ODONATOLOGICAL ABSTRACTS

1985

(12331) KUGLER, J., [Ed.], 1985. *Plants and animals of the land of Israel: an illustrated encyclopedia*, Vol. 3: *Insects*. Ministry Defence & Soc. Prot. Nat. Israel. 446 pp., col. pls incl. ISBN 965-05-0076-6. (Hebrew, with Engl. title & taxonomic nomenclature).
The Odon. are dealt with on pp. 48-56. Some representative spp. are described, but no checklist is provided.

1986

(12332) ANDJUS, L. & Z. ADAMOVIC, 1986. Iščezle i ogrožene vrste Odonata u široj okolini Beograda. – [Extinct and vulnerable Odonata species in the broader vicinity of Belgrade]. *Sadr. Ref. 16 Skup. Ent. Jugosl.*, Vršac, p. 16 [abstract only]. (Serb.). – (Nat. Hist. Mus., Njegoševa 51, YU-11000 Beograd, Serbia).
During 1949-1950, 27 spp. were recorded in the area. 3 decades later, 12 spp. were not any more sighted; they became either locally extinct or extremely rare. A list is not provided.

(12333) RUSEV, B.K. [spelt also as Russev] & I.J. JANEVA, 1986. Hidrobiologichen pregled na desniya dunavski pritok Cibrica. – Hydrobiological review of the right tributary of the Danube, the river Cibrica. *Hidrobiologiya, Sofia* 28: 36-45. (Bulg., with Engl. & Russ. s's). – (Inst. Zool., Bulg. Acad. Sci., Blvd Tzar Osvoboditel 1, BG-1000 Sofia).
6 odon. spp. are listed, from 9 sampling stations; – Cibrica R., Bulgaria.

1987

(12334) RUSEV, B.K. [spelt also as Russev], M.I. NIKOLOVA & I.J. JANEVA, 1987. Tendencii v izmeneniyata na hidrobiologichnoto s'soyanie na porechieto rusenski Lom. – Tendencies in the changes of the hydrobiological state of the Rusenski Lom river valley. *Hidrobiologiya, Sofia* 31: 65-82. (Bulg., with Engl. & Russ. s's). – (Inst. Zool., Bulg. Acad. Sci., Blvd Tzar Osvoboditel 1, BG-1000 Sofia).
Lists 7 odon. spp.; – Rusenski Lom R. valley, Bulgaria.

1988

(12335) KOGNITZKI, S., 1988. Die Libellenfauna des Landeskreises Erlangen-Höchstadt: Biotope, Gefährdung, Förderungsmassnahmen. *SchrReihe bayer. Landesamt Umweltschutz* 79: 75-82. – (Betzensteiner Str. 8, D-90411 Nürnberg).
41 spp. were recorded (1986) at 53 localities in the district, Bavaria, Germany. The fauna and the status of single spp. are discussed, and management measures are suggested.

(12336) KOGNITZKI, S., 1988. Untersuchungen zur Libellenfauna von neugeschaffenen Sekundärgewässern in Nürnberg und Umgebung. *SchrReihe bayer. Landesamt Umweltschutz* 79: 137-141. – (Betzensteiner Str. 8, D-90411 Nürnberg).
In Reichswald nr Nürnberg, Bavaria, Germany, 7 freshly created and 2 older man-made aquatic habitats were odonatol. explored during 1983-1985. Their fauna is assessed and discussed, and the impact of the environmental features of the habitats is pointed out.

(12337) PRASAD, M. & S.K. GHOSH, 1988. A contribution on the estuarine Odonata of East India. *Rec. Zool. Surv. India* 85(2): 197-216. – (Zool. Surv. India, M Block, New Alipore, Calcutta-700053, India).

42 spp. are listed, of which 7 spp. are new records for the estuarine area of West Bengal, and 3 spp. for that of Orissa. Field notes on adult behaviour are provided for some of them.

1989

(12338) ARORA, G.S. & M.Z. ANSARI, 1989. *Bibliography of Indian zoology*, Vol. 24. Zool. Surv. India, Calcutta. viii+208 pp.
Lists the 1981 titles, and includes 10 odonatol. entries, some with abstracts. Hindi (devanagari) titles are transliterated, but not translated.

(12339) JANEVA, I.J. & B.K. RUSEV, 1989. Saprobiologichno s'stoyanie na r. Isk'r v p'rvite godini sled vlizane v eksploataciya na Sofiyskata prechistvatelna stanciya. – Saprobiological state of the Iskar River in the initial years following the putting into operation of the Sofia purifying station. *Hidrobiologiya, Sofia* 34: 3-19. (Bulg., with Engl. & Russ. s's). – (Inst. Zool., Bulg. Acad. Sci., Blvd Tzar Osvoboditel 1, BG-1000 Sofia).
The Iskar R. has been studied at 11 stations, above and below the city of Sofia. 6 odon. spp. are listed, all from the lower stns.

(12340) KUMAR, Arun, 1989. Studies on the life history of Indian dragonflies: Orthetrum sabina sabina (Drury) (Odonata: Libellulidae). *Rec. Zool. Surv. India* 85(4): 573-581. – (Northern Regn. Stn, Zool. Surv. India, Dehra Dun-248195, India).
Reared from eggs, obtained from a ♀ at Gorakhpur (Dehra Dun, Uttar Pradesh; 26-III-1976), the principal changes in larval morphology during the development are described and illustrated. Egg stage lasts 10 days, there are 13 larval instars (prolarva incl.), and the emergence took place in 91-99 days. In the field, the larval duration of summer generations (III-VI, VI-IX) is ca 90 days, that of the winter generation (X-V) ca 200 days.

(12341) WARREN, P.H., 1989. Spatial and temporal variation in the structure of a freshwater food web. *Oikos* 55(3): 299-311. – (Dept Anim. & Plant Sci., Univ. Sheffield, Sheffield, S10 2TN, UK).
Trophic interactions between benthic invertebrates in a large freshwater pond in North Yorkshire, England were established using analyses of gut contents, laboratory feeding trails and published information. Enallagma cyathigerum, Lestes sponsa, Aeshna juncea and Sympetrum danae are among the spp. considered.

1990

(12342) BREJCHA, L., 1990. Přispěvek k poznáni vážek Českomoravské vrchoviny. – Beitrag zur Kenntnis der Libellenfauna in der Umgebung von Hlinsko-Velké Dářko, Böhmischmährisches Bergland. *Zpr. čsl. Spol. ent.* 26: 61-65. (Czech, with Germ. s.). – (Erbenova 3, CZ-78701 Šumperk).
33 spp., evidenced at 4 localities during 1962-1969, are listed and concise habitat descriptions are provided; – Czech Republic.

