ODONATOLOGICAL ABSTRACTS

1987

(15761) SAIKI, M.K. & T.P. LOWE, 1987. Selenium in aquatic organisms from subsurface agricultural drainage water, San Joaquin Valley, California. *Archs envir. Contam. Toxicol.* 16: 657-670. – (US Fish & Wildl. Serv., Natn. Fisheries Contaminant Res. Cent., Field Res. Stn, 6924 Tremont Rd, Dixon, CA 95620, USA).
Concentrations of total selenium were investigated in plant and animal samples from Kesterson Reservoir, receiving agricultural drainage water (Merced Co.) and, as a reference, from the Volta Wildlife Area, ca 10 km S of Kesterson, which has high quality irrigation water. Overall, selenium concentrations in samples from Kesterson averaged about 100-fold higher than those from Volta. Thus, in May and Aug. 1983, the concentrations (µg/g dry weight) at Kesterson in larval Zygoptera had a range of 160-220 and in Anisoptera 50-160. In Volta, these values were 1.2-2.1 and 1.1-2.5, respectively. In comparison, A.K. Furr et al. (1979, *N.Y. Fish Game J.* 26: 154-161) reported the selenum content of Plathemis lydia larvae from a control pond as 1.5 µg/g, while in the specimens from a nearby pond, contaminated by coal fly ash, it was 4.1 µg/g.

1989

(15762) KORDIŠ, T., 1989. *Mlaka.* – [*The pond*]. Mladinska knjiga, Ljubljana. Fold. cardboard brochure, 6 pp. (20.5 × 22.7 cm). ISBN 86-11-03426-0. (Slovene).
A presentation of pond life, directed at children, with some hints on observation techniques, and some references to the odon.

1993

(15763) ARNOLD, A., 1993. Die Libellen (Odonata) der "Papitzer Lehmlachen" im NSG Luppeaue bei Leipzig. *Veröff. NaturkMus. Leipzig* 11: 27-34. – (Zur schönen Aussicht 25, D-04435 Schkeuditz).
The locality is situated 10 km NW of the city centre of Leipzig, E Germany (alt. 97 m). An annotated list is presented of 30 spp., evidenced during 1985--1993.

(15764) BEKUZIN, A.A., 1993. Otryad Strekozy – Odonatoptera (Odonata). – [Order Dragonflies – Odonatoptera (Odonata)]. *Insects of Uzbekistan*, pp. 19-22, Fan, Tashkent. (Russ.). – (Author's address unknown).
A rather general text, mentioning 20 (out of 76) spp. No locality data, but some notes on their habitats and vertical occurrence in Central Asia.

(15765) GAO, Zhaoning, 1993. Ningxia nongye kunchong shilu. – [Agricultural insects of Ningxia]. [Transliteration of publisher's name and address not available]. vi+336 pp. Paperback (18.5×26.0 cm). ISBN 7-80559-055-9. Price: US $ 23.- net. (Chin.).
A catalogue of insects, arachnids, crustaceans, chilopods and gastropods of the autonomous region of Ningxia, China. 32 odon. spp. are listed on pp. 19-21.

1996

(15766) COOPER, J.M., 1996. Merlin (Falco columbatius) preys on flying dragonflies. *Br. Columbia Birds* 6: 15-16. – (Sirius Envir. Res., 1278 Laurel Rd, R.R. 3, Sidney, BC, V8L 5K8, CA).
A juvenile marlin was observed to catch and eat

a large dragonfly (Aeshna sp.?) and chase others while on migration; – North Saanich, ca 25 km N of Victoria, BC, Canada; 10-IX-1996. Based on the literature, it is stated that dragonfly "hawking" appears to be very common among young-of-the--year marlins (L.W. Oliphant & S. McTaggert, 1977, *Can. Fld Nat.* 91: 190-192) and may be an important practice in learning to hunt (D. Dekker, 1985, *Wild hunters*, Can. Wolf Defenders, Edmonton). The importance of large insects in the diet of marlins during migration warrants further investigation.

(15767) MILLS, A.P., J.F. RUTTER & L.J. ROSENBERG, 1996. Weather associated with spring and summer migrations of rice pests and other insects in south-eastern and eastern Asia. *Bull. ent. Res.* 86: 683-694. – (Third Author: Nat. Resour. Inst., Central Ave, Chaltham Maritime, Kent, ME4 4TB, UK).

Trajectory analysis of the windfields at 10 m and 1.5 km was used to determine direction and extent of windborne movements of insects trapped in spring and summer; 1968-1985. Approximately 2500 trajectories, depicting the movements of airborne particles, were constructed where temperatures were high enough (≥ 10°C) to allow flight and where wind speeds (≥ 5km/h) were expected to lead to downwind displacements. Libellulidae (specific names not stated) were represented in trap catches in May (1 specimen), June (25), July (35) and Aug. (17).

1998

(15768) IZQUIERDO, I., C. MARTIN, M. PARIS & C. SANTOS, 1998. La colección de entomologia del Museo Nacional de Ciencias Naturales (CSIC). *Graellsia* 53[1997]: 49-85. (With Engl. s.). – (Mus. Nac. Cien. Natur., José Guttiérrez Abascal 2, ES--28006 Madrid).

Information is presented on the volume and taxonomic and faunistic composition of the Entomology Collection of the MNM, Madrid. A catalogue is not provided. There are 6670 odon. specimens (3024 of the Iberian fauna, 334 from other palaearctic regions, 1763 non-palaearctic). Much of the material was studied or provided by R. Martin and E. de Selys-Longchamps. The Collection harbours holotypes of 14 spp., described by A. Compte, R. Martin and F.J. Ocharán.

(15769) RODERICK, G.K. & R.G. GILLESPIE, 1998. Speciation and phylogeography of Hawaiian terrestrial arthropods. *Mol. Ecol.* 7: 519-531. – (Cent. Conserv. Res. & Training, Univ. Hawai'i, 3050 Maile Way, Gilmore 409, Honolulu, HA 96822, USA).

With reference to the available information on patterns of speciation and phylogeography, the Hawaiian Odon. are categorized as follows: (1) single representatives of a lineage throughout the islands (Anax strenuus, Nesogonia blackburni); (2) species radiations with multiple species on each volcano or island (Megalagrion), and (3) widespread species within radiations of localized species (M. hawaiiense). – A phylogeny based on morphological and ecological characters showed that the Hawaiian radiation of Megalagrion (22 spp.) cluster according to ecological affinity (gill shape and breeding ecology). Based on this analysis, species initially differentiated on Kaua'i, or a preceding high island, and representatives of each of these clades then progressed independently down the island chain. This would suggest that diversification itself cannot be explained on the basis of ecological shifts in this genus. – M. hawaiiense occurs on all high volcanoes, but exhibits different colour morphs on different volcanoes. This suggests that populations of this apparently widespread taxon are much more differentiated than they appear based on gross morphology. It may in fact represent a complex of species.

(15770) ROGERS, C., 1998. Aquatic macroinvertebrate occurrences and population trends in constructed and natural vernal pools in Folsom, California. *In*: C.W. Witham et al., [Eds], *Ecology, conservation and management of vernal pool ecosystems*, pp. 224-235, Calif. Native Plant Soc., Sacramento/CA. – (Jones & Stokes Associates, 2600 V St., Suite 100, Sacramento, CA 95818, USA).

Macroinvertebrate populations from constructed and natural vernal pools on the same land forms and in close proximity were compared quantitatively to determine colonization and temporal trends. Sampling averages are given for Coenagrion resolutum, Aeshna interrupta navadensis, Belonia saturata and Libellula sp.

(15771) SMITHERS, C.N., 1998. A species list and bibliography of the insects recorded from Norfolk Island. *Tech. Rep. Aust. Mus.* 13: 1-55. ISBN 0-7313-9500-X. – (Ent. Dept, Aust. Mus., 6 College St.,

Sydney, NSW-2000, AU).
Agriocnemis exudans, Ischnura aurora, Aeshna brevistyla and Hemicordulia australiae are the sole odon. spp. known to occur on the island. Comprehensive bibliography is presented.

2000

(15772) BUCKLEY, T.R., C. SIMON, P.K. FLOOK & B. MISOF, 2000. Secondary structure and conserved motifs of the frequently sequenced domains IV and V of the insect mitochondrial large subunit rRNA gene. *Insect Mol. Biol.* 9(6): 565-580. – (First Author: Zool. Dept, Duke Univ., Durham, NC 27708-0325, USA).
Over 400 partial insect mitochondrial large subunit (mit LSU) sequences are analysed in order to identify motifs and secondary structures for domains IV and V of this gene. Aligned sequences from 13 insect orders (incl. Odon.: Aeshna cyanea) and 9 structure diagrams are presented. These conserved sequence motifs and their secondary structure elements can now be used to facilitate the alignment of other insect mit LSU sequences.

(15773) [COCKERELL, T.D.A.] WEBER, W.A., [Ed.], 2000. *The American Cockerell: a naturalist's life, 1866-1948*. Univ. Press Colorado, Boulder/CO. xxiii+352 pp., 11 pls incl. Hardcover (16.0×23.5 cm). ISBN 0-97081-544-X. Price: € 37.60 net. – (Publishers: 5589 Arapahoe Ave, Suite 206 C, Boulder, CO 80303, USA).
Based on Cockerell's autobiographic papers (here reprinted and annotated) the Author pulled together pieces of the life of this well-known naturalist, Professor at the Univ. of Colorado, Boulders. His bibliography (3904 titles) was published by the same Author separately (1965, *Univ. Colorado Stud.* [Bibliogr.] 1: 1-124). In the odonatol. world, T.D.A.C. is known for his work on the Tertiary (and also other fossil) taxa of Colorado (Florissant), Rocky Mts, Wyoming, Britain, Mongolia, etc. (1907-1939). – For a book review, see A. Goertz, 2001, *Young Ent. Soc. Q.* 18(2): 47.

(15774) GASKIN, B. & D. BASS, 2000. Macroinvertebrates collected from seven Oklahoma springs. *Proc. Okla. Acad. Sci.* 80: 17-23. – (Dept Biol., Univ. Central Oklahoma, Edmond, OK 73034, USA).
Anax junius and 6 other odon. taxa (gen. only) are listed from 7 springs located across Oklahoma, USA. Detailed descriptions of the localities are provided.

(15775) GILLOOLY, J.F. & S.I. DODSON, 2000. The relationship of egg size and incubation temperature to embryonic development time in univoltine and multivoltine aquatic insects. *Freshw. Biol.* 44: 595-604. – (First Author: 104 13th Ave, St Pete Beach, FL 33706, USA).
Published data on 34 spp. of 7 orders (incl. 6 odon. spp., all univoltine) were used to investigate the combined influence of egg size and incubation temperature on embryonic development time (EDT) at 4 different incubation temperatures (10, 15, 20, 25°C). EDT was positively correlated with egg size at each of the 4 temperatures, but with different relationships for univoltine and multivoltine spp. The relationships of EDT to egg size expressed in degree-days did not significantly differ in slope ($P > 0.50$) or intercept ($P > 0.05$) for either univoltine or multivoltine spp. at each of the 4 temperatures. The relationships of EDT (degree-days) to egg mass in multivoltine spp. is similar in slope and intercept to that for other oviparous animals (i.e. zooplankton, fish, amphibians and reptiles), and to the relationship of EDT to neonate mass in mammals. Univoltine spp. on average require 3-5 times longer to develop than most other animals of equivalent egg mass, but the relationship of EDT to egg mass is similar in slope to that of most other animals. Together these relationships provide a basis for evaluating differences in EDT among aquatic insects.

(15776) KAZANCI, N. & M. DUGEL, 2000. An evaluation of the water quality of Yuvarlak, a stream in the Köycegiz-Dalyan Protected Area, SW Turkey. *Turk. J. Zool.* 24: 69-80. (With Turk. s.). – (Dept Biol., Fac. Sci., Hacettepe Univ., Beytepe, Ankara, Turkey).
The longitudinal and seasonal macroinvertebrate distribution and the physical and chemical properties of the Yuvarlak Stream, studied during Apr. 1992-Apr. 1993, are reported. The paper includes information on the odon. genera Calopteryx, Platycnemis, Coenagrion, Aeshna, Gomphus, Onychogomphus, Ophiogomphus and Orthetrum.

(15777) KNAB, N., C. GÖCKING, D. KNAB, A. SCHELDEN & C. WILLIGALLA, 2000. Zur Verbreitung von Gomphus vulgatissimus (L.) im

Einzugsgebiet der Ems im Kreis Warendorf (Odonata: Gomphidae). *NUA* [= Natur- und Umweltschutzakademie Nordrhein-Westfalen] *Seminarber.* 6: 76-81. – (Second Author: Zum Hiltruper See 9, D-48165 Münster).

The occurrence of G. vulgatissimus in the Ems basin (Warendorf distr., Germany) was studied in 1999; the rivers Ems, Werse, Axtbach, Hessel, Angel, Eltingmühlenbach and Bever were surveyed. The sp. occurs throughout the Ems, and at least locally in its tributaries. The factors that may be responsible for the recent increase of its localities are discussed.

(15778) REECE, B.A., 2000. *Early instar growth and survivorship in the common baskettail dragonfly Epitheca cynosura (Anisoptera: Corduliidae).* M.Sci. Thesis, Dept Biol. Sci., East Tennessee St. Univ., Johnson City. viii+50 pp. – (c/o Dr D.M. Johnson, Dept Biol. Sci., East Tennessee St. Univ., Box 23590A, Johnson City, TN 37614-0002, USA).

Egg masses were collected from Bays Mountain park, Tennessee, USA, in June 1999. Newly hatched individuals were placed into enclosures and sampled at scheduled time intervals throughout the summer. Enclosures were exposed to combinations of high and low densities and presence/absence of a second-year class E. cynosura predator. Survivorship, mean head widths, and mean dry masses were compared across treatments. Due to poor recovery of early-instar larvae, survivorship showed no significant differences in mortality among treatments. The predator present treatment caused significantly smaller head widths and dry masses only on days 42 and 55. The density treatment had a significant effect on larval growth from day 28 through day 86 (end of the experiment). Larvae from low density treatments had larger head widths and dry masses. The effects observed within the density treatments were likely to have resulted in a cohort split. Those individuals in the low density treatment followed a univoltine life history, and high density individuals followed a semivoltine life history. Density is probably a very important factor influencing the voltinism of E. cynosura at Bays Mountain Lake.

(15779) SIVA-JOTHY, M.T., 2000. A mechanistic link between parasite resistance and expression of a sexually selected trait in a damselfly. *Proc. R. Soc. Lond.* (B) 267: 2523-2527. – (Dept Anim. & Plant Sci., Univ. Sheffield, Sheffield, S10 2TN, UK).

A field-based insect system is examined in which a signal trait and an immune effector system responsible for parasite resistance rely on the same melanin-producing enzyme cascade (phenoloxidase, PO). Observations and experiments on ♂♂ Calopteryx splendens xanthostoma revealed that resistance to the prevalent parasite in the study system (a eugregarine protozoan infecting the mid-gut) was correlated with quantitative aspects of the sexually dimorphic melanized wingspot of males, a trait that is produced and fixed before the host comes into contact with the sporozoites of the parasite. Regulation of PO during experimental immune challenge showed that ♂♂ with dark, homogenous melanin distribution in their wings showed no change in PO levels 24 h after challenge. By contrast ♂♂ with lighter and/or more heterogenous melanin distribution in their wings tended to show higher PO levels 24 h after immune challenge. The changes in PO levels occur despite the lack of a relationship between wing-pigment distribution and the cellular encapsulation response. These results suggest a shared, limiting resource may form the mechanistic basis of the trade-off between a condition-dependent signal trait and immune function in this system.

(15780) STAV, G., L. BLAUSTEIN & Y. MARGALIT, 2000. Influence of nymphal Anax imperator (Odonata: Aeshnidae) on oviposition by the mosquito Culiseta longiareolata (Diptera: Culicidae) and community structure in temporary pools. *J. Vector Ecol.* 25(2): 190-202. – (First Author: Inst. Desert Res., Ben-Gurion Univ., Sede Boqer Campus, 84990, Israel).

