ODONATOLOGICAL ABSTRACTS

1973

(12886) SUZUKI, D.T., 1973. *Zen and Japanese culture*. Princeton Univ. Press [Bollingen Series No. 64], Princeton. xxiv+478 pp., 69 figs excl. ISBN 0--691-01770-0.
Daisetz Teitaro Suzuki, Japan's foremost authority on Zen Buddhism and author of over one hundred works on the subject, died in Tokyo in 1966, at the age of 95. In the present work, after briefly explaining what Zen is, he considers in detail various aspects of Japanese art and life that this Buddhist discipline has influenced: the cult of swordsmanship, the tea ceremony, the haiku form of poetry, and the Japanese love of nature. Other essays are devoted to the relationship of Zen and Confucianism, to the role of Zen in the tradition of Samurai, and to Japanese art. – Of ethnoodonatological interest is the reproduction of an early 18th century woodblock print (60 × 104 cm), by an unknown artist, printed by Munakata Shiko, from Suzuki's coll., titled "The Buddha entering into Nirvâna". The mourners include human and nonhuman beings, the insects being represented by 3 dragonflies. A detailed description and an essay go along with the illustration.

1977

(12887) ELIOT, A., 1977. *Mythen van de mensheid*. Kosmos, Amsterdam & Heideland-Orbis, Hasselt. 318 pp. ISBN 90-215-0652-1. (Dutch).
This is a Dutch edn of the work, published originally (1976) by McGraw-Hill (Maidenhead, UK) under the title "Myths". – On pp. 92-94 appears the Menek--Kaien Negritos's (Malaysia) story on Ag-Ag and Klang, and their son Tnong, the dragonfly.

(12888) SCHMALZ, K.L., 1977. Naturschutztätigkeit im Kanton Bern, 1976. *Mitt. naturf. Ges. Bern* (N.F.) 34: 65-113. – (Author's last know address: Kistlerstr. 61, CH-3065 Bolligen).
Incl. brief comments on the odon. fauna of Schmittmoos (communities of Amsoldingen and Thierachern), canton Berne, Switzerland, based on the work listed in *OA* 1563.

1984

(12889) SIEBER, C.F., 1984. Johann Georg Amstein "der Jüngere" (1819-1892), ein gelehrter bündner Arzt und Naturforscher des 19. Jahrhunderts. *Zürcher medizingesch. Abh.* 168: iv+72 pp. (With Engl. s.). ISBN 3-260-05039-6.
A comprehensive monograph, incl. the biographies and evaluation of entomological work of the other members of the Amstein family, among whose Johann Rudolph (1777-1862) is noted for his odonatol. (unpublished) work.

1992

(12890) AMALIETTI, P. & T. KRALJ, [translators], 1992. *Haiku*. Amalietti [Ars aeterna], Ljubljana. viii+111 pp. ISBN 86-81303-98-8. (10.0 × 13.5 cm). (Slovene).
A collection of Slovene translations of some classical Japanese haiku. It includes 2 dragonfly haiku, by Kobayashi Issa (1763-1827) and Hotta Bakusui (1720--1783).

1994

(12891) JAUCH, D., 1994. *Wilhelma, der zoologisch--botanische Garten in Stuttgart*. Stehn, Stuttgart-Bad Connstatt. 152 pp. ISBN 3-8-87779-049-6. – (c/o

Wilhelma, Postfach 501227, D-70342 Stuttgart).
Some native dragonfly spp. are represented in the Stuttgart Zoo Insectarium. Anax imperator is mentioned in this Zoo guide.

(12892) POST, D. & M. LANDMANN, 1994. *Verbreitungsatlas der Fliessgewässerfauna in Ostfriesland.* Staatl. Amt f. Wasser u. Abfall, Aurich. 141 pp. – (Orders to the Publishers: Oldersumer Str. 48, D-26603 Aurich).
The atlas covers the 1987-1993 Eastfrisian records (Germany), incl. those of 9 odon. spp. (pp. 46-49, 130, 136).

1996

(12893) BAUMGÄRTNER, M. & K. LORENZ, 1996. *Verbreitungsatlas der Makrozoobenthonfauna von Fliessgewässern im Elbe-Weser-Dreieck.* Staatl. Amt f. Wasser u. Abfall, Stade. 167 pp., 1 fold. map & Appendix excl. – (Orders to the Publishers: Hersefelder Str. 2, D-21680 Stade).
The atlas covers the district of Stade, and partly those of Rotenburg/Wümme and Cuxhaven (Lower Saxony, Germany). 16 odon. spp. are mapped, and their habitat ecology is stated (pp. 63-68, 158, 161-162, fold. map, App. Tab. 1).

(12894) KETENCHIEV, H.A. & O.N. POPOVA, 1996. Strekozy (Odonata) stepnoy zony KBR – [Dragonflies (Odonata) of the Kabardino-Balkar steppe]. *Vest. kabardino-balkar. gos. Univ.* (Him.-Biol.) 1996(1): 113-117. (Russ.). – (Second Author: Inst. Anim. Syst. Ecol., Russ. Akad. Sci., Ul. Frunze 11, RUS-630091 Novosibirsk).
A commented list of 19 spp., with brief descriptions; – Maysky distr., Kabardino-Balkar Republic, Caucasus, Russia.

(12895) STAIN, V.Yu., 1996. Nekotorye ekologo-biologicheskie osobennosti strekoz stepnoy zony KBR – [Some ecological and biological features of dragonflies of the Kabardino-Balkar steppe region]. *Vest. kabardino-balkar. gos. Univ.* (Him.-Biol.) 1996(1): 117-120. (Russ.). – (Dept Biol., Kabardino-Balkar St. Univ., Nal'chik, Russia).
The adult phenology of 41 spp. is outlined, and the composition of the fauna is analysed; – Kabardino-Balkar Republic, Caucasus, Russia.

(12896) VAN HUIS, A., 1996. The traditional use of arthropods in Sub Saharan Africa. *Proc. exp. appl. Ent., Amst.* 7: 3-20. – (Dept Ent., Agric. Univ., P.O. Box 8031, NL-6700 EH Wageningen).
The subject is reviewed, based on literature and on interviews with 178 persons from 80 tribes in 19 countries. It is presented under the following headings: "Human entomophagy", "Arthropods products", "Economic use of insects and insect products", "Arthropods as predictors or indicators", "Traditional insect pest and vector management", "Medical properties ascribed to arthropods or their products", "Religion, superstition and witchcraft", "Oracles", "Art", "Insects entertaining children", "Song, music and dance", "Mythology and legends", and "Proverbs and sayings". – There are only very few references to odon., viz.: (1) In Mali, Niger and Chad, these are sometimes associated with epilepsy or instability; and – (2) children play games with dragonflies, which are often compared to helicopters and aeroplanes, but are difficult to catch.

1997

(12897) DELL'ANNA, L. & V. KETMAIER 1997. Ricerche sulla Valle Peligna (Italia centrale, Abruzzo), 8: Odonata (Insecta). *In*: B.G. Osella, M. Biondi, C. Di Marco & M. Riti [Eds], Ricerche sulla Valle Peligna, Vol. 1, pp. 143-153, Amministrazione Provinciale, L'Aquila. (With Engl. s.). – (Second Author: Dipto Biol. Anim. & Uomo, Univ. Roma "La Sapienza", Viale dell'Università 32, I-00185 Roma).
23 spp. are listed from Nature Reserve, "Sorgenti del Pescara". Adult phenology is monthwise stated, but collection dates are omitted. By means of correspondence analysis, a comparison is made of odon. populations at 12 localities (alt. 450-1700 m), but the presentation is somewhat fragmentary, the respective species lists are not given.

(12898) KETENCHIEV, H.A. & S.G. KOZ'MINOV, 1997. K ekologii i biologii lichinok strekoz stepnoy zony Kabardino-Balkarii – [On ecology and biology of dragonfly larvae in the Kabardino-Balkarian steppe region]. *Tez. Dokl. respub. nauchno-prakt. Konf KBGU*, pp. 99-101, Nal'chik (Russ.). – (Dept Biol., Kabardino-Balkar St. Univ., Nal'chik, Russia).
Deals mainly with population biology of Coenagrion puella, C. pulchellum, Anax imperator, Crocothemis servilia, Libellula depressa and Sympetrum meridionale; – central Caucasus, Russia.

(12899) LENK, P., 1997. Die Gestreifte Quelljungfer (Cordulegaster bidentatus Selys, 1843) im Spessart (Ins. Odonata; Bayern: westliches Unterfranken). *Nachr. naturw. Mus. Aschaffenburg* 104: 35-38). – (Hess. Landesmus., Friedensplatz 1, D-64283 Darmstadt).
1 larva, 24-VII-1995, in a tributary of Haibach; new for the Spessart, Lower Franconia, Bavaria, Germany.

(12900) PONTA, U., 1997. Beitrag zur Kenntnis der Libellenfauna im Gurk-Einzugsgebiet (Insecta, Odonata). *Carinthia* (II) 187/107: 381-384. – (Kärntner Inst. Seenforschung, Flatschacher Str. 70, A-9021 Klagenfurt).
Platycnemis pennipes, Calopteryx splendens, C. virgo, Gomphus vulgatissimus, Onychogomphus forcipatus and Somatochlora metallica are listed from various localities in the Gurk R. system (alt. 428-517 m), Carinthia, Austria.

(12901) REBHAN, H., 1997. Naturschutz und Bewirtschaftungskonzepte für Stillgewässer: Fallbeispiele Craimoosweiher (Lkr. Bayreuth) und Stocksee (Lkr. Bamberg). *Ber. naturf. Ges. Bamberg* 71: 33-52. – (Regierung Oberfranken, Ludwigstr. 20, D-95444 Bayreuth).
The impact of habitat mismanagement on the status of the Erythromma viridulum populations is briefly outlined; – Bavaria, Germany.

(12902) SANDHU, R. & G.K. WALIA, 1997. Chromosome analysis of Ischnura inarmata (Coenagrionidae: Zygoptera: Odonata). *Chromosome Sci.* 1: 115-116. – (Dept Zool., Punjabi Univ., Patiala--147002, India).
The sp. has not been studied previously. In specimens from Punjab and Himachal Pradesh, India, the karyotype, 2n♂ = 27, *m*; X0 was encountered.

(12903) SOVINC, A. & V. JURAN, 1997. *Bičje, oaza na pragu mesta – [The Bičje stream, oasis at the doorstep of a city]*. Regionalni zavod za varstvo naravne in kulturne dediščine, Ljubljana. 8 pp. (Slovene). – (First Author: Watermanagement Inst., Hajdrihova 28, SI--1000 Ljubljana).
A tourist brochure, incl. a photographic record of Calopteryx splendens; – Bičje nr Grosuplje, Slovenia.

(12904) SUHRHOFF, P. & R. GUMPRECHT, 1997. *Verbreitungsatlas der Fliessgewässerfauna im nordöstlichen Weser-Ems-Gebiet*. Staatl. Amt f. Wasser u. Abfall, Brake. 188 pp. – (Orders to the Publishers: Heinestr. 1, D-26919 Brake).
The atlas covers the districts of Oldenburg, Ammerland, Friesland and Wassermarsch, and the cities of Oldenburg, Delmenhorst and Wilhelmshaven (Lower Saxony, Germany). The distribution of 18 odon. spp. is mapped and discussed (pp. 70-75, 175, 182).

(12905) TEMBHARE, D.B., 1997. *Modern entomology*. Himalaya Publ. House, Mumbai, India. 623 pp. – Price RsIC 700.— net. – (Author: Div. Ent., Dept Zool., Nagpur Univ., Univ. Campus, Amravati Rd, Nagpur-440010, M.S., India).
The odon. are dealt with on p. 307-312. The emphasis is on the Indian fauna, the status of which is family--wise reviewed: 25 fam., 135 gen., 492 spp.

(12906) UTZERI, C. & L. DELL'ANNA, 1997. [Gli insetti di Roma:] Odonata. *In*: M. Zapparoli, [Ed.], Gli insetti di Roma, pp. 75-78, Fratelli Palombi, Roma [*Quaderni dell'Ambiente*, No. 6; ISBN 88-7621-125--X. – (First Author: Dipto Biol. Anim. & Uomo, Univ. Roma "La Sapienza", Viale dell'Università 35, I-00185 Roma).
A bibliographically crossreferenced checklist of 42 spp. hitherto recorded in the city area of Rome, Italy.

1998

(12907) BECHLY, G., 1998. Juracordulia schiemenzi gen. et sp. nov., eine neue Libelle aus den Solnhofener Plattenkalken (Insecta: Odonata: Anisoptera). *Archaeopteryx* 16: 29-36. (With Engl. s.). – (Inst. & Mus. Geol., Univ. Tübingen, Sigwartstr. 10, D-72076 Tübingen).
The new sp. is described from the Upper Jurassic limestone of Solnhofen, Bavaria, Germany. Holotype ♀ is deposited in MCZ, Harvard Univ. It is referable to the Eurypalpida, representing the first Jurassic, therefore the oldest record of this taxon. The affinities of the new genus are discussed.

(12908) BEDJANIČ, M., 1998. Pisani svet kačjih pastirjev (Odonata) ob reki Muri – [Colourful dragonfly (Odonata) world along the Mura river]. *In*: M. Vogrin, [Ed.], Mladinski ekološki raziskovalni tabor Tišina '97, pp. 23-30, Pomurski ekološki center, Murska Sobota. ISBN 961-6243-10-1. (Slovene). – (Author: Fram 117/a, SI-2313 Fram).
A commented checklist of 29 spp., from 23 localities, evidenced 2/4-VII-1997; – NE Slovenia.

(12909) BIRKHEAD, T.R. & A.P. MOLLER, 1998. *Sperm competition and sexual selection.* Academic Press, San Diego-London-Boston-New York-Sydney-Tokyo-Toronto. xxvi+826 pp., (16.7×24.4 cm), paperback. ISBN 0-12-100543-7. – (Publishers: 24--28 Oval Rd, London, NW1 7DX, UK).
Includes a comprehensive description of the phenomena in the odon., and gives a review of patterns of sperm utilization in 18 odon. spp., expressed as the proportion of offspring fathered by the second ♂ to mate, P_2, together with estimates of variation in sperm utilization in the form of the range and/or standard deviation in P_2, crossreferenced to the exhaustive bibliography.