(12343) CARVALHO, A.L., 1990. *Aspectos de biologia, morfologia e ontogenia da larva de Coryphaeschna perrensi (McLachlan, 1887) (Insecta, Odonata), com algumas considerçôes filogenéticas*. Diss. de mestrado, Univ. Fed. Rio de Janeiro. x+108 pp. (Port.). – (Depto Ent., Mus. Nac., UFRJ, Caixa Postal 68044, BR-21944-970 Cidade Universitaria, Rio de Janeiro, RJ).
For a journal paper based on this work see *OA* 8943.

(12344) KULSHRESTHA, Anil K. & Ajay K. KULSHRESTHA, 1990. On a collection of damselflies (Coenagrionidae: Odonata) from district Bharatpur (Rajasthan). *Rec. zool. Surv. India* 87(1): 11-14. – (Dept Zool., Narain Coll., Shikohabad-205135, U.P., India).
A commented list of 8 spp. Ceriagrion erubescens is for the first time recorded from India.

(12345) SANDBERG, E. & E. BONSDORFF, 1990. On the structuring role of Saduria entomon (L.) on shallow water zoobenthos. *Annls zool. fenn.* 27: 279-284. – (Tvärminne Zool. Stn, FIN-10900 Hanko).
Based on the same research as *OA* 12347, with comparative statistical data on Libellula quadrimaculata.

1991

(12346) MOFFETT, M.W., 1991. All eyes on jumping spiders. *Natn. geogr.* 180(3): 42-63. – (Author's address not stated).
A series of photographs, with comprehensive captions. A 2-page photo shows the predation of Mopsus mormon on a not identified zygopt. sp.

1992

(12347) SANDBERG, E. & E. BONSDORFF, 1992.

Competition for food between predators of marine and limnic origin: experiments with Saduria entomon (Isopoda) and Libellula quadrimaculata (Odonata). *Proc. 12th Baltic Marine Biol. Symp.*, pp. 141-144. – (First Author: Tvärminne Zool. Stn, FIN-10900 Hanko).
As evidenced by laboratory and field enclosure experiments (Åland, N Baltic Sea), there are no significant differences in the predation efficiency in shallow brackish waters between these 2 predators. The possibility of competition is evident, since they exhibit similar prey choice, and co-occur during some seasons.

1994

(12348) RUSSEV, B.K. [spelt also as Rusev], [Ed.], 1994. *Limnologiya na b'lgarskite dunavski pritoci. – Limnologie der bulgarischen Donauzuflüsse.* Paper Tiger, Sofia. 255 pp. ISBN none. (Bulg., with Germ. s.).
26 odon. spp. are listed from 13 Danube tributaries in Bulgaria.

(12349) TONCZYK, G., 1994. Kilka porad odonatologicznych czyli o tym, jak zbierać, przechowywać, hodować i opracowywać ważki (Odonata). 1. Jak zbierać owady doskonale? – [Some odonatological suggestions, as how to collect, preserve specimens, breed and work out the dragonflies. 1. Collecting the adults]. *Biul. ent.* 2(2): 2-4. (Pol.). – (Inst. Invert. Zool. & Hydrobiol., Lodz Univ., Ul. S. Banacha 12/16, PO-90-237 Lodz).
Practical hints and suggestions, directed at young Polish workers. – For pts 2-4 see *OA* 12353.

(12350) VAN HARTEN, A. & B. WAGENER, 1994. *Terrestrial arthropods of the Republic of Yemen: a checklist.* Yemani-German Plant Protection Project, Sana'a. ii+147 pp. – (Publishers: P.O. Box 26, Sana'a, Yemen).
A checklist of 44 odon. spp., crossreferenced to bibliography, appears on pp. 12-13.

1995

(12351) HANEL, L., 1995. Přispěvek k poznáni fauny vážek (Odonata) Podblanicka. – The contribution to the knowledge of dragonflies (Odonata) in Podblanicko region (central Bohemia). *Bohemia centralis* 24: 129-149. (Czech, with Engl. s.). – (Kladruby 33, CZ-257-62 Kladruby-33).
A detailed review of records (42 spp.) from 59 localities, brought together during 1992-1995, with a brief analysis of the fauna of the Podblanicko region, Czech Republic.

(12352) MOCEK, B., M. KUDYN, L. ČERVINKA, J. HARTL, J. ŠUMPICH, J. ZELENÝ & L. BREJCHA, 1995. Přispěvek k entomofaunistickému výzkumu CHKO Železné hory. – Contribution to the knowledge of insect fauna in Železné Hory Mts. *Acta Mus. reginaehradecensis* (A) 24: 135-153. (Czech, with Engl. title). – (First Author: Muzeum východnich Čech, Eliščino nabr. 465, CZ-500-39 Hradec Králové).
Includes odon. records from 5 localities; – Železné Hory, Czech Republic.

(12353) TONCZYK, G., 1995. Kilka porad odonatologicznych czyli o tym, jak zbierać, przechowywać, hodować i opracowywać ważki (Odonata). 2. Jak zbierać larwy ważek – [Collecting the larvae]; – 3. Przechowywanie zbiorów [Specimen preservation]; – 4. Hodowla ważek [Dragonfly breeding]. *Biul. ent.* 3(1): 4-5; (2): 2-4; (3): 4-5. (Pol.). – (Inst. Invert. Zool. & Hydrobiol., Lodz Univ., Ul. S. Banacha 12/16, PO-90-237 Lodz).
Continuation of the series from *OA* 12349.

(12354) TOŃCZYK, G., 1995. Owady prawnie chronione: jak chronić ważki (Odonata). – [Legal insect protection: how to protect dragonflies (Odonata)]. *Biul. ent.* 3(5): 6-7. (Pol.). – (Inst. Invert. Zool. & Hydrobiol., Lodz Univ., Ul. S. Banacha 12/16, PO-90-237 Lodz).
Considerations on meaningful dragonfly conservation, with emphasis on protection of larval habitats.

1996

(12355) HANEL, L., 1996. Předběžne výsledky prúzkumú fauny vážek CHKO Poodři. – Dragonflies in the Protected Landscape Area Poodři (Czech Republic): preliminary report. *Sb. Semin. "Ochr. Biodiv. drobnych stojatych Vod"*, Vlašim, pp. 27-44. (Czech, with Engl. s.). – (Kladruby 33, CZ-257-62 Kladruby-33).
Based on literature and unpublished records, the fauna (35 spp.) is reviewed and briefly discussed; – N Moravia, Czech Republic.

(12356) HANEL, L., 1996. Společenstvo vážek rybnika Záhorský u Vlašimi. – Community of dragonflies

(Odonata) in surroundings of a pond near the town Vlašim (central Bohemia). *Sb. vlastived. Praci Podblanicka* 36: 237-247. (Czech, with Engl. s.). – (Kladruby 33, CZ-257-62 Kladruby-33).
The population dynamics of the odon. community (19 spp.) in the Záhorský fishpond, based on a 2-yr study, is described; – Czech Republic.