The overall (consumptive plus non-consumptive) and non-consumptive effects of A. imperator larvae on experimental pond communities were assessed by comparing 3 treatments: (1) control (no Anax); (2) free Anax (Anax was not constrained); and (3) caged Anax (Anax, enclosed within a cage, could not consume prey outside the cages, but could possibly influence them via perceived risk of predation). Fewer C. longiareolata egg rafts were found in the free Anax treatment compared to the other 2 treatments. There was no statistically significant difference in the number of egg rafts between control and caged Anax pools. Thus, while Culiseta ♀♀ apparently oviposit fewer egg rafts in the presence of unconstrained Anax, they did not respond to predation risk from the caged Anax. Larval Culiseta densities were drastically reduced by free Anax; there was nearly a 100% reduction in the number reaching

metamorphosis (pupae) and a 100% reduction in emergence (pupal exuviae). There were no significant treatment effects on densities of crustaceans, Daphnia magna and Heterocypris sp., or on chironomid pupal exuviae. Ceratopogonid pupal abundance was higher in free Anax pools than in the other 2 treatments toward the end of the experiment. Free Anax caused a trophic cascade, presumably by strongly reducing the dominant periphyton grazer, Culiseta larvae; periphyton mass was greater in the free Anax treatment than in the control. However, there was no behavioral trophic cascade, i.e., no difference in periphyton abundance between the control and caged Anax treatment.

2001

(15781) BAPTISTA, D.F., D.F. BUSS, L.F.M. DORVILLÉ & J.L. NESSIMIAN, 2001. Diversity and habitat preference of aquatic insects along the longitudinal gradient of the Macaé river basin, Rio de Janeiro, Brazil. *Revta brasil. Biol.* 61(2): 249-258. (With Port. s.). – (First Author: Depto Biol., IOC, Fiocruz, Av. Brasil 4.365, BR-21045-900 Manguinhos, RJ).

The samples were taken at 5 stations, in Apr. (end of the rainy season), July (dry season) and Oct. (beginning of the rainy season). In Odon., there was a marked preference for the areas of low velocity, and for the upper reaches. The dominant taxa were: Hetaerina (in Apr.), Argia (July) and Limnetron (Oct.). A list of taxa is not provided.

(15782) GALDEAN, N., M. CALLISTO & F.A.R. BARBOSA, 2001. Biodiversity assessment of benthic macroinvertebrates in altitudinal lotic ecosystems of Serra do Cipó (MG, Brazil). *Revta brasil. Biol.* 61(2): 239-248. (With Port. s.). – (Second Author: Lab. Limnol./Ecol. Bentos, Depto Biol. Geral, Univ. Fed. Minas Gerais, C.P. 486, BR-30161-970 Belo Horizonte, MG).

5 lotic systems were investigated in order to assess the existing diversity of benthic macroinvertebrates, habitats/microhabitats, and the available trophic resources. Only general references are made to the odon. occurrence at various sampling zones.

(15783) LAN, S.L. & M. SUN, 2001. Aerodynamic force and flow structures of two airfoils in flapping motions. *Acta mechan. sin.* (Engl. Ser.) 17: 310-331. – (Inst. Fluid Mechanics, Beijing Univ. Aeronautics & Astronautics, Beijing-100083, P.R. China).

Aerodynamic force and flow structures of 2 airfoils in tandem configuration, performing flapping motions were studied in an unnamed odon. sp., using the method of solving the Navier-Stokes equations in moving overset grids. 3 typical phase differences between the fore- and aft-airfoil flapping cycles are considered. The following has been shown. (1) In the case of no interaction (single airfoil), the time average of the vertical force coefficient over the downstroke is 2.74, which is about 3 times as large as the maximum steady-state lift coefficient of a dragonfly wing, the time average of the horizontal force coefficient is 1.97, which is also large. The reasons for the large force coefficients are the acceleration at the beginning of a stroke, the delayed stall and the "pitching-up" motion near the end of the stroke. (2) In the cases of two-airfoil, the time--variations of the force and moment coefficients on each airfoil are broadly similar to that of the single airfoil in that the vertical force is mainly produced in downstroke and horizontal force in upstroke, but very large differences exist due to the interaction. (3) For in-phase stroking, the major differences caused by the interaction are that the vertical force on FA in downstroke is increased and the horizontal force on FA in upstroke decreased. As a result, the magnitude of the resultant force is almost unchanged but it inclines less forward. (4) For counter stroking, the major differences are that the vertical force on AA in downstroke and horizontal force on FA in upstroke are decreased. As a result, the magnitude of the resultant force is decreased by about 20%, but its direction is almost unchanged. (5) For 90°-phase-difference stroking, the major differences are that the vertical force on AA in downstroke and horizontal force on FA in upstroke are decreased greatly and the horizontal force on AA in upstroke increased. As a result the magnitude of the resultant force is decreased by about 28% and it inclines more forward. (6) Among the 3 cases of phase angles, in-phase flapping produces the largest vertical force (also the largest resultant force); the 90°-phase--difference flapping has the largest horizontal force, although it produces the smallest resultant force.

(15784) LAU, M., 2001. Interesting odonates from Hong Kong Island. *Porcupine* 23: 4. – (c/o Ms E. Tam, Dept Ecol. & Biodiv., Univ. Hong Kong, Hong Kong, China).

A note on, and records of Calicnemia sinensis,

Drepanosticta hongkongensis and Sinosticta ogatai.

(15785) *MICHIGAN ODONATA SURVEY TECHNICAL NOTES*, (ISSN none), Nos 1 (June 1999), 2 (June 1999), 3 (May 2001). – (c/o Mus. Zool., Univ. Michigan, Ann Arbor, MI 49109-1079, USA).
[No. 1]: *O'Brien, M.*: Preserving adult Odonata specimens for the MOS (2 pp.); – [No. 2]: *Bright, E.*: Sampling protocol for Odonata larvae (5 pp.); – [No. 3]: *O'Brien, M.F.*: Hine's emerald dragonfly, Somatochlora hineana Williamson (2 pp.).

(15786) O'MEARA, M., 2001. *The dragonflies of Waterford city and county, Waterford Wildlife, Waterford.* 16 pp. [*Fauna of Co. Waterford*, No. 4: *Odonata*]. ISBN 0-9540303-3-8. – (Available free from the publishers: 153 St John's Park, Waterford, Eire).
A catalogue and distribution atlas of the Waterford odon. (17 spp.) to the end of the 20th century, with notes on 7 other Irish spp. All Waterford spp. are mapped (10 km squares of the National Grid), and notes on habitats and habits are provided. Also included is a checklist of the Odon. of Ireland.

(15787) PEACOR, S.D. & E.E WERNER, 2001. The contribution of trait-mediated indirect effects to the net effects of a predator. *Proc. natn. Acad. Sci.* 98(7): 3904-3908. – (First Author: Dept Biol., Univ. Michigan, Ann Arbor, MI 48109, USA).
Many prey modify traits in response to predation risk and this modification of traits can influence the prey's resource acquisition rate. A predator thus can have a "nonlethal" impact on prey that can lead to indirect effects on other community members. Such indirect interactions are termed trait-mediated indirect interactions because they arise from a predator's influence on prey traits, rather than prey density. Because such nonlethal predator effects are immediate, can influence the entire prey population, and can occur over the entire prey lifetime, it is argued that nonlethal predator effects are likely to contribute strongly to the net indirect effects of predators (i.e., nonlethal effects may be comparable in magnitude to those resulting from killing prey). This prediction was supported by an experiment in which the indirect effects of a larval dragonfly (Anax sp.) predator on large bullfrog tadpoles (Rana catesbeiana), through nonlethal effects on competing small bullfrog tadpoles, were large relative to indirect effects caused by density reduction of the small tadpoles (the lethal effect). Treatments in which lethal and nonlethal effects of Anax were manipulated independently indicated that this result was robust for a large range of different combinations of lethal and nonlethal effects. Because many, if not most, prey modify traits in response to predators, the results suggest that the magnitude of interaction coefficients between 2 spp. may often be dynamically related to changes in other community members, and that many indirect effects previously attributed to the lethal effects of predators may instead be due to shifts in traits of surviving prey.

(15788) REELS, C.T., 2001. Two Hong Kong 'endemics' sunk at Wutongshan. *Porcupine* 23: 5. – (26, 6th St, Section C, Fairview Park, Yuen Long, New Territories, Hong Kong, China).
Sinosticta ogatai and Drepanosticta hongkongensis, hitherto only known from Hong Kong, have been discovered on the slopes of Wutongshan in Shenzhen.

(15789) WALSH, S.J., 2001. Freshwater macrofauna of Florida karst-habitats. *In*: E. Kuniansky, [Ed.], *Proceedings U.S. Geological Survey Karst Interest Group*, St Petersburg, Florida, Feb. 13-16, 2001, pp. 78-88. [USGS Water-Resources Invest. Rep. 01-4011]. – (US Geol. Surv., Florida-Caribbean Sci. Cent., 7920 NW 71st St., Gainesville, FL 32653, USA).
No odon. are listed from caves and springs, but 6 Anisopt. spp. have limited distribution near seep areas and their habitat requirements appear to be confined to seepages, viz. Cordulegaster obliqua fasciata, C. sayi, Somatochlora provocans, Dromogomphus armatus, Progomphus bellei, and Tachopteryx thoreyi.

(15790) WILSON, K.D.P., 2001. Orthetrum poecilops Ris, a marine dragonfly of conservation priority. *Porcupine* 22: 5-6. – (18 Chatsworth Rd, Brighton, BN1 5DB, UK).
The sp. occurs in inter-tidal mudflats amongst Kandelia mangroves in NE Hong Kong, where 3 subpopulations have been located at Starling Inlet, 2 at Nam Chung and 1 at Hoi Pui Leng. A single specimen has also been recorded from Shuen Wan. Along with the New World Erythrodiplax berenice, O. poecilops is to be considered a marine dragonfly. It is only found in Hong Kong at sites below the high water mark. Although parts of these are influenced

by small freshwater trickles and seepages at low tide, at high tide all the Hong Kong sites are fully covered by seawater. During the wet season salinities of surface seawater at Starling Inlet drop to as low as 18‰ or less, but during the winter dry season surface water salinities are typically fully saline at 33‰. As far as known, the biology of the sp. is briefly outlined and its range is stated. O. p. poecilops Asahina, 1970, O. poecilops ssp. Saito & Ogata, 1995, O. miyajimaensis Yûki & Doi, 1938, and O. p. miyajimaensis Asahina, 1970 are synonymised with O. poecilops Ris, 1919. In view of the global rarity and its unusual biology, the conservation of the sp. in Hong Kong should be considered a high priority. Further study to determine its life cycle, quantify its salinity tolerance and ascertain its habitat requirements is recommended.

(15791) YANOVIAK, S.P., 2001. Container color and location affect macroinvertebrate community structure in artificial treeholes in Panama. *Fla Ent.* 84(2): 265-271. (With Span. s.). – (Evergreen St. Coll., Lab 1, Olympia, WA 98505, USA).
The effects of habitat colour and location on community structure in artificial water-filled treeholes were investigated in the forest of Barro Colorado Island, Panama. The macroinvertebrate fauna of 9 replications (5 in understory, 4 in tree-fall gaps) of black, blue, red and green 650 ml plastic cups was censused weekly for 7 weeks. Macroinvertebrate abundance and species richness were greater in understory cups than in gap cups, and black cups in understory attracted more spp. than other colours. Among these was the single Mecistogaster sp. specimen collected during this investigation.

2002

(15792) BARNETT, H.K. & J.S. RICHARDSON, 2002. Predation risk and competition effects on the life-history characteristics of larval Oregon spotted frog and larval red-legged frog. *Oecologia* 132: 436-444. – (Dept Forest Sci., Univ. Br. Columbia, 3041-2424 Main Mall, Vancouver, BC, V6T 1Z4, CA).
An artificial pond experiment was conducted to test hypotheses about the effects of competition and non-lethal predator cues on metamorphic characteristics of sympatric Rana pretiosa and R. aurora in SW British Columbia, Canada. Tadpoles were exposed to the presence or absence of one another, 2 density levels and to presence or absence of predacious Aeshna palmata larvae isolated in enclosures. In the artificial pond study, R. aurora were significantly larger at metamorphosis (12%) and exhibited only slightly longer larval periods when exposed to Aeshna. In the presence of R. pretiosa, they significantly decreased time to metamorphosis, and were significantly larger at metamorphosis (12%) than those reared alone. Rana pretiosa in treatments with R. aurora were somewhat larger at metamorphosis when a non-lethal predator was present, and in treatments where R. pretiosa were alone with a predator tadpole mass at metamorphosis was smaller than those in the absence of Aeshna, but these results were not statistically significant. Both spp. reduced activity and moved away from the predator in the presence of an enclosed odon. larva in the laboratory. Most tadpole mesocosm experiments have found that the trade-off between size and timing of metamorphosis is extremely important to amphibians, but it is suggested here that the trade--off discussed in traditional amphibian models may not apply to spp. like R. pretiosa that are exposed to the same gape-limited predators upon reaching metamorphosis.

(15793) CORDERO RIVERA, A., 2002. Influencia de la selección sexual sobre el comportamiento reproductor de los odonatos. *In*: M. Soler, [Ed.], *Evolución, la base de la biologia*, pp. 497-507, Editorial Proyecto Sur, Granada. (Span.). – (Depto Ecol. & Biol. Anim., Univ. de Vigo, EUET Forestal, Campus Universitario, ES-36005 Pontevedra).
A book chapter, reviewing the subject and suggesting the avenues of a future research.

(15794) CORDERO RIVERA, A. & J.A. ANDRES, 2002. Male coercion and convenience polyandry in a calopterygid damselfly. *J. Insect Sci.* 2: 14; 7 pp.; online: *insectscience.org/2.14*. – (Depto Ecol. & Biol. Anim., Univ. de Vigo, EUET Forestal, Campus Universitario, ES-36005 Pontevedra).
Copulation in odon. requires ♀ cooperation because ♀ ♀ must raise their abdomen to allow intromission. Nevertheless, in Calopteryx h. haemorrhoidalis ♂ ♂ commonly grasp ovipositing ♀ ♀ and apparently force copulation. This has been interpreted as a consequence of extreme population density and ♂-♂ competition. This behaviour was studied at 2 sites on the Forma Quesa river (Frosinone prov., central Italy) that had different densities over 3 yr. As predicted, at high densities most matings were

forced (i.e. not preceded by courtship), but at low density most were preceded by courtship. Courtship matings were shorter at high density, but density did not affect the duration of forced matings. ♀ ♀ cooperated in forced matings even if they had very few mature eggs. Furthermore, ♀ ♀ mated more times if they experienced higher ♂ harassment during oviposition, and at low density second and subsequent matings were more likely to be forced. This could mean that ♀ ♀ engage in "convenience polyandry", because they gain more by accepting copulation than by resisting ♂ ♂. The observations also suggest that ♀ ♀ might trade copulations for ♂ protection, because under extreme population density harassment by ♂ ♂ is so intense that they can impede oviposition.

(15795) CRAVES, J.A., 2002. A preliminary list of the Odonata of Wayne Co. *Mich. Birds nat. Hist.* 9(1): 7-16. – (Rouge River Bird Observ., Nat. Areas Dept, Univ. Michigan-Dearborn, Dearborn, MI 48128, USA).
An annotated and commented list of 75 spp.; – SE Michigan, USA.

(15796) FURNISH, J., J. McIVER & M. TEISER, 2002. Algae and invertebrates of a Great Basin Desert hot lake: a description of the Borax Lake ecosystem of southeastern Oregon. *Proc. Conf. Springfed Wetlands* (http://www.wetlands.dri.edu), 25 pp. – (First Author: Pacif. SW Region 5, US Dept Agric., Forest Serv., Vallejo, CA, USA).
As part of the recovery plan for the endangered endemic chub, Gila boraxobius (Cyprinidae), a description of algal and invertebrate populations was undertaken at Borax Lake in 1991 and 1992. The lake is the only known habitat for G. boraxobius. It is a warm, alkaline water body, ca 10 ha in size, with an average surface water temperature of 30°C. 36 individuals, referable to 14 odon. spp. were collected. Their occurrence and seasonal abundance at the lake are shown.

(15797) GROOT, A.T. & M. DICKE, 2002. Insect-resistant transgenic plants in a multi-trophic context. *Plant J.* 31(4): 387-406. – (First Author: Lab. Ent., Wageningen Univ., P.O. Box 8031, NL-6700 EH Wageningen).
Genetic engineering of plants in the context of insect pest control has involved insertion of genes that code for toxins, and may be characterized as the incorporation of biopesticides into classical plant breeding. In the context of pesticide usage in pest control, natural enemies of herbivores have received increasing attention, since carnivorous arthropods are an important component of insect pest control. The ∂ endotoxins produced by Bacillus thuringiensis (Bt) are the best known example, and genes encoding these have been transferred to major crops. In a tab. review of the Bt effects on biological control agents, the results of the work on Erythemis simplicicollis, as presented in the paper listed in *OA* 10890, are stated, but no other reference to the Odon. is made in this publication.

(15798) HOFFSTEN, O., 2002. Sländor från Rogenområdet i Härjedalen. – [Aquatic insects from the Rogen area in Härjedalen]. *Natur i Norr*, Umeå 21(1): 1-4. (Swed.). – (Ekologi och geovetenskap, S-901-87 Umeå Universitet).
A checklist of 69 spp. of 5 orders, incl. 8 odon. spp., collected in this area (Sweden) during 29 June-1 July 2001.