(12910) BRUX, H., G. DORING, M. HIELSCHER, M. NORDMANN, G. WALTER & G. WIEGLER, 1998. Zur Fauna der Stadt Oldenburg: erste Übersicht ausgewählter Gruppen: Säugetiere, Vögel, Reptilien, Amphibien, Libellen, Heuschrecken, Laufkäfer, Schmetterlinge. *Oldenburg. Jb.* 98: 247-319. – (Second Author: IBL Umweltplanung, Unterm Berg 39, D-26123 Oldenburg).
Includes an annotated and commented list of 29 odon. spp. (pp. 287-291); – city of Oldenburg, Lower Saxony, Germany.

(12911) ES'KOV, E.K., [Ed.], 1998. *Ekologiya i ohrana okruzhayushchey sredy – Ecology and environmental protection.* Abstr. Pap. 4th Int./7th All-Russian scient. Conf., Ryazan, 227 pp. (Russ., with Engl. title). – (c/o H.A. Ketenchiev, Dept Biol., Kabardino-Balkar St. Univ., Nal'chik, Russia).
[Odonatol. titles:] *Koz'minov, S.G. & H.A. Ketenchiev*: Dragonfly species composition in lowlands and in the submountainous zones of Kabardino-Balkar republic (pp. 46-47); – *Ketenchiev, H.A. & S.G. Koz'minov*: Dragonfly larvae as a model in ecological monitoring of wetland ecosystems in central Caucasus (pp. 151--153); – *Stain, A.Yu. & H.A. Ketenchiev*: A method for a rapid identification of pollution in natural ecosystems, based on phenotypic morphology of the dragonfly wing (pp. 202-203).

(12912) JEZIORSKI, P., 1998. Aeshna viridis není součástí fauny vážek České republiky (Odonata: Aeshnidae) – Aeshna viridis does not belong to the fauna of the Czech Republic (Odonata: Aeshnidae). *Klapalekiana* 34: 67-68. (Czech, with Engl. s.). – (Na bělidle 1, CZ-73564 Havirov-Suchá).
The ♀, deposited in the Silesian Mus., Opava, and published by R. Perutik (1957, *Čas. slez. Mus.* 6: 3--10) under this name, is actually referable to A. cyanea.

(12913) KLASS, K.-D., 1998. The proventriculus of the Dicondylia, with comments on evolution and phylogeny in Dictyoptera and Odonata (Insecta). *Zool. Anz.* 237: 15-42. – (Zool. Inst., Ludwig-Maximilians--Univ., Karlstr. 23, D-80333 München).
Striking similarities in the proventriculi (gizzards) of Lepismatidae (Zygentoma), Blattinae (Dictyoptera), and larval Corduliidae permit the reconstruction of the ground-plan of Dicondylia: 6 major plicae, each with a large denticle-bearing sclerite anteriorly and a smaller pulvillus posteriorly, are present in a hexaradial arrangement. Hexaradial symmetry is overlain by a distinct bilateral symmetry established by an individual differentiation of the single plicae and their sclerites, denticles, and pulvilli: 2 opposite plicae in the plane of symmetry are unpaired, 4 plicae are in 2 pairs. Within Odon., Corduliidae are closest to the ground-plan, but the unpaired plicae are reduced. In the derived condition the proventriculus of Odon. has a tetraradial symmetry, with the bilateral symmetry lost. Within Dictyoptera, Blattinae are closest to the ground-plan, but the bilateral symmetry has become weaker. The proventriculus of Isoptera is not primitive within Dictyoptera, as previously thought, but highly derived. Many prior arguments for the exclusion of Isoptera from Blattaria are thus invalid. Similarities between Isoptera and certain Blattaria, mainly Cryptocercidae, may be synapomorphies, indicating a subgroup status of Isoptera within Blattaria. For the proventriculi of Blattaria and Mantodea, which differ greatly in appearance, a detailed hypothesis of homology is presented. This study gives also insights into the evolution of symmetry relations and reveals some unusual aspects of serial homology. Many homoplasies were found in the evolution of the proventriculus of Dictyoptera and Odon.

(12914) KOZ'MINOV, S.G. & O.N. POPOVA, 1998. Materialy k biologii strekozy Anax imperator na severnom Kavkaze – [Contribution to the biology of Anax imperator in northern Caucasus]. *In*: Sbornik nauchnyh trudov molodyh uchenyh Kabardino--Balkarskogo Gosudarstvennogo Univerziteta, pp. 70--72, Kabadino-Balkarskiy Gos. Universitet, Nal'chik. (Russ.). – (Second Author: Inst. Anim. Syst. Ecol., Siberian Br. Russ. Acad. Sci., Ul. Frunze 11, RUS--630091 Novosibirsk).
Deals with larval biology.

(12915) KUHN, J., 1998. Life-history-Analysen, Verhaltens- und Populationsökologie im Naturschutz: die Notwendigkeit von Langzeitstudien. *SchrR. Landschaftspfl. Natursch.* 58: 93-113. (With Engl. s.). – (Marktstr. 26, D-89143 Blaubeuren).
A detailed description of the Sympetrum flaveolum biology at Schmiechener See, Baden-Württemberg, Germany is presented among the examples that demonstrate the necessity of long-term studies as a basis for a reliable conservation management.

(12916) MULLER, J., 1998. Die Libellen-Fauna (Insecta: Odonata) der Naturschutzgebiete Mahlpfuhler Fenn, Jävenitzer Moor und Benitz des Tanger-Gebietes und der Altmark-Heiden in Sachsen-Anhalt. *Abh. Ber. Naturk., Magdeburg* 20: 3-18. (With Engl. s.). – (Frankefelde 3, D-39116 Magdeburg/Ottersleben).
42 spp. are listed from 3 Nature Reserves in the Tanger distr., and from the Altmark Heaths, Sachsen-Anhalt, E Germany. The ecological conditions are described, and the fauna is assessed from the point of view of conservation.

(12917) SANTOVAC, S.B. & L. ANDJUS, 1998. The first survey of the fauna of Odonata in Special Nature Reserve "Stari Begej – Carska Bara". *Glas. prir. Muz. Beograd* (B) 49/50: 157-165. (With Serb. s.). – (Nat. Hist. Mus., Njegoševa 51, P.O. Box 401, YU-11000 Beograd).
23 spp. are recorded, and the fauna of this NR in Vojvodina, Serbia is briefly characterised.

(12918) SCHWEIGERT, G., 1998. Das Randecker Maar, ein fossiler Kratersee am Albtrauf. *Stuttg. Beitr. Naturk.* (C) 43: 1-70. – (Staatl. Mus. Naturk., Rosenstein 1, D-70191 Stuttgart).
Includes a reference to, and some photographs of the Miocene odon. of the locality; – Schwäbische Alb, Germany.

(12919) SSYMANK, A., U. HAUKE, C. RUCKRIEM & E. SCHRÖDER, 1998. *Das europäische Schutzgebietsystem Natura 2000. BfN-Handbuch zur Umsetzung der Fauna-Flora-Habitat-Richtlinie (92/43/EWG) und der Vogelschutzrichtlinie (79/409/EWG).* Bundesamt f. Naturschutz, Bonn-Bad Godesberg. 560 pp., 5 pls, Appendix & maps excl. ISBN 3-89624-113-3. – Price: DEM 60.— net. – (Orders to: BfN-Schriftenvertrieb im Landwirtschaftsverlag, D-48084 Münster).
Includes considerations on 15 odon. spp. in Germany.

(12920) UTZERI, C., L. GIARDINI, A. BALDI & G. CARCHINI, 1998. Segnalazioni faunistiche italiane: Somatochlora meridionalis Nielsen, 1935 (Odonata Corduliidae). *Boll. Soc. ent. ital.* 130(1): 77. – (First Author: Dipto Biol. Anim. & Uomo, Univ. Roma "La Sapienza", Viale dell'Università 32, I-00185 Roma).
The first record from Campania (southern Italy) and 2 breeding localities from Lazio (central Italy) are listed, and the distribution of the sp. in Italy is briefly outlined.

1999

(12921) AGUERO-PELEGRIN, M., M. FERRERAS-ROMERO & P.S. CORBET, 1999. The life cycle of Lestes viridis (Odonata: Lestidae) in two seasonal streams of the Sierra Morena mountains (southern Spain). *Aquat. Insects* 21(3): 187-196. – (Second Author: Mejorana 2, ES-14012 Cordoba).
The life cycle is inferred from size-frequency analyses of handnet samples of larvae and records of presence and reproductive activity of adults during three consecutive years. The egg stage (duration 5-6 months) overwinters, larval development is brief (6-8 weeks) and adults undergo a protracted, prereproductive, summer diapause (up to 3 months) before mating and ovipositing in late Sept., about 1 week after the first appreciable rainfall, but before surface water reappears in the streams, after having been absent for about 4 months during the hot, dry summer. Comparison between this life cycle and those of more northerly populations reveals a latitude-correlated cline in phenology resembling that found in some other northern hemisphere odon. that, like L. viridis, maintain an obligatorily life cycle at different latitudes.

(12922) ALBERS, K. & K. VELING, 1999. Vlinders en libellen in Ecopark Acht [Butterflies and dragonflies in Ecopark Acht]. *Vlinders* 14(4): 4-7. (Dutch, with Engl. s.). – (c/o De Vlinderstichting, P.O. Box 506, NL-6700 AM Wageningen).
The Park is situated at the outskirts of the city of Eindhoven, the Netherlands. Here, a commented list is given of 17 odon. spp.

(12923) ANSORGE, J., 1999. Depository and publishing dates of the types described by Anton Handlirsch from the Upper Liassic of Dobbertin (Mecklenburg, Germany). *Meganeura* 4: 7-8. – (Author's mailing address not stated).
It also gives publication dates of Handlirsch's *Die fossilen Insekten und die Phylogenie der rezenten*

Formen (published in 8 pts between May 1906 and July 1908), his "Palaeontologie" chapter in S.W.M. Schröder's *Handbuch der Entomologie*, Vol. 3 (published in 2 installments, 1920, 1921), etc.

(12924) AOKI, T., 1999. Larval development, emergence and seasonal regulation in Anisogomphus pryeri (Selys) (Odonata: Gomphidae). *Hydrobiologia* 394: 179-192. – (Rokko Island High Sch., Naka 4-chome, Koyo-cho, Higashinada-ku, Kobe, 658-0032, JA).
The subjects were investigated by repeated sampling in the field and by laboratory experiments. Eggs exhibited direct development. Larval duration was usually 3 or 4 yr. Larvae in the penultimate instar that entered the final instar synchronously in their third autumn emerged in the following spring but F-1 of the same age-cohort that failed to enter F-0 in the autumn did not emerge in the following spring (i.e. cohort splitting); they had a smaller head width, underwent a supernumerary ecdysis and entered F-0 in the following autumn together with a younger yr cohort. Reduction of temporal variation in emergence, which lasted about 3 weeks [late May – mid June], was achieved by synchronized entry to F-0 in the previous autumn. No additional synchronisation was detected in the overwintering F-0 population. Long-day photoperiod (LD 15:9; corresponding to the summer solstice) induced in F-1 intense diapause which was terminated by intermediate photoperiod (LD 13:11; the equinox). In nature, such photoperiodic responses apparently mediate the synchronous entry to F-0 in autumn. The mechanisms of seasonal regulation are discussed.

(12925) *ARGIA*. The news journal of the Dragonfly Society of the Americas, Vol. 11, No. 3 (25 Oct. 1999). ISSN 1061-8503. – (c/o Dr & Mrs T.W. Donnelly, 2091 Partridge Lane, Binghamton, NY 13903, USA). [Signed articles:] *Tennessen, K.*: West Tennessee regional meeting, a success (pp. 1-2; with some records); – *Beckemeyer, R.*: 1999 DSA meeting in the Adirondacks at Paul Smith's College and environs (pp. 2-3; with some records); – *Cashett, T.*: New Hine's Emerald (Somatochlora hineana) dragonfly sites found in 1999 (pp. 3-4); – *Bedell, P. & A. Chazal*: Dythemis velox, a new species for Virginia (pp. 4-5); – *Behrstock, R.A.*: First Texas record of the Barwinged Skimmer (Libellula axilena) Westwood (pp. 5-6); – *Solem, R.P. & J.K. Solem*: First Maryland record of Orthemis ferruginea (Odonata: Libellulidae) (pp. 6-7); – *Carpenter, G.*: Big news from Rhode Island (p. 7); – *Nicula, B.*: Another Somatochlora georgiana record from Massachusetts (pp. 7-8); – *Goodwin, F.*: Massachusetts Tramea calverti (p. 8); – *Tingley, S.*: Leucorrhinia patricia in New Brunswick (p. 8); – *Catling, P. & V. Brownell*: Maine Snaketail (Ophiogomphus mainensis), new to Ontario (p. 9); – Riverine Clubtail (Stylurus ambicola) new to Ontario (pp. 9-10); – *Catling, P.M. & C.H. Catling*: Laura's Clubtail (Stylurus laurae) new to Canada (pp. 10-11); – *Czaplak, D.*: Ophiogomphus colubrinus on the Ausable river (p. 11); – *Nicula, B.*: The Somatochlora swat team visits Maine (pp. 11-12); – The swat team goes canoeing (pp. 12-13; Connecticut R., MA); – *Donnelly, N.*: 1999 has been a bumper year in New York (pp. 13-14); – *Paulson, D.*: Odonata gleanings: phylogeny and perching behavior (pp. 14-15); – *Tennessen, K.*: Hagenius brevistylus perching (p. 15); – *Ramos Hernandez, J.M.*: List of the Odonata from Cayo Caguanes and Cayo Palma, Sancti-Spiritus province, central Cuba (pp. 15-17); – [*Donnelly, N.*]: Migration of dragonflies, a moving topic in 1999 (pp. 17-19); – *Paulson, D.*: Photo files for odonate records (pp. 19-20); – *Paulson, D.R.*: Book review of "Dragonflies: behavior and ecology of Odonata", by P.S. Corbet (pp. 20-22); – *Donnelly, N.*: Book review of "Dragonflies of Washington", by D. Paulson (p. 23); – Tramea (pp. 23-24; web site review).