(12357) MACHADO, A.[B.M.] (text) & R. MELLO (illustrations), 1996. *Que bicho será que botou o ovo? – [What animal could it be that laid the egg?]*. Nova Fronteira, Rio de Janeiro. 24 pp. ISBN 85-209-0765--2. (Port.). – (Publishers: Rua Bambina 25, Botafogo, BR-22251-050 Rio de Janeiro, JR).
A children picture book, with several references to and watercolour pictures of dragonflies. It is one of the 14 Machado's children books (2 more are in the press), most of which contain references to the odon. The illustrations of the present work have received the Jubati award, i.e. the highest prize in this field in Brazil.

(12358) SURI BABU, B., B.K. SRIVASTAVA & V.K. SRIVASTAVA, 1996. Morphology and biology of the final instar larva of Trithemis pallidinervis (Kirby) (Odonata: Libellulidae). *Bioved* 7(2): 107-110. – (First author: Forensic Sci. Lab., Police Control Room, Jagdalpur-094001, M.P., India).
A detailed description and illustrations. The larva can be distinguished from T. aurora and T. festiva by the palpal and premental setae formula. It is a sluggish weed dweller. At Sargar Lake, M.P., final instars occur during March/Apr. and Sept./Oct.

(12359) SZYMANSKI, J., 1996. Strefowość wystepowania ważek (Odonata) nad stawami hodowlanymi "Krzywie" w okolicach Zgierza. – [Dragonfly (Odonata) associations at the "Krzywie" ponds near Zgierz]. *Biul. ent., Lódź* 4(4): 1-4. (Pol.). – (Ul. Kusocińskiego 88 m.40, PO-94-054 Lódź).
18 spp. are listed, and their occurrence in and restriction to various bank habitats is pointed out; – Zgierz, Poland.

(12360) TONCZYK, G., 1996. Potencjalne znaczenie reofilnych ważek (Odonata) jako organizmów wskaźnikowych w biologicznej ocenie jakości wód. – [Potential importance of rheophile odonates in biological assessment of water quality]. *Mater. Konf. "Możliwości wykorzystania fauny dennej do biomonitoringu wód płynacych w Polsce"*, Lidzbark Welski, p. 13 [abstract only]. (Pol.). – (Inst. Invert. Zool. & Hydrobiol., Lodz Univ., Ul. S. Banacha 12/16, PO-90-237 Lodz).
Calopteryx splendens, C. virgo, Platycnemis pennipes, Pyrrhosoma nymphula, Gomphus flavipes, G. vulgatissimus, and Ophiogomphus cecilia are considered.

1997

(12361) FISCHER, K., 1997. Fauna und Flora des Westerwaldes: zur naturschutzfachlichen Bedeutung einer Mittelgebirgsregion. *Pollichia-Buch* 35: 21-35. – (An der Hofwiese 6, D-56457 Westerberg).
From the nature conservation point of view, the Westerwald region is considered of extralimital importance. As far as the odon. are concerned, it harbours at least 21 in Rhineland-Palatinate redlisted spp. These are here listed, and their local status is stated.

(12362) GRYSKA, A.D. & W.A. HUBERT, 1997. Observations on the reproduction, sources of mortality, and diet of the Kendall Warm Springs dace. *Gr. Basin Nat.* 57(4): 338-342. – (Wyoming Coop. Fish & Wildlife Unit, Univ. Wyoming, Laramie, WY 82071-3166, USA).
The life history of the fish, Rhinichthys osculus termalis, is largely unknown. In shallow, slow-moving, near-shore water, larval dace co-occurs with Libellula saturata larvae. Predation by the dragonfly is considered one of the sources of mortality.

(12363) HARITONOV, A.Yu., 1997. Strekozy Urala. – [Dragonflies of the Ural]. *In*: Uspehi entomologii na Urale, pp. 39-42, Ural Br., Russ. Acad. Sci., Ekaterinburg. (Russ.). – (Inst. Anim. Syst. & Ecol., Siberian Br., Russ. Acad. Sci., Ul. Frunze 11, RUS--630091 Novosibirsk).
The history of odonatol. explorations of the Ural is traced from 1836 to present, the fauna is briefly characterised, and a comprehensive regional bibliography is provided.

(12364) HERMANS, J.T., 1997. Op weg naar een atlas van de limburgse libellen: een oproep tot medewerking. – [On the way to an atlas of the dragonflies of Limburg: call for collaboration]. *Natuurh. Maandbl.* 86(3): cover p. 3. (Dutch). – (Hertestraat 21, NL-6067 ER Linne).
A brief description of the forthcoming provincial atlas (Zuid Limburg prov., the Netherlands), incl. a map,

indicating the inadequately surveyed areas.

(12365) KOGNITZKI, S. & S. HIELSCHER, 1997. Libellenkartierung im Landkreis Hildburghausen (Insecta: Odonata). *Thüring. faun. Abh.* 4: 64-79. (With Engl. s.). – (Reprints from the second Author: Fabion, Scharoldstr. 2, D-97080 Würzburg).
During 1993-1995, 32 spp. were recorded in the district of Hildburghausen, Thuringia, Germany. Selected taxa are discussed in some detail, and the general aspect of the fauna is outlined.

(12366) LIEBHERR, J.K. & D.A. POLHEMUS, 1997. Comparisons to the century before: the legacy of R.C.L. Perkins and Fauna hawaiiensis as the basis for a long-term ecological monitoring program. *Pacif. Sci.* 51(4): 490-504. – (First Author: Dept Ent., Comstock Hall, Cornell Univ., Ithaca, NY 14853-0901, USA).
As a means of assessing the impact of the past 100 yr of development and biological alteration in Hawaii, the Megalagrion and carabid beetle collections of R.C.L.P. made in the 1890s are compared with similar collections made during the 1990s. 2 islands that have experienced very different histories of development are compared: O'ahu and Moloka'i. Of 8 native Megalagrion spp. originally inhabiting O'ahu, 1 has been extirpated from the island, another is now reduced to a single population, and 3 more are at risk. Of the 8 spp. originally found on Moloka'i, by contrast, there is only 1 sp. that has not been rediscovered, although there is reasonable probability that it has simply eluded capture because of inherent rarity, whereas the remaining spp. retain large and stable populations. Capture frequencies (based on specimens collected per decade) are lower now than in the preceding century for most spp. on O'ahu, even allowing for modern collectors retaining fewer specimens. The only spp. on O'ahu for which captures have increased between the 1890s and the 1990s are those that breed away from lotic and lentic habitats, indicating a severe negative impact from introduced aquatic biota for spp. that breed in such freshwater situations. On Moloka'i, all Megalagrion spp. except 1 have higher capture rates now than in the 1890s, explainable in large part to improved access to previously remote terrain.