(15799) HOSHIDE, K. & J. JANOVY, 2002. The structure of the nucleus of Odonaticola polyhamatus (Gregarinea: Actinocephalidae), a parasite of Mnais strigata (Hagen) (Odonata: Calopterygidae). *Acta protozool.* 41: 17-22. – (First Author: Biol. Inst., Fac. Educ., Yamaguchi Univ., Yamaguchi, 753-8513, JA).
The host Mnais specimens were collected at Inunaki Gorge, Yamaguchi city, Japan; June 1994.

(15800) NEUMANN, M. & D. DUDGEON, 2002. The impact of agricultural runoff on stream benthos in Hong Kong, China. *Water Research* 36: 3103--3109. – (Second Author: Dept Ecol. & Biodiv., Univ. Hong Kong, Hong Kong, China).
3 small streams in the New Territories of Hong Kong were investigated. Information is presented on relative abundance and on the frequency of occurrence at sampling sites of 7 odon. taxa (mostly genera). The physiological tolerance is stated for each taxon.

2003

(15801) ADELMAN, T.L., W. BIALEK & R.M. OLBERG, 2003. The information content of receptive fields. *Neuron* 40: 823-833. – (First Author: Dept. Mol. Biol., Princeton Univ., Princeton, NJ 08544,

USA).
The nervous system must observe a complex world and produce appropriate, sometimes complex, behavioural responses. In contrast to the complexity, neural responses are often characterized through very simple descriptions such as receptive fields or tuning curves. Do these characterizations adequately reflect the true dimensionality reduction that takes place in the nervous system, or are they merely convenient oversimplifications? Here this question is addressed for the target selective descending neurons (TSDNs) of a non-specified "dragonfly". Using extracellular multi-electrode recordings of a population of TSDNs, the completeness of the receptive field description of these cells is quantified and it is concluded that the information in independent instantaneous position and velocity receptive fields accounts for 70-90% of the total information in single spikes. Thus, it is demonstrated that this simple receptive field model is close to a complete description of the features in the stimulus that evoke TSDN response.

(15802) BAUER, P., 2003. Carlsbad Caverns National Park a hotspot for dragonfly enthusiasts? *Canyons & Caves* 28: 3-5. – (c/o Carlsbad Caverns Natn. Park, 3225 National Park Hwy, Carlsbad, NM 88220, USA).
General on odon. life, with emphasis on the Carlsbad Caverns National Park fauna; New Mexico, USA. So far 63 spp. (incl. Argia leonorae; cf. *OA* 15813) are known to occur there, but a checklist is not presented.

(15803) COMBES, S.A. & T.L. DANIEL, 2003. Flexural stiffness in insect wings. 1. Scaling and the influence of wing venation. *J. exp. Biol.* 206: 2979--2987. – (Dept Biol., Univ. Washington, Seattle, WA 98195, USA).
The relationship between venation pattern and wing flexibility is addressed by measuring the flexural stiffness (FS) and quantifying wing venation in 16 spp., referable to Odon. (Lestes sp., Ischnura sp., Aeshna multicolor, Pachydiplax longipennis), Isoptera, Neuroptera, Hymenoptera, Diptera and Lepidoptera. The measurements show that FS scales strongly with the cube of wing span, whereas cordwise FS scales with the square of chord length. Wing size accounts for some 95% of variability in measured FS; the residuals of this relationship are small and uncorrelated with standardized independent contrasts of wing venation characters. In all spp. tested, spanwise FS is 1-2 orders of magnitude larger than chordwise FS. A finite element model of an insect wing demonstrates that leading edge veins are crucial in generating this spanwise-chordwise anisotropy.

(15804) DE KNIJF, G. & A. ANSELIN, 2003. De libellenfauna van de Damvallei: vergane glorie of nog steeds waardevol? – [Dragonfly fauna of the Damvallei: past glory or still valuable?]. *Gallinago* 2(3): 21-30. (Dutch). – (Inst. Nat. Conserv., Kliniekstraat 25, B-1070 Brussel).
The odon. fauna of the Damvallei fen area, in the vicinity of Gent, Belgium, is described. In 1967, a highway cloverleaf was constructed there, therefore many of the habitats and spp. were lost. Out of the 40 recorded odon. spp., 33 occurred there prior to the construction, and 32 spp. were evidenced recently. The locality (surface ca 355 ha, with ca 60 fishponds) still supports a valuable odon. assemblage.

(15805) ENGLUND, R.A., K. RAKAKI, D.J. PRESTON, N.L. EVENHUIS & M.K.K. McSHANE, 2003. *Systematic inventory of rare and alien aquatic species in selected O'ahu, Maui, and Hawai'i island streams.* Hawaii Biol. Surv., Honolulu [Contrib. No. 2003-017], ii+14 pp. – (Hawaii Biol. Surv., Bishop Mus., Honolulu, HA 96817, USA).
The Hawaii Biological Survey of the Bishop Museum collected and identified aquatic insects and other stream invertebrates in selected Hawaiian streams as part of an inventory of rare native and new alien spp. 3 remote streams on each of the 3 islands were assessed during this study. 14 odon. spp. are listed along with the locality data, altitude and information on the status of each sp.

(15806) EVANS, J.D. & D. GUNDERSEN-RINDAL, 2003. Beenomes to Bombyx: future directions in applied insect genomics. *Genome Biol.* 4(3) 107: 4 pp. (http://genomebiology.com/3/4/107. – (First Author: USDA-ARS Bee Res. Lab., Beltsville, MD 20705, USA).
Traits are described in 11 insect orders that make them important candidates for genomic projects, and several recent workshops aimed at uniting researchers working with insect spp. are reviewed. From among the many possible, 4 criteria are used to compare the merits of insects. While valuable from the standpoint of phylogenetic breadth, Odon. are poorly compared to other orders.

(15807) KAI, K.H., 2003. [Rhodothemis rufa and Rhyothemis t. triangulare records]. *Porcupine* 29: 21. – (c/o Ms E. Tam, Dept Ecol. & Biodiv., Univ. Hong Kong. Hong Kong, China).
From Hong Kong are brought on record: R. rufa, 1 ♂, fishpond nr Shenzhen R., 10-IV-2003; – and R. t. triangulare, 1 ♂, abandoned fishpond nr the Tol Plaza on Rte 3, 5-V-2003. Both spp. are uncommon in Hong Kong.

(15808) MENG, X.-W., 2003. *Name-list of insects from Anhui province of China.* Univ. Sci. & Technol. of China Press, Hefei. vi+239 pp. Softcover (18.5×26.5 cm). ISBN 7-312-01604-9. (Chin., with Engl. title & taxon. nomencl.).
A checklist of 26 odon. spp. appears on pp. 2-3.

(15809) OLTHOFF, M. & D. IKEMEYER, 2003. Zur Libellenfauna der Moore und Heiden im Westmünsterland: Untersuchungen in ausgewählten Schutzgebieten des Kreises Borken. *LÖBF-* [= Landesanstalt für Ökologie, Bodenordnung und Forsten Nordrhein-Westfalen] *-Mitt.* 2003(3): 12-17. – (First Author: Bahrfeldstr. 2, D-31135 Hildesheim).
The odon. fauna (43 spp.) of 9 moors and fens in Borken distr., Westmünsterland, W Germany is described. 9 out of 10 endangered moor- and fen spp. are autochthonous.

(15810) SIROT, L.K., 2003. The evolution of insect mating structures through sexual selection. *Fla Ent.* 86(2): 124-133. (With Span. s.). – (Dept Zool., Univ. Florida, 223 Bartram Hall, Gainesville, FL 32611, USA).
The reproductive isolation and sexual selection hypotheses are reviewed (considerations on the Odon. are based on the works listed in *OA* 2498 and 13216), and the description of a system is provided that may allow the establishment of a connection between sexual selection on mating structures within a sp. and diversification of mating structures between spp.

(15811) STRNADOVA, M. & G. BORSTELMANN, 2003. *"Fliegende Edelsteine": die Libellen der Schlatts im Landkreis Diepholz.* Stift. NatSchutz Landkr. Diepholz, Diepholz. 22 pp. ISBN none. – (Distributor: J. Kanzelmeier, Niedersachsenstr. 2, D-49356 Diepholz).
Directed at general readership, the odon. fauna (28 spp.) of the Diepholz distr., Lower Saxony, Germany is described. The booklet also provides a brief outline of dragonfly biology and advocates the conservation of the local habitats.

(15812) WARKENTIN, I.G., A.L. FISHER, S.P. FLEMMING & S.E. ROBERTS, 2003. Response to clear-cut logging by northern waterthrushes. *Can J. For. Res.* 33: 755-762. (With Fr. s.). – (First Author: Envir. Sci.-Biol., Memorial Univ. Newfoundland, Corner Brook, NL, A2H 6PB, CA).
The distribution and foraging behaviour of Seiurus noveboracensis in recently harvested and intact landscapes of Newfoundland, Canada were examined. Numbers and biomass of prey of the bird are given for 13 arthropod orders (incl. Odon.) occurring in its diet across intact and disturbed riparian and upland habitats.

(15813) WEST, R., 2003. Rare damselfly found in CCNP. *Canyons & Caves* 29: 8-9. – (c/o Carlsbad Caverns Natn. Park, 3225 National Park Hwy, Carlsbad, NM 88220, USA).
In May 2003, a single ♂ Argia leonorae was found by Dr J. Abbott at Rattlesnake Springs in Carlsbad Caverns Natn. Park, New Mexico, USA. A phot. is included. The sp. was previously known only from Texas and Mexico. Federally it is listed as "species of concern". Its Natural Heritage Program global ranking is "G3 Vulnerable". Using Natural Heritage criteria for a conservation designation in New Mexico, it would be placed as "Critically Imperiled" in the state.

2004

(15814) ADES, G., R. KENDRICK, P. CROW, A. HAIG, L. CHEUNG, P. CHOW & R. GRIFFITHS, 2004. Kadoorie Farm and Botanic Garden: wildlife updates and sightings. *Porcupine* 31: 18-22. – (c/o Ms E. Tam, Dept Ecol. & Biodiv., Univ. Hong Kong, Hong Kong, China).
Idionyx victor and Gynacantha subinterrupta are recorded from eastern Frontier Closed Area, Hong Kong, VI/XII-2003. Both spp. are of "Local Concern" in Hong Kong.

(15815) APODACA, C.E. & L.J. CHAPMAN, 2004. Larval damselflies in extreme environments: behavioral and physiological response to hypoxic stress. *J. Insect Physiol.* 50: 767-775. – (First Author: Fairbanks Fish & Wildl. Fld Office, 101 12th Ave, Box

17, Room 222, Fairbanks, AK 99701-6236, USA).
The extensive papyrus (Cyperus papyrus) swamps of E and central Africa form a habitat of great ecological importance due to their extent, the extreme and chronic hypoxia of the interior swamp, and the unique assemblages of water-breathing insects that characterize these communities, including zygopteran larvae. The major goal of this study was to quantify physiological and behavioural responses of gilled and gill-less larvae of a papyrus swamp specialist, Proischnura subfurcatum, to low-oxygen conditions. Gill autotomization was common in P. subfurcatum of the Rwembaita Swamp in Kibale National Park, Uganda, with 1 to 3 gills missing from 56% of the specimens surveyed. Behavioural (ventilation activity and vertical migration) and physiological (metabolic rate) response to hypoxia in gilled and gill-less larvae were examined. Behavioural response to progressive hypoxia indicated that gill-less individuals rely more on use of wing sheaths (lifting and spreading) than gilled larvae. However, both morphs migrated to the surface to gain contact with atmospheric air under extreme hypoxia. On average, the rate of oxygen consumption of gill-less individuals was 51% lower than that of gilled individuals. This metabolic depression in gill-less larvae may be attributed to the loss of major respiratory appendages. However, the apparent ability of both gilled and gill-less individuals to maintain their metabolic rates to a similar critical tension suggests other mechanisms may compensate for loss of gills, though not enough to mediate metabolic depression.

(15816) BELDEN, P.A., V.J. DOWNER, J.C. LUCK, H.D.V. PRENDERGAST & D. SADLER, 2004. *The dragonflies of Sussex: a guide to their distribution and conservation*. Essedon Press, Forest Row. 81 pp. Softcover (21.0×25.0 cm). ISBN 0-9525549--1-7. Price: UK £ 7.95 / € 27.59 net. – (Publishers: Spylaws, Wych Cross, Forest Row, E. Sussex, RH18 5JP, UK).
With 39 spp. recorded since 1818 (of which 29 spp. are currently resident), Sussex is considered one of Britain's richest counties for dragonflies. The known distribution of the resident spp. is mapped. For each sp. information is provided under the headings: "National status", "Status in Sussex", "Habitat", "Flight times", "Historical records", and "Conservation". The information on threats and on the required conservation measures will be also of extralimital interest. One or several high-quality photographic portraits are given for each sp., and the fairly exhaustive regional bibliography will be certainly useful. The spp. are not described, a key is not included, and for taxonomic identification the reader is adviced to refer to some of the works listed in the References. – A concisely styled and beautifully produced book, presenting much valuable information.

(15817) BUCZYNSKI, P. / BERNARD, R. / MIELEWCZYK, S. / TOŃCZYK, G., 2004. [Odonata]. *In*: Z. Glowaciński & J. Nowacki, [Eds], *Polish Red Data book of animals: invertebrates*, pp. 52-60, Inst. Nat. Conserv., Pol. Acad. Sci., Cracow & A. Cieszkowski Agric. Univ., Poznan; ISBN 83-88934--60-0. (Pol., with Engl. s's).
5 spp. are listed and the relevant information on their status, range, habitats, etc. is provided, viz. Coenagrion armatum (by P.B., pp. 52-54), Nehalennia speciosa (R.B., pp. 54-55), Cordulegaster boltonii (R.B., pp. 56-57), Somatochlora alpestris (S.M., pp. 57-58) and S. arctica (P.B. & G.T., pp. 59-60). Their status in Poland is marked as CR, EN, VU, EN and VU, respectively.

(15818) CHEN, X.-L., 2004. An annotated list of the name bearing type specimens of species-group names in Odonata in the insect collection of the Institute of Zoology, Chinese Academy of Sciences. *Pan-Pacif. Ent.* 80(1/4): 81-90. – (Insect Coll., Inst. Zool., Chin. Acad. Sci., Beijing-100080, P.R. China).
Species-group names are listed alphabetically by species names published originally, along with the reference to the original description, museum specimen number, sex, locality data, collector, collecting date, specimen condition and remarks where appropriate. The type collection includes 71 name-bearing types (39 holotypes, 10 allotypes, 12 paratypes, 1 neotype and 9 syntypes) of 50 spp. described by L. Navás, H.F. Chao and M.A. Lieftinck.

(15819) CHING, K. & E. CHAN, 2004. Sham Chung: a revisit. *Porcupine* 31: 16-17. – (c/o Ms E. Tam, Dept Ecol. & Biodiv., Univ. Hong Kong, Hong Kong, China).
Agriocnemis pygmaea, Pseudagrion microcephalum and Rhyothemis triangularis are recorded from Sham Chung, Hong Kong, 13-VI-2004.

(15820) DOLNÝ, A. & A. MISZTA, 2004. The oc-

currence of dragonflies (Odonata) in the Czech and Polish parts of the Upper Silesia. *Wiad. ent.* 23(3): 133-152. (Pol., with Engl. s.). – (First Author: Inst. Biol. & Ecol., PřF, Univ. Ostrava, Chitussiho 10, CZ-710-00 Slezská Ostrava).
A review of the 68 spp. ever recorded from Upper Silesia; 61 spp. occur there currently. The fauna is analysed and its highlights are emphasized. An exhaustive regional bibliography is appended.

(15821) FONTANARROSA, M.S., P.L.M. TORRES & M.C. MICHAT, 2004. Comunidades de insectos acuáticos de charcos temporarios y lagunas en la ciudad de Buenos Aires (Argentina). *Revta Soc. ent. argent.* 63(3/4): 55-65. (With Engl. s.). – (Lab. Ent., Depto Biodiversidad & Biol. Exp., Fac. Cien. Exactas, Univ. Buenos Aires, Ciudad universitaria, C1428EHA, Buenos Aires, Argentia).
3436 rain pools and 6 permanent ponds were examined in the Buenos Aires city area, and a total of 85 taxa were recorded. These include 4 odon. taxa, identified to the suborder and/or fam. level only.