(12926) AUSTIN, A.D., 1999. Use of Odonata as prey by sand wesps, Bembix spp. (Hymenoptera: Sphecidae). *Austral. Ent.* 26(3): 77-82. – (Dept Appl. Molecul. Ecol., Waite Campus, Univ. Adelaide, P.O. Glen Osmond, SA 5064, AU).
Bembix minya is recorded for the first time as preying on Zygoptera in southern S Australia. Ischnura aurora, Xanthagrion erythroneurum, Austrolestes analis and A. annulosus were recorded from 5 of its nests at Wistow. Details on nest structure and prey range are presented, and a discussion of the evolutionary transition within the genus to utilizing prey other than Diptera is provided.

(12927) BECHLY, G., 1999. Some recent unpublished results of my current paleoentomological research. *Meganeura* 4: 9. – (Breslauer Str. 30, D-71034 Böblingen).
(1) Upper Carboniferous of Hagen-Vorhalle, Germany: discovery of segmented gonopods and a paired penis in Namurotypus sippeli, and of a long ovipositor and prothoracic winglets (!) in ♀ Erasipteroides valentini; – (2) Solnhofen limestones, Germany: serveral new

odon. spp. (Tarsophlebia, Aeschnogomphus, etc.); – (3) Baltic Amber: revision of odon., with descriptions of new taxa, incl. a calopterygoid and an amphipterygid; – (4) Dominican Amber: revision of odon., with the description of a new Ischnura, which ranks among the smallest odon. of all times.

(12928) BEDJANIČ, M., A. PIRNAT & A. ŠALAMUN, 1999. Prispevek k poznavanju favne kačjih pastirjev širšega območja ob reki Dravi med Ptujem in Središčjem ob Dravi, severovzhodna Slovenija (Insecta: Odonata) – A contribution to the knowledge of the dragonfly fauna of broader area along Drava R. between Ptuj and Središče-ob-Dravi, northeastern Slovenia (Insecta: Odonata). *Natura Sloveniae* 1(1): 45-70. (Slovene, with Engl. s.). – (First Author: Fram 117/a, SI-2313 Fram).
For an advance publication see *OA* 12799.

(12929) BENKE, A.C., A.D. HURYN, L.A. SMOCK & J.B. WALLACE, 1999. Length-mass relationships for freshwater macroinvertebrates in North America with particular reference to the southeastern United States. *Jl N. Am. benthol. Soc.* 18(3): 308-343. – (First Author: Aquat. Biol. Program, Dept Biol. Sci., Box 870206, Univ. Alabama, Tuscaloosa, AL 35487-0206, USA).
Estimation of invertebrate biomass is a critical step in addressing many ecological questions in aquatic environments. Length-dry mass regressions are the most widely used approach for estimating benthic invertebrate biomass because they are faster and more precise than other methods. A compilation and analysis of length-mass regressions using the power model, M (mass) = a L (length)^b, are presented from 30 yr of data collected by the authors, primarily from the NE USA, along with published regressions from the rest of N America. A total of 442 new and published regressions are presented, mostly for gen. or sp., based on total body length or other linear measurements. The regressions include 10 identified odon. spp. and several additional genera.

(12930) *BRACHYTRON*, Vol. 2, No. 2 (dated Dec. 1998, distributed Oct. 1999); Vol. 3, No. 1 (dated Aug. 1999, distributed Oct. 1999). (Dutch, with Engl. s's). – (c/o W.J.A. Hoeffnagel, Krekelmeent 72, NL-1218 ED Hilversum).
[2(2):] *Griffioen, R.H.W. & H.M.G. Uilhoorn*: Sympecma paedisca (Brauer) in the Weerribben and the Kuinderplas (pp. 35-43); – *Ketelaar, R. & B.G. van der Wal*: Return and habitat preference of Gomphus vulgatissimus in the eastern part of the Netherlands (pp. 44-51); – *Kleukers, R.M.J.C. & M. Reemer*: The return of the Yellow-legged dragonfly, Gomphus flavipes (Charpentier), to the Netherlands (pp. 52-59); – *Wasscher, M.*: The Green darner (Anax junius) in Engeland, a new dragonfly species for Europe (pp. 60-62); – *Ketelaar, R.*: [Book review] Guide des libellules d'Europe et d'Afrique du nord, by J. d'Aguilar & J.-L. Dommanget (p. 62; Dutch). – [3(1):] *Verbeek, P.J.M.*: The habitat of Sympetrum depressiusculum in north-western Europe and its future in the Netherlands (pp. 3-11); – *Van Delft, J.J.C.W. & K. Goudsmits*: Gomphus vulgatissimus in the basin of the Dommel in 1998 (pp. 12-14); – *Dijkstra, K.-D.B., K. Mostert, J.-W. van Velzen & R.H. Witte*: Recent developments in the dragonfly fauna of the dunes of Holland and Zeeland (pp. 15-29); – *Rutten, A. & V. Kalkman*: The first documented breeding of Sympetrum depressiusculum (Selys) in the Netherlands (pp. 29-30; Dutch). – (*Abstractor's Note*: The actual date of publication is stated nowhere, the dates on the issue cover are fictive. Bibliographic references appear also in the summaries, but in one and the same issue publication dates are given for some papers as "1998", and as "1999" for the others!)

(12931) BUCZYŃSKI, P., 1999. Ważki (Odonata) terenów zródliskowych Polski: stan poznania i propozycje dalszych badan – Dragonflies (Odonata) of spring areas in Poland: state of research and proposes of further study. *In*: E. Besiadek & S. Czachorowski, [Eds], Zródla Polski, pp. 31-36, Wyzsza Szkola Pedag., Olsztyn. ISBN 83-87315-46-X. (Pol., with Engl. s.). – (Dept Zool., Univ. M. Curie Skladowska, Akademicka 19, PO-20-033 Lublin).
The origin, composition and biological features of the odon. communities, inhabiting various types of lowland and mountain springs are outlined. The fauna is but poorly known, and some research avenues are suggested.

(12932) BUCZYŃSKI, P., 1999. Wykaz i "Czerwona lista" ważek (Insecta: Odonata) województwa lubelskiego – The checklist and the "Red list" of the dragonflies (Insecta: Odonata) of the Lublin province. *Chronmy Przyr. Ojcz.* 55: 23-39. (Pol., with Engl. s.). – (Dept Zool., Univ. M. Curie-Skladowska, Akademicka 19, PO-20-033 Lublin).
A comprehensive review of the provincial fauna (67 spp.), Poland; 15 spp. are redlisted, and an exhaustive

regional bibliography is appended.

(12933) CLAUSNITZER, V., 1999. A checklist of the dragonflies (Odonata) of Kenya. *Afr. J. Ecol.* 37(4): 400-418. – (Zum Lahnberg 14, D-35043 Marburg).
194 spp. are listed and their distribution in Kenya (coast, thornbush, highlands, W Kenya) is stated. Several identification errors in the earlier literature are corrected, and the proposed new synonymies are documented.

(12934) COSTA, J.M., G.M. DE SOUZA-FRANCO & A.M. TAKEDA, 1999. Descrição da larva de Diastatops intensa Montgomery, 1940 e morfologia dos diferentes estádios de desenvolvimento (Odonata: Libellulidae). *Bolm Mus. nac. Rio de J.* (N.S.) 410 (Zool.): 1-14. (Port., with Engl. s.). – (First Author: Depto Ent., Mus. Nac., UFRJ, Quinta da Boa Vista, São Cristóvão, BR-20940-040 Rio de Janeiro, RJ).
Descriptive notes on various instars and the description of ultimate instar are provided along with illustrations. At Rio Invinheima, Brazil, the sp. has 11 instars.

(12935) CZACHOROWSKI, S. & P. BUCZYŃSKI, 1999. Wskaźnik naturalności biocenoz: potencjalne narzedzie w monitorowaniu stanu ekologicznego torfowisk Polski, na przykladzie Odonata i Trichoptera – [Index of natural state of biotic community: a potential tool in ecological status assessment of fens in Poland, demonstrated using Odonata and Trichoptera]. *In*: Problemy aktywnej ochrony ekosystemów wodnych i torfowiskowych w polskich parkach narodowych, pp. 16-17, Akademia Rolnicza, Lublin [abstract only]. (Pol.). – (Second Author: Dept Zool., Univ. M. Curie-Skladowska, Akademicka 19, PO-20-033 Lublin).
The index was identified for 26 bogs and fens, based on the community structure of the representatives of the 2 orders. The results are analysed and discussed.

(12936) DE MARMELS, J., 1999. A new species of Dimeragrion Calvert 1913 from Pantepui, Venezuela (Odonata: Megapodagrionidae). *Boln Ent. venez.* 14(1): 27-36. (With Span. s.). – (Inst. Zool. Agric., Fac. Agron., Univ. Central Venezuela, Apdo 4579, Maracay, 2101-A, Venezuela).
D. clavijoi sp. n. is described and illustrated. Holotype ♂, allotype ♀, pasratypes of both sexes: Amazonas state, Cerro Yutajé, alt. 1750 m, 12/19-II-1995; all at MIZA, Maracay. The known spp. are keyed, a distributional map is provided, and the supposed larva of percubitale Calv. is described.

(12937) DIJKSTRA, K.-D.B., B. KOESE & M. REEMER, 1999. Zoals ons water was: impressies van de Pripyat in Wit-Rusland. *Amoeba, Amst.* 73(4): 112--115. (Dutch, with Dutch nomenclature). – (First Author: Oude Rijnsburgerweg 38. NL-2342 BC Oegstgeest).
Some impressions from a field trip to the Pripyat region, Byelorussia, with annotations on a good number of odon. spp.

(12938) *DRAGONFLY NEWS.* The newsletter of the British Dragonfly Society, No. 36 (Autumn 1999). – (c/o S. Henson, 10 Shotesham Rd, Poringland, Norwich, NR14 7LE, UK).
This is the new title of the former *Newsl. Br. Dragonfly Soc.* (cf. *OA* 12694, but the consecutive issue numbering is continued. – The main general sections are titled: "From the Editor" (p. 1), "From the President" (pp. 2-3), "1999 Field Meetings round-up" (pp. 3-6), "BDS field meetings & courses for winter 1999/2000 & spring/summer 2000" (pp. 6-7), "Recently published" (p. 16). The issue also contains some BDS business items, personal notices and 2 scientific notes, viz.: *Sykes, T.*: Getting to grips with the Southern Damselfly Coenagrion mercuriale (pp. 8-9); – *Henson, S.*: First & last dates for 1998 and 1999 (pp. 9-12).

(12939) EDA, S., 1999. Annual review of entomology for 1998: dragonflies. *Gekkan-Mushi* 339: 50-59. (Jap., with Engl. title). – (3-4-25, Sawamura, Matsumoto, 390-0877, JA).
A review of the Japanese achievements, which include 145 publications (taxonomy & morphology 14, distribution 96, ecology & behaviour 21, conservation 12, other 3). A group phot. of the participants at the annual meeting of the Jap. Soc. Odonatol. is also provided.

(12940) ENGLUND, R.A., 1999. New records and range extensions of native Odonata (Coenagrionidae) and introduced aquatic species in the Hawaiian islands. *Occ. Paps Bishop Mus.* 59: 15-19. – (Hawaii Biol. Surv., Bishop Mus., 1525 Bernice St., Honolulu, HI 96817-2704, USA).
New records and a detailed survey of the current status are given for Megalagrion pacificum and Orthemis ferruginea. The latter was first collected at Oahu (1977), and now appears to be established throughout

the Hawaiian Archipelago.

(12941) ENGLUND, R.A., 1999. The impacts of introduced poeciliid fish and Odonata on the endemic Megalagrion (Odonata) damselflies of Oahu Island, Hawaii. *J. Insect Conserv.* 3(3): 225-243. – (Hawaii Biol. Surv., Bishop Mus., 1525 Bernice St., Honolulu, HI 96817-2704, USA).
Since the beginning of this century, there have been substantial declines in the distribution and abundance of native Megalagrion spp. on Oahu. Native Zygopt. have also vanished from most low elevation areas on other Hawaiian islands, although historically, lotic and wetland dwelling spp. were once common throughout the archipelago. It is hypothesized that poeciliid fish introduced for biological control have caused the decline of 4 stream-breeding Zygopt. on Oahu, and the extinction or near-extinction of 2 other spp. in Hawaii. This study documents the presence of remnant Megalagrion populations in Oahu streams, wetlands and estuaries, and records the altitudinal distributions of introduced fish in each waterbody surveyed. The distributions of introduced odon. are also recorded, because the 7 Zygopt. and Anisopt. spp. introduced to Oahu since 1936 present another potential threat to native Hawaiian Zygopt. The latter and the introduced poeciliid fish distributions were mutually exclusive on Oahu, and it is concluded that this is probably due to predation by the introduced fish. By contrast, even the rarest native Megalagrion spp. were found in areas containing introduced odon.

(12942) EVENHUIS, A., 1999. Nooit meer een zonnebloem, ijsvogel of stekelbaarsje. *Trouw*, issue of 28 Aug., pp. 15, 17. (Dutch).
A comprehensive review of the history of the Netherlands banknotes, with reproductions of some of them, in one of the main national dailies. It includes a picture of the NLG 100.— banknote, showing a large Aeshna cyanea, designed by Rob Schröder in 1986, but never issued.

(12943) *EXUVIAE.* Journal of the Slovene Odonatological Society, Vol. 5, No. 1 (dated 1998, published Nov. 1999).ISSN 1218-3664. (Most papers in Engl.). – (Orders outside Slovenia: c/o *Odonatologica*, P.O. Box 256, NL-3720 AG Bilthoven).
Geister, I.: A list of Slovene dragonfly names (pp. 1-5); – *Pirnat, A.*: Study of emergence of Pyrrhosoma nymphula (Sulzer) (Zygoptera: Coenagrionidae) (pp. 6-12); – *Holuša, O.*: The first record of Orthetrum coerulescens anceps (Schneider, 1845) in Slovenia (Anisoptera: Libellulidae) (pp. 13-16). – For bibliographic data of the previously published issues see *OA* 11568.