(12367) LIEBHERR, J.K. & D.A. POLHEMUS, 1997. R.C.L. Perkins: 100 years of Hawaiian entomology. *Pacif. Sci.* 51(4): 343-355, 1 pl. (portrait) excl. – (First Author: Dept Ent., Comstock Hall, Cornell Univ., Ithaca, NY 14853-0901, USA).
A brief biography of Robert Cyril Layton Perkins (1866-1955), and comprehensive considerations on the tremendous impact of his work on our understanding of the Hawaiian insect (incl. odon.) fauna. His collections and extensive taxonomic contributions afford a firm foundation for future taxonomic and evolutionary studies of the uniquely rich and highly endemic Hawaiian insect biota. Most of his published and unpublished works are also listed. Missing is his little known but important 1897 odon. paper: Notes on some Hawaiian insects, *Proc. Cambridge phil. Soc.* 9(7): 373-380.

(12368) LOMBARDO, P., 1997. Predation by Enallagma nymphs (Odonata, Zygoptera) under different conditions of spatial heterogeneity. *Hydrobiologia* 356: 1--9. – (Dept Biol. Sci., Kent St. Univ., Kent, OH 44242, USA).
The predation success was tested under laboratory conditions of high (complex leaf Ceratophyllum demersum leaf packs) and low (simple leaf Potamogeton illinoensis leaf packs) spatial heterogeneity. Prey spp. included 2 pulmonate gastropods, and amphipod, and a turbellarian that were common in the natural habitat of Enallagma. Enallagma significantly reduced the amphipod and the turbellarian populations and the prey assemblage as a whole, but did not have any statistically significant impact on the snail populations, which increased their absolute and relative abundance in the presence of the odonate. Numerical losses by Enallagma predation (if any) were not related to macrophyte architecture, suggesting that prey vulnerability to Enallagma predation is species-specific rather than habitat-determined. Enallagma's preferential distribution in spatially heterogeneous macrophyte habitats, when occurring, may be due to other factors such as a refuge from fish predation and/or a generally greater prey availability and diversity in complex leaf than in simple leaf macrophyte habitats.

(12369) MALIKOVA, E.I., 1997. Fauna strekoz (Insecta, Odonata) Amurskoy oblasti. – The fauna of dragonflies (Insecta, Odonata) of Amur region. *Problemy Ekol. verh. Priamur'ya* 3: 109-116. (Russ., with Engl. s.). – (Dept Zool., Pedagog. Inst., Ul. Lenina 105, RUS-675000 Blagoveshchensk).
The fauna (57 spp.) is reviewed, and its biogeographic composition is analyzed.

(12370) MALIKOVA, E.I., 1997. O kollekcii strekoz (In-

secta, Odonata) iz severnoy Mongolii. – About small collection of dragonflies (Insecta, Odonata) from northern Mongolia. *Problemy Ekol. verh. Priamur'ya* 3: 117-118. (Russ., with Engl. s.). – (Dept Zool., Pedagog. Inst., Ul. Lenina 105, RUS-675000 Blagoveshchensk).
Annotated list of 6 spp., collected in Darkhan, 2-VII--1985. Calopteryx v. virgo is recorded for the first time from this region.

(12371) MARSHALL, S., 1997. *Insects of Algonquin Provincial Park.* Friends of Algonquin Park, Whitney/ ON. 48 pp. ISBN 1-895709-36-9. – Price: Can $ 2.95 net. – (Orders to: Algonquin Provincial Park, P.O. Box 219, Whitney, ON, K0J 2M0, CA).
An attractive review of the insect world of the Park, Ontario, Canada. It features sections on, and col. phots of the Odon. – (For a booklet on the Odon. of the Park see *OA* 10984. An updated and enlarged edn is scheduled to appear in 2001).

(12372) MOCEK, B., 1997. Výsledky přírodovědeckých výzkumú lokality Hradec Králové "Na Plachtě" vevýchodnich Čechách. – Results of the botanical and zoological research in the locality Hradec Králové, "Na Plachtě", eastern Bohemia, Czech Republic. *Acta Mus. reginaehradecensis* (A) 25: 3-20. (Czech, with Engl. title). – (Muzeum východch Čech, Eliščino nabr. 456, CZ-500-39 Hradec Králové).
A detailed description of habitats of the odon. fauna as referred to in *OA* 11599.

(12373) MURSCH, A. & A.W. STEFFAN, 1997. Subfossile Gliederfüssler von Salzsee-Ufern im nördlichen Nambia (Arthropoda: Solifugae, Scorpiones, Chilopoda, Diplopoda, Insecta). *Verh. westdt. Ent. Tag.*, Löbbocke-Mus., Düsseldorf 1996: 197-211. – (Second Author: Abt. Zool. & Ökol., Ruhr-Univ., D-44780 Bochum).
An adult Anax tristis ♀ is reported from a huge salt--incrustated arthropod thanatocoenosis in a lake, ca 60 km SSW of Oshakati, Ovamboland, Nambia.

(12374) NAUJECK, A., 1997. Untersuchung der Makrofauna des Scheubaches bei Nassau/Lahn. *Fauna Flora Rhineland-Pfalz* (Beih.) 22: 199-208. – (Deepenstöcken 6, D-22529 Hamburg).
Cordulegaster bidentata is recorded from the stream; Rhineland-Palatinate, Germany.

(12375) O'BRIEN, M.F., 1997. Enallagma basidens (Odonata: Coenagrionidae) expands its range into Michigan. *Gr. Lakes Ent.* 30(4): 181-183. – (Ins. Div., Mus. Zool., Univ. Michigan, Ann Arbor, MI 48109--1079, USA).
The sp. has been expanding its range across N. America since the early part of this century. It is now recorded from Lenawee Co. and Tuscola Co., 2 widely-separated localities in the lower peninsula of Michigan, USA.

(12376) PETZOLD, F., 1997. Zur Libellenfauna (Insecta, Odonata) des Altkreises Schleiz: ein Arbeitsbericht. *Thüring. faun. Abh.* 4: 56-63. (With Engl. s.). – (Pappelallee 69, D-10437 Berlin).
37 spp. were evidenced during 1992-1997 at 214 water bodies in the former district of Schleiz, Thuringia, Germany. The status of these is stated, and the fauna is briefly discussed.

(12377) POLHEMUS, D.A., 1997. Phylogenetic analysis of the Hawaiian damselfly genus Megalagrion (Odonata: Coenagrionidae); implications for biogeography, ecology, and conservation biology. *Pacif. Sci.* 51(4): 395-412. – (Dept Ent., MRC 105, Natn. Mus. Nat. Hist., Smithsonian Instn, Washington, DC 20560, USA).
A phylogeny of the 22 spp. currently recognized in the genus Megalagrion, endemic to the Hawaiian Islands, is presented based on an analysis of 23 morphological and ecological characters. After the exclusion of M. williamsoni, known from only a single ♂, and inclusion of sspp. within their nominate taxa, a single resolved tree of length 85 was obtained; this tree has a consistency index of 0.56 and a retention index of 0.72. Based on this phylogeny, it appears that the major clades within Megalagrion differentiated on Kaua'i or an antecedent high island. These clades subsequently colonized the younger islands in the chain in an independent and sequential fashion. The phylogeny also implies an ecological progression from ancestral breeding sites in ponds or slow stream pools to breeding on seeps, with the latter habitat having given rise on one hand to a clade of species breeding in phytotelmata or terrestrially, and on the other hand to a clade breeding in rushing midstream waters. The latter ecological progression also indicates a transformation series in larval gill structure from foliate to saccate and eventually to lanceolate. Most spp. of current conservation concern are shown to be clustered in particular clades, indicating an inherent phylogenetic vulnerability of certain taxon clusters to novel

ecological perturbations; the additional spp. at risk not present in the above clades are endemics confined to the island of O'ahu and have declined because of their geographic provenance.