(15822) GERAEDS, R.P.G. & V.A. VAN SCHAIK, 2004. Onychogomphus forcipatus, a new species for the Netherlands? *Natuurh. Maandbl.* 93(2): 33-35. (Dutch, with Engl. s.). – (First Author: Julianalaan 46, NL-6042 JH Roermond).
4 exuviae were found (2003) at 3 localities in the Melick environs on the Roer R. (5 & 12-VII, 9-VIII). The previous records are listed, but the sp. was so far considered as non-autochthonous in the Netherlands.

(15823) GROENENDIJK, D., 2004. Dragonflies and damselflies in Dutch limestone querries. *Natuurh. Maandbl.* 93(4): 95-99. (Dutch, with Engl. s.). – (De Vlinderstichting, P.O. Box 506, NL-6700 AM Wageningen).
The odon. fauna (37 recorded spp.) of marl pits in the prov. of Zuid Limburg is described. Due to the peculiar habitat properties of these, many of the recorded spp. are relatively rare elsewhere in the Netherlands. Most of them are characteristic of poorly vegetated seepage habitats, or have a southern distribution. Sympecma fusca, Erythromma lindenii and Crocothemis erythraea breed in ponds with a rich vegetation, while Ischnura pumilio, Orthetrum brunneum and O. coerulescens reproduce in seepage areas, with shallow ponds and small streams. Conservation of the marl pit habitats is strongly advocated.

(15824) KJAERSTAD, G., 2004. Dammer med nasjonal verdi i Levanger og Verdal. – [Ponds of national importance in Levanger and Verdal]. *NTNU Vitenskapsmus. zool. Notat* 2004(3): 1-14. ISBN 82-7126-688-8. (Norw.). – (NTNU Vitenskapsmuseet, Seks. Naturist., N-7491 Trondheim).
4 ponds in the Trondheim area, Norway (alt. 30-130 m) are described and their macroinvertebrate inventory (incl. 6 identified odon. spp.) is listed.

(15825) *LIBELLULA*. Zeitschrift der Gesellschaft deutschsprachiger Odonatologen (GdO) (ISSN 0723-6514), Vol. 23 No. 3/4 (15 Dec. 2004). (With Engl. s's). – (c/o Mrs G. Peitzner, Hamfelderedder 71, D-21039 Börnsen).
Lissak, W.: Larve von Cicindela sylvicola erbeutet ein Männchen von Orthetrum brunneum (Coleoptera: Cicindelidae; Odonata: Libellulidae) (pp. 89-92); – *Petzold, F. & P. Martin*: Limnochares aquatica als Parasit von Leucorrhinia albifrons (Hydrachnidia: Limnocharidae; Odonata: Libellulidae) (pp. 93-97); – *Wildermuth, H.*: Nehalennia speciosa in der Schweiz: ein Nachruf (Odonata: Coenagrionidae) (pp. 99-113); – *Burbach, K. & F.-J. Schiel*: Beobachtungen zur Ausbreitungsfähigkeit von Nehalennia speciosa (Odonata: Coenagrionidae) (pp. 115-126); – *Zimmermann, W. & J. Kipping*: Zur Frage des Vorkommens von Nehalennia speciosa in Thüringen (Odonata: Coenagrionidae) (pp. 127-130); – *Voigt, H., J. Wolf & J. Zinke*: Somatochlora arctica in der Dresdner Heide, Sachsen (Odonata: Corduliidae) (pp. 131-136); – *Mauersberger, R.*: Bibliographie der Odonatologen in der DDR: die Jahre 1984-1990 und Beiträge zur Libellenfauna anderer Länder (Odonata) (pp. 137-151); – *Böhm, K.*: Zur Entwicklung und Phänologie von Crocothemis erythraea in Nordrhein-Westfalen: Nachweis einer zweiten Jahresgeneration? (Odonata:Libellulidae) (pp. 153-160); – *Mikolajewski, D.J., K.G. Leipelt, A. Conrad, S. Giere & J. Wyer*: Schneller als gedacht: einjährige Larvalentwicklung und 'slow life style' bei Leucorrhinia caudalis (Odonata: Libellulidae) (pp. 161-171); – *Lohr, M., R. Proess, M. Schorr & M. Zimmermann*: Reproduktionsnachweise für Oxygastra curtisii am Luxemburgisch-deutschen Grenzfluss Our (Odonata: Corduliidae) (pp. 173-178); – *Fliedner, H.*: Flügel als Sonnenreflektoren bei Lestes viridis? (Odonata: Lestidae) (pp. 179-187).

(15826) MARINOV, M., 2004. Dragonflies (Insecta: Odonata) of the eastern Rhodopes (Bulgaria and Greece). *In*: P. Beron & A. Popov, [Eds], *Biodiversity of Bulgaria*, 2: *Biodiversity of eastern Rhodopes (Bulgaria and Greece)*, pp. 221-235, Pensoft & Natn Mus. Nat. Hist., Sofia. (With Bulg. s.). – (P.O. Box 134, BG-1000 Sofia).
A review of 46 spp. from 118 localities, with a biogeographic analysis and a brief characterisation of habitat types important for conservation.

(15827) PARDEY, A., H. RAUERS, K. VAN DE WEYER & B. THOMAS, 2004. Gräben in Nordrhein-Westfalen. *LÖBF*[= Landesanstalt für Ökologie, Bodenordnung und Forsten Nordrhein-Westfalen] *Mitt.* 2004(4): 40-46. – (First Author: Biotopschutz & Biotopverbund, Castroper Str. 30, D-45665 Recklinghausen).
Based on own research and on literature assessment, detailed suggestions are outlined for a nature-friendly management of drainage ditches in North Rhine-Westphalia, W Germany. References to Coenagrion mercuriale and C. ornatum are included.

(15828) PEIRO, D.F. & R. DA GAMA ALVES, 2004. Levantamento preliminar da entomofauna associada a macrófitas aquáticas da região litoral de ambientes lênticos. *Revta uniara* 15: 177-188. (Port.). – (Authors' addresses not stated).
Quantitative data are family-wise presented on the abundance of 8 insect orders at 2 lotic localities in the central São Paulo state, Brazil (Sept. 2001 and Dec. 2002, resp.). The odon. are represented by 3 fam.

(15829) RAAB, R., 2004. Die Libellen (Insecta: Odonata) des dynamischen Altarmsystems der Donau bei Regelsbrunn (Niederösterreich). *Abh. zool.-bot. Ges. Österreich* 34: 99-122. (With Engl. s.). – (Anton-Brücknergasse 2/2, A-2232 Deutsch-Wagram).
Between 1992-2000, the odon. fauna (41 spp.) of the Regelsbrunn oxbow system on the Danube (downstream Vienna, Austria) was examined. 32 spp. were evidenced before the system was connected with the Fischa R., and 37 spp. after the construction of the connecting channel. The typical rheophile spp. significantly benefited from the established connection. Its effects are described in detail, and an adequate management of this large oxbow system is advocated.

(15830) SAMWAYS, M.J. & S. TAYLOR, 2004. Impact of invasive alien plants on red-listed South African dragonflies (Odonata). *S. Afr. J. Sci.* 100: 78-80. – (First Author: Dept Ent., Univ. Stellenbosch, Private Bag X1, Matieland-7602, SA).
An overview is given of the threats to odon., globally and nationally red-listed by IUCN, in S. Africa. All the globally red-listed spp. are endemic in S. Africa. Invasive alien plants, especially Australian Acacia trees along water-courses, are by far the most important threat to these endemic spp. Removal of the invasive alien trees is likely to increase considerably the prospects for their long-term survival. In contrast, the nationally red-listed spp. that are not globally red-listed are threatened overall more by natural vagaries of weather than by invasive alien plants. – (see also *OA* 15387).

(15831) SIMAIKA, J.P. & R.A. CANNINGS, 2004. Lestes disjunctus Selys and L. forcipatus Rambur (Odonata: Lestidae): some solutions for identification. *J. ent. Soc. Br. Columbia* 101: 131-139. – (Second Author: Roy. Br. Columbia Mus., 675 Belleville St., Victoria, BC, V8W 9W2, CA).
5 Lestes spp. live in British Columbia, Canada, and of these, L. forcipatus and L. disjunctus are the most similar and most difficult to separate morphologically. ♀ ♀ can be readily distinguished by the size of the ovipositor, but ♂ ♂ are difficult to separate. The best method for separating the 2 spp. uses the length of the anterior lamina as a unique character or as part of ratios using other measurements. In addition, in at least western N. Amer., forcipatus ♂ ♂ are more pruinose than those of disjunctus, especially on the thorax. Identification using the pruinescence pattern was tested in the field and is recommended as a simple and accurate method. Soaking odon. specimens in aceton, commonly used to preserve colours, damages surface pruinescence and should not be used to preserve mature, pruinescent adults. To identify disjunctus and forcipatus ♂ ♂ treated in acetone, it may be necessary to calculate ratios based on various character measurements. Future research should investigate spatial and temporal differences between the spp., as well as modes of interspecific communication.

(15832) STATE OF CONNECTICUT, 2004. *Connecticut's Endangered, Threatened and Special Concern species, 2004*. Conn. Dept Envir. Prot., Hartford/CT. ii+16 pp. – (Publishers: 79 Elm St., Hart-

ford, CT 06106-5127, USA).
The checklist includes 1 "endangered", 7 "threatened" and 10 "special concern" odon. spp.

(15833) STRAKA, V., 2004. Dragonflies (Odonata) in the Vel'ká Fatra mountains. *Acta Rer. nat. Mus. nation. slovaci* 50: 64-66. (With Slovak s.). – (SNM v Martine, Odd. prir. zbierok, Ul. A. Kmeta 20, SK-03601 Martin).
A commented list of 19 spp., recorded in the region during the 1974-2001 systematic surveys; – Slovakia.

(15834) SUN, M. & S.L. LAN, 2004. A computational study of the aerodynamic forces and power requirements of dragonfly (Aeschna juncea) hovering. *J. exp. Biol.* 307: 1889-1901. – (Inst. Fluid Mechanics, Beijing Univ. Aeronautics & Astronautics, Beijing-100083, PRC).
Aerodynamic force generation and mechanical power requirements in hovering flight are studied. The method of numerically solving the Navier-Stokes equations in moving overset grids is used. – When the midstroke angles of attack in the downstroke and the upstroke are set to 52° and 8° respectively (these values are close to those observed), the mean vertical force equals the insect weight, and the mean thrust is approximately zero. There are 2 large vertical force peaks in one flapping cycle. One is in the first half of the cycle, which is mainly due to the hindwings in their downstroke; the other is in the second half of the cycle, which is mainly due to the forewings in their downstroke. Hovering with a large stroke plane angle (52°), the dragonfly uses drag as a major source for its weight-supporting force (approximately 65% of the total vertical force is contributed by the drag and 35% by the lift of the wings). – The vertical force coefficient of a wing is twice as large as the quasi-steady value. The interaction between the fore- and hindwings is not very strong and is detrimental to the vertical force generation. Compared with the case of a single wing in the same motion, the interaction effect reduces the vertical forces on the fore- and hindwings by 14% and 16% respectively, of that of the corresponding single wing. The large vertical force is due to the unsteady flow effects. The mechanism of the unsteady force is that in each downstroke of the hindwing or the forewing, a new vortex ring containing downward momentum is generated, giving an upward force. – The body-mass-specific power is 37 W kg^{-1}, which is mainly contributed by the aerodynamic power.

(15835) VALLADARES DIEZ, L.F., F. GARCIA CRIADO, F.J. VEGA MORENO & D. MIGUELEZ CARBAJO, 2004. *Estudio de la fauna de odonatos de los humedales de Salburua (Vitoria-Gasteiz)*. Centro Est. Ambient., Vitoria-Gasteiz. 42 pp. ISBN none. – (First Author: Depto Biol. Anim., Univ. León, León, Spain).
The odon. fauna (27 spp.) of the Salburua Natural Park (Vitoria-Gasteiz, Spain; surface ca 173 ha) is described with reference to the habitats, flight periods, status and conservation requirements.

(15836) VIGLIOGLIA, V., 2004. Note preliminari sull'entomofauna del Parco degli Acquedotti (Roma). *Boll. Ass. romana Ent.* 59(1/4): 1-18. (With Engl. s.). – (via Flavio Stilicone 92, I-00175 Roma).
4 odon. spp., recorded during the 1991-2004 surveys, are listed from the Park; Rome, Italy.

(15837) WARFE, D.M. & L.A. BARMUTA, 2004. Habitat structural complexity mediates the foraging success of multiple predator species. *Oecologia* 141: 171-178. – (First Author: Water Res. Div., Dept Primar Industries, Water & Envir., 13 St Jolin's Ave, New Town, Tasmania, 7008, AU).
The role of freshwater macrophytes as refuge was investigated by testing the hypothesis that predators capture fewer prey in more dense and structurally complex habitats. Also tested was the hypothesis that habitat structure not only affects the prey-capture success of a single predator in isolation, but also the effectiveness of 2 predators combined, particularly if it mediates interactions between the predators. A fully crossed 4-factorial laboratory experiment was conducted using artificial plants to determine the separate quantitative (density) and qualitative (shape) components of macrophyte structure on the prey-capture success of Ischnura heterosticta tasmanica and the perch Nannoperca australis, both collected from macrophyte beds in the Macquarie R. in the midlands of Tasmania, Australia. Contrary to the expectations, macrophyte density had no effect on the prey-capture success of either predator, but both predators were significantly less effective in the structurally complex Myriophyllum analogue than in the structurally simpler Triglochin and Eleocharis analogues. Furthermore, the greater structural complexity of Myriophyllum amplified the impact of

the negative interactions between the predators on prey numbers; the habitat use by Ischnura larvae in response to the presence of perch meant they captured less prey in Myriophyllum. These results demonstrate habitat structure can influence multiple predator effects, and support the mechanism of increased prey refuge in structurally more complex macrophytes.

(15838) WOLSKI, L.F., J.C. TREXLER, E.B. NELSON, T. PHILIPPI & S.E. PERRY, 2004. Assessing researcher impacts from a long-term sampling program of wetland communities in the Everglades National Park, Florida, U.S.A. *Freshw. Biol.* 49: 1381-1390. – (Second Author: Dept Biol. Sci., Florida Int. Univ., 11200 SW 8th St., Miami, FL 33199, USA).

Long-term monitoring requires repeated visits to a study site, greatly increasing the potential for cumulative visitation effects. Here, aquatic communities at long-term sampling plots (9 sites, each with 3 plots), studied continuously from 6 to 22 yr, are compared to previously unsampled reference plots adjacent to them to assess the effects of researcher visitation on the flora and fauna. The odon. were represented by coenagrionids, larval Coryphaeschna ingens, Libellula needhami and Pachydiplax longipennis. No evidence of researcher effects on any macroinvertebrates was found, which is probably due either to low visitation rate or to the dynamic nature of the wetlands studied.

(15839) WOO, T.K., 2004. New record site of Nannophya pygmaea in the heart of Tai Lam Country Park [Hong Kong]. *Porcupine* 30: 3-5. – (c/o Ms E. Tam, Dept Ecol. & Biodiv., Univ. Hong Kong, Hong Kong, China).

2 new sites, discovered in 2002, are brought on record, viz. Tin Fu Tsai and Luk Keng. Both are swampy marsh areas of long abandoned paddy fields. The Tin Fu Tsai habitat (alt. 220 m) is believed to support one of the largest N. pygmaea populations in Hong Kong. Various field observations on adults and larvae are provided.

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(15840) *ABSTRACTS BOOK [of the] 4th WDA INTERNATIONAL SYMPOSIUM OF ODONATOLOGY*, Pontevedra 26-30 July 2005. Ed.: A. Cordero Rivera, Univ. Vigo. 88 pp. ISBN none. – (c/o the Editor, Ecoloxia, Univ. Vigo, EUET Forestal, Campus Universitario, ES-36005 Pontevedra).

