 2008. Two new records of Odonata (Gomphidae) for Turkey, Gomphus flavipes (Charpentier, 1825) and Ophiogomphus cecilia (Geofroy in Fourcroy, 1785), with distributional notes on G. flavipes and G. ubadschii Schmidt, 1953. *Ent. News* 119(1): 81-89. – (Dept Biol., Fac. Arts & Sci., Trakya Univ., TR-22030 Edirne).

The single G. flavipes record from the European part of Turkey was hitherto confused with the similar G. ubadschii. The distribution of the 2 spp. in Turkey is assessed. O. cecilia was previously listed from Anatolia, but the record was based on misidentification. Here it is recorded from Turkish Thrace. In this way, both G. flavipes and O. cecilia are new for the fauna of Turkey.

(17181) *IDF-REPORT*. Newsletter of the International Dragonfly Fund (ISSN 1435-3393), Vols 7 (14 June 2005), 8 (31 Dec. 2005), 9 (2006), 10 (2007), 11 (23 Dec. 2007), 12 (15 Feb. 2008). – (c/o M. Schorr, Schulstr. 7/B, D-54314 Zerf).

[Vol. 7]: *Oppel, S.*: Odonata of the Crater Mountain

Wildlife Management Area, Papua New Guinea (pp. 1-28). – [Vol. 8]: see *OA* 16310. – [Vol. 9]: *Van Gossum, H., C. Beatty & T. Sherratt*: The Zygoptera of Viti Levu and Vanua Levu, the two larger islands in the Fiji archipelago (pp. 1-14). – [Vol. 10]: *Marinov, M. & R. Seidenbusch*: Corduliochlora gen. nov. from the Balkans (Odonata: Corduliidae) (pp. 1-13). – [Vol. 11]: *Von Ellenrieder, N. & R.W. Garrison*: Untangling some taxonomic riddles on damselfly genera (Zygoptera) from the neotropical region (pp. 1-34). – [Vol. 12]: *Bernard, R. & O.E. Kosterin*: Field notes of two hunters for Nehalennia speciosa in boggy Vasyugan plain, West Siberia (pp. 1-34). – Each issue also includes an updated list of the projects sponsored by the IDF.

(17182) *INTERNATIONAL JOURNAL OF ODONATOLOGY* (ISSN 1388-7890), Vol. 11, No. 1 (1 Apr. 2008).
De Marmels, J.: Three new libelluline species from southern Venezuela, with new records of other species (Odonata: Libellulidae) (pp. 1-13); – Neocordulia caudacuta sp. nov. from the coastal Cordillera, Venezuela (Odonata: Corduliidae (pp. 15-20); – *Do Manh, C.*: Noguchiphaea mattii sp. nov. from southern Vietnam (Odonata: Calopterygidae) (pp. 21-26, pl. 1); – *Dow, R.A. & M. Hämäläinen*: Libellago orri sp. nov. from northern Borneo (Odonata: Chlorocyhpidae) (pp. 27-34, pl. 2); – *Hassall, C., D.J. Thompson & I.F. Harvey*: Wings of Coenagrion puella vary in shape at the northern range margin (Odonata: Coenagrionidae) (pp. 35-41); – *Kalkman, V.J.*: Argiolestes in the Bismarck and the Solomon Archipelagos (Odonata) (pp. 43-57, pl. 3); – *Martens, A., H. Ehmann, G. Peitzner, P. Peitzner & H. Wildermuth*: European Odonata as hosts of Forcipomyia paludis (Diptera: Ceratopogonidae) (pp. 59-70, pl. 4a); – *Matushkina, N.A.*: The ovipositor in the relic dragonfly Epiophlebia superstes: a morphological re-examination (Odonata: Epiophlebiidae) (pp. 71-80); – *Von Ellenrieder, N.*: Phoenicagrion gen. nov. for Leptagrion flammeum, with description of a new species, P. paulsoni, from Peru (Odonata: Coenagrionidae) (pp. 81-93, pl. 4b); – *Von Ellenrieder, N. & F. Lonzano*: Blues for the red Oxyagrion: a redefinition of the genera Acanthagrion and Oxyagrion (Odonata: Coenagrionidae) (pp. 95-111); – *Westermann, K.*: Sex ratio in a population of Lestes viridis: spatial and temporal variability at emergence (Odonata: Lestidae) (pp. 115-129).