(12378) REINHARDT, K., 1997. [Buchbesprechung]. Jödicke, R. (1997): Die Binsenjungfern und Winterlibellen Europas. Lestidae. *Ent. Nachr. Ber.* 41(3): 171-172. – (Inst. Ökol., Biol.-Pharmazeut. Fak., Domburger Str. 159, D-07743 Jena).
A comprehensive book review of the work described in *OA* 11584.

(12379) RENKER, C., 1997. Faunistischer Jahresbericht 1995/96 für den Regierungsbezirk Koblenz. *Fauna Flora Rheinland-Pfalz* (Beih.) 22: 115-168. – (Martin-Luther Str. 91, D-56112 Lahnstein).
The report covers all animal groups, from Plathelminthes to Mammalia, and includes a very carefully prepared list of records of 30 odon. spp. in the district of Koblenz, Germany.

(12380) SANDBERG, E., 1997. *Benthic predator-prey relationships and abiotic stress: the effects of physical disturbance and oxygen deficiency*. Åbo Akad. Univ. Press, Åbo. viii+42 pp. ISBN 952-9619-73-2. [*Acta Acad. aboensis* (B) 56(2)]. – (Tvärminne Zool. Stn, FIN-10900 Hanko).
A sequel to the experimental work described in *OA* 12347.

(12381) SOLIMINI, A.G., G.A. TARALLO & G. CARCHINI, 1997. Life history and species composition of the damselfly assemblage along the urban tract of a river in central Italy. *Hydrobiologia* 356: 21-32. – (Third Author: Depto Biol., Univ. Roma "Tor Vergata", Via della Ricerca Scientifica, I-00133 Roma).
The Zygopt. assemblage and the life history patterns of Coenagrion lindeni and Ischnura elegans were investigated along a 50 km tract of the Tiber R. in the proximity and inside the city of Rome, characterized by increasing organic pollution. The assemblage was dominated by generalist spp., usually recorded in lentic habitats, rather than by typical riverine spp. The proportion of the latter decreases at the most polluted sites. At the end of winter, the mean size and instar distribution were different between the sampling sites showing that the life history of both spp. examined were influenced by a degradation of the environmental quality. A longer reproductive period, absence of diapause, and tolerance of low oxygen concentration appear to be key factors that allow the generalists I. elegans and C. lindeni to predominate at the polluted sites.

(12382) TROCKUR, B., 1997. Libellenfauna der grösseren Stillgewässer in der Gemeinde Rehlingen-Siersburg. Gemeinde Rehlingen-Siersburg. 38 pp. – (Free copies available from: Umweltamt, Gemeinde Rehlingen-Siersburg, Postfach 1040, D-66774 Rehlingen-Siersburg).
Assessment of odon. communities (34 spp.) of 12 water bodies, with management suggestions; – Saarland, Germany. The occurrence of Cercion lindeni, Erythromma najas, Anax parthenope, Epitheca bimaculata, Crocothemis erythraea and Libellula fulva is of regional interest.

1998

(12383) *ABSTRACTS OF PAPERS [PRESENTED AT THE] 5th SOUTH ASIAN SYMPOSIUM OF ODONATOLOGY*, Shri Shivaji Education Society Amravati's Science College, Nagpur, 20-21 Dec. 1998. vi+28 pp. Regional Office in South Asia, Societas Internationalis Odonatologica (SIO ROSA). Edited by & available from: Dr D.B. Tembhare, Dept Zool., Nagpur Univ. Campus, Amravati Rd, Nagpur-440010, Maharashtra, India).
Andrew, R.J. & S.D. Pankule: Oviposition, fertilization and egg chorionic ultrastructure of the dragonfly Tramea virginia (Rambur) (Anisoptera: Libellulidae) (p. 1); – *Bhawane, G.P., A.R. Gaikwad & D.S. Nikam*: Thoracic muscle trehalase in larvae and adults of Pantala flavescens (Fabricius) (Anisoptera: Libellulidae) (p. 2); – *Biswas, V., A. Begum, M.A. Bashar & S.A. Begum*: Morphology of male genitalia of some dragonflies (Odonata: Anisoptera) from Dhala, Bangladesh (p. 3); – *Chowdhury, S.H. & C.S. Gupta*: Experimental evidence on the distribution of vibration sensilla in Brachydiplax chalybea larvae (p. 4); – *Daniel, B.A., S. Molur & S. Walker*: Conservation Assessment and Management Plan (CAMP) workshop: a tool to provide strategic guidance for the management of threatened taxa (p. 5); – *Gupta, A. & S. Gupta*: Sensilla on the antenna and leg of the larva of Crocothemis servillia (Drury) (Anisoptera: Libellulidae) (p. 6); – *Gupta, I.J. & T.R. Mitra*: First record of Odonata from Pong wetland, Himachal Pradesh (p. 7); – First record of Odonata from Harike wetland, Punjab, India (p. 8); – *Kalaskar, K. & A.S. Kalaskar*: Odonata diversity of Pench National Park, Maharashtra state (p. 9); – *Khan, M.W. & D.B.*