Oral contributions: *Corbet, P.S.*: Forests as habitats for dragonflies (Odonata) (p. 15); – *Orr, A.G.*: Odonata in Bornean tropical rain forest formations: diversity, endemicity and implications for conservation management (pp. 15-16); – *Samways, M.J.*: Threat levels to odonate assemblages from invasive alien tree canopies (p. 16); – *Sahlen, G.*: Specialists vs. generalists among dragonflies: the importance of forest environments to form diverse species pools (p. 17); – *Taylor, P.D.*: Movement behaviors of odonates in heterogeneous forest landscapes (p. 18); – *Paulson, D.*: The importance of forests to neotropical dragonflies (p. 18); – *Fincke, O.M.*: Habitat use by pseudostigmatid damselflies: their future in fragmented forests (p. 19); – *Clausnitzer, V. & K.-D.B. Dijkstra*: What matters to tropical forest dragonflies? African impressions (p. 20); – *Hadrys, H.*: Historical and recent population genetics: any news to tell us about the impact of fragmentation on afrotropical forest odonates? (pp. 20-21); – *Thompson, D.J. & P.C. Watts*: The structure of the Coenagrion mercuriale populations in the New Forest, southern England (p. 21); – *Watanabe, M.*: Mate location and competition for mates in relation to sunflecks of forest floors (p. 22); – *Fincke, O.M.*: Lack of innate recognition of species or morph identity in Enallagma damselflies (p. 23); – *Van Gossum, H., K. Beirinckx, M. Forbes & T. Sherratt*: Large-scale variation in female morph frequencies of the polychromatic damselfly Nehalennia irene (pp. 23-24); – *Hilfert-Rüppell, D.*: Documenting odonate behaviour by drawing from films (p. 24); – *Matushkina, N.*: Ovipositor and egg-laying behaviour of Odonata: phylogenetic implications (p. 25); – *Rüppell, G.*: Flashes in flight: communication between odonate males (p. 26); – *Sánchez-Guillén, R.A. & A. Cordero Rivera*: Pre- and postmating mechanisms of reproductive isolation between Ischnura graellsii and I. elegans (Odonata: Coenagrionidae) (p. 26); – *Schenk, K.*: Does ovaries composition vary between species with different mate-guarding intensities? (p. 27); – *Olberg, R. & A. Worthington*: Dragonfly prey capture: vison, decision, and flight (p. 27); – *Cordero Rivera, A.*: Copulatory behaviour in hybrid matings between Calopteryx haemorrhoidalis and C. splendens (p. 28); – *Cordoba-Aguilar, A.*: Sperm ejection as a cryptic female choice mechanism in odonates (p. 29); – *Serrano-Meneses, M.A., T. Székely & A. Cordoba-Aguilar*: Survival and mating success of

American rubyspots in relation to body size (Odonata, Calopterygidae) (pp. 29-30); – *Szállassy, N., Z.D. Szabó & H.B. Nagy*: Differences in survival of mated and unmated males of Libellula fulva: a four year study (p. 30); – *Günther, A.*: Female reproductive behaviours of different chlorocyphid species in the Oriental-Australian region (p. 31); – *Spector, S. & P. Naskrecki*: The global dragonfly assessment (pp. 31-32); – *Karube, H.*: Why are endemic odonates endangered in oceanic islands Ogasawara? (p. 32); – *Riservato, E. & G. Bogliani*: Dragonflies of riverine habitats: assessment as indicators of biodiversity and environmental integrity (p. 33); – *Kadoya, T., S.-i. Suda, I. Washitani & Y. Tsubaki*: Spatial heterogeneity of the dragonfly assemblages in the landscape scale: assessments using newly created small ponds as traps in the catchment area of lake Kasumigaura (pp. 33-34); – *Lorenzo Carballa, O. & A. Cordero Rivera*: Fecundity and fertility in parthenogenetic Ischnura hastata (pp. 34-35); – *Koichi, S. & M. Watanabe*: Habitat selection and egg production in Sympetrum infuscatum females living in a forest-paddy field complex (p. 35); – *Martens, A. & F. Suhling*: Ecology of Odonata inhabiting permanent Namibian desert springs (p. 36); – *Watanabe, Y.*: Artificial parthenogenesis in Aeshna nigroflava Martin (p. 37); – *Weihrauch, F., M. Olias, M. Bedjanič, M. Marinov & A. Šalamun*: Distribution and overlap of ranges of Lestes parvidens and L. viridis in southeastern Europe (Odonata: Lestidae) (pp. 37-38); – *Hawking, J.H.*: Odonata larvae and drought in Australia: ecological development for life in an unpredictable climate (p. 38); – *Suhling, F. & G. Sahlen*: The influence of environment and phylogeny on the determination of morphological, behavioural and life history traits in dragonfly larvae (p. 39); – *Marais, E.*: Quaternary environmental change along the Western Escarpment of Africa and the distribution of Namibian Odonata (p. 40); – *Holuša, O.*: The occurrence of Cordulegaster sp. in Czech Republic: results of influence of habitat ecological factors in different biogeographical regions? (p. 41); – *Khrokalo, L. & G. Prokopov*: Notes on Crimean Odonata (Crimea, Ukraine) (p. 42); – *Schütte, K.*: Biogeography and habitat affinity of the odonate fauna of SE Madagascar (pp. 42-43); – *Contreras-Garduño, J. & A. Cordoba-Aguilar*: Population differences in sexual selection intensity and immune response in two contrasting forest environments in the damselfly Hetaerina americana (Zygoptera: Calopterygidae) (p. 43); – *Goffart, P., V. Fichefet, R. de Schaetzen, J.-Y. Baugnée, P. Lebrun & M. Dufrère*: Southern dragonflies expanding in Wallonia (South Belgium): a consequence of global warming? (p. 44); – *Bouwman, J., D. Groenendijk & C. Plate*: The Dutch Dragonfly Monitoring Scheme: results and trends (p. 44); – *K.-J. Conze*: Dragonfly monitoring in Northrhine-Westfalia, Germany (p. 45); – *De Knijf, G., A. Anselin*: When South goes North: mediterranean Odonata conquer Flanders (North Belgium) (p. 46); – *Kalkman, V.*: Towards an atlas of European odonates (p. 47); – *Tsubaki, Y.*: Mapping potential habitats using environmental surrogate measures: importance of forests for dragonflies in Japan (p. 48); – *Giere, S. & H. Hadrys*: Genetic consequences of habitat specialisation and cryptic speciation in the genus Trithemis (pp. 48-49); – *Ott, J.*: The effects of climatic changes for the distribution of dragonflies in Europe and their possible effects on the biocoenosis of the waters (p. 49); – *Ubukata, H. & T. Sakoda*: Optimization of environmental monitoring schedule using adult dragonflies (p. 50); – *Matthews, J.H.*: Climate impacts on a North American dragonfly: evolutionary vs ecological responses (pp. 50-51); – *Dijkstra, K.-D.B.*: Flying colours: five years of research on Odonata in tropical eastern Africa (p. 51); – *Kjer, K.M., F.L. Carle & L.M. May*: A preliminary phylogenetic hypothesis of Odonata, based on multiple molecular and morphological data sets (p. 52); – *Leipelt, K.G.*: Ecomorphology of legs in larval and adult Anisoptera (pp. 52-53); – *Dijkstra, K.-D.B.*: Critical and consequent taxonomy in Odonata; the European perspective (p. 53); – *Fursov, V.*: Aquatic egg-parasitoids (Hymenoptera) of dragonflies and other arthropods: unique life and flight under water (p. 54); – *Carvalho, A.*: On some paintings of Odonata from the late Middle Ages (14th and 15th centuries) (p. 55); – *Sathe, T.V., M. Mundale, Y.A. Bhosale & G.S. Margaj*: Impact of dragonflies on population suppression of paddy pests in agroecosystem of Kolhapur district, India (p. 56); – *Karube, H., N. Katatani & K. Kitagawa*: On the genus Dubitogomphus Fraser, 1940, the true status and characters (p. 56); – *Thomas, M., [ ] Gunasekaran & D. Mohan*: Comparative studies on the genital and sub-genital abdominal segments of five species of dragonflies (Anisoptera: Odonata) (p. 57); – *Graça, M.A.S.*: Allochthonous organic matter as a food resource for aquatic invertebrates in forested streams (pp. 57-58). – Poster presentations: 33 abstracts (pp. 59-79). – Informal presentation:

Hawking, J.H.: reflection on the 2003 International Odonatology Symposium, Beechworth, Australia (p. 80). – The Symposium program (pp. 3-9) and the e-mail directory of the participants (pp. 84-88) are also included.

(15841) *AGRION, PURLEY.* Newsletter of the Worldwide Dragonfly Association (ISSN 1476--2552), Vol. 9, No. 2 (July 2005). – (c/o J. Silsby, 38 Astoria House, 116 High Str., Purley, Surrey, CR8 2XT, UK).
[Selected articles:] *Silsby, J.*: The impossibility of a 4--sided triangle (pp. 14-15; on Tetrathemis pollemi); – *Taylor, J.*: Waiting for the wet in northern Australia (pp. 17; records); – *Clausnitzer, V.*: Observations on seasonality in coastal afrotropical dragonflies (pp. 18-19); – *Svengren, H.*: A sophisticated feeding behaviour in Aeshna cyanea (p. 20). – Appended to the issue are "*Phaon*" (newsletter of the Pinhey's Heritage African Odonata Network, compiled by K.-D.B. Dijkstra; pp. 22-24), – and "*Echo*" (newsletter compiled by V. Kalkman; pp. 25-28).

(15842) *ARGIA.* The news journal of the Dragonfly Society of the Americas (ISSN 1061-8503), Vol. 17, No. 1 (5 Apr. 2005), No. 2 (10 June 2005). – (c/o Dr & Mrs T.W. Donnelly, 2091 Partridge Lane, Binghamton, NY 13903, USA).
[Scientific articles:] [No. 1]: *Laswell, J.*: Curtis "Curt" Williams (p. 1); – *Johnson, P.G., II*: Odonata survey of Pinnacles National Monument, California (p. 4); – *De Maynadier, P. & J. Hudson*: First national records for Leucorrhinia patricia in the USA (pp. 5-6); – *Bried, J. & S. Krotzer*: New species records for Mississippi (pp. 6-7; Arigomphus lentulus, Lestes forficula); – *Bree, D.*: Predation of Ladona julia by crab-spider (Thomisidae) (p. 8); – *Roble, S.M.*: Observations on an aggregation of Gomphaeschna furcillata in southeastern Virginia (pp. 8-9); – *Daigle, J.J.*: The hunt for Red october, 2 (p. 10; Orthemis); – *Bried, J.T.*: Species of adult Odonata from three natural areas in Mississippi (pp. 10-12); – *Behrstock, R.A.*: New state records of Odonata from eastern Mexico (pp. 13-15); – *Hunt, P.*: Additional notes on the Odonata of the Cayman Islands (p. 16); – *Beckemeyer, R.*: Afrikaan Anisoptera and Zulu Zygoptera: a trip to South Africa (pp. 17-18); – *Donnelly, N.*: Is there life after acetone: a "cool" method for preserving odonates (p. 18). – [No. 2]: *Anonymous*: Nomination of Carl Cook as Honorary member of the DSA (pp. 1-2; portrait & bibliography); – *Cruden, B.*: Orin "Bud" Gode (10 Oct 1924-1 May 2005) (pp. 3-4); – *DuBois, B., B. Smith, J. Pleski & M. Reese*: Wisconsin Odonata highlights in 2004 (pp. 4-6); – *Beckemeyer, R.*: Aerobatic Anisoptera & zooming Zygoptera: Odonata flight from A to Z (pp. 6-9); – *Sibley, F.C.*: Notes on the odonates of the Lower Keys (pp. 10-12; Florida); – Escaping winter by chasing county records in Florida (pp. 12-13); – *Meurgey, F.*: Tauriphila australis (Hagen, 1869) new for Lesser Antilles (p. 13); – *Daigle, J.J.*: Southern comfort (p. 14; Louisiana records); – *Beckemeyer, R.*: Miscellaneous notes on Robin J. Tillyard (pp. 15-16); – *Ware, J.*: Wing venation patterns: due to flight behaviour or familial relationship? (pp. 17-18); – *Beatty, C.D. & T.N. Sherratt*: Conspicuous colouration in males of Nehalennia irene (Zygoptera: Coenagrionidae): do males signal their unprofitability to other males? (p. 18); – *Rashed, A., C.D. Beatty, M.R. Forbes & T.N. Sherratt*: Mimicry through dragonfly eyes (p. 18).

(15843) BATZER, D.P., S.E. DIETZ-BRANTLEY, B.E. TAYLOR & A.E. DeBIASE, 2005. Evaluating regional differences in macroinvertebrate communities from forested depressional wetlands across eastern and central North America. *Jl N. Am. benthol. Soc.* 24(2): 403-414. – (First Author: Dept Ent., Univ. Georgia, Athens, GA 30602, USA).
Includes a family-wise review of presence/absence of 7 odon. fam. in forested depressional wetlands in Minnesota and South Carolina (both based on own study), and (based on literature) in Wisconsin, Ontario, Michigan, Georgia and Florida.

(15844) BERENGER-LEVEQUE, P., 2005. A propos de l'insectofaune de Paris. *Entomologiste* 61(2): 85-91. – (Elater, 24 bis, rue Jean-Baptiste Gilbert, F-76300 Sotteville-lès-Rouen).
In 1990 the Author commenced the work on an insect inventory of the parish of Paris, France. Here are presented some of his noteworthy records of taxa referable to various orders. Of interest is the record of Macromia splendens, in 2000, on the Tarn R. The precise locality and date are not stated, and no other odon. spp. are mentioned.

(15845) BROCKHAUS, T. & U. FISCHER, [Eds], 2005. *Die Libellenfauna Sachsens.* Natur & Text, Rangsdorf. 427 pp. Hardcover (17.0×24.0 cm). ISBN 3-9810058-0-5 and 987-3-98100-580-6. Price: € 49.90 net. – (Publishers: Friedensallee 21, D-

-15834 Rangsdorf).
This comprehensive work on the odon. fauna of Saxony, Germany (68 spp.) is organised into 5 main chapters; the texts were contributed by 24, and over 300 col. illustrations by 28 authors. In the introductory general part (pp. 14-50), the chapters on the odon. evolution and general distribution history, and on the history of odonatol. investigations in Saxony are of particular interest. The main part of the book (pp. 52-301) deals with the Saxonian spp. For each sp. there are paragraphs on historical faunistics, current distribution, threats and the required conservation measures, brief descriptions of the adult and larva, habitat and biology. Portraits, distribution maps, vertical distribution graphs and phenology graphs are provided for all spp. In the concluding chapters, reviews are given of the odon. faunae of various topographic regions, the general conservation aspects are dealt with in some detail, and a glossary and an exhaustive regional bibliography are provided. – This is a monumental work, the importance of which extends far beyond the political boundaries of Saxony. For the careful and concise presentation, wealth of well-organised information and, last but not least, for the exceptionally well-selected and presented illustrations, the book ranks in the very top of the European regional odonatol. literature.

(15846) *BULLETIN OF AMERICAN ODONATOLOGY* (ISSN 1061-3781), Vol. 9, No. 1 (5 Apr. 2005), No. 2 (10 June 2005). – (c/o Dr & Mrs T.W. Donnelly, 2091 Partridge Lane, Binghamton, NY 13903, USA).
[No. 1]: *Catling, P.M., R.A. Cannings & P.M. Brunelle*: An annotated checklist of the Odonata of Canada (pp. 1-20; 208 pp., with extensive bibliography). – [No. 2]: *Mauffray, B. & G. Beaton*: The distribution of dragonflies and damselflies (Odonata) in Georgia (pp. 21-66; 170 spp.; 4 spp. are newly added, 8 spp. are removed from the list; synonyms and unsupportable older records are discussed; comprehensive bibliography).

(15847) CANO VILLEGAS, F.J., 2005. Localizada una nueva zona de cria de Lestes dryas Kirby, 1890 (Odonata: Lestidae) en Andalucia. *Boln Soc. ent. aragon.* 36: 262. – (Depto Cien. Ambientales, Area Zool., Univ. Pablo de Olavide, ES-41013 Sevilla).
The description of a newly discovered L. dryas breeding site (and its odon. fauna) in Sierra Morena (alt. 450 m) Spain.

(15848) CARNIER, T., 2005. Gemeine Winterlibelle Sympecma fusca und Gebänderte Heidelibelle Sympetrum pedemontanum im Kreis Wesermarsch. *Beitr. Naturk. Niedersachs.* 58(1): 41-42. – (Haasenstr. 2, D-26919 Brake).
The 2 spp. are recorded from Brake, Lower Saxony, Germany.

(15849) CLAUSNITZER, V. & K.-D.B. DIJKSTRA, 2005. The dragonflies (Odonata) of Ethiopia, with notes on the status of endemic taxa and the description of a new species. *Ent. Z.* 115(3): 117-130. (With Germ. s.). – (First Author: Graefestr. 17, D-06110 Halle/Saale).
In March 2004 the Authors undertook a survey of Odon. in the highlands of central and SW Ethiopia, as well as along some Rift Valley lakes. The endemic spp. were the main target, as almost no information other than descriptions existed. Some type localities were visited, as were other habitats, to gather information on the spp. distribution, habitat requirements and conservation status. 29 sites were sampled and 69 spp. recorded. Of 11 known endemics, 9 were found, all at sites other than their type localities. Paragomphus crenigomphoides sp. n., assumed to be endemic, is described (holotype ♂: "Harrar [= Harer], Abessinia. Kristensen 1911", deposited in ZFMK, Bonn). A revised checklist of Ethiopian Odon. is presented: 96 spp. have been reliably recorded. Ischnura hilli Pinhey, 1964 and Enallagma caputavis Terzani & Carletti, 1998 are considered synonyms of I. abyssinica Martin, 1907 and Pseudagrion niloticum Dumont, 1978 respectively. The taxonomy and nomenclature of an undescribed Aeshna sp. (near A. meruensis Sjöstedt, 1909 and A. yemenensis Waterston, 1985), Notogomphus ruppeli (Selys, 1857) (frequently spelt as N. rueppeli) and Orthetrum kollmannspergeri Buchholz, 1995 (probably confused with Asian O. taeniolatum [Schneider, 1845]) are discussed. Ethiopia's odon. fauna is compared with that of other E African highlands: It is impoverished (especially forest spp.) but rich in endemics.