(17183) KALKMAN, V., 2008. Records of dragonflies from Borme, Star Mountains, Papua, Indonesia (Odonata). *Ent. Ber., Amst.* 68(2): 45-52. (With Dutch s.). – (Naturalis, P.O. Box 9517, NL-2300 RA Leiden).
A checklist of 37 spp., collected from 10 localities in the vicinity of the village of Borme (E Papua, Indonesia). Comments are provided on 10 selected taxa, including a possibly new Microtrigonia sp.

(17184) [KIAUTA, B.] GOGALA, M., 2008. Boštjan Kiauta. *Yb. Slovenian Acad. Sci. Arts* 58: 71, 141-143, 314. (Slovene, with Engl. s.). – (Author: Slovenian Acad. Sci. Arts, Novi trg 3, SI-1000 Ljubljana).
A short biography, portrait and the 2007 bibliography of B. Kiauta, elected Associate Member on 1 June 2007.

(17185) KOČÁREK, P., V. PLÁŠEK & K. MALACHOVÁ, [Eds], 2008. *Environmental changes and biological assessment. Book of abstracts*. Dept Biol. & Ecol., Univ. Ostrava. [Information on total pagination and ISBN not available]. (Engl.).
The conference was held under the auspices of the Faculty of Science, University of Ostrava (Czech Republic), 10-11 Apr. 2008. – [Odonatol. titles]: *David, S.*: Ecological assessment of the dragonflies in Slovak lotic waters (pp. 38-39); – *Dolný, A. & P. Drozd*: Biostatistical evaluation of seasonal-phenological imago activity in the Czech Republic territory (p. 39); – The hypsometric distribution of dragonflies (Odonata) in the Czech Republic territory (p. 40); – *Drozd, P. & A. Dolný*: Global warming and insect biodiversity: an example of misleading statistics (pp. 40-41); – *Harabiš, F., A. Dolný & P. Hesoun*: The role of stability and population ecology of Leucorrhinia pectoralis (Odonata) in anthropogenic biotopes: the basic notes for management approach (pp. 41-42); – *Konvičková, V.*: The succession of dragonfly communities in ponds (pp. 44-45).

(17186) KONIG, R., C.R.H. SUZIN, R.M. RESTELLO & L.U. HEPP, 2008. Qualidade das águas de riachos da região norte do Rio Grande do Sul (Brasil) através de variáveis fisicas, quimicas e biológicas. *Pan-am. J. aquat. Sci.* 3(1): 84-93. (Port., with Engl. s.). – (Third Author: Lab. Biomonitoramento, Univ. Reg. Integrada Alto Uruguai e das Missões, Av. Sete de Setembro 1621, BR-99700-000

Erechim, RS).
Includes a family-wise information on relative abundance of 5 odon. fam. in the hydrographic basins of Rio Tigre and Rio Campo, situated in the northern region of the state of Rio Grande do Sul (Brazil).

(17187) *MINNESOTA ODONATA GAZETTE* (ISSN none), Vol. 1, No. 1 (winter 2008; received 29 Apr. 2008). Published by the Minnesota Odonata Survey Project (MOSP). Edited by K. Mead (6388 Lax Lake Rd, Finland, MN 55603, USA).
[Selected articles]: *Mead, K.*: Editorial (p. 1); – *Anonymous*: What is the MOSP and why do we need it (pp. 1 & 4); – *Rowse, D.*: Dragonfly haunts and ghosts of dragonflies: reflections on the 2002 season (pp. 2 & 5); – *Lind, J.*: New discoveries in northern Minnesota (p. 3; vernacular nomenclature only).