Tembhare: Histological, histochemical and scanning electron microscopy of the rectum in the dragonfly Pantala flavescens (F.) larva (Anisoptera: Libellulidae) (p. 10); – *Kumar, A. & A. Mitra*: Odonate diversity of Sahastradhara (Sulphur Springs) at Dehra Dun, India, with a note on their habitat ecology (p. 11); – *Kumar, A. & P. Kimari*: Comparative studies on population density and species diversity of anisopteran and zygopteran larvae in a tribal village fish pond of Santhal Pargana (Bihar), India (p. 12); – *Lahiri, A.R.*: New records of Odonata (Insecta) from Little Andaman Island (p. 13); – *Lahiri, A.R. & G. Walia*: On the presence of preapical spot on hind wing of Palpopleura s. sexmaculata (Anisoptera: Libellulidae) (p. 14); – *Mitra, T.R.*: Diversity and zoo-centers of Indian Odonata (p. 15); – *Paritha Bhanu. A. & M.A. Subramanian*: Tannery effluent induced alterations on total haemocyte counts in the larvae of dragonfly Pantala flavescens (Fabricius) (Anisoptera: Libellulidae) (p. 16); – *Prasad, M., P.P. Kulkarni & S.S. Talmale*: Reversal of sexual dimorphism in females of Neurothemis Brauer (Odonata: Anisoptera) (p. 17); – *Sharon, R. & Thomas, M.*: Predatory efficiency of Bradinopyga geminata (Rambur), Ranatra elongata (Fabricius) and Laccotrephes griseus (Guerin) on mosquito larval prey (p. 18); – *Roy, S.P.*: Energetics and trophic biology of larval odonates, with special reference to their role in the management of aquatic ecosystem (p. 19); – Abundance, frequency, dominance and productivity of odonate larvae at the aquatic systems of Santhal Pargana (Bihar) (p. 20); – *Subramanian, M.A. & S. Muralidharan*: The impact of tannery effluent on rectal gills and oxygen consumption in the larvae of dragonfly Pantala flavescens (Fabricius) (Anisoptera: Libellulidae) (p. 21); – *Subramanian, M.A. & A. Reni Prabha*: Juvenomimetic role of tannery effluent on the larvae of dragonfly Pantala flavescens (Fabricius) (Anisoptera: Libellulidae) (p. 22); – *Srivastava, V.K. & B. Suri Babu*: Studies on the morphohistology of the primary organs of reproduction in male Pseudagrion decorum (Rambur) (Zygoptera) (p. 23); – *Suri Babu, B.*: Description of the larva of Neurothemis i. intermedia (Rambur) (Anisoptera: Libellulidae) (p. 24); – *Tembhare, D.B. & S.M. Wazalwar*: Stomodeal fine structures in the dragonfly Brachythemis contaminata (Fabricius) (Anisoptera: Libellulidae) (p. 25); – *Thomas, M., M. Gladstone & M. Daniel*: Larval habit selection and food preference of Brachythemis contaminata (Fabricius) and Ictinogomphus rapax (Rambur) (p. 26); – *Walia, G.K. & R. Sandhu*: Chromosomal data on twenty-five species of family Libellulidae (Anisoptera) (p. 27). – See also *OA* 12448.

(12384) AIDA, M., 1998. [Abnormal oviposition in two Sympetrum species, presumably due to rainfall]. *Gekkan-Mushi* 334: 28. (Jap.) – (1-17-15, Sakae, Ichinomiya, Aichi 491-0858, JA).
Some S. frequens tandems were found ovipositing in dense reeds at an almost dried up irrigation pond, at Inazawa, Aichi pref., 16-X-1997. A similar case was recorded at Iwakura, Aichi, 19-X-1997. A S. infuscatum tandem was sighted ovipositing hovering above dried up ground at Ichinomiya, Aichi, 20-X-1997. The phenomenon is ascribed to the pouring rain.

(12385) *ARGIA*. The news journal of the Dragonfly Society of the Americas, Vol. 10, No. 4 (15 Dec. 1998). – (c/o Dr & Mrs T.W. Donnelly, 2091 Partridge Lane, Binghamton, NY 13903, USA).
[Signed articles:] *Tennessen, K.*: The return of Butch Cassidy and the Sundance Kid (pp. 3-6; Bolivian records); – *Donnelly, N.*: Anax junius in England!?: excerpted from The Independent (p. 6); – More about Anax junius crossing the ocean (pp. 6-7); – *Orr, R.*: Anax junius 1998 spring migration data from Maryland's PWRC (pp. 7-8); – Gomphid emergence times along the Little Patuxent river, Maryland (p. 8); – *White, H.*: DSA meeting in Valentine: reflections on odonate conservation (pp. 9-10); – *Donnelly, N.*: Documenting rare odonates: a nice problem to have but a problem none the less (pp. 10-11); – *Carpenter, G. & K. Legler*: Williamsonia lintneri in Wisconsin? and with fletcheri? (p. 11); – *Behrstock, R.A.*: Notes on the first record of Turquoise-tipped darner (Aeshna psilus) in Arizona (pp. 11-12); – *Beckemeyer, R.*: Tramea calverti collected in Missouri (p. 13); – *Cannings, S.*: Dragonflying in the mountains (pp. 13-14; British Columbia); – *SaintOurs, F.*: North River, Massachusetts odonate survey (pp. 14-15); – *O'Brien, M.*: 1998 season summary for the Michigan Odonata Survey (pp. 15-17); – *Lefort, F. & P.M. Catling*: A survey of damselfly adults at urban and non-urban streams at Ottawa, Ontario (pp. 17-19); – *Catling, P.M. & V.R. Brownell*: Migratory concentrations of dragonflies on the north shore of Lake Ontario, and northward extension of migratory species (pp. 19-22); – *Daigle, J.J.*: Visit to Sabino Canyon (pp. 22-23; Arizona); – *Biggs, K.*: A productive first year in California (pp. 23-24); – *Manolis, T. & A. Rehn*: First

records of Leucorrhinia proxima, Aeshna canadensis, and Sympetrum vicinum for California (pp. 24-25); – *Johnson, J.*: Somatochlora walshii recorded in Oregon (p. 25); – *Honig, B.*: Sight and photo records for odonates from Houston, Texas (pp. 25-26); – *Beckemeyer, R.*: Some Kansas state and county Odonata records for 1998 (p. 26); – Some miscellaneous Odonata collected in the Midwest in 1998 (pp. 26-27); – Nebraska and South Dakota Odonata: a compilation of collecting reports related to the July, 1998 Valentine, Nebraska Annual Meeting of the Dragonfly Society of the Americas (pp. 27-28); – *Beckemeyer, R. & S. Hummel*: Two notes on Somatochlora ensigera, the Plains Emerald (pp. 28--30); – *Steele, M.*: Beginner strikes in rich! (pp. 30--31; Florida, Tennessee, Kentucky); – "*Tramea*", web site review, by *R. Beckemeyer* (pp. 33-34).

(12386) ASHE, P., J.P. O'CONNOR & D.A. MURRAY, 1998. A checklist of Irish aquatic insects. *Occ. Pub. Ir. biogeogr. Soc.* 3: vi+80 pp. – (Copies available, at £ 6.- net, from: Dr D.A. Murray, Dept Zool., Univ. Coll., Belfield, Dublin-4, Eire).
The odon. checklist (pp. 6-7) includes 27 spp.