(12944) FAASCH, H., 1999. *Verbreitungsatlas der Fliessgewässerfauna in der Region Braunschweig.* Niedersächs. Landesbetrieb f. Wasserwirtschaft, Braunschweig. 262 pp. – Price: DEM 40.— net. – (Orders to the Publishers: Rudolf-Steiner-Str. 5, D-38120 Braunschweig).
The atlas covers the districts of Gifhorn, Helmstedt, Wolfenbüttel and Peine, and the cities of Braunschweig, Wolfsburg and Salzgitter (Lower Saxony, Germany). 25 odon. spp. are mapped, their habitat ecology is described, and their phenology is stated (pp. 79-92, 252-258, 260).

(12945) *FRASERIA* (New Series). South Asian Bulletin of Odonatology, Vol. 5, No. 1/2 (dated 1 Dec. 1998; published Dec. 1999). – (Orders outside SE Asia: c/o *Odonatologica*, P.O. Box 256, NL-3720 AG Bilthoven); – Annual subscription US $ 10.— net).
Proceedings of the 5th South Asian Symposium of Odonatology: *Tembhare, D.B.*: Preface (pp. i-iii); – *Srivastava, B.K.*: The marvellous Odonata (pp. 1-8); – *Mitra, T.R.*: Development of Indian Odonatology (pp. 9-14); – *Tembhare, D.B.*: Odonate ovary and vitellogenesis (pp. 15-18); – *Arunachalam, A. & M.A. Subramanian*: Tannery effluent; induced alterations on total haemocyte counts in the larvae of dragonfly Pantala flavescens (Fabricius) (Anisoptera: Libellulidae) (pp. 19-21); – *Brawane, G.P., A.R. Gaikwad & D.S. Nikam*: Thoracic muscle trehalase in the larvae and adults of Pantala flavescens (Anisoptera: Libellulidae) (pp. 23-28); – *Gupta, A. & S. Gupta*: Sensilla on the antenna and leg of the larva of Crocothemis servilia (Drury) (Anisoptera: Libellulidae) (pp. 29-32); – *Kalaskar, K. & A.S. Kalaskar*: Odonate wealth of Pench National Park, Maharashtra state, India (pp. 33-35); – *Kumar, A. & A. Mitra*: Odonate diversity at Sahastradhara (Sulphur Springs), Dehra Dun, India, with notes on their habitat ecology (pp. 37-45); – *Roy, S.P.*: Energetics and trophic biology of larval odonates, with special reference to their role in the management of aquatic ecosystem (pp. 47-56); – *Lahiri, A.R.*: New records of Odonata (Insecta) from Little Andaman Island (pp. 57-59); – *Lahiri, A.R. & G. Walia*: On the status of female Palpopleura sexmaculata (Fabricius) (Anisoptera: Libellulidae) marked by preapical spot in hindwing (pp. 61-62); –

Walia, G.K. & R. Sandhu: Female karyotypic study of four species of family Libellulidae (Anisoptera: Odonata) (pp. 63-67); – *News* (p. 69).

(12946) *GRACILE*. [Newsletter of Odonatology], Osaka, No. 61 (5 Dec. 1999). ISSN 1344-123X). (Jap., with Engl. titles). – (c/o K. Inoue, 5-9, Fuminosato 4-chome, Abeno-ku, Osaka 545-0004, JA).
Shimura, S.: The present situation of odonate fauna of Ashiya city, Hyogo prefecture (p. 1-14); – *Oka, I.*: One year observation of the dragonfly pond in Hiraiso, Kobe city fed by sewage treatment plant (pp. 15-28); – *Anaze, N.*: Tholymis tillarga found in Gobo city, Wakayama prefecture (pp. 29-31); – *Sasamoto, A., B.-i. Irikawa, N. Doi, N. Katatani & S. Tani*: Records of Anax guttatus in Nara prefecture in 1998 (pp. 32-34); – *Tabata, O.*: Anax guttatus caught in Kyoto prefecture (p. 34); – *Yoshida, K.*: Records of Anax guttatus in Tokushima and Kagawa prefectures (p. 35); – *Sasamoto, A.*: Anax guttatus caught in Ueda city, Nagano prefecture in 1998 (p. 36); – *Tabata, O.*: Late occurrence of Calopteryx atrata (p. 36); – *Matsuki, K. & K. Yoshida*: On the deviation of dorsal and lateral spines of larvae of Asiagomphus melaenops collected in Kagawa prefecture (pp. 37-39); – *Wakana, I.*: Record of mass migration of Sympetrum frequens in late autumn (pp. 40-43); – *Azuma, T.*: Report of survey trips on Odonata of North Kyoto (pp. 44-49).

(12947) GUTHRUF, J., K. GUTHRUF-SEILER & M. ZEH, 1999. *Kleinseen im Kanton Bern – Petits plans d'eau du canton Berne*. Gewässer u. Bodenschutzlabor, Bern. 230 pp., fold. map excl. ISBN none. – Price: CHF 45.— net. – (Publishers: Schermenweg 11, CH-3014 Bern).
A systematic description of morphology, geology, hydrology, flora and fauna of over 100 small natural and man-made lakes and ponds (surface < ½ ha) in the canton of Berne, Switzerland, with information on the odon. occurrence in 27 of them (alt. 432-2147 m). Indicated are the numbers of the recorded spp., but not their names.

(12948) HANAFUSA, H., 1999. Records of Odonata from Minamidaitojima island, Okinawa prefecture, Japan (Odonata). *Futao* 32: 2-4. (Jap., with Engl. title). – (688-2, Tashima, Tottori-shi, Tottori, 680-0804, JA).
Annotated records (June 1999) of 14 spp. The subspecific identity of Crocothemis servilia is not stated.

(12949) HANEL, L., [Ed.], 1999. *Vážky 1999: Sbornik referátu z mezinárodniko semináre – [Dragonflies 1999: proceedings of the international seminar]*. Čes. Svaz Ochr. Prir., Vlašim. 120 pp., ISBN 80-86327-00-0. – (Czech, with Engl. s's). – (Publishers: ČSOP, Plátenikova 264, CZ-25801 Vlašim).
Zeleny, J.: Preface (pp. 5-6); – *Hanel, L.*: Topical knowledge on dragonflies (Odonata) in the Czech Republic territory (pp. 7-15); – *Mocek, B.*: A current state of the dragonfly (Odonata) research in the eastern Bohemia (pp. 17-46); – *Cempirek, J.*: The dragonflies of the town České Budejovice, 1 (southern Bohemia) (pp. 47-52); – *Hanel, L.*: The dragonflies (Odonata) of the Nature Reserve "Podlesi" in the Protected Landscape area Blanik (central Bohemia, Czech Republic) (pp. 53-59); – *Mařik, J.*: A note to the occurrence of the dragonfly Cordulegaster boltonii in the vicinity of the town Aš (western Bohemia, Czech Republic) (pp. 61-63); – *Šálek, P.*: The faunistic research of dragonflies (Odonata) in three marshes in the district Vsetin (north Moravia, Czech Republic) (pp. 65-68); – *Bezděčka, P.*: The current state of dragonfly research in the Bilé Karpaty (White Carpathians), Czech Republic (pp. 69-72); – *Lučan, R.*: The first discovery of the dragonfly Coenagrion scitulum in the Czech Republic (pp. 73-74); – *Hlásek, J.*: The dragonfly Nehalennia speciosa, a new species in the Czech Republic (pp. 75-76); – *Hanel, L. & J. Zeleny*: The Red List of Odonata in the Czech Republic, 1999 version (pp. 77-81); – *David, S.*: Dragonfly research in Slovakia (pp. 83-92); – *Hanel, L.*: An odonatological bibliography of the Czech Republic (pp. 93-104; 1859-1999, ca 200 titles); – A six-language dictionary of the central-European dragonflies (pp. 105-116; Latin, Czech, Slovak, Hungarian, German, Engl.); – The directory of co-workers of dragonfly research in the Czech Republic (pp. 117-119; 40 addresses).

(12950) HEISE, S. & M. SCHRACK, 1999. Nachweis der Östlichen Moosjungfer, Leucorrhinia albifrons (Burmeister, 1839), in der Radeburger Heide nördlich Dresden (Insecta: Odonata: Libellulidae). *Faun. Abh.* 21(13): 215-220. (With Engl. s.). – (First Author: Bahnhofstr. 10, Bärnsdorf, D-01471 Radeburg).
In 1995 and 1996, the sp. was found in a small acid pond in a mesotrophic bog. This is the first record in the district of Dresden, E Germany. The habitat is described.

(12951) HOOPER, R.E., Y. TSUBAKI & M.T. SIVA-JOTHY, 1999. Expression of a costly, plastic

secondary sexual trait is correlated with age and condition in a damselfly with two male morphs. *Physiol. Ent.* 24(4): 364-369. – (First Author: Lab. Wildl. Cons., Natn. Inst. Envir. Stud., Tsukuba, 305--0053, JA).

Mnais costalis ♂♂ are morphologically and behaviourally polymorphic, typically existing as clear--winged non-territorial 'sneaks' and orange-winged territorial 'fighters'. The amount of orange pigment in the wing, as measured with a chromameter, varied between individuals, and decreased as the reproductive season progressed. Young individuals maintained in the laboratory on high or low nutrient diets differed in the amount of pigment that developed in the wing. ♂♂ in the high nutrient group developed darker wings faster than those in the low nutrient group. Young adults of both sexes and morphs were fed ^{14}C-radiolabelled tryptophan or tyrosine (precursors of the pigments ommochrome and melanin, respectively). Ommochrome was restricted to the pseudopterostigma of the ♂♂ of both morphs and was not present in ♀♀. The presence of tyrosine in the wing cells of orange ♂♂, but not of clear ♂♂, indicated that the orange pigment is at least partly constituted from melanin. These data show that at least some pigment levels must be maintained continuously in the wings of orange ♂♂, and that maintenance is costly as it is compromised at low nutrient levels.

(12952) IRINEU DE SOUZA, L.O., J.M. COSTA & T.C. SANTOS, 1999. Redescrição da larva de Tramea calverti Muttkowski, 1910, com chave para identificação das larvas conhecidas do gênero (Odonata: Libellulidae). *Bolm Mus. nac. Rio de J.* (N.S.) 409 (Zool.): 1-7. (Port., with Engl. s.). – (Second Author: Depto Ent., Mus. Nac., UFRJ, Quinta da Boa Vista, São Cristóvão, BR-20940-040 Rio de Janeiro, RJ).

The ultimate instar larva from the Pantanal of Mato Grosso do Sul, Brazil is described and illustrated. Some notes on other larvae of the genus are presented, and a key to the known Tramea larvae is provided.

(12953) JACQUEMIN, G. & J.-P. BOUDOT, 1999. *Les libellules (odonates) du Maroc*. Soc. Fr. Odonatol., Bois-d'Arcy. vi+150 pp., 20 col. pls incl. (29.5×20.6 cm), softcover. ISBN 2-9507291-3-4. – Price: FFR 250.—net. (With Engl. s. & Engl. fig. captions). – (Orders to: Soc. Fr. Odonatol., 7 rue Lamartine, F--78390 Bois-d'Arcy).

A monograph, incl. all the available information on the Odon. of Morocco up to and incl. 1998, with keys and col. portraits of all the spp. The main chapters are: "Biologie et écologie des odonates au Maroc (pp. 7-10), – "Liste des odonates du Maroc et clé de détermination des espèces maghrébines" (pp. 11-38), – "Ptérographies" (pp. 39-47), – "Liste des localités inventoriées" (pp. 49-64), – "Liste commentée des espèces" (pp. 65-101), – "Considérations chorologiques: composition de la faune odonatologique du Maroc" (pp. 103-108), – and "La protection des milieux et des odonates au Maroc" (pp. 109-111). A comprehensive regional bibliography is appended.

(12954) *JOURNAL OF THE BRITISH DRAGONFLY SOCIETY*, Vol. 15, No. 2 (Oct. 1999). – (c/o Dr W.H. Wain, Haywain, Hollywater Rd, Bordon, Hants, GU35 0AD, UK).

Clarke, D.: The outpost populations of the Banded Damoiselle Calopteryx splendens (Harris) in the Solway Firth area, Cumbria: historical perspective and recent developments (pp. 33-38); – *Perrin, V.L.*: Observations on the distribution, ecology and behaviour of the Hairy Dragonfly Brachytron pratense (Müller) (pp. 39-45); – *Thompson, D.J. & B.V. Purse*: A search for long-distance dispersal in the Southern Damselfly Coenagrion mercuriale (Charpentier) (pp. 46-50); – *Truscott, L.*: The Hornet Robberfly Asilus crabroniformis L. (Diptera, Asilidae): Odonata as prey (p. 50); – *Parr, A.J.*: Migrant and dispersive dragonflies in Britain and Ireland during 1998 (pp. 51-57); – *Cham, S.*: Roosting behaviour of some British Odonata with notes on the Scarce Chaser Libellula fulva Müller (pp. 58-60); – *Radford, A.P.*: Prolonged partial immersion of abdomen by male Anax imperator Leach (p. 60); – *Perrin, V.L.*: Mixed pairing of Libellula species (p. 61); – Book reviews, by *M. Siva-Jothy, S. Butler* and *R.R. Askew* (pp. 61-64).

(12955) KANO, K., 1999. [A consideration on a case of tandem refusal by female Anotogaster sieboldii]. *Nature & Insects* 34(3): 34. (Jap.). – (No. 601, 19--17, Koishikawa 5-chome, Bunkyo-ku, Tokyo, 112--0002, JA).

The unsuccessful attempt by the ♂ is described, and some considerations on the phenomenon are offered.

(12956) KANO, K. & Y. HIROSE, 1999. [Orthetrum triangulare melania in thermal springs in a cool district]. *Gekkan-Mushi* 341: 16-17. (Jap.). – (First Author: No. 601, 19-17, Koishikawa 5-chome, Bunkyo-ku, Tokyo, 112-0002, JA).

This temperate sp. is recorded from 5 streams fed by

thermal springs in Hokkaido. Although most thermal springs are acid, the sp. is apparently tolerant to acidity. At the same habitats, Anotogaster sieboldii and Sympetrum pedemontanum elatum also occur.