(15850) DARAŻ, B., 2005. *Owady ziemi Dubieckiej w obiektywie.* – [*Insects of the Dubietcko country in the lens*]. Tow. Przyjaciół Ziemi Dubieckiej, Dubiecko. 47 pp. Softcover (15.0×15.0 cm), ISBN none. (Pol.). – (Publishers: ul. Krasickiego 3, PO-37-750

Dubiecko).
A presentation of some typical or otherwise interesting spp. in the territory of the village of Dubiecko, situated in the San Valley, ca 30 km W of Przemyśl, SE Poland. The odon. appear on pp. 4-15; Nehalennia speciosa is of particular interest.

(15851) *DIGEST OF JAPANESE ODONATOLOGICAL SHORT COMMUNICATIONS*, No. 18 (Aug. 2005). – Compiled, translated and produced by K. Ishizawa (1644-15, Yamaguchi, Tokorozawa, Saitama, 359-1145, JA).
Naraoka, H. & I. Noritada: The lst instar nymph of a dragonfly, Epiophlebia superstes Selys, was found crawling in the snow in early spring (p. 1); – *Naraoka, H.*: Larval development of Coenagrion terue (Asahina) (Odonata: Coenagrionidae) at a lowland in Aomori prefecture, Japan (pp. 1-5); – *Kano, K.*: Notes on flight of dragonflies (pp. 5-6).

(15852) DUMONT, H.J., J.R. VANFLETEREN, J.F. DE JONCKHEERE & P.H.H. WEEKERS, 2005. Phylogenetic relationships, divergence time estimation, and global biogeographic patterns of calopterygoid damselflies (Odonata, Zygoptera) inferred from ribosomal DNA sequences. *Syst. Biol.* 54(3): 347-362. – (First Author: Dept Biol., Ghent Univ., Ledeganckstraat 35, B-9000 Gent).
The calopterygoid superfam. (Calopterygidae + Hetaerinidae) is composed of more than 20 gen. in 2 fam.: the Calopterygidae (at least 17) and the Hetaerinidae (at least 4). Here, 62 calopterygoid (ingroup) taxa representing 18 genera and 15 outgroup taxa are subjected to phylogenetic analysis using the ribosomal 18S and 5.8S genes and internal transcribed spacers (ITS1, ITS2). The 5 other fam. of calopterid affinity (Polythoridae, Dicteriadidae, Amphipterygidae, Euphaeidae, and Chlorocyphidae) are included in the outgroup. For phylogenetic inference, maximum parsimony, maximum likelihood, and the Bayesian inference methods are applied. A molecular phylogeny combined with a geographic analysis produced a well-supported phylogenetic hypothesis that partly confirms the traditional taxonomy and describes distributional patterns. A monophyletic origin of the calopterygoids emerges, revealing the hetaerinid clade as sister group to the Calopterygidae s.s. Within Calopterygidae, 7 clades of subfam. rank are recognized. Phylogenetic dating was performed with semiparametric rate smoothing by penalized likelihood, using 7 reference fossils for calibration. Divergence time based on the ribosomal genes and spacers and fossil constraints indicate that Calopteryginae (10 gen.) approx. 50% of all Calopterygid taxa studied here), Vestalinae (1 gen.), and Hetaerinidae (1 gen. out of 4 studied here) started radiating around 65 My (K/T boundary). The S. American Iridictyon (without distinctive morphology except for wing venation) and SE Asian Noguchiphaea (with distinctive morphology) are older (about 86 My) and may be survivors of old clades with a Gondwanian range that went extinct at the K/T boundary. The same reasoning (and an even older age, ca 150 My) applies to the amphipterygids Rimanella and Pentaphlebia (S. America-Africa). The extant Calopterygidae show particular species and genus richness between W China and Japan, with genera originating between the early Oligocene and Pleistocene. Much of that richness probably extended much wider in preglacial times. The Holarctic Calopteryx, of Miocene age, was deeply affected by the climatic cooling of the Pliocene and by the Pleistocene glaciations. Its N American and Japanese representatives are of Miocene and Pliocene age, respectively, but its impoverished Euro-Siberian taxa are late Pliocene-Pleistocene, showing reinvasion, speciation, and introgression events. The 5 other calopterid fam. combine with the Calopterygidae and Hetaerinidae to form the monophyletic cohort Caloptera, with Polythoridae, Dicteriadidae, and Amphipterygidae sister group to Calopterygoidea. The crown node age of the latter 3 fam. has a age of about 157 My, but the Dicteriadidae and Polythoridae themselves are of Eocene age, and the same is true for the Euphaeidae and Chlorocyphidae. The cohort Caloptera itself, with about 197 My of age, goes back to the early Jurassic.

(15853) DUNN, R. & D. BUDWORTH, 2005. *Dragonflies in Derbyshire: status and distribution 1977--2000*. Derbyshire & Nottinghamshire Ent. Soc. 51 pp. ISBN 0-9511141-3-1.
Basically, this is a commented and annotated collection of distribution maps (1 km national grid square) of the 22 spp. recorded in the county during 1977-2000. It provides concise information on the habitats, localities and status for all regional spp. during this period.

(15854) DYATLOVA, E.S., 2005. *Strekozy yugo-zapada Ukrainy: fauna i populyacionnaya ekologiya.* – [*Dragonflies of the southwestern Ukraine: fauna*

and population ecology]. Magister Diss., Fac. Biol., Natn. Univ. Odessa, Odessa. 125 pp. (Russ.). – (Author: Frantsuzkij bul'var 37, kv. 3, UKR-65044 Odessa).
The fauna of SW Ukraine is reviewed (51 spp.), new localities for the nationally red-listed Erythromma lindenii and Anax imperator are stated, 8 rare spp. are emphasized, and Red List suggestions are made. Population features and polymorphism in Coenagrion pulchellum and Ischnura elegans are examined. The morphology of Calopteryx s. splendens and C. s. ancilla is described. Orthetrum c. coerulescens does not occur in the region studied. The characters separating it from O. c. anceps are stated. The phenology of the common spp. and the biogeographic composition of the regional fauna are dealt with in some detail. Last but not least, the anomalies in venation of some spp. are addressed. – A useful work on the region that has so far received a rather inadequate attention.

(15855) *ERJAVECIA*. Bulletin of the Slovene Odonatological Society (ISSN 1408-8185), No. 19 (30 Apr. 2005). (Slovene). – (c/o M. Bedjanič, Kolodvorska 21b, SI-2310 Slovenska Bistrica).
In the feature article, by *M. Bedjanič* (pp. 1-6), are presented brief biographies and the inventory of odon. collections of Dr J. Staudacher (1876-1945) and J. Stussiner (1850-1917). A preliminary review of the occurrence of Chalcolestes parvidens in Slovenia was contributed by *A. Šalamun & M. Bedjanič* (pp. 9-13). *M. Bedjanič* reports on Sympecma fusca in Vipava Valley (pp. 16-17), and on new records of Erythromma lindenii in the Posavje region (pp. 17-19). The minutes of the 2004 Plenary Business Meeting of the Slovene Odonatol. Soc. were prepared by *A. Škvarč* (pp. 7-9). In addition to various announcements and the reports on 2 topics published recently in different periodicals, the additions to the odonatol. bibliography of Slovenia (by *M. Bedjanič*, pp. 23-24, Nos 565-581) conclude the issue.

(15856) FERREIRA, S., J.M. GROSSO-SILVA & P. SOARES-VIEIRA, 2005. Miscellaneous records of dragonflies and damselflies (Insecta, Odonata) from continental Portugal. *Boln Soc. ent. aragon.* 36: 275-277. (With Span. s.). – (First Author: Cent. Invest. Biodiv., Univ. Porto, Campus Agrário de Vairão, PT-4485-661 Vairão).
Records of 20 spp., from Peneda-Gerés National Park and from other Portuguese localities.

(15857) FLECK, G., 2005. Contribution à la connaissance des odonates de Nouvelle-Calédonie: notes sur la larve supposée de Synthemis ariadne Lieftinck, 1975 (Odonata, Anisoptera, Synthemistidae). *Bull. Soc. ent. Fr.* 110(2): 165-166. (With Engl. s.). – (Villa Juanita, 32, avenue du Marechal Joffre, F-31800 Saint-Gaudens).
Based on fresh material (F-0 to F-5), complementary information to that originally presented by A.J. Winstanley (1984, *Odonatologica* 13: 159-164) is provided on S. ariadne morphology and biology.

(15858) GARRISON, R.W. & N. VON ELLENRIEDER, 2005. Neuragrion mysticum (Odonata: Megapodagrionidae) demystified. *Can. Ent.* 137(2): 169-173. (With Fr. s.). – (First Author: 1030 Fondale St., Azusa, Ca 91702-0821, USA).
Based on circumstantial evidence, N. mysticum Karsch, 1891 is considered a junior synonym of Heteropodagrion sanguinipes Selys, 1885. Annotated wing scans for H. sanguinipes and Mesagrion leucorrhinum Selys, 1885, spp. originally compared with N. mysticum, are provided.

(15859) GASSMANN, D., 2005. The phylogeny of Southeast Asian and Indo-Pacific Calicnemiinae (Odonata, Platycnemididae). *Bonn. zool. Beitr.* 53(1/2): 37-80. – (Naturalis, P.O. Box 9517, NL-2300 RA Leiden).
Phylogenetic relationships are examined by cladistic analysis using morphological characters. The strict consensus cladogram of the resulting equally most parsimonious trees supports the monophyly of the Papuan genus Idiocnemis Selys, the Philippine genus Risiocnemis Cowley and its subgenera, but leaves the basal relationships of the African genera and the Palawan genus Asthenocnemis Lieftinck partly unresolved. A preferred phylogenetic hypothesis is presented showing a well supported "Indo-Pacific clade" consisting of Philippine, New Guinean and Solomon island taxa, and as sister group Asthenocnemis. Risiocnemis turns out to be a sister group of Lieftinckia/Salomocnemis (Solomon Islands), the sister taxon of those being the central New Guinean Arrhenocnemis Lieftinck. Together, these form a monophyletic group with the remaining Papuan taxa. Idiocnemis leonorae Lieftinck is transferred to Rhyacocnemis Lieftinck comb. nov. The possible effects of taxon sampling are discussed.

(15860) GONZÁLEZ LAZO, D.D., A TRAPERO

QUINTANA & NARANJO LOPEZ, 2005. Insectos acuáticos del Parque Nacional "Alejandro de Humboldt", Cuba. *Boln Soc. ent. aragon.* 36: 257-261. (With Engl. s.). – (Depto Biol., Fac. Cien. Nat., Univ Oriente, Patricio Lumumba s/n, Santiago de Cuba-90300, Cuba).
Hypolestes trinitatis, Protoneura capillaris, Micrathyria aequalis and Scapanea frontalis were recorded (March-Apr. 2003) from the Park.

(15861) HUTCHINGS, G.E., 2005. A list of the Odonata of Athabasca Sand Dunes Provincial Wilderness Park, Saskatchewan. *Blue Jay* 63(2): 87-91. – (971 Arundel Dr., Victoria, BC, V9A 2C4, CA).
A checklist of 34 spp., recorded in 2002 and 2004, associated with site descriptions of 18 collecting localities (alt. 213-289 m) in the Park; – Canada.

(15862) *IDF-REPORT*. Newsletter of the International Dragonfly Fund (ISSN 1435-3393), Vol. 6 (8 Sept. 2004); Vol. 7 (14 June 2005). – (c/o M. Schorr, Schulstr. 7B, D-54314 Zerf).
[Vol. 6]: *Tchibozo, S. & K.-D.B. Dijkstra*: Rapport d'inventaire préliminaire des libellules des zones humides du Sud-Benin (pp. 1-6); – *Garcia, G. & K.-D.B. Dijkstra*: Odonata collected in the Ankarafantsika National Park, Madagascar (pp. 7-22); – *Dijkstra, K.-D.B.*: Dragonflies (Odonata) of Mulanje, Malawi (pp. 23-29); – *Reinhardt, K. & K.-D.B. Dijkstra*: Auf der Jagd nach Libellennamen in Malawi (pp. 31-34). – [Vol. 7]: *Oppel, S.*: Odonata of the Crater Mountain Wildlife Management Area, Papua New Guinea (pp. 1-28).

(15863) *INTERNATIONAL JOURNAL OF ODONATOLOGY* (ISSN 1388-7890), Vol. 8, No. 2 (1 Oct. 2005).
Clausnitzer, V. & K.-D.B. Dijkstra: Honouring Nobel Peace Prize winner Wangari Maathai: Notogomphus maathaiae sp. nov., a threatened dragonfly of Kenya's forest streams (Odonata: Gomphidae) (pp. 177-182); – *Fincke, O.M., R. Jödicke, D.R. Paulson & T.D. Schultz*: The evolution and frequency of female color morphs in Holarctic Odonata: why are male-like females typically a minority? (pp. 183-212); – *May, M.L. & F.L. Carle*: Pamita hannahdaltonae gen. n., sp. n. from Baltic amber (Odonata: Amphipterygidae) (pp. 213-221); – *McCauley, S.*: Differential dispersal propensities between individuals in male Leucorrhinia intacta (Odonata: Libellulidae) (pp. 223-232); – *Müller, O., V. Clausnitzer, K. Grabow, G. Vick & F. Suhling*: Description of the final stadium larvae of African Gomphidia (Odonata: Gomphidae) (pp. 233-241); – *Oppel, S.*: Habitat associations of an Odonata community in a lower montane rainforest in Papua New Guinea (pp. 243-257); – *Pfau, H.K.*: Structure, function and evolution of the 'glans' of the anisopteran vesica spermalia (Odonata) (pp. 259-310); – *von Ellenrieder, N.*: Taxonomy of South American genus Phyllopetalia (Odonata: Austropetaliidae) (pp. 311-352).

(15864) ISHIDA, K., 2005. Reclassification of Rhipidolestes okinawanus Asahina, 1951, occurring in the Ryukyus (Odonata, Megapodagrionidae). *Jap. J. syst. Ent.* 11(1): 167-181. – (Seisho High Sch., 50-1, Nakauzura, Gifu, 500-8288, JA).
The following taxa are recognized, described, illustrated and keyed: R. okinawanus, R. shozoi sp. n. (holotype ♂: Okinawa-jima, 2-VI-2002), R. a. amamiensis sp. n. (holotype ♂: Amami-Oshima, 14-VI-1986), and R. a. tokunoshimensis ssp. n. (holotype ♂: Tokuno-shima, 3-VII-2004).

(15865) *JOURNAL OF THE BRITISH DRAGONFLY SOCIETY* (ISSN none), Vol. 21, No. 1 (Oct. 2005). – (c/o Dr W.H. Wain, Haywain, Hollywater Rd, Bordon, Hants, GU35 0AD, UK).
Jeffries, M., H.T. Eales & G. Storey: Distribution and habitat of Calopteryx splendens (Harris) in Northumberland (pp. 1-7); – *Jenkins, D.K.*: Population studies of Coenagrion mercuriale (Charpentier) in the New Forest, pt 9: The Crockford streams, 20 years on (pp. 8-13); – *Parr, A.J.*: Migrant and dispersive dragonflies in Britain during 2004 (pp. 14-20); – *Brownett, A.*: A re-examination of the status of Coenagrion armatum (Charpentier): a species of Odonata now presumed extinct in Britain (pp. 21-26); – *Crick, K.*: Variations in key features of the final instar larva and exuviae of Enallagma cyathigerum (Charpentier) (pp. 27-36).