(12387) BEDJANIČ, M., 1998. *Poskus analize favne kačjih pastirjev Šri Lanke (Insecta: Odonata). – An attempt of the analysis of the dragonfly fauna of Sri Lanka (Insecta: Odonata).* Graduation thesis, Dept Biol., Univ. Ljubljana. x+90 pp., maps & col. pls incl. (Slovene, with Engl. s.). Fram 117/A, SI-2313 Fram).
A thorough monographic review of the odon. fauna of Sri Lanka (Ceylon), with synonymies, adult phenology and biogeographic analyses, considerations on conservation, discussion on regional biodiversity, and with a complete regional bibliography. – The Synopsis includes 115 spp./sspp., 53 (> 46%) of which are endemic. Due to the uncertain regional status, Aciagrion hisopa, Neurothemis fluctuans, Trithemis k. kirbyi, Rhyothemis obsolescens, R. p. phyllis and Aethriamanta b. brevipennis are deleted. Fresh records are provided for 52 spp., from 22 localities. The previously unknown ♀ Elattoneura bigemmata and exuviae Epophthalmia vittata cyanocephala are described and illustrated. All the available adult phenology data are species-wise analysed, and the recognizable seasonal patterns of occurrence on the wing are pointed out. Such an approach has never been before applied to the fauna of a large, relatively inadequately explored tropical region, but the result it renders will stimulate and significantly facilitate future research. A biographic analysis of the Ceylonese odon. fauna has been attempted earlier by F.F. Laidlaw (1924, 1951). Here updated, it does not dwell on horological speculations, emphasizing rather the apparent similarities to the adjacent territories, while the main considerations are focussed on the endemic taxa. – This is a well-balanced study, concise and lucid, containing many critical considerations of a gifted professional taxonomist. The work represents one of the very few modern monographic treatments of a large Southasian region. Its style is similar to, and its scope is somewhat broader than those of the classical M.A. Lieftinck's Malaysian "Handlist" (1954).

(12388) BELLE, J., 1998. Synopsis of the neotropical genus Rhodopygia Kirby, 1889 (Odonata: Libellulidae). *Zool. Meded. Leiden* 72(1): 1-13. – (Onder de Beumkes 35, NL-6883 HC Velp).
The 5 known spp. are described and keyed. The ♀ R. hinei Calv. and R. pruinosa Buchholz are described for the first time.

(12389) *BULLETIN OF AMERICAN ODONATOLOGY*, Vol. 5, No. 3 (20 Nov. 1998). ISSN 1061-3781. – (c/o Dr & Mrs N. Donnelly, 2091 Partridge Lane, Binghamton, NY 13903, USA).
Glotzhober, R.C. & D. Riggs: Adapting the Townes malaise trap for collecting live Odonata (pp. 43-48); – *Moskowitz, D.P. & D.M. Bell*: Archilestes grandis (Great Spreadwing) in central New Jersey, with notes on water quality (pp. 49-54); – *Paulson, D.R.*: Variation in head spines in female Ophiogomphus, with a possible example of reproductive character displacement (Anisoptera: Gomphidae) (pp. 55-58).

(12390) CALDWELL, J.P. & M.C. DE ARAUJO, 1998. Cannibalistic interactions resulting from indiscriminate predatory behavior in tadpoles of poison frogs (Anura: Dendrobatidae). *Biotropica* 30(1): 92-103. (With Span. s.). – (First Author: Oklahoma Mus. Nat. Hist., Univ. Oklahoma, 1335 Asp Ave, Norman OK 73019-0606, USA).
The odon. information in this paper comes from the first Author's earlier work, abstracted in *OA* 9255.

(12391) CLENAGHAN, C., P.S. GILLER, J. O'HALLORAN & R. HERNAN, 1998. Stream macroinvertebrate communities in a conifer-afforested catchment in Ireland: relationships to physico-chemical and biotic factors. *Freshw. Biol.* 40(2): 175-193. – (Second Author: Dept Zool. & Anim. Ecol., Univ.

Coll. Cork, Lee Maltings, Prospect Row, Cork, Ireland).
Gives no species list, and contains only passing references to the acid-tolerant character of odon., which in the study area (Douglas R. catchment, Araglin Valley, Co. Cork) primarily occur at the acid moorland sites.

(12392) DINGEMANSE, N.J., 1998. Vliegtijd van Aeshna subarctica in Nederland. – [Adult phenology of Aeshna subarctica in the Netherlands]. *Amoeba, Amst.* 72(3): 108-110. (Dutch). – (Prins Hendrikweg 19, NL-6721 AD Bennekom).
No records are known in the Netherlands between 1955-1983. At present, the sp. is rather common, though almost entirely restricted to Friesland. It is on the wing from early July until September/October.

(12393) ENDERSBY, I.D., 1998. Dragonflies of Mount Buffalo National Park. *Victorian Ent.* 28(5): 83-85. – (56 Looker Rd, Montmorency, Vic. 3094, AU).
During a Feb. week in 1998, the odon. fauna of the Park (Victoria, Australia) was systematically surveyed. 12 spp. (adult and/or larvae) were evidenced at 6 localities. The records are listed and briefly discussed.

(12394) FELDMANN, R.M., F.J. VEGA, S.P. APPLEGATE & G.A. BISHOP, 1998. Early Cretaceous arthropods from the Tlayúa Formation at Tepexi de Rodriguez, Puebla, Mexico. *J. Paleont.* 72(1): 79-90. – (First Author: Dept Geol., Kent St. Univ., P.O. Box 5190, Kent, OH 44242-0001, USA).
Ixtahua benjamini gen. n., sp. n. (Anisoptera?, fam. uncertain) is described and illustrated from a larva, preserved in ventral view. Holotype IGM-6536 is deposited at Mus. Paleont., UNAM, Mexico.

(12395) FRANCE, R.L., 1998. Density-weighted $\delta^{13}C$ analysis of detritivory and algivory in littoral macroinvertebrate communities of boreal headwater lakes. *Annls zool. fenn.* 35(3): 187-193. – (Graduate Sch. of Design, Harvard Univ., 48 Quincy St., Cambridge, MA 02138 USA).
Investigations of the incorporation of terrestrial detritus into aquatic macroinvertebrates through $\delta^{13}C$ analysis are becoming frequent for streams and wetlands, but comparatively little information exists for forest-fringed oligotrophic lakes. Although the most accurate assessment of community patterns in carbon dependency will be made through an organism density-weighted analysis of $\delta^{13}C$, this has never previously been undertaken for any freshwater system. Littoral macroinvertebrates (predominantly amphipods, ephemeropterans and dipterans, as well as odon. and trichopterans) from boreal lakes in northwestern Ontario, Canada displayed ranges of 6‰ to 9‰ in $\delta^{13}C$, all centred about -26‰. The closer agreement between the density-weighted $\delta^{13}C$ distribution for these macroinvertebrates to tree rather than epilithon values, suggests that these organisms may be relying more substantially upon allochthonous detritivory than upon autochthonous algivory for energy sustenance. This finding therefore challenges the precept in some timber management guidelines that dismisses riparian trees as an important energy source for lake foodwebs.

(12396) GAGINA, T.N., 1998. K faune strekoz sameystva Corduliidae (Odonata) Kemerovskoy oblasti. – [On the corduliid dragonfly fauna of Kemerovo district]. *Problemy Ent. Ross.* 1: 83. (Russ.). – (Dept Biol., Kemerovo St. Univ., Kemerovo, Russia).
Corduliae aenea, Somatochlora flavomaculata, S. graeseri, S. metallica and Macromia sibirica are listed; – Siberia, Russia.