(12957) KANO, K. & H. KITA, 1999. [Breathing of Trigomphus melampus larva close prior to emergence]. *Gekkan-Mushi* 336: 43-44. (Jap.). – (First Author: No. 601, 19-17, Koishikawa 5-chome, Bunkyo-ku, Tokyo, 112-0002, JA).
2 larvae were watched in the field. One of these was breathing by lifting the abdomen to the air, and has emerged 1 h later. The other insect did not show this behaviour.

(12958) KANO, K. & F. KOBAYASHI, 1999. [On some unusual cases of oviposition in Lestes temporalis]. *Gekkan-Mushi* 337: 44-45. (Jap.). – (First Author: No. 601, 19-17, Koishikawa 5-chome, Bunkyo-ku, Tokyo, 112-0002, JA).
At a tributary of Kinu R., Tochigi pref., some cases of oviposition into twigs were watched on 9 Nov. 1997. The autumn of that yr was exceptionally dry and most grasses were dead. Numerous tandems of this sp. were formed at low places, they flew up to the trees, and oviposited into twigs more than 10 m above the ground.

(12959) KETELAAR, R., 1999. De dadendrang van de beekjuffers. *Vlinders* 14(4): 23-25. (Dutch, with Engl. s.). – (c/o De Vlinderstichting, P.O. Box 506, NL-6700 AM Wageningen).
Notes on ecology, behaviour and status of Calopteryx splendens and C. virgo in the Netherlands.

(12960) KETENCHIEV, H.A. & A.Yu. HARITONOV, 1999. *Strekozy Sredizemnomor'ya – [Dragonflies of the Mediterranean]*. El'-Fa, Nal'chik. 116 pp. (13.0×20.0 cm), softcover. ISBN 5-88195-353-3. (Russ.). – (First Author: Inst. Anim. Syst. Ecol., Siberian Br., Russ. Acad. Sci., Ul. Frunze 11, RUS--630091 Novosibirsk).
The Mediterranean fauna (179 spp.), covering the Iberian peninsula, most of France, large parts of central Europe, southern Europe, Caucasus, Asia Minor, Syria, Israel, northern Egypt and Morocco, is described, and the biogeography of all spp. is outlined. On the basis of the latter, the biographic regions within this area are defined.

(12961) KETENCHIEV, H.A. & S.G. KOZ'MINOV, 1999. Vozmozhnosti adaptaciy strekoz k razlichnym usloviyam obitanya v vysotnyh territoriyah Kabarido-Balkarii – [The possibilities of dragonfly adaptation to the high altitudes in the Kabarido-Balkar Republic]. *In*: Aktual'nye voprosy ekologii i ohrany prirody ekosistem yuzhnyh regionov Rossii i sopredel'nyh territoriy, pp. 116-117, Kuban. Gos. Univ., Krasnodar. (Russ.). – (Dept Biol., Kabardino-Balkar St. Univ., Nal'chik, Russia).
The adaptations to climatically and nutritionally unfavourable environmental conditions, prevailing at higher elevations in the Kabardino-Balkar region of central Caucasus, Russia are realized in larval Coenagrion puella, Libellula depressa and Sympetrum meridionale by the economy in energy expenditure (smaller size), by habitat selection (inhabiting smaller, in the summer rapidly warmed-up water bodies), and by the modifications in their life cycle.

(12962) [KIAUTA, M.] VOGLAR, D., 1999. Marianne Kiauta. *Letni Časi* 3(6): 16-19. (Slovene). – (Dr D. Voglar, Jerajeva 11, SI-1117 Ljubljana).
A small essay on M. Kiauta and her haiku poetry, with an appended selection of 17 haiku (in Dutch and recast into Slovene by M. Javoršek and D. Voglar), and with a reference to her odonatol. work. 2 of her dragonfly haiku are included. – Dr Voglar is a slovenist, literary historian, Director & Executive Editor of *Encyclopaedia Sloveniae*, and himself a haiku poet. – See also *OA* 9289.

(12963) KISHI, K., 1999. [Interspecific tandem between Anax parthenope julius ♂ and Aeshna nigroflava ♀ at Atsugi city]. *Gekkan-Mushi* 337: 40-41. (Jap.). – (A-101, Mistral Shonan, 488-1, Ishikawa, Fujisawa, Kanagawa, 252-0815, JA).
A description, photographic documentation and a brief discussion. In the fly-oviposit-fly sequence, the ♀ oviposited on floating leaves, separated after 30 min and flew off.

(12964) KLAPKAREK, N. & H. BEUTLER, 1999. Die Libellenfauna (Odonata) des NSG "Lieberoser Endmoräne" (Brandenburg). *Märkische ent. Nachr.* 1999(1): 21-38. (With Engl. s.). – (First Author: Feldstr. 16a, D-16247 Joachimsthal).
55 spp. are listed and discussed from this former military training area, 18 km N Cottbus, Brandenburg, E Germany. The occurrence of Nehalennia speciosa, Aeshna subarctica, Anax parthenope, Onychogomphus forcipatus, Epitheca bimaculata, Leucorrhinia albi-

frons, L. caudalis and Sympetrum depressiusculum is of particular regional interest.

(12965) KNAUS, P., 1999. *Untersuchungen zur Emergenz, zur Mobilität und zum Paarungssystem an einer Metapopulation von Somatochlora alpestris (Selys, 1840) in den Zentralalpen (Anisoptera: Corduliidae).* DiplArb. Wildforschung u. Naturschutzökol., Zool. Inst., Univ. Zürich. vi+65 pp. – Price: DEM 25.— net; available from the Author. – (Pflanzschulstr. 49, CH-8004 Zürich).
The field work was conducted (1998) at the subalpine Bärenseewen (alt. 1968-2043 m), Prättigau/GR, Switzerland, under the tutorship of Prof. H. Wildermuth. – S. alpestris is a typical "spring species" sensu Corbet, with an EM50 index of 5.5 d, where ♀♀ emerge later but in higher numbers than the ♂♂. Those individuals that have emerged early in the season are bigger and are returning to the original site more frequently than those that have emerged late. Sexual maturity is reached in 28 days, the adult longevity amounts close to 70 days. At the watersite the ♂♂ conduct short patrol flights and are highly aggressive, with the activity peak in late afternoon. The ♂ density at the breeding sites is lower, but it is uniform throughout the day, irrespective of the non-optimal weather conditions. During both the maturation and the reproduction periods the insects are highly mobile; 19% of the individuals were recaptured 250-1560 m off the resp. breeding sites, and their wings are shorter than in those that appear more restricted to a particular locality. The evidence indicates that a part of the population does not survive, or some individuals migrate off. These behavioural features are compared with those recorded in other corduliids, and some conservation measures are discussed.

(12966) KORNIJÓW, R. & R. ŚCIBIOR, 1999. Seasonal changes in macrofaunal feeding groups associated with Nuphar lutea (L.) Sm. leaves in a small eutrophic lake. *Pol. J. Ecol.* 47(2): 135-143. – (First Author: Dept Hydrobiol., Univ. Agric., Akademicka 13, PO-20-950 Lublin).
The epiphytic invertebrates, associated in Lake Glebokie (Leczna-Wlodawa Lake Distr., E Poland) with leaves of N. lutea were pooled into 3 feeding groups. Among predators, Coenagrion puella, Enallagma cyathigerum and Ischnura elegans were identified. Seasonal changes in feeding assemblages are outlined and discussed.

(12967) KOSTERIN, O.E., 1999. Fauna strekoz (Odonata) Daurskogo zapovednika i ego okrestnostey – Fauna of dragonflies (Odonata) of the Daurskii State Nature Reserve and its surroundings. *In*: V.V. Dubatolov, [Ed.], Nasekomye Daurii i sopredel'nyh territoriy, Vol. 2, pp. 5-40. Gos. Biosfer. Zap. "Daurskiy", Inst. Sist. Ekol. Zhivot. RAN & Sib. Zool. Muz., Novosibirsk. (Russ., with Engl. s.). – (Inst. Cytol. & Genet., Siberian Br., Russ. Acad. Sci., Lavrentieva 10, RUS-630090 Novosibirsk).
31 spp. are listed from the Reserve, incl. the Manchurian Cercion v-nigrum and Anisogomphus maackii, and the Chinese-Mongolian Ophiogomphus spinicornis, which is recorded here from the Russian territory for the first time. Also considered is a small collection from the adjacent Mongol Daguur Nature Reserve (Mongolia), and the odon. faunas of Transbaikalia, Mongolia and the Inner Mongolia (China) are briefly compared.

(12968) KOTARAC, M. & A. SALAMUN, 1999. Inventarizacija flore in vegetacije ter favne v Žejni dolini pri Logatcu. Kačji pastirji (Odonata) – [Inventarisation of flora, vegetation and fauna in the Žejna dolina near Logatec. Dragonflies (Odonata)]. *In*: K. Poboljšaj, Inventarizacija flore in vegetacije ter favne v Žejni dolini pri Logatcu, pp. 25-32, Slovene Mus. Nat. Hist., Ljubljana. (Slovene). – (Second Author: Čevljarska 28, SI-6000 Koper).
A commented list of 18 spp., evidenced at 15 localities in the Žejna Valley nr Logatec, Inner Carniola, Slovenia.

(12969) KOTARAC, M. & A. ŠALAMUN, 1999. Inventarizacija flore ter vegetacije in favne na Ponikvah pri Preserju pod Krimom. Kačji pastirji (Odonata) – [Inventarisation of flora, vegetation and fauna at Ponikve near Preserje-pod-Krimom. Dragonflies (Odonata)]. *In*: K. Poboljšaj, Inventarizacija flore ter vegetacije in favne na Ponikvah pri Preserju pod Krimom, pp. 24-28, Slovene Mus. Nat. Hist., Ljubljana. (Slovene). – (Second Author: Čevljarska 28, SI-6000 Koper).
A commented list of 16 spp., evidenced at 5 localities; southern edge of the Ljubljana Moor, Slovenia.

(12970) KOZ'MINOV, S.G., 1999. *Lichinki strekoz (Insecta, Odonata) Kabardino-Balkarii – [Dragonfly larvae (Insecta, Odonata) of the Kabardino-Balkar Republic].* Autoref. Diss. Kand. biol. Nauk, Inst. Anim. Syst. Ecol., Russ. Acad. Sci., Novosibirsk. 18 pp.

(Russ.). – (Copies available from Dr A.Yu. Haritonov, Inst. Anim. Syst. Ecol., Siberian Br. Russ. Acad. Sci., ul. Frunze 11, RUS-630091 Novosibirsk).
Deals with the composition and biology of larval communities, and presents detailed information on larval development of Coenagrion puella, Anax imperator, Crocothemis erythraea and Libellula depressa.

(12971) KOZ'MINOV, S.G., GOGUZOKOV, T.H. & Z.M. GOGUTLOVA, 1999. Vliyanie nekotoryh faktorov sredy na rasprostranenie lichinok strekoz Kabardino-Balkarii – [Impact of some environmental conditions on the occurrence of dragonfly larvae in the Kabardino-Balkar Republic]. *Tez. Dokl. sev.--kavkaz. reg. nauch. Konf. Studentov "Perspektiva-99"*, Nal'chik, pp. 249-250. (Russ.). – (Dept Biol., Kabardino-Balkar St. Univ., Nal'chik, Russia).
13 spp. were evidenced in the lowlands, 9 spp. in the hills, and 4 spp. in the mountains; – central Caucasus. This situation is discussed from the points of view of decreasing temperature, shortening season, and general impoverishment of biotic communities that go with the increased altitudes.

(12972) KOZ'MINOV, S.G. & H.A. KETENCHIEV, 1999. Lichinki strekoz kak bioindikatory vodnyh ekosistem – [Dragonfly larvae as bioindicators of aquatic ecosystems]. *In*: Aktual'nye voprosy ekologii i ohrany prirody ekosistem yuzhnyh regionov Rossii i sopredel'nyh territoriy, pp. 115-116, Kuban. Gos. Univ., Krasnodar. (Russ.). – (Dept Biol., Kabardino--Balkar St. Univ., Nal'chik, Russia).
Aeshna cyanea, Libellula depressa, Orthetrum cancellatum, and Sympetrum meridionale are considered.

(12973) KÜRY, D., 1999. *Faszination Libellen. Libellen der Schweiz und Mitteleuropas*. Naturh. Mus. Basel. 80 pp. (24.0×17.0 cm), softcover. ISBN 3--9520840-7-7. – (Available from the Eds of *Odonatologica*; at NLG 30.— net).
An attractive, well organized, little "handbook" on the Odon. of Switzerland and central Europe (78 spp.). On 34 pp. is given a concise outline of dragonfly biology, ecology and conservation aspects, with suggestions on a number of well-defined, hitherto largely neglected but much needed research projects in various fields that could be carried out by a serious, non-professional worker. The rest of the book is made up of methodical species accounts (concise and perfectly adequate description, information on adult phenology, life history, habitat, biology, distribution in Switzerland etc., and conservation status in Switzerland). Col. portraits of all spp. enhance the value of the book, which could be also used as an identification tool.

(12974) LEIPELT, K.G., 1999. Cordulegaster bidentata Selys und Cordulegaster boltonii (Donovan) (Odonata: Cordulegastridae) im nördlichen Harzvorland. *Braunschw. naturk. Schr.* 5(4): 849-856. (With Engl. s.). – (Zool. Inst., Techn. Univ, Fasanenstr. 3, D-38092 Braunschweig).
In the headwaters N of the Harz Mts, Germany, C. bidentata was recorded at 8 sites during 1997-1998. Its distribution pattern at the edge of the range is discussed. C. boltonii was recorded at 3 streams of the Innerste R. system. During the 1980 survey the sp. was not evidenced, therefore the population seems to be only recently established.