(15866) LANDMANN, A., G. LEHMANN, F. MUNGENAST & H. SONNTAG, 2005. *Die Libellen Tirols*. Berenkamp, Innsbruck. 324 pp. Hardcover (24.5×28.5 cm). ISBN 3-85093-185-4. Price € 41.87 net. – (Publishers: Universitätsstr. 17, A-6020 Innsbruck).
Since ca 1850, 65 spp. were recorded from North and East Tirol (Austria), the occurrence of 57 spp. was confirmed since 1975, incl. Coenagrion hylas, the known European occurrence of which is pres-

ently restricted to some localities in NW Tirol. The status of 26 spp. is stabile, 13 spp. show a clear or probable increase and 11 spp. are clearly or probably declining. The fauna of South Tirol (Italy) is not the subject of this book. The treatment of the species covers the same aspects as in most regional works of this kind. A considerable emphasis is given to the relationships between the topography and the respective odon. assemblages, and to habitat requirements of each sp. In the outline of the history of odonatol. exploration of Tirol are included the portraits of Carl Ausserer (1844-1920) and Fritz Prenn (1878-1964). Much attention is given to the conservation and a regional Red List is provided. The bibliography is divided into 2 pts, viz. general and non-regional references, and the regional bibliography. The latter is fairly exhaustive. The book is luxuriously produced and richly illustrated, all in full colour (portraits, distribution maps and graphs of vertical occurrence for all spp., photographs of numerous habitats and "classical" localities, etc.). – The reviewer assumes, the wealth of the presented information is certainly to make the book a key work for students of the odon. fauna and ecology of the Eastern Alps.

(15867) LECONTE, M., L. LECONTE & J. LECONTE, 2005. Constatación de la reprucción de Somatochlora metallica (Van der Linden, 1825) (Odonata: Corduliidae) en la Peninsula Ibérica. *Boln Soc. ent. aragon.* 36: 240. – (Quartier du Cau, F-64260 Arudy).

So far, S. m. metallica was known in Iberian Peninsula only from 1 ♂ and 2 ♀, taken 19-VII-1986 at Valle del Ruda, Pirineo de Lerida (alt. 2100 m), published by J. Dantart & R. Martin (1999, *Boln Asoc. esp. Ent.* 23: 147). Here, the emergence is reported of a ♀ (20-VII-2004) in Valle de Aran, Pirineos (alt. 2050 m). The habitat and the exuviae are described and the biogeographical importance of the record is emphasized.

(15868) LENCIONI, F.A.A., 2005. *Damselflies of Brazil, an illustrated identification guide*, Vol. 1: *Non-Coenagrionidae families*. All Print Editora, São Paulo. iv+324 pp. Hardcover (17.2×24.0 cm). ISBN 85-98310-56-5. (Engl., with an abridged text of the book in Port., on pp. 255-324). – (Orders to: book@zygoptera.bio.br).

In 10 fam., there are over 300 Zygopt. spp. in Brazil; 155 spp. of 9 fam. are subject of the present work, which is the first commercially available book on Brazilian odon. The book opens with a brief chapter on collecting and handling the specimens, followed by a pictorial presentation of damselfly morphology, giving topographic positions of all diagnostic characters used in Zygopt. taxonomy and systematics. In combination with the Glossary (pp. 237-245 & 315-324), this will be very useful. A well-styled and nicely illustrated key to the families of Brazilian Zygopt. precedes the spp. treatments. The genera are briefly characterised, concisely described and keyed. Each sp. is treated on a single page. The information is provided on the original description, type locality and type depository, and on the range in S. America and Brazil. The synonymy and references to the revisions are given where applicable, and it is indicated whether ♂, ♀ and larva were described. The diagnostic figs (mostly of anal appendages and/or wing scans) are supplied for almost all spp. Keys to the spp. are not included in this work. The appended bibliography is comprehensive. – The book is one of the results of a decade of Author's work on Brazilian Zygopt. It will not make the identification of the regional spp. easy, but it will enormously facilitate the work by providing within a single volume all the essential information that is scattered in often not easily available periodicals. This applies also to the diagnostic illustrations, of which ca 700 are reproduced from primary publications, whereas almost 300 are original, many of the latter contributed by R.W. Garrison. This circumstance additionally enhances the value of this work. The Author is to be congratulated on this achievement, and the readers are to be looking forward to the appearance of the 2nd (i.e. Coenagrionidae) vol.

(15869) *LIBELLULA*. Zeitschrift der Gesellschaft deutschsprachiger Odonatologen (GdO) (ISSN 0723-6514), Vol. 24, No. 1/2 (15 Aug. 2005). (With Engl. s's). – (c/o Mrs G. Peitzner, Hamfelderedder 7a, D-21039 Börnsen).

Wildermuth, H.: Beitrag zur Larvalbiologie von Boyeria irene (Odonata: Aeshnidae) (pp. 1-30); – *Schmidt, B.*: Erste Beobachtungen von Boyeria irene am Bodensee (Odonata: Aeshnidae) (pp. 31-37); – *Kunz, B.*: Boyeria irene in Tunesien (Odonata: Aeshnidae) (pp. 39-46); – *Beutler, H.*: Libellenfunde in einigen CORINE-Biotopgebieten Estlands (Odonata) (pp. 47-53); – *Gohmert, J. & A. Martens*: Der Sonnenbarsch Lepomis gibbosus als Prädator von Kleinlibellen bei der Eiablage (Teleostei: Centrarch-

idae; Odonata: Coenagrionidae) (pp. 55-62); – *Hofmann, B. & A. Martens*: Eine Fang-Wiederfang--Studie zur Ortstreue und Kurzstreckenausbreitung von Sympetrum sanguineum (Odonata: Libellulidae) (pp. 63-72); – *Schneider, T., O. Brauner & A. Reichling*: Entwicklungsnachweis von Crocothemis erythraea und Funde von Aeshna affinis im Odertal Südostbrandenburgs (Odonata: Libellulidae, Aeshnidae) (pp. 73-82); – *Postler, W. Postler & N. Kilimann*: Entwicklungsnachweise von Gomphus flavipes im Datteln-Hamm-Kanal und im Rhein--Herne-Kanal (Odonata: Gomphidae) (pp. 83-86); – *Lohr, M.*: Libellenbeobachtungen in Südportugal (Odonata) (pp. 87-107); – *Ferreira, S. & F. Weihrauch*: Annotated bibliography of odonatological literature from continental Portugal, Madeira, and the Azores (Odonata) (pp. 109-128).

(15870) *LIBELLULA* (SUPPL.) (ISSN 0723-6514), Vol. 6 (15 March 2005): Studien zur Libellenfauna Griechenlands, 3). 104 pp. (With Engl. s's). – (c/o Mrs G. Peitzner, Hamfelderedder 7a, D-21039 Börnsen).
Grebe, B., B. Baierl & E. Baierl: Libellen der Flusstäler Nordost-Griechenlands: Erstnachweis von Somatochlora borisi für Griechenland (Odonata: Corduliidae) (pp. 1-14); – *Jödicke, R.*: Bemerkungen zu Coenagrion intermedium (Odonata: Coenagrionidae) (pp. 15-24); – *Kalkman, V.J.*: On the distribution of the genus Ceriagrion in the Balkans, including C. georgifreyi, a species new for the European fauna (Odonata: Coenagrionidae) (pp. 25-32); – *Laister, G.*: Pantala flavescens auf Rhodos, mit einem Überblick über den Status der Art in Europa (Odonata: Libellulidae) (pp. 33-40); – *Mauersberger, R.*: Erste Libellennachweise von der Insel Aigina (Odonata) (pp. 41-42); – *Olias, M. & A. Günther*: Erster Nachweis von Lestes (viridis) viridis für Griechenland (Odonata: Lestidae) (pp. 43-47); – *Lopau, W.*: Bisher unveröffentlichte Libellenbeobachtungen aus Griechenland, 3 (Odonata) (pp. 49-84); – *Lehmann, A.W.*: Annotated bibliography of the dragonflies of Greece (Odonata) (pp. 85-104).

(15871) MATSUBARA, K., S. TOJO & N. SUZUKI, 2005. Age-related changes in flight muscle mass, lipid reserves and flight capacity during adult maturation in males of the territorial damselfly Calopteryx atrata (Odonata: Calopterygidae). *Zool. Sci.* 22(5): 587-592. – (Dept Appl. Biol. Sci., Fac. Agric., Saga Univ., Honjo 1, Saga, 840-8502, JA).
The hindwing length, the wing areas and the aspect ratio did not differ significantly among age classes during the pre-reproductive period, while the body mass in ♂♂ increased about 2.5 times. This is primarily due to the increase in mass of thorax and abdomen. The flight muscle mass accounted for most of the thorax mass and was increasing from early pre-reproductive period until sexual maturity. The average flight muscle mass in mature ♂♂ was about 2.4 larger than in the youngest immatures. The abdomen mass and the total lipids increased remarkably during the second half of the pre-reproductive period. The average total lipid content in mature ♂♂ was about 10-fold of that in the youngest immatures. The maximum lift capacity was positively correlated with the flight muscle mass and total lipid content. The increase in flight muscle mass and lipid reserves resulted in the increase of maximum lift force and probably enhanced flight performance.

(15872) NEL, A. & J.F. PETRULEVICIUS, 2005. A new genus and species of damsel-dragonfly from the Early Liassic of Germany (Odonata, Liassophlebiidae). *Bull. Soc. ent. Fr.* 110(2): 185-188. (With Fr. s.). – (First Author: Lab. Ent., Mus. natn. Hist. nat., 45 rue Buffon, F-75005 Paris).
Bavarophlebia schmeissneri gen. n., sp. n is described from Hettangian of the Sandpit Küfner, S of Pechgraben, Kulmbach distr., Bavaria. Holotype specimen G 753/02 is deposited in coll. S. Schmeissner, Kulmbach. This is the 4th genus in this small family.

(15873) NEL, A., J.F. PETRULEVICIUS, G. GENTILINI & X. MARTINEZ-DELCLÒS, 2005. Phylogenetic analysis of the Cenozoic family Sieblosiidae (Insecta: Odonata), with description of new taxa from Russia, Italy and France. *Geobios* 38(2): 219-233. (With Fr. s.). – (First Author: Lab. Ent., Mus. natn. Hist. nat., 45 rue Buffon, F-75005 Paris).
The following Sieblosiidae taxa are described: an unnamed "gen. & sp. A" (Miocene of Italy; for the name and systematic affiliation see *OA* 15874), Miostenolestes zherikhini gen. n., sp. n., Paraoligolestes stavropolensis sp. n., Stenolestes fasciata sp. n. (all from the Miocene of N. Caucasus), Stenolestes (?) adygeianensis sp. n. (Oligocene of N. Caucasus), and S. cerestensis sp. n. (Oligocene of France). The genus Sieblosia Handlirsch, 1906 is restored and a new phylogenetic analysis of the Sieblosiidae is

proposed. The family seems to be restricted to the Oligocene-Miocene of Europe.

(15874) NEL, A., J.F. PETRULEVIČIUS, G. GENTILINI & X. MARTINEZ-DELCLÒS, 2005. Un nouvel odonate du Miocène d'Italie (Odonata). *Bull. Soc. ent. Fr.* 110(2): 188. – (First Author: Lab. Ent., Mus. natn. Hist. nat., 45 rue Buffon, F-75005 Paris).
The taxon, "gen. & sp. A", described in the paper listed in *OA* 15873, is here defined and named as Italolestes stroppai gen. n., sp. n. The holotype (No. 1734) is in Museo di Pesaro, Pesaro, Italy. Its family affiliation is unknown.

(15875) *ODONATOLOGICAL ABSTRACT SERVICE* (ISSN 1438-0269), No. 16 (Aug. 2005). Compiled by Dr M. Lindeboom (Landhausstr. 10, D-72074 Tübingen), Dr K. Reinhardt (Dept Anim. & Plant Sci., Univ. Sheffield, Sheffield, S10 2TN, UK) & M. Schorr (Schulstr. 7B, D-54314 Zerf).
Abstracts Nos 4655-5005, on 70 pp., of the works published 1997-2005.

(15876) *ODONATRIX*. Bulletin of the Odonatological Section of the Polish Entomological Society (ISSN 1733-8239), Vol. 1, Suppl. (June 2005), No. 2 (July 2005). (Pol., with Engl. s's). – (c/o Dr P. Buczyński, Dept Zool., UMCS, Akademicka 19, PO-20-033 Lublin).
[Suppl.]: *Wendzonka, J.*: Identification key to the imagines of Polish dragonflies (Odonata) (pp. 1-26); – [No. 2]: *Bernard, R.*: Buffer protection zones for Nehalennia speciosa: vision, law and problems (pp. 21-24); – *Cios, S.*: Further accounts of fish preying on adult Odonata (pp. 24-25); – *Mielewczyk, S.*: Origins of the words ważka, Libellula, Odonata (p. 25); – *Serafin, E.*: Feeding strategies of dragonfly larvae, or how to get a caddisfly from its case (pp. 25-26); – *Tończyk, G.*: The observations of the foraging of hawkers (Aeshna spp.) in the urban conditions (pp. 26-27); – *Buczyński, P.*: The 24th Annual Meeting of the Society of German speaking Odonatologists, Freising (pp. 28-29); – *Tończyk, G.*: Database of Polish odonatological literature (pp. 29-30); – *Literature and reviews*, by R. Bernard, P. Buczyński & G. Tończyk (pp. 30-40); – *Varia*, by P. Buczyński & E. Serafin (pp. 40-43).

(15877) PÉREZ-BOTE, J.L., J.M. GARCIA JIMÉNEZ, F. FERRI YÁÑEZ & J.M. TORREJÓN SANROMÁN, 2005. Los odonatos de los Parques Naturales de Corhalvo y Monfragüe (Extremadura, España). *Boln Soc. ent. aragon.* 36: 247-249. (With Engl. s.). – (Area Zool., Fac. Cien., Univ. Extremadura, ES-06071 Badajoz).
A commented checklist of 32 spp. recorded in 2004 from Cornalvo (22 spp.) and Monfragüe (28 spp.) Natural Parks, Extremadura, Spain.

(15878) RUPPELL, G., D. HILFERT-RUPPELL, G. REHFELDT & C. SCHÜTTE, 2005. *Die Prachtlibellen Europas: Gattung Calopteryx*. Westarp Wissenschaften, Hohenwarsleben. 255 pp. [Neue Brehm Bücherei 654], Softcover (14.5×20.5 cm). ISBN 3-89432-883-5. Price: € 35.95 net. – (Publishers: Kirchstr. 5, D-39326 Hohenwarsleben).
This is the fifth vol. in the family-wise treatments of the European Odon.; see *OA* 6147, 10878, 11311 and 11584, for the works on the Aeshnide, Platycnemididae, Gomphidae and Lestidae, respectively. – In the 7 main chapters, most aspects of the systematics, life cycle, flight, feeding and predators, reproduction and conservation are dealt with. All spp. are described and keys to the adults and larvae are provided. An appreciable bibliography concludes the volume, which is richly illustrated, largely with col. phot. from G. Rüppell's splendid movies on the biology of the fam. Although the emphasis is given to the calopterygid flight, activity phenomena and energetics, the treatment is perfectly balanced and the literature is considered up to early 2005. – A warmly recommended book, unique in its scope and presentation, a vademecum synthesis, valuable to the professionals and dragonfly students in general alike.

(15879) SCHER, O. & A. THIERY, 2005. Odonata, Amphibia and environmental characteristics in motorway stormwater retention ponds (southern France). *Hydrobiologia* 551: 237-251. – (Biodiv. & Envir., Lab. Biol. Anim., Univ. Provence, Case 18, F-13331 Marseille).
6 retention ponds in Mediterranean France were investigated during March 2002-March 2003 for their chemical and biological features. These variables were correlated with species richness of odon. communities. Stormwater retention ponds showed a high concentration of copper and zinc in top sediment layer and herbicides in water column. 29 odon. spp. were recorded (10-21 per pond). These habitats appear to be very attractive to odon. and tend to fa-

vorize uncommon spp. in the survey region, such as e.g. Erythromma viridulum and Ischnura pumilio. Odon. richness was higher in ponds with a natural bottom than in those with an artificial bottom.

(15880) SCHIESS, H., 2005. *Schmetterlinge und Libellen in der Schwantenau.* Kälin, Einsiedeln. 135 pp. Softcover (18.0×18.0 cm). ISBN 3-9523062-0-7. – (Publishers: Kornhausstr. 22, Postfach 241, CH-8840 Einsiedeln).
A picture book, covering 42 butterfly and 20 odon. spp. of the Schwantenau bog nr Einsiedeln, canton Schwyz, Switzerland, with concise, informative texts for each sp. A month-wise review of flight periods is appended.

(15881) SHEFFIELD, K., 2005. Riverbend Park's dragonfly study. *Resources*, Fairfax/VA 5(3): 9. – (c/o Publishers: Fairfax. Co. Park Authority, 12055 Government Center Parkway, Fairfax, VA 22035-1118, USA).
The 4-yr systematic inventarisation of the odon. fauna of the Park yielded more than 10% of the N. American spp. Some are listed; 30% of the recorded spp. are considered rare in Virginia (USA) or are watch-listed. The Riverbend Dragonfly Survey Group and some other volunteers continue the work on this project.