(17188) NEL, A.N., G. FLECK, R. GARROUSTE & G. GAND, 2008. The Odonatoptera of the Late Permian Lodève basin (Insecta). *J. iber. Geol.* 34(1): 115-122. (With Span. s.). – (First Author: Entomologie, Mus. Natn. Hist. Nat., 45 rue Buffon, F-75005 Paris).
The discovery of large to very large Meganeuridae in the Late Permian Lodève basin (France) contradicts the alleged relations between the decrease of insect body and wing sizes during the Late Permian as a direct consequence of atmospheric oxygen concentrations at that time. The appearance of very large insects in the Late Carboniferous could be due to some other circumstances, such as e.g. the absence of flying vertebrate predators and selection pressure related to the increasing of the prey and predator sizes.

(17189) NEL, A., D. NERAUDEAU, V. PERRICHOT, V. GIRARD & B. GOMEZ, 2008. A new dragonfly family from the Upper Cretaceous of France. *Acta palaeontol. pol.* 53(1): 165-168. – (First Author: Entomologie, Mus. Natn. Hist. Nat., 45 rue Buffon, F-75005 Paris).
The new aeshnopteran family, Enigmaeshnidae fam. n., is proposed for Enigmaeshna deprei gen. n., sp. n., here described from the Early Cenomanian clay of the Puy-Puy quarry at Tonnay-Charente (Charente-Maritime, SW France). Although this taxon belongs to the much derived clade of Aeshnodea, it is characterized by several unique hindwing venation peculiarities.

(17190) *ODONATRIX*. Bulletin of the Odonatological Section of the Polish Entomological Society (ISSN 1733-8239), Vol. 4, No. 1 (31 Jan. 2008). (Pol., with Engl. s.'s). – (c/o Dr P. Buczyński, Dept Zool., UMCS, Akademicka 19, PO-20-033 Lublin).
Tończyk, G. & M. Stankiewicz: Dragonflies (Odonata) of the Łodz Hills Landscape Park (pp. 1-11); – *Bernard, R. & B. Daraź*: State and habitat of a peripheral and isolated population of Nehalennia speciosa (Charpentier, 1840) in southeastern Poland (Odonata: Coenagrionidae) (pp. 12-19); – *Rychla, A.*: New records of Orthetrum coerulescens (Fabricius, 1789) from western Poland (Odonata: Libellulidae) (pp. 19-20); – *Buczyński, P.*: Preliminary studies on dragonflies (Odonata) of carbonate fens near Chełm (pp. 21-25); – First record of Coenagrion armatum (Charpentier, 1840) in the lithuanian Lake District (Odonata: Coenagrionidae) (pp. 25-27); – Impressions from the 26th Annual Congress of the German Speaking Odonatologists in Dresden, March 9-11, 2007 (pp. 28-29); – *Tończyk, G.*: [book review] Field guide to the dragonflies of Britain and Europe, by K.-D.B. Dijkstra (pp. 30-32).

(17191) PELLI, A., D.R. DE PAULA, A.A.M. ARRUDA, J.M. LOPES, S.M. RAMOS & A.P.S. REZENDE, 2008. Toxicidade aguda a crônica de diflubenzuron para o jaú, Zungaro zungaro (Humboldt, 1821) (Pisces, Pimelodidae). *Zoociências* 10(1): 51-54. (With Engl. s.). – (First Author: Depto Ciênc. Biol., Univ. Fed. Triângulo Mineiro, Rua Frei Paulino 30, BR-38025180 Uberaba, MG).
The odon. larvae are predators of young Zungaro fish. As shown experimentally, diflubenzuron affects larval growth and inhibits the ecdysis.