(12975) *LIBELLULA*. Mitteilungsblatt der Gesellschaft deutschsprachiger Odonatologen (GdO), Vol. 18, No. 3/4 (Dec. 1999). ISSN 0723-6514. (With Engl. s's). – (c/o Mrs U. Krüner, Gelderner Str. 39, D-41189 Mönchengladbach).
Kern, D.: Langzeituntersuchungen zur Populationsentwicklung und zum Lebenszyklus von Gomphus vulgatissimus (Linnaeus) an einem nordwestdeutschen Fliessgewässer (Anisoptera: Gomphidae) (pp. 107--132); – *Artmeyer, C.*: Aktuelle Verbreitung, Habitatansprüche und Entwicklungsdauer von Gomphus vulgatissimus (Linnaeus) in der Ems im Kreis Steinfurt, Nordrhein-Westfalen (Anisoptera: Gomphidae) (pp. 133-146); – *Göcking, C.*: Lebenszyklus von Platycnemis pennipes (Pallas) und Calopteryx splendens (Harris) in zwei Fliessgewässern Brandenburgs (Zygoptera: Platycnemididae, Calopterygidae) (pp. 147-162); – *Bönsel, A.*: Der Einfluss von Rothirsch (Cervus elaphus) und Wildschwein (Sus scrofa) auf die Entwicklung der Habitate von Aeshna subarctica Walker in wiedervernässten Regenmooren (Anisoptera: Aeshnidae) (pp. 163-168); – *Jödicke, R.*: Nachweis einjähriger Entwicklung bei Aeshna cyanea (Müller) (Anisoptera: Aeshnidae) (pp. 169-174); – *Willigalla, C.*: Zur Tagesaktivität von Lestes dryas Kirby (Zygoptera: Lestidae) (pp. 175-180); – *Schiel, F.-J. & M. Rademacher*: Wiederfunde von Gomphus flavipes (Charpentier) am Oberrhein in Baden-Württemberg (Anisoptera: Gomphidae) (pp. 181-185); – *Clausen, W.*: Gomphus flavipes (Charpentier) in der Aller, Niedersachsen (Anisoptera: Gomphidae) (pp. 187-188); – *Hunger, H. & F.-J. Schiel*: Massenent-

wicklung von Sympetrum fonscolombii (Selys) und Entwicklungsnachweis von Anax ephippiger (Burmeister) in Überschwemmungsflächen am südlichen Oberrhein (Anisoptera: Libellulidae, Aeshnidae) (pp. 189-195); – *Mauersberger, R.*: Wiederfunde von Anax parthenope Selys und Leucorrhinia caudalis (Charpentier) in Mecklenburg-Vorpommern (Anisoptera: Aeshnidae, Libellulidae) (pp. 197-199); – *Ruddek, J.*: Gomphus vulgatissimus (Linnaeus) in der Weser bei Bremen (Anisoptera: Gomphidae) (pp. 201-203); – *Werzinger, S. & J. Werzinger*: Gomphus flavipes (Charpentier) in Bayern: 1999 erstmals am Main, weitere Funde an der Regnitz (Anisoptera: Gomphidae) (pp. 205-208); – *Winterholler, M. & H. Leinsinger*: Gomphus flavipes (Charpentier) bodenständig am Oberrhein in Hessen und Rheinland-Pfalz (Anisoptera: Gomphidae) (pp. 209-211).

(12976) *LINDENIA*. Notiziario dell'Ufficio nazionale italiano della Società odonatologica internazionale, Napoli, No. 31 (22 Dec. 1999). – (c/o Dr C. D'Antonio, Via A. Falcone 386/b, I-80127 Napoli).
Announcements of various international and regional meetings, and updating of the Italian faunistic bibliography (nos 136-138).

(12977) *MALANGPO*. Newsletter of the Thai National Office of SIO. No. 16 (Nov. 1999). ISSN 1381-5245. – Annual subscription: NLG 10.— net. – (Orders to the Eds of *Odonatologica*, P.O. Box 256, NL-3720 AG Bilthoven).
Pinratana, A.: Editorial (p. 143); – *Yeh, W.C.*: Notes on three aeshnid species from Thailand (pp. 144-145; Petaliaeschna pinratanai Yeh, 1 Sept. 1999, *Odonatologica* 28/3: 283-288, is synonymized with P. flavipes Karube, Apr. 1999, *Gekkan Mushi* 338: 6-7); – *Yokoi, N.*: Dragonflies of central Laos in mid-summer (pp. 146-149); – *Pinratana, A. & M. Hämäläinen*: Checklist of dragonflies recorded at Doi Inthanon (pp. 150--154).

(12978) MALIKOVA, E.I., 1999. Lichinka Cercion v--nigrum (Needham, 1930) (Odonata, Insecta) – The larva of Cercion v-nigrum (Needham, 1930) (Odonata, Insecta). *Probl. Ekol. verh. Priamur.* 1999(4): 82-86. (Russ., with Engl. s.). – (Dept Zool., Pedag. Univ., Ul. Lenina 104, RUS-675000 Blagovestchensk).
The ultimate instar larva from Hasan, Amur and Blagovestchensk (all Russian Far East) is described and illustrated, and the sp. is synonymized with Agrion brevicauda Bartenev, 1956.

(12979) [MAZOKHIN-PORSHNYAKOV, G.A.] ZHANTIEV, R.D., N.A. TAMARINA, S.Yu. CHAIKA & G.I. RYAZANOVA, 1999. In memory of G.A. Mazokhin-Porshnyakov (1924-1998). *Ent. Obozr.* 78(2): 489-500, portrait incl. (Russ., with Engl. title). – (Last Author: Matveevskaja 18-2-123, RUS-119517 Moscow).
A brief biography (2-II-1924/15-III-1998) and a comprehensive appreciation of work, with a complete bibliography (1951-1998, 247 titles). M.-P. was an insect physiologist and ethologist of international standing, a Honoured Professor of the State University of Moscow, Charter Member of the Russian Ent. Soc., and an important supporter of SIO in the early days of the life of the Society. His first odon. paper appeared in 1959 ("Calorimetric study of colour vision in the dragonfly", *Biofizika* 4/4: 427-436). Since mid 1980s much of his research was devoted to the Zygoptera larval behaviour, published in over 20 papers, mostly in Russian periodicals, but also in *Odonatologica* and elsewhere.

(12980) MENARD, B. & R. HUTCHINSON, 1999. Williamsonia fletcheri Williamson (Odonata: Corduliidae) au Québec: nouvelles récoltes, habitats et notes biologiques. *Fabreries* 24(2/3): 25-32. (With Engl. s.). – (First Author: 56 rue Smith, Gatineau, QC, J8T 3A1, CA).
2 new records from Quebec, Canada are reported, the particular microhabitat is described, and the available information on the biology of the sp. is summarized.

(12981) MERMOD-FRICKER, F., 1999. Bibliographie concernant la faune entomologique suisse, 1997. *Bull. romand Ent.* 17(2): 109-119. (CSCF, Terreaux 14, CH--2000 Neuchâtel).
2 odonatol. titles.

(12982) MITRA, T.R., 1999. Biology and ecology of dragonflies (Insecta: Odonata), with notes on their adaptations in different ecosystems in India. *Rec. zool. Surv. India* 97(2): 173-188. – (18/1 Dakshin Para Rd, Calcutta-7000028, India).
The subject is reviewed, and numerous previously unpublished observations, particularly those from the Gangetic Plain, Eastern and Western Himalaya, Chhota Nagpur Plateau, Eastern and Western Ghats and from the arid zones are brought on record.

(12983) MITRA, T.R., 1999. Geographical distribution and zoogeography of Odonata (Insecta) of Meghalaya,

India. *Rec. zool. Surv. India* (Occ. Pap.) 170: 1-63. – (18/1 Dakshin Para Rd, Calcutta-7000028, India).
A detailed distribution of the taxa occurring in Meghalaya is presented, their biogeographic affinities are outlined, and the high rate of endemism is discussed.

(12984) MIYATAKE, Y., 1999. Memory of the insects in the birth place, Kagawa prefecture. [Sic!] *Nature & Insects* 34(6): 28. (Jap., with Engl. title). – (5-2-4--502, Shirakashi-cho, Kashihara, Nara, 634-0051, JA).
An autobiographic note by a well-known Japanese odonatologist; mainly on butterflies. Born: Zentsuji, 1 Apr. 1938.

(12985) MOCEK, B. & J. REJL, 1999. Vážka Aeshna isosceles (Müller, 1767) (Odonata) ve východnich Čechách – Dragonfly Aeshna isosceles (Müller, 1767) (Odonata) in eastern Bohemia. *Acta Mus. reginaehradecensis* (A) 27: 121-124. (Czech, with Engl. s.). – (First Author: Muz. Východnich Cech, Eliščino nabř. 465, CZ-50001 Hradec Králové).
3 records (1994, 1999) from the districts of Babi, Kojice and Kolin, Czech Republic, with habitat descriptions and discussion.

(12986) MOORE, N.W., 1999. Odonata Specialist Group. *Species* 31/32: 94-95. – (Farm House, 117 Boxworth End, Swavesey, Cambridge, CB4 5RA, UK).
The OSG (of the Species Survival Commission, IUCN) held its inaugural meeting in Kyoto, Japan, 1980. Here, its history, objectives and achievements are briefly outlined by the Founder and Chairman of the Group. As regard the future, and apart from supporting efforts to establish a worldwide network of representative biotope Protected Areas, the OSG will concentrate on activities that are dependent on odonatol. expertise. It will identify those "hot spot" areas that contain exceptional numbers of threatened endemic spp. so that these can be included in the worldwide network of representative biotopes, if that is not possible, can be protected by other means. In addition it will identify spp. of special interest that are known not to occur in representative protected areas or in areas likely to be chosen as such in the future. The habitats of these spp. will also have to be protected by other available means. To achieve these objectives and to facilitate the work, the key priority for the next few yr is to establish a conservation database. This will render support in identifying priorities for research and conservation measures.

(12987) NAGASU, F., 1999. [Mass oviposition in Lestes sponsa]. *Nature & Insects* 34(5): 36. (Jap.). – (Naka 4-9-27, Satte, Saitama, 340-0115, JA).
Observations at a pond in Kuki, Saitama pref., Japan (10-IX-1991) are brought on record. More than 10 pairs were ovipositing per plant. A photograph is provided.

(12988) *NATURE AND INSECTS*, Vol. 34, No. 10: *Odonatology education and field studies in schools.* (Sept. 1999). – ISSN 0023-3218. (Jap., with Engl. titles; Jap. vernacular nomenclature only).
Matsura, T.: Sympetrum striolatum imitoides emerged at a school swiming pool (cover phot.); – *Watanabe, M.*: Odonata as a teaching material in education (pp. 2-4); – *Higashi, T.*: Teaching materials concerning Odonata as seen from the course of study (pp. 5-8); – *Komatsu, K.*: Note of dragonflies at and around primary school as teaching material (pp. 9-12); – *Matsura, T.*: Why odonate larvae (Sympetrum striolatum imitoides) occur at swimming pools of primary schools? (pp. 13-17); – *Mori, S.*: Eco-up projects of restoration from the dragonfly wetland habitats (pp. 18-21); – *Taguchi, M.*: Observation of Odonata by clubs in high school (pp. 22-26); – [*Anonymous*:] 1999 International Congress of odonatology and 1st Symposium of Worldwide Dragonfly Association (p. 44). – (Engl. abstracts, by K. Inoue, are available from the Eds of *Odonatologica.*)

(12989) NIJBOER, R., 1999. *De Springendalse Beek: macrofaunagemeenschappen in de periode 1970-1995* – [*The Springendalse Brook: macroinvertebrate communities in the period, 1970-1995*]. Inst. Bos- en Natuuronderzoek, Wageningen [IBN-Rapp. 455; ISSN 0928-6888]. 82 pp. (Dutch). – (Author: Freshw. Ecosystems, Dept Ecol. & Environ., Inst. Bos- en Natuuronderzoek, NL-Wageningen).
Includes annotated odon. records from the brook; – Twente distr., the Netherlands.

(12990) NISHIDA, T., 1999. [Hemicordulia mindana nipponica at Kawaminami-cho, Miyazaki prefecture]. *Gekkan-Mushi* 337: 6-8. (Jap.). – (C-12, Mubanchi, Iwase, Matsudo, Chiba, 271-0076, JA).
The observations were made during Apr. 1993-July 1994, and Aug. 1995-March 1996. It is said, the population at this locality has disappeared in the subsequent yrs. The habitat is a spring (alt. ca 50 m), with rich vegetation, ca 2 km off the seashore. Emergence took place during May 8-27, the territorial

flights were watched during May-Aug. (ca 0.5-1.0 m above open water table, mainly in early morning and in the evening). If Somatochlora clavata interfered, it was soon chased away. A tandem flight was seen at 07.05 h. The pair was perched on a grass stem, and the copulation started soon. Within ca 10 min the pair formed a tandem, after 3 min the ♂ flew off, and the ♀ commenced to oviposit.

(12991) *ODONATOLOGICAL LIBRARY NEWS*, Osaka, No. 25 (5 Dec. 1999). Published by Kansai Research Group of Odonatology. (Jap., with Engl. title). – (c/o K. Inoue, 5-9 Fuminosato 4-chome, Abeno-ku, Osaka, 545-0004, JA).
Lists 178 numbered bibliographic entries (1984-1999) of Japanese publications.

(12992) OZONO, A., N. SHIMIZU, T. YAGI & T. YAMAMOTO, 1999. [Oviposition of Anax parthenope julius ♀ in tandem with A. guttatus ♂]. *Gekkan-Mushi* 341: 46-47. (Jap.). – (First Author: Higashi 5-7-5 Myoken, Katano, Osaka, 576-0012, JA).
The oviposition took place on 8 Nov. 1998, at Enshu--hama, Hamamatsu, Shizuoka pref. The tandem moved from pond to pond, separated after several min and took off.

(12993) *PANTALA*. International journal of odonatology, Vol. 2, No. 2 (dated 30 Dec. 1999, mailed to the subscribers 3 March 2000). ISSN 1388-7890.
Dumont, H.: Selys' Légions: Introduction (pp. 133--135); – *Bechly, G.*: Epallagidae versus Euphaeidae revisited (pp. 137-139); – *Trueman, J.W.H.*: The family-group names based on Selys' Légions (pp. 141--144); – *Samraoui, B. & R. Menai*: A contribution to the study of Algerian Odonata (pp. 145-165); – *Hilfert-Rüppell, D.*: To stay or not to stay: decision--making during territorial behaviour of Calopteryx haemorrhoidalis and Calopteryx splendens splendens (Zygoptera: Calopterygidae) (pp. 167-175); – *Sahlén, G.*: The impact of forestry on dragonfly diversity in central Sweden (pp. 177-186); – *Czeczuga, B., A. Godlewska & E. Mrozek*: Zoosporic fungi growing on dead dragonflies (Odonata) (pp. 187-197).