(15882) SHERRATT, T.N. & C.D. BEATTY, 2005. Island of the clones. *Nature, Lond.* 435 (23 June): 1039-1040. – (Dept Biol., Carleton Univ., 1125 Colonel By Dr., Ottawa, ON, K1S 5B6, CA).
Triggered by the publication of A. Cordero Rivera et al. (2005) in *Odonatologica* 34(1): 1-9, some considerations are presented on the recently discovered parthenogenesis in Ischnura hastata in the Azores (see *OA* 7617), and on the possibility of the occurrence of this phenomenon in natural populations of some other spp. (for the artificially induced development of unfertilized eggs see, e.g. *OA* 13158). A microbial agent responsible for driving the absence of ♂♂ is unknown, Wolbachia was ruled out (for its occurrence in some odon. spp. see, e.g. *OA* 15042). Of considerable interest is the involving into this discussion the evidence on Nesobasis spp. from Fiji, another isolated archipelago. With reference to the paper listed in *OA* 7395, the attention is drawn to the circumstance that N. rufostigma ♂♂ are very rare and ♀♀ defend territories over aquatic habitats, whereas ♂♂ reside some distance from the stream (sex role reversal). In N. caerulescens and N. flavostigma, the ♂♂ are unknown and were never seen, rising the possibility that parthenogenesis may occur in these spp. as well.

(15883) SO, S. & F. CHEUNG, 2005. Labrogomphus torvus and other Hong Kong odonate records. *Porcupine* 32: 25. – (c/o Ms E. Tam, Dept Ecol. & Biodiv., Univ. Hong Kong, Hong Kong, China).
The rare L. torvus is recorded from Hok Tau Reservoir (4-IX-2004); 3 other spp. are listed from Mai Po Nature Reserve.

(15884) STOKS, R., M. DE BLOCK, F. VAN DE MEUTTER & F. JOHANSSON, 2005. Predation cost of rapid growth: behavioural coupling and physiological decoupling. *J. Anim. Ecol.* 74: 708-715. – (First Author: Lab. Aquat. Ecol., Univ. Leuven, Ch. de Bériotstraat 32, B-3000 Leuven).
Despite its prominent role in life-history theory, there is no direct empirical evidence for a behaviourally mediated predation cost of rapid growth and little is known how digestive physiology may also influence the shape of the growth/predation risk trade-off function. Here, the role of behaviour and digestive physiology was determined in experiments in which Lestes sponsa larvae were induced to grow slowly or rapidly by manipulating photoperiod (time stress) and exposure to a fish predator (perch). It is shown that larvae under time stress grew more rapidly. Rapid-growing larvae had a higher foraging activity and a higher growth efficiency. Under predation risk, larvae not only had a lower foraging activity but also a lower growth efficiency. Rapid-growing larvae (i.e. those under time stress) balanced the growth/predation risk trade-off differently and took more risk in the presence of a predator, which resulted in a behaviourally mediated higher predation cost compared to slow-growing larvae. Their higher growth efficiency, however, made this cost smaller compared to a completely behaviourally mediated rapid-growth strategy. These results provide the first explicit experimental proof of a behaviourally mediated predation cost of rapid growth. In addition to a behavioural coupling of growth and predation risk, resulting in the well known trade-off, a partial decoupling of these 2 processes by digestive physiology was also found.

(15885) TERZANI, F., 2005. Richerche odonatologiche in Toscana, 9. Nuovi dati sull'Arcipelago

Toscano. *Onychium* 2: 6-8. (With Engl. s.). – (Via Cigoli 12, I-50142 Firenze).
11 spp. are listed. Some of these are for the first time recorded for various islands, and Sympetrum sanguineum is new to the Archipelago, Italy.

(15886) TORRALBA BURRIAL, A. & F.J. OCHARAN, 2005. Catálogo de los odonatos de Aragon (Odonata). *Cat. Entomofauna aragon.* 32: 3-25. (With Engl. s.). – (Depto Biol. Organismos y Sistemas, Univ. Oviedo, ES-33071 Oviedo).
The literature records are critically reviewed and 58 spp. are listed for Aragon, Spain. Platycnemis pennipes, Coenagrion pulchellum, Paragomphus genei and Sympetrum depressiusculum are removed from the regional list. The available data are mapped (UTM 10×10 km grid).

(15887) TORRALBA BURRIAL, A. & F.J. OCHARAN, 2005. Comportamiento de búsqueda de hembras inmaduras como estrategia reproductiva en machos de Aeshna juncea (Linnaeus, 1758) (Odonata: Aeshnidae). *Boln Soc. ent. aragon.* 36: 123-126. (With Engl. s.). – (Depto Biol. Organismos y Sistemas, Univ. Oviedo, ES-33071 Oviedo).
In a Pyrenean population (Spain) A. juncea ♂♂ were seen searching for immature (emerging) ♀♀; they were hovering over aquatic vegetation, attempting to grasp ♀♀ prior to their maiden flight. This is interpreted as a mate-searching behaviour and it is discussed with reference to the evidence published by S.W. Dunkle (1979, *Odonatologica* 8: 123-127). At the nearby ponds the usual mating behaviour was observed.

(15888) TORRALBA BURRIAL, A. & F.J. OCHARAN, 2005. Deformidad abdominal en Coenagrion mercuriale (Charpentier, 1825) (Odonata: Coenagrionidae). *Boln Soc. ent. aragon.* 36: 369-370. (With Engl. s.). – (Depto Biol. Organismos y Sistemas, Univ. Oviedo, ES-33071 Oviedo).
A ♂ with a misshaped abdomen is described. Though hindered, this individual was still able to fly. The sharp bending of the abdomen at the 4th and 5th segments is assumed to have occurred during emergence.

(15889) TORRALBA BURRIAL, A. & F.J. OCHARAN, 2005. Larga distancia recorrida en una emergencia fallida en Aeshna cyanea (Odonata: Aeshnidae). *Boln Soc. ent. aragon.* 36: 220. (With Engl. s.). – (Depto Biol. Organismos y Sistemas, Univ. Oviedo, ES-33071 Oviedo).
An emerging A. cyanea ♀ was found dead ca 10 m off the shore of lake Ordicuso (alt. 2090 m), Penticosa, Huesca, NE Spain. It is said this is the greatest known distance from water traveled by an aeshnid prior to the emergence.

(15890) TORRALBA BURRIAL, A. & F.J. OCHARAN, 2005. Primera cita de Ischnura elegans (Van der Linden, 1820) y Ceriagrion tenellum (Villers, 1789) (Odonata: Coenagrionidae) para Teruel (NE de España). *Boln Soc. ent. aragon.* 36: 284. – (Depto Biol. Organismos y Sistemas, Univ. Oviedo, ES-33071 Oviedo).
The first records of the 2 spp. from Teruel prov., NE Spain, with precise locality and capture data and a map.

(15891) TORRALBA BURRIAL, A. & F.J. OCHARAN, 2005. Primera cita de Sympetrum vulgatum ibericum Ocharan, 1985 (Odonata: Libellulidae) para la provincia de Zaragoza. *Boln Soc. ent. aragon.* 36: 350. – (Depto Biol. Organismos y Sistemas, Univ. Oviedo, ES-33071 Oviedo).
A ♀ is reported from Rio Regalio, and all known localities of the sp. in Spain are mapped.

(15892) TRAPERO QUINTANA, A.D., 2005. Gynacantha ereagris (Gundlach, 1888), un endémico antillano (Odonata). *Boln Soc. ent. aragon.* 36: 353-354. (With Engl. s.). – (Depto Biol., Univ. Oriente, Patricio Lumomba s/n, Dantioago de Cuba-90300, Cuba).
The occurrence of the sp. in Cuba is outlined, some morphometric data on the adults are presented, and a note on the behaviour is provided. In Cuba, G. ereagris occurs throughout the yr, except in Febr. It is not merely a crepuscular, but rather a nocturnal sp., being on the wing as late as 23.30-02.10 h.

(15893) TRAPERO QUINTANA, A.D., Y. TORRES CAMBAS & E. GONZALEZ SORIANO, 2005. Estudio del comportamento de oviposición de Protoneura capillaria (Rambur, 1842) (Odonata: Protoneuridae). *Folia ent. mex.* 44(2): 225-231. (With Engl. s.). – (First Author: Depto Biol., Univ. Oriente, Patricio Lumumba s/n, C.P. 90500, Santiago de Cuba, Cuba).
The study was conducted at a stream N. of Santiago de Cuba, 9-20 June 2004 (08.00-16.00 h). The peak

of oviposition activity occurred between 12.30-13.30 h. The oviposition lasts on average 54 min, in tandem, ♂♂ continuously flapping. Wind and intra- and interspecific interference affect the oviposition behaviour.

(15894) TUNO, N., W. OKEKA, N. MINAKAWA, M. TAKAGI & G. YAN, 2005. Survivorship of Anopheles gambiae sensu stricto (Diptera: Culicidae) larvae in western Kenya highland forest. *J. med. Ent.* 42(3): 270-277. – (First Author: Dept Vector Ecol. & Envir., Inst. Trop. Med., Nagasaki Univ., Nagasaki, 852-8523, JA).
The deforestation is considered one of the reasons responsible for malaria epidemics in African highlands. In this study, the effects of forestation/deforestation on the survivorship of A. gambiae larvae and colonization of other aquatic insects were examined experimentally in Kakamega Forest (alt. 1500-1700 m). It was found that in open habitats, fully exposed to sunlight, the survivorship was 55-57%, while in habitats with full forest canopy coverage (forest habitats) and in those with partial canopy coverage (forest edge habitats) it amounted to 1-2% only. The odon. also colonized the mosquito larval habitats and contributed to the mortality of mosquito larvae.

(15895) VAN GOSSUM, H., L. DE BRUYN & R. STOKS, 2005. Reversible switches between male-male and male-female mating behaviour by male damselflies. *Biol. Lett.* 1(3): 268-270. – (First Author: Evol. Biol. Gr., Univ. Antwerp, Groenenborgerlaan 171, B-2020 Antwerpen).
For many animal groups, both sexes have been reported to attempt to mate with members of their own sex. Such behaviour challenges theories of sexual selection, which predict optimization of reproductive success. Here, ♂ mate choice between opposite- and same-sex members was tested in Ischnura elegans. Binary choice experiments were conducted following exposure periods in insectaries with only ♂♂ or with both sexes present. It is shown that switches in choice between the opposite sex and the same sex can be induced and reversed again by changing the social context. It is argued that the observed reversibility in ♂-♂- and ♂-♀- directed mating behaviour is maladaptive and a consequence of strong selection on a ♂'s ability to alter choice between different ♀ colour morphs.

(15896) VAN TOL, J., 2005. Revision of the Platystictidae of the Philippines (Odonata) excluding the Drepanosticta halterata group, with descriptions of twenty-one new species. *Zool. Med. Leiden* 79-2(10): 195-282. – (Naturalis, P.O. Box 9517, NL-2300 RA Leiden).
31 spp. are revised, i.e. all spp. recognised, excluding those of the Drepanosticta halterata-group. The following new taxa are described: Drepanosticta acuta sp. n., D. aurita sp. n., D. centrosaurus sp. n., D. clados sp. n., D. flavomaculata sp. n., D. furcata sp. n., D. hermes sp. n., D. krios sp. n., D. luzonica sp. n., D. malleus sp. n., D. myzouris sp. n., D. paruatia sp. n., D. pistor sp. n., D. quadricornu sp. n., D. rhamphis sp. n., D. trachelocele sp. n., Protosticta lepteca sp. n., P. plicata sp. n., Sulcosticta striata gen. n., sp. n., S. pallida sp. n. and S. viticula sp. n. The status of 11 previously described nominal taxa is established. D. septima Needham & Gyger, is doubtfully considered a synonym of D. mylitta Cowley. – Based on a preliminary phylogenetic analysis, the spp. of Drepanosticta are divided into informal species groups. Most spp. of the Philippines have affinities to spp. of Sulawesi, the Moluccas and New Guinea. Several spp. confined to Palawan have sister-group relationships with spp. from Borneo. The affinities of various other spp., confined to the Sulu archipelago, are unsettled as yet. The spp. here assigned to Protosticta Sel. are presumably not closely related to the type sp., P. simplicinervis Sel., from Sulawesi. However, a better placement has to await a more detailed phylogenetic study of the family. For 3 spp. the new genus Sulcosticta gen. n. is erected. These are closely allied, based on the structure of the appendages, but should have been assigned to different genera if based on the present generic definitions. – Many spp. here described have small distributional ranges, a common phenomenon in Platystictidae. Since most forests in the Philippines are heavily under threat or have already disappeared in the last 50 yr, several taxa described in this paper should be considered under threat of immediate extinction.

(15897) VAN WIELINK, P., [Ed.], 2005. *Natuurstudie in De Kaaistoep: verslag 2004, 10e onderzoeksjaar.* – [*Nature study in De Kaaistoep: report 2004, the 10th investigation year*]. Tilburgse Waterleiding Maatschappij (Tilburg), KNNV (Tilburg) & Natuur Museum Brabant. ii+84 pp. ISBN none. (Dutch).
Heeffer, J.: Dragonflies in De Kaaistoep in 2004,

and a review of the species recorded since 1996 (pp. 23-27); – *Swinkels, M., J. Heeffer, H. Spijkers & P. van Wielink*: Dragonfly exuviae and larvae recorded 1996-2004 (pp. 29-30); – *Van Wielink, P., M. Swinkels & H. Spijkers*: Aquatic beetles and dragonflies in pools P1 and P6 (pp. 31-33).

(15898) VISINSKIENE, G., 2005. Biodiversity, distribution and ecology of macrozoobenthos in small Lithuanian rivers. *Ekologija* 2005(2): 15-21. (With Lithuanian s.). – (Inst. Ecol., Vilnius Univ., Akademijos 2, LT-08412 Vilnius-21).
The aim of the study was to estimate the distribution, abundance, ecology and biodiversity of macrozoobenthos in 4 rivers in the Vilnius and Anykščiai districts during V-XI 2003. The emphasis is given to the Trichoptera. Quantitative data for the Odon. are presented for the Riešė R. only. There, in open landscape, 10 individuals/m^2 (1.31 g/m^2) and in wooded landscape 27 individuals/m^2 (0.63 g/m^2), in both cases referable to 2 unnamed spp., occurred.

(15899) VON ELLENRIEDER, N. & R.W. GARRISON, 2005. Gynacantha Rambur, 1842 and Triacanthagyna Selys, 1883 (Insecta, Odonata): proposed conservation of usage by designation of Gynacantha nervosa Rambur, 1842 as the type species of Gynacantha. *Bull. zool. Nom.* 62(1): 14-17. – (Second Author: 1030 Fondale Str., Azusa, CA 91702-0821, USA).
The purpose of this application, under Article 70.2 of the Code, is to conserve the accustomed usage of the names Gynacantha Rambur, 1842 and Triacanthagyna Selys, 1883 for two genera of aeshnid dragonflies. The names are objective synonyms but are currently in use for two distinct groups of species. It is proposed that Gynacantha nervosa Rambur, 1842 should be designated as the type species of Gynacantha.

(15900) WAHIZATUL, A.A. & M.R. CHE SALMAH, 2005. Adult dragonfly communities in tropical rivers of the northern Peninsular Malaysia: species composition, biotope and host plant preferences. *Wetland Sci.* 3(3): 167-175. – (First Author: Dept Biol. Sci., Fac. Sci. & Technol., KUSTEM, Mengabang Telipot, Kuala Terengganu-21030, Terengganu, Malaysia).
29 spp. were identified in the odon. communities of 3 selected tributaries of the Kerian R., viz. the Salah, Setu and the Serdang. Their occurrence is analysed with reference to the biotope- and microhabitat types.

(15901) WARD, L. & P.J. MILL, 2005 Habitat factors influencing the presence of adult Calopteryx splendens (Odonata: Zygoptera). *Eur. J. Ent.* 102(1): 47-51. – (Second Author: 8 Cookridge Grove, Cookridge, Leeds, LS16 7LH, UK).
In Great Britain the distribution of this riverine sp. is predominantly southern. However, the last decade has seen records in previously unoccupied areas in the NE of England, prompting speculation regarding northward range expansion. The current study is the first to quantify the physical features of the habitat that influence the presence of C. splendens. A field survey was carried out on the physical characteristics of habitat supporting C. splendens along a section of the Wharfe R., W. Yorkshire. Adults were marked for individual identification in order to assess the occurrence of the sp. within different habitat patches of the study area. A multiple logistic regression was used to identify the significant habitat variables in explaining the occurrence of adults. The most important habitat factor in determining its presence was the height of the vegetation at the edge of the river. Significant negative relationships were found between the presence of C. splendens and tree coverage along the bank, and between its presence and increased bank height. The distribution of C. splendens is affected by the natural physical features of the habitat, anthropogenic disturbance and the behaviour of the species itself. The importance of quantitative habitat data in species conservation, particularly with regard to range expansion, is discussed.