(17192) [PURIČ, I.] KUNŠIČ, M., 2008. Na Brdu skozi rentgen [...]. *Total*, Ljubljana 2(4): 2-3; issue of 25 Jan. (Slovene).
A national weekly's interview with Dr I. Purič, Director of the (governmental) Protocol Services of Slovenia, on the Brdo Congress Centre (BCC), where most of the European Union (EU) conferences were held during the Slovenian Presidency of the EU. The BCC has 5 congress halls, bearing Latin names of selected odon. spp. living on the Brdo protocolar estate (Upper Carniola, Slovenia). (See *OA* 14773, 16029).

(17193) QIAO, H.-l., Y.-q. LUO, C.-m. TIAN, J.-h. SUN & X.-f. FENG, 2008. Diversity of insect communities with different development phases in natural Populus euphratica forests in Xinjiang. *For. Stud. China* 10(1): 56-59. – (Second Author: Key Lab. Silvicult. & Conserv., Beijing Forestry Univ., CN-100083 Beijing).
In July 2005 and Apr. 2006, 5116 individuals, referable to 141 spp. of 12 orders were identified in P. euphratica forests in the Bayingolin Mongolia Autonomous District of Xinjiang (Tarim Basin, China). The study area has a typical secondary salinized soil type, the average annual temperature ranges from 10.6 to 11.5°C, and the average amount of annual precipitation is ca 25-76 mm. Xerophiles, sand plants and halophytes are dominant in vegetation. The numbers of odon. individuals and spp. were low in juvenile, middle-aged and over-mature forests, and the odon. were completely lacking in degraded forests. The names of the spp. are not stated.

(17194) SCHMIDT, C., B. HACHMÖLLER & M. KÜHFUSS, 2008. Coenagrion ornatum Selys, 1850 (Odonata: Zygoptera: Coenagrionidae) in Landschaftschutzgebiet "Nassau" bei Meissen/Sachsen. *Faun. Abh.* 26: 119-135. (With Engl. s.). – (First Author: Kapuzinerstr. 47, D-94032 Passau).
C. ornatum was rediscovered in Saxony (Landscape Protected Area " Nassau"), Germany in 2004. In 2005 (V-VIII), a systematic survey was carried out in this area and the sp. was documented at 16 sites. The habitats are described and the threats are pointed out.

(17195) SHCHERBAKOV, D.E., 2008. On Permian and Triassic insect faunas in relation to biogeography and the Permian-Triassic crisis. *Paleont. J.* 42(1): 15-31. – (Paleont. Inst., Russ. Acad. Sci., Profsoyuznaya 123, RUS-117997 Moscow).
The pterygote taxonomic diversity dynamics in the Permian and Triassic is considered at family/age level. Different metrics of taxonomic diversity are compared. Biogeographic and taphonomic aspects of changes in the composition of insect faunas in the Permian and about the P-T transition are discussed. Some changes in the Permian insect faunas are of a biogeographical nature and do not indicate global changes in diversity. Insects with aquatic immatures were rather common in the Permian and Early Triassic, but the immatures are well represented in only few localities.

(17196) TRISNAWATI, I. & K. NAKAMURA, 2008. Abundance, diversity and distribution of above-ground arthropods collected by window traps from satoyama in Kanazawa, Japan: an order level analysis. *Far east. Entomologist* 181: 1-23. (With Russ. s.). – (Grad. Sch. Sci. & Technol., Kanazawa Univ., Kakuma, Kanazawa, 920-1192, JA).
"Satoyama" is the term for the traditional rural landscape in Japan. The effects of habitat heterogeneity and restoration activities on the abundance and diversity of above-ground arthropod assemblages were examined in Kakuma forests and in Kitadan valley. Over 93.000 individuals of 24 orders were collected, but odon. were represented by 10 specimens only, and no further references are made to the order in the text.

(17197) VAN TOL, J., 2008. Notes on some species of the genus Protostucta from Vietnam (Odonata, Platystictidae). *Zool. Med. Leiden* 82(21): 217-234. – (Naturalis, P.O. Box 9517, NL-2300 RA Leiden).
Based on a study of various recent collections from Vietnam, P. grandis Asahina and P. khaosoidaoensis Asahina (sensu stricto) are reported from Vietnam for the first time. New records are provided for P. satoi Asahina (new status). The affinities of P. satoi and P. beaumonti Wilson, and the status of a very dark P. satoi form found in Tam Dao (N Vietnam) are discussed. P. caroli sp. n. and P. linnaei sp. n. are described from Chu Yang Sin National Park (Dak Lak prov., S Vietnam).