(12994) PAPENDIECK, M., 1999. Die Pokaljungfer Cercion lindenii (Selys) an ihrer östlichen Verbreitungsgrenze in Niedersachsen (Odonata: Coenagrionidae). *Braunschw. naturk. Schr.* 5(4): 959-963. (With Engl. s.). – (Schmidekamp 19, D-38690 Vienenburg).
C. lindenii (2 ♂, 1 ♀) are recorded from NR "Okeraue", 30 km S of Braunschweig, Germany. The habitat (old gravel pit) is described. This is the easternmost locality of this sp. known in Lower Saxony.

(12995) PODOBNIK, J. [President of the Parliament of Slovenia], 1999. Zakon o ratifikaciji Konvencije o varstvu prosto živečega evropskega rastlinstva in živalstva ter njunih naravnih življenjskih prostorov (MKVERZ) – [Act on the ratification of the] Convention on the conservation of European wildlife and natural habitats. *Uradni List Rep. Slovenije* (Medn. Pogodbe) 9(17): 773-820. (Slovene; text of Convention bilingual: Engl./Slovene).
Includes 16 odon. spp., and came into operation in Slovenia on 10 July 1999.

(12996) POINAR, G. & R. POINAR, 1999. *The amber forest: a reconstruction of a vanished world*. Princeton Univ. Press, Princeton/NJ-Chichester/UK. xviii+239 pp., 130 col. pls incl., cloth (16.0×23.6 cm). ISBN 0--691-02888-5. – (Publishers: 41 William St., Princeton, NJ-08540, USA).
A reconstruction of the Dominican Amber ecosystem, incl. references to the odon.

(12997) POLHEMUS, D.A., H. OPPENHEIMER, F. STARR & K. MARTZ, 1999. Notable rediscoveries of Megalagrion species on Maui (Odonata: Coenagrionidae). *Occ. Paps Bishop Mus.* 59: 27-29. – (First Author: Dept Ent., MRC 105, Smithsonian Instn, Washington, DC 20560, USA).
Fresh records are listed for M. pacificum (1998) and M. xanthomelas (1997); – Maui, Hawaii.

(12998) REINHARDT, K. & R. SEIDENBUSCH, 1999. Zur Libellenfauna des Ili-Gebietes, Kasachstan (Insecta: Odonata). *Faun. Abh.* 21(14): 221-228. (With Engl. s.). – (First Author: Inst. Ökol., Univ. Jena, Dornburger Str. 159, D-07743 Jena).
A commented list of 19 spp., SE Kazakhstan, with a review of 44 spp. known from the area between Lake Balkhash and Tien Shan.

(12999) [RETTIG, K.] MULLER, H., 1999., Gute Flieger aus Emder Teichen. Der Naturkundler Klaus Rettig und die Geburtenrate der Libellen in seinem Garten. *Ostfriesen Ztg* (E), issue of 17 Aug., p. 15; – reprinted in: *Beitr. Vogel- Insektenwelt Ostfrieslands* 136: 9. – (c/o K. Rettig, Danziger Str. 11, D-26725 Emden).
A local daily's visit with the naturalist and dragonfly

watcher, K. Rettig. – For a similar article see *OA* 12858.

(13000) RODRIGUES CAPITULO, A., 1999. Los macroinvertebrados como indicadores de calidad de ambientes lóticos en el área pampeana. *Revta Soc. ent. argent.* 58(1/2): 208-217. (With Engl. s.). – (Inst. Limnol. 'A. Ringuelet', C.C. 712, AR-1900 La Plata).
The Pampean biogeographic province embraces vast territories of E Argentina, Uruguay and Rio Grande do Sul (Brazil). Here, the bioindicative value of various odon. spp. is also considered and discussed.

(13001) ROLDÁN PÉREZ, G., 1999. Los macroinvertebrados y su valor como indicadores de la calidad del agua. *Revta Acad. colomb. Cienc. exactas* 23(88): 375-387. (With Engl. s.). – (Posgrado Biol., Univ. Antioquia, A.A. 1226, Medellin, Colombia).
A method for water quality assessment in tropical mountain ecosystems, based on macroinvertebrates as bioindicators, is suggested. The odon. are considered thoroughly, family-wise.

(13002) SANDHU, R. & G.K. WALIA, 1999. Karyology of male and female Pseudagrion rubriceps (Zygoptera: Coenagrionidae). *Bionatura* 19(1): 1-5. (With Hindi s.). – (Dept Zool., Punjabi Univ., Patiala-147002, India).
Specimens from the populations of Jammu & Kashmir, Punjab, Assam and Meghalaya, all India, have been examined. 2n ♂ = 27, *m*; X0, but in numerous micrographs an appreciable autosomal fragmentation has been observed.

(13003) SCHUT, J. & D. VAN DULLEMAN, 1999. Zwervende pantserjuffer op Terschelling – [Lestes barbarus on the island of Terschelling, the Netherlands]. *Amoeba, Amst.* 73(4): 88-90. (Dutch). – (First Author: Curaçaostraat 95c, NL-8931 CM Leeuwarden).
In 1999, the status of the local population was examined, and it is suggested the insects originate from the 1997 invasion. Also presented are the 1999 island records of Lestes dryas, L. virens and Sympetrum striolatum.

(13004) SCHÜTTE, C., C. OTT & A HÜNKEN, 1999. Vergleich der Larvalentwicklung von Calopteryx splendens (Harris, 1782) und Calopteryx virgo (L., 1758) (Odonata: Calopterygidae) in zwei Fliessgewässern in Niedersachsen. *Braunschw. naturk. Schr.* 5(4): 857-867. (With Engl. s.). – (Zool. Inst., Techn. Univ., Fasanenstr. 3, D-38092 Braunschweig).
The larval development of C. splendens was monitored (1995-1998) in the Oker R. and compared with that of C. virgo in the Lutter; both Lower Saxony, Germany. The number and size of larval instars are stated. In C. splendens larval development took 1 yr, whereas it lasted 2 yr in C. virgo. The differences are discussed in terms of temperature, food and the specific activity levels.

(13005) SHIEH, S.-H. & P.-S. YANG, 1999. Colonization patterns of aquatic insects on artificial substrates: effects of substrate sizes. *Chin. J. Ent.* 19(2): 119-143. (With Chin. s.). – (Dept Ent., Natn. Taiwan Univ., Taipei-106, Taiwan).
The experiments were conducted in the Upper Chingmei Stream, Taiwan. The 2 different substrates (cobbles, gravel) were colonized by aquatic insects for periods of 3, 6, 12, 21, 30 and 42 days, from 14 March to 25 Apr. 1991. Euphaea, Onychogomphus and Sieboldius are genus-wise considered. – See also *OA* 12859.

(13006) SIEBERT, M. & M. WANGERMANN-BUDDE, 1999. *Verbreitungsatlas der Fliessgewässerfauna Niedersachsen*. Niedersächs. Landesbetr. f. Wasserwirtschaft, Verden. 372 pp. – (Orders to the Publishers: Postfach 1608, D-27266 Verden/Aller).
27 odon. spp. are mapped and ecologically characterized on pp. 128-146, 353, with bibliography on pp. 361-362; – Lower Saxony, Germany.

(13007) *SIOJA*. [Information bulletin of the SIO Japan Branch Office], 1999, No. 1 (5 Nov. 1999). (Jap.). – (c/o K. Inoue, 5-9 Fuminosato 4-chome, Abeno-ku, Osaka, 545-0004, JA).
No other issues were published in 1999. – Incl. internal notifications, announcements of meetings, and information on the SIO web site (http://www.afn.org/~iori/siointro.html), operated by B. Mauffray, IORI, Gainesville, FL, USA.

(13008) SIVA-JOTHY, M.T. & S.J. PLAISTOW, 1999. A fitness cost of eugregarine parasitism in a damselfly. *Ecol. Ent.* 24(4): 465-470. – (First Author: Dept Anim. & Plant Sci., Univ. Sheffield, Sheffield, S10 2TN, Scotland, UK).
Adult Calopteryx splendens xanthostoma are infected by the trophozoites of a eugregarine parasite that attaches to the mid-gut epithelium. The results of this

study show: (1) that eugregarines were the predominant parasite in the isolated study population, (2) they were not present in imagos that had just eclosed from larvae but were present in significantly higher numbers in older adults, (3) animals with a eugregarine burden during the prereproductive fat-accumulation period of their adult development (the teneral stage) had significantly lower fat content, and (4) ♂♂ infected artificially with eugregarine oocysts showed no correlation between eugregarine burdens and postmanipulation fat content. – Infection with eugregarine trophozoites during the teneral life-history stage affects the ability of damselflies to accumulate fat, and consequently reduces their ability to fight for, and maintain, a territory when they become reproductively active.

(13009) *SULZBACH-ROSENBERGER LIBELLEN-RUNDBRIEFE*, No. 11 (Dec. 1999). – (c/o R. Seidenbusch, Klenze Str. 5, D-92237 Sulzbach-Rosenberg).
Seidenbusch, R.: annotations on female types of Ischnura aralensis Haritonov, 1979 (Odonata: Coenagrionidae) (pp. 1-2); – Descriptions of two last instar larvae of the genus Gomphidia (Odonata, Anisoptera, Gomphidae) (pp. 3-9); – Tandem-linkage structures in females of the genus Enallagma (Odonata: Coenagrionidae) (pp. 10-20).

(13010) SURAKARN, R. & K. YANO, 1999. Natural enemies of the Chironomidae (Diptera) in paddy fields. *Makunagi* 20: 1-18. – (First Author: Ent. & Zool. Div., Dept Agric., Chatuchak, Bangkok-10900, Thailand; – Second Author: Asakura-cho 11-23, Yamaguchi, 753-0061, JA).
The subject was investigated at the Yamaguchi Univ. Farm, Japan and in the laboratory. The adults of 13 odon. spp. and the larvae of 11 spp. were evidenced, and their seasonal abundance and population densities were surveyed. Feeding habits of Orthetrum albistylum speciosum and Sympetrum darwinianum were investigated by feeding Chironomus kiiensis in the laboratory. A single larva of the former consumed during its life over 1417 Chironomus larvae.

(13011) *WILLIAMSONIA*. Quarterly newsletter of the Michigan Odonata Survey, Vol. 3, No. 4 (Nov. 1999). – (c/o Dr M.F. O'Brien, Insect Div., Mus. Zool., Univ. Michigan, 1109 Gaddes Ave., Ann Arbor, MI 48109-1079, USA).
O'Brien, M.: Late-season Odonata at Lefurge Woods wetland (p. 1); – October-November records (p. 2); – Y2K species search for the Michigan Odonata Survey (pp. 2-7); – *Hudson, P., M. Chriscinske & K. Tennessen*: Libellula vibrans, a new Odonata record for Michigan (p. 7); – *O'Brien, M.*: Aeshna juncea recorded from the eastern UPI (p. 7). – *"News and Notes"* (pp. 8-9).

(13012) YAMAMOTO, K. & T. YAMAMOTO, 1999. [First record of Stylurus oculatus in Hyogo prefecture]. *Gekkan-Mushi* 336: 42. (Jap.). – (2-1-1, Sumadera-cho, Suma-ku, Kobe, 654-0071, JA).
1 ♂, 18-VIII-1998, Suma R., Kobe, Japan.

(13013) ZEISS, C., A. MARTENS & J. ROLFF, 1999. Male mate guarding increases females' predation risk? A case study on tandem oviposition in the damselfly Coenagrion puella (Insecta: Odonata). *Can. J. Zool.* 77(6): 1013-1016. (With Fr. s.). – (Zool. Inst., Techn. Univ., Fasanenstr. 3, D-38092 Braunschweig).
To estimate whether ♂ mate guarding alters the predation risk for ♀♀, experiments were conducted in field cages. The risk for ♀♀ ovipositing solitarily vs in tandem was experimentally compared. Notonecta glauca was used as a predator. Due to the damselfly oviposition behaviour, N. glauca only preys on ♀♀, therefore it was possible to determine whether the presence of ♂♂ decreases or increases ♀♀'s predation risk. ♀♀ in tandem were more frequently touched and grasped by Notonecta than solitary ♀♀. In most tandem pairs, the ♀ showed the first reaction to the attack and the ♂ responded subsequently. After an attack, most solitary ♀♀ left the oviposition site, but most tandem ♀♀ stayed. Once grasped by the predator, more solitary ♀♀ were killed.

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(13014) *ATROPOS* ["the UK's premier journal for active Lepidoptera and Odonata enthusiasts"], No. 9 (Jan. 2000). ISSN none. – (c/o M. Tunmore, 36 Tinker Lane, Meltham, Huddersfield, W Yorks, HD7 3EX, UK).
[Odon. articles:] *Dewick, S. & R. Gerussi*: Small Red-eyed Damselfly Erythromma viridulum (Charpentier) found breeding in Essex: the first British records (pp. 3-4); – *Parr, A.*: Migrant dragonflies in 1999, including recent decisions and comments by the Odonata Records Committee (pp. 21-25; incl. Pachydiplax longipennis); – *Pellow, K.*: Lesser Emperor Dragonfly Anax parthenope (Selys) breeding in Cornwall (pp. 28-29); – *Tunmore, M.*: Records from coastal stations, 1999: The Lizard, Cornwall (pp. 58-60); – *Knill-*

-*Jones, S.*: Records from coastal stations, 1999: Isle of Wight (p. 62); – *Troake, P.*: Records from coastal stations, 1999: Rye Harbour SSSI, East Sussex (pp. 63-64); – *Clancy, S.*: Records from coastal stations, 1999: Dungeness area, Kent (pp. 65-67); – *Solly, F.*: Records from coastal stations, 1999: Isle of Thanet, Kent (pp. 67-68); – *Dewick, S.*: Records from coastal stations, 1999: Curry Farm, Bradwell-on-Sea, Essex (pp. 68-70); – [*O'Dowd, B.*]: Records from coastal stations, 1999: Minsmere RSPB Reserve, Suffolk (p. 71); – *Wilson, K. & S. Evans*: Records from coastal stations, 1999: Gibraltar Point NNR, Lincolnshire (pp. 72-73); – *Spence, B.*: Records from coastal stations, 1999: Spurn Bird Observatory, East Yorkshire (pp. 73-74); – *Littlewood, N.*: Records from coastal stations, 1999: South Walney Nature Reserve, Cumbria (pp. 76-77); – *Craine, G.D.*: Records from coastal stations, 1999: Isle of Man (pp. 77-78); – *Long, R.*: Southern Migrant Hawker Aeshna affinis in Jersey, Channel Islands (p. 81); – *Marsh, P.*: Odonata at Heysham Industrial Estate, Lancashire (pp. 81-82); – *Rooney, M.E.S.*: Yellow-winged Darter Sympetrum flaveolum in Cheshire (p. 82); – *Dey, D.*: A chance encounter (p. 85; Sympetrum fonscolombei, W Sussex); – *Slaughter, L. & L. Best*: A late Southern Hawker Aeshna cyanea and other observations (p. 87); – *Parr, A.*: [Book review] Dragonflies: behaviour and ecology, by P.S. Corbet (p. 92); – *Tunmore, M.*: [Book review] Dragonflies and damselflies of Great Britain, by C.R. Cassey et al. (pp. 92-93); – *Long, M. & R. Long*: Non-British damselflies in Jersey (pp. 95-96).

(13015) BECKEMEYER, R.J., 2000. The Permian insect fossils of Elmo, Kansas. *Kansas School Naturalist* 46(1): 3-15, 2 cover phot. excl. – (957 Perry, Wichita, KS 67203-3141, USA).
The history of the discovery and study of the Elmo fossils is outlined, and portraits of the researchers are included. It is followed by a checklist of the spp. recovered, with some figs and a comprehensive bibliography. – A checklist with full synonymies is available from the Author upon request.

(13016) BUCZYNSKY, P., 2000. On the occurrence of Coenagrion armatum (Charpentier, 1840) in Poland (Odonata: Coenagrionidae). *Opusc. zool. flumin.* 179: 1-10. – (Dept Zool., Inst. Biol., Maria Curie-Skladowska Univ., Akademicka 19, PO-20-033 Poznan).
All Polish localities (38, incl. 6 new) are listed, their grid references are stated whenever possible, and the respective habitats are briefly characterised. The distribution of the sp. in Poland is mapped, and its occurrence and habitat choice are briefly discussed and compared with those in other regions of central and eastern Europe.

(13017) CARCHINI, G., F. CHIAROTTI, M. DI DOMENICO & G. PAGANOTTI, 2000. Fluctuating asymmetry, size and mating success in males of Ischnura elegans (Vander Linden) (Odonata: Coenagrionidae). *Anim. Behav.* 59(1): 177-182. – (First Author: Dipto Biol., Univ. Roma "Tor Vergata", Via della Ricerca Scientifica, I-00133 Roma).
Fluctuating asymmetry (FA) is thought to be an indicator of developmental stability and negatively related to ♂ mating success in many animal taxa. The relationships between mating success of ♂♂, body size and FA for both wing length and number of setae on the legs in I. elegans were investigated. ♂♂ were classified as mated or unmated at the time of sampling. Fluctuating asymmetry, expressed as right-left differences, showed normal distributions without evidence of directional asymmetry or antisymmetry. Univariate analyses showed a significant negative correlation between size and mating success, and significant negative correlations between FA and mating success for both characters. On the other hand, with a multivariate analysis, new to studies on FA, the effect of body size was still significant but FA did not reach significance for either character. It is concluded that the multivariate analysis should be used to assess the role of the different factors affecting mating success.

(13018) [GROENEVELD, H.W.], 2000. De waarnemingen van 1999 – [The 1999 records]. *Veelpoot* 11(1): 11-26. (Dutch). – (A. Schweitzerlaan 37, NL-3451 EB Vleuten).
Includes list of odon. records from Amerongen (29/30-V-1999) and Westelbeers (N.Br.) (28/29-VIII-1999), the Netherlands.

(13019) [GORB, S.N.], 2000. Flugtechnik: High-Tech im Libellenflügel. *Bild Wissenschaft* 37(3): 9. – (Max-Planck-Inst. Entwicklungsbiol., Spemannstr. 35, D-72076 Tübingen).
Between the longitudinal and transversal veins in odon. wings there are fixed as well as movable connections. The latter are formed by resilin, a rubber-like protein, enabling specific changes in wing shape during the flight. At the same time, the resilin knots store the elasticity energy, liberating it at the completion of each wing stroke, returning the wing in its original position.

A col. phot. of resilin knots is provided.

(13020) HAMALAINEN, M. & W.-C. YEH, 2000. Matrona cyanoptera spec. nov. from Taiwan (Odonata: Calopterygidae). *Opusc. zool. flumin.* 180: 1-6. – (First Author: Sunankalliontie 13, FIN-02760 Espoo; – Second Author: Div. Forest Prot., Taiwan Forestry Res. Inst., 53 Nanhai Rd, Taipei, Taiwan).
The well-known Taiwanese damselfly, usually called "Matrona basilaris ssp.", is described as a new sp. Holotype ♂: northern Taiwan: Taipei, Neishwangshi, 29-VI-1997; deposited at TFRI, Taipei.

(13021) HARDERSEN, S., 2000. The role of behavioural ecology of damselflies in the use of fluctuating asymmetry as a bioindicator of water pollution. *Ecol. Ent.* 25(1): 45-53. – (Ecol. & Ent. Group, Div. Plant, Soil & Ecol. Sci., Lincoln Univ., P.O. Box 84, Canterbury, NZ).
Fluctuating asymmetry has been used widely to investigate questions concerned with evolution and behaviour, and to study the effects of environmental pollution. Damselflies have been used to answer questions in both fields, but no attempt has been made to combine the knowledge from these areas to investigate whether and how evolutionary ecology and behaviour interfere with the use of fluctuating asymmetry as a bioindicator of water pollution. 4 hypotheses were formulated to investigate possible interferences: (1) paired ♂♂ should be less asymmetrical than unpaired ♂♂; – (2) ♂♂ caught at breeding sites should be less asymmetrical than ♀♀ caught at breeding sites; – (3) damselflies caught earlier in the season should be less asymmetrical than those caught later in the year; – (4) damselflies caught at control sites should be less asymmetrical than those caught at sites within areas of high pesticide usage. – No significant difference in asymmetry levels was found between paired and unpaired ♂♂. ♂♂ were significantly less asymmetrical than ♀♀. Damselflies caught earlier in the year were less asymmetrical than those caught later. The data used to test the hypothesis that fluctuating asymmetry in the wings of mature damselflies reflects the level of pesticides used in the surrounding environment were equivocal. The findings suggest that evolutionary ecology and behaviour interfere with the suitability of fluctuating asymmetry in mature damselflies as a biomonitoring tool and it is concluded that fluctuating asymmetry in emerging adults should be much more appropriate as a bioindicator.

(13022) *LIBELLENNACHRICHTEN.* Mitteilungsblatt der Gesellschaft deutschsprachiger Odonatologen, GdO (ISSN 1437-5621), No. 3 (15 Feb. 2000). – (c/o Mrs U. Krüner, Gelderner Str. 39, D-41189 Mönchengladbach).
On 20 pp., organised under the traditional headings, the issue brings a preliminary list of titles of the presentations to be given at the 19th Annual Meeting of GdO, book reviews or titles only of 18 recent German and Swiss M.Sc. dissertations, various articles on dragonflies in arts and poetry, various meeting announcements, etc.

(13023) *NIEUWSBRIEF VAN DE NEDERLANDSE VERENIGING VOOR LIBELLENSTUDIE*, Vol. 4, No. 1 (Feb. 2000). (Dutch). – (c/o W.J.A. Hoeffnagel, Krekelmeent 72, NL-1218 Hilversum).
[Scientific notes:] *Goudsmits, K. & M. Wasscher*: Is there a preference in oviposition site selection by Lestes viridis? (p. 8); – (*Anonymous*): Notably numerous early-season records in 1999 (pp. 9-10); – *Dijkstra, K.-D.B.*: Dragonflies in Belarus (pp. 11-12); – *Bos, F.*: Proposed Dutch nomenclature for south- and east European dragonflies, including Rhodos and the Canary Islands (p. 13).

(13024) *PTEROBOSCA.* Newsletter of the Japanese Society for Odonatology, Shiojiri, No. 6A (1 Feb. 2000). ISSN none. (Title Engl., all texts Jap.). Edited by Prof. Dr S. Eda (Dept Oral Pathol., Matsumoto Dental Univ., 1780 Gobara, Hirooka, Shiojiri, Nagano, 399-0781, JA).
This periodical was started by Dr S. Asahina, as a supplement to *Tombo*. Between 1958-1962, 5 issues were published, Nos 1, 2 and 4 were undated. With the present issue the journal continues as a newsletter. Its lay-out is practically identic to that of the previous issues. – C o n t e n t s: *Kurashina, H.*: Lyriothemis pachygastra (p. 1; cover drawing); – *Eda, S.*: The revival of *Pterobosca* (p. 2); – *Karube, H.*: Report on the 1999 Annual Meeting of the Japanese Society for Odonatology, JSO (pp. 2-4); – *Eda, S.*: Report on the JSO Plenary Business Meeting (pp. 4-19); – *Inoue, K.*: Information on the 2000 Annual Meeting of the JSO (p. 19); – *Ishikawa, H.*: Obituary for Mr Tsutomu Rai (pp. 20-22; with portrait); – *Inoue, K.*: Information on the SIO (p. 23); – *Ubukata, H.*: Information on the WDA (p. 24); – Report on the 1999 International Congress of Odonatology (p. 25; with a group phot. of the participants); – *Inoue, K.*: Information on the 11th Dragonfly Citizen Summit in

Kaizuka (pp. 25-26); – *Book reviews* (pp. 26-28).

(13025) RAMIREZ, A., 2000. Dragonflies and damselflies of Costarican cloud forests. *In*: N.M. Nadkarni & N.T. Wheelwright, [Eds], Monteverde: ecology and conservation of a tropical cloud forest, p. 97, Oxford Univ. Press, Athens, etc., ISBN 0-19-509560-X. – (Inst. Ecol., Univ. Georgia, Athens, GA 30602-2202, USA).

A general characterisation and some highlights in the odon. fauna of the Costa Rican highlands. – Some genera contain discrete lowland and highland spp. One highland sp., Sympetrum nigrocreatum, is probably derived from the widespread mid-elevation species S. illotum. Philogenia peacocki has only been found in cloud forests, whereas P. carrillica is more commonly found at lower altitudes. In the same stream, P. peacocki has been found inhabiting the upper parts but is replaced by P. carrillica at lower altitudes, with some overlap of the spp. around 1200 m. Some cloud forests spp. occur at intermediate altitudes (800-1500 m). For example, Heteragrion majus, a characteristic inhabitant of streams in cloud forests, is also present at lower altitudes (down to 800 m) in streams that share characteristics with cloud forest streams such as high humidity, steep slopes, and low temperatures (17-20°C). Of the spp. recorded from cloud forests, 60% have larvae that live in open areas of lakes, marshes and ponds; 38% inhabit shaded streams; and 2% live in specialized habitats such as bromeliads and tree holes. These proportions depend on the availability of the habitats. In general, open habitats have been better studied than forest streams. Larvae are adapted to specific habitats, e.g. accumulations of dead leaves in riffles. The most limiting factor is the availability of habitat suitable for larval development. Most spp. tolerate only narrow ranges of conditions such as temperature, oxygen level, forest cover, types of aquatic vegetation, and water pollution.

(13026) SHERIDAN, L.A.D., R. POULIN, D.F. WARD & M. ZUK, 2000. Sex differences in parasitic infections among arthropod hosts: is there a male bias? *Oikos* 88(2): 327-334. – (Second Author: Dept Zool., Univ. Otago, P.O. Box 56, Dunedin, NZ).

A higher susceptibility to diseases or parasites in ♂♂ than in ♀♀ may be an ultimate consequence of the different reproductive strategies favoured by selection in the 2 sexes. Here, a meta-analysis of published results was used to investigate whether sex biases in parasite infections were generally observed. As far as the odon. are concerned, the available records of mite infections were examined. The results suggest that because of the absence of endocrine-immune interactions in arthropods, ♂♂ are not generally more prone to parasite infections than ♀♀, despite the greater intensity of sexual selection acting on ♂♂.

(13027) SIVA-JOTHY, M.T., 2000. [Book review] "Dragonflies: behaviour and ecology", by P.S. Corbet. *Anim. Behav.* 59(1): 247-248. – (Dept Anim. & Plant Sci., Univ. Sheffield, Sheffield, S10 2TN, Scotland, UK).

A comprehensive and refreshing book review of the work listed in *OA* 12810. It is characterised as "an example of what a natural history monograph should be, and it will stand as a [...] definitive example of the genre".

(13028) THEISCHINGER, G., 2000. *Preliminary keys for the identification of larvae of the Australian Gomphides (Odonata).* Co-operative Res. Cent. Freshw. Ecol., Albury. [Ident. Guide No. 28] iv+48 pp. ISBN 1-876144-29-7. – (Orders to: Murray Darling Freshw. Res. Cent., P.O. Box 921, Albury, NSW 2640, AU).

The descriptive information available on the larvae of the Australian Gomphidae and Lindeniidae is presented, and keys are provided for the identification of families, genera, subgenera and spp., along with figs of structural features and col. photographs. The family classification adopted is that proposed by G. Bechly (cf. *OA* 10954).

(13029) *WILLIAMSONIA*. A publication of the Michigan Odonata Survey. Vol. 4, No. 1 (Winter 2000). – (c/o Dr M.F. O'Brien, Insect Div., Mus. Zool., Univ. Michigan, 1109 Gaddes Ave, Ann Arbor, MI 48109-1079, USA).

Very largely, the issue is devoted to a review of the Michigan county records (pp. 5-13; anonymous). In addition to the *Editorial* (pp. 1-2) and various minor notes and announcements (all anonymous), the only signed article was contributed by *Peters, D. & J. Peters*: Odonates from Shiawassee National Wildlife Refuge (p. 4).