(17198) VAN TOL, J., 2008. The Platystictidae of the Moluccas and Misool (Odonata). *Dt. ent. Z.* 54(1): 3-26. – (Naturalis, P.O. Box 9517, NL-2300 RA Leiden).
The Platystictidae of the Moluccas and Misool (Indonesia) are revised. All spp. are assigned to Drepanosticta Laidlaw. As new are described: D. amboinensis sp. n., D. bifida sp. n. , D. halmahera sp. n., D. misoolensis sp. n., D. obiensis sp. n., D. psygma sp. n., D. rudicula sp. n., D. sembilanensis sp. n. and D. siu sp. n., D. robusta Fraser and D. moluccana Lieftinck are redescribed. A key to all spp. and notes on phylogenetic relationships and biogeography are provided. The role of the Middle Eocene South Caroline Arc in the distribution history of Drepanosticta spp. is discussed.

(17199) WANG, Y., Y. WANG, P. LU, F. ZHANG &

Y. LI, 2008. Diet composition of post-metamorphic bullfrogs (Rana catesbeiana) in the Zhoushan archipelago, Zheijang province, China. *Front. Biol. China* 2008: 8 pp. DOI 10.1007/s11515-008-0036-8. [Translated from *Biodiv. Sci.* (2006) 14(5): 363-371]. – (Last Author: Key Lab. Anim. Ecol. & Conserv. Biol., Inst. Zool., Chin. Acad. Sci., Beijing-100080, China).

The diet composition was examined in 113 adult and 278 juvenile frogs, on 8 islands of the Zhoushan Archipelago, using the stomach flushing method (June-Aug. 2005). By diet volume, the odon. were among the most important prey.

(17200) WAYLAND, M., J.V. HEADLEY, K.M. PERU, R. CROSLEY & B.G. BROWNLEE, 2008. Levels of polycyclic aromatic hydrocarbons in wetland sediments and aquatic insects in the oil sands area of northeastern Alberta, Canada. *Environ. Monit. Assess.* 136: 167-182. – (First Author: Environment Canada, Prairie & Northern Wildlife Res. Cent., 115 Perimeter Rd, Saskatoon, SK, S7N 0X4, CA).

The Athabasca oil sands (surface over 42000 km^2; NE Alberta) are an important source of fossil fuel. Currently, the extraction of bitumen from oil sands requires large volumes of water and, as a result, produces large volumes of liquid waste, comprised of water, sand, clay and residual bitumen, which is held in large tailings ponds. Mining companies have proposed to use tailings and tailings water-amended lakes and wetlands as part of their mine remediation plans. Polycyclic aromatic hydrocarbons (PAHs) are substances of concern in oil sands tailings and tailings water. In this study concentrations of PAHs were determined in sediments, insect larvae and adult insects collected in or adjacent to 3 groups of wetlands, viz.: experimental wetlands (to which tailings or tailings water had been purposely added), oil sands wetlands (located on the mine leases, but not experimentally manipulated), and reference wetlands (located near the mine leases). Alkylated PAHs dominated the PAH profile in all types of samples in the 3 categories. Odon. (Coenagrion, Enallagma, Aeshna, Cordulia, Epitheca, Leucorrhinia) accounted for 14 of 16 samples. Biota-sediment accumulation factors were higher for alkylated PAHs than for their parent counterparts and were lower in experimental wetlands than in oil sands and reference wetlands. PAH levels in adults were similar to those found in larvae. Precise concentrations ($ng.g^{-1}$, dry wt) are stated for sediments, larvae and adults in each of the 11 wetlands in the oil sands region of Alberta.