(12397) *GOMPHUS.* Mededelingsblad van de belgische libellenonderzoekers – Bulletin de liaison des odonatologues belges, Vol. 14, No. 1/4 (Dec. 1998). (Dutch & Fr.). – (c/o G. de Knijf, Ploegstraat 33, B-9050 Gentbrugge).
Tailly, M./P. Goffart: Editorial (pp. 1-2); – *De Knijf, G. & A. Anselin*: [Description and assessment of nature in Flandres: dragonfly role in nature conservation] (pp. 3-31); – *Bonte, D.*: [A Sympecma fusca (Vander Linden, 1820) population in the coastal dunes of Bray-Dunes, France: possibly responsible for the sightings along the western coast of Flandres] (pp. 32-34); – *Vanderhaeghe, F.*: [Coenagrion scitulum (Rambur, 1842) penetrated into Belgium] (pp. 35-36); – *Anselin, A.*: Compte-rendu de la réunion Gomphus du 18 novembre 1998 à Bruxelles (résumé) (pp. 37-42).

(12398) GORB, S.N., 1998. Visual cues in mate recognition by males of the damselfly, Coenagrion puella (L.) (Odonata: Coenagrionidae). *J. Ins. Behav.* 11(1): 73-92. – (Dept Ins. Physiol., Schmalhausen Inst. Zool., Chelmicky 15, UKR-252601 Kiev-30).
♂♂ search actively for mates and are not aggressive to other ♂♂. To study the role of visual cues in ♂-♀ discrimination, 4 types of models were used: (1) bodies of intact insects, (2) models of painted ♂♂, (3)

models of ♂-♀ chimerae, and (4) models of ♀ body parts. Abdomen coloration pattern and presence of wings were the most important cues for sexual recognition by ♂♂. Step-by-step elimination of ♂ coloration pattern leads to an increase in the tandem response rate. A ♀ model painted as a ♂ repelled ♂♂ like the intact ♂ model. The absence of either the head or the thorax slightly decreased the number of tandem responses, but models without both the head and the thorax were not recognized as a mate. Abdomen thickness larger than that of a normal ♀ decreased the attractiveness of the model. Models of the gynochrome ♀ were significantly more attractive than models of the androchrome one. ♀ models containing ♂ parts were less attractive than models without any structure at this place. Using principal-components analysis, it is shown that models repelling males usually were those containing an intact ♂ abdomen or a ♀ abdomen painted with blue. The results indicate that C. puella ♂♂ can distinguish ♂♂ from ♀♀ visually by morphological structures and coloration pattern.

(12399) *GRACILE*. [Newsletter of Odonatology], Osaka, No. 60 (6 Dec. 1998). (Jap., with Engl. titles & some s's). – (c/o K. Inoue, 5-9, Fuminosato 4-chome, Abeno-ku, Osaka, 545-0004, JA).
Irikawa, B., K. Tani & K. Tani: Tholymis tillarga first caught in Nara prefecture (pp. 1-3); – *Matsuki, K. & M. Aida*: On the number of dorsal and lateral spines of Gomphus postocularis larvae collected along Nagara River, Gifu City, Gifu prefecture (pp. 4-5); – *Matsuki, K. & K. Yoshida*: on the deviation of dorsal and lateral spines of larvae of Asiagomphus species collected in Tokushima prefecture (pp. 6-11); – *Nishiura, N.*: A larva of Aeschnophlebias anisoptera predates a shell (pp. 12-13); – *Sogame, S.*: Planaeschna naica observed at Kinsakubaru Primeval Forest, Amami-oshima, Kagoshima prefecture (pp. 13-14); – *Inoue, K.*: Pantala flavescens attracted by light (p. 15; with Engl. s.); – *Tani, K.*: Calopteryx atrata attracted by light (p. 16); – *Yamashita, Y.*: Orthetrum triangulare melania emerged after six years in my garden (p. 17); – *Matsuda, I.*: Report on [the] survey on the odonate fauna of Hachigamine, Sakai City, Osaka prefecture, 1997 and 1998 (p. 18); – Report of the survey trip on the odonate [fauna] of Sinodayama, Izumi City, Osaka prefecture, in summer 1998 (pp. 19-20); – *Tabata, O.*: Report of the survey trip on the odonate fauna of Maizuru city, Kyoto prefecture, focus[s]ed on Calopteryx japonica (pp. 21-22); – *Sasamoto, A.*: Report of the survey trip on the odonate fauna of northern Nara prefecture, in summer 1998 (pp. 23-25); – *Anaze, N.*: Report of the survey trip on the odonate fauna of Kinshu-ji, Wakayama prefecture, in autumn 1998 (pp. 25-29); – *Inoue, K.*: A corrigendum and some additions to my article in Gracile No. 59 (pp. 30-31; Slovenia, cf. *OA* 12129; with Engl. s.).

(12400) *HAGENIA*. Mitteilungsblatt des deutschen Büros der SIO und der GdO, No. 15 (1 March 1998), No. 16 (1 Nov. 1998). – (c/o Mrs U. Krüner, Gelderner Str. 39, D-41189 Mönchengladbach).
In addition to the news items, various notes, book reviews, brief reports, announcements, etc., all arranged under the traditional section headings, the issues contain the following scientific or otherwise noteworthy notes: [No. 15]: *Harrison, F.*: Libelle als Köder (pp. 16-17); – *Jödicke, R.*: Zum Bericht "Sympetrumwanderung am 11.08.96 bei Gummern" von E. & W. Kappes (p. 18). – [No. 16]: *Burbach, K. & J. Werzinger*: Fortpflanzungsnachweise der Schabrackenlibelle (Hemianax ephippiger) und Herbstschlupf von Kleiner Königslibelle (Anax parthenope) und Becher-Azurjungfer (Enallagma cyathigerum) in Bayern (p. 15); – *Burbach, K.*: Markierte Frühe Heidelibellen Sympetrum fonscolombii) (p. 15); – Sibirische Azurjungfer (Coenagrion hylas) (pp. 15-16).

(12401) HANEL, L., 1998. Ochrana vážek České republiky. – Dragonfly protection in the Czech Republic. *Sb. Semin. "Krajina a Voda"*, Veseli-nad-Moravou, pp. 136-138. (Czech, with Engl. s.). – (Kladruby 33, CZ-257-62 Kladruby-33).
The current research, related to the odon. conservation in the Czech Republic is outlined. It includes field surveys, field experiments and laboratory work. 43 spp. are redlisted.

(12402) HARITONOV, A.Yu., 1998. Issledovaniya strekoz v Sibiri: retrospektiva i sovremennost'. – [Dragonfly exploration of Siberia: past and present]. *In*: Biologicheskoe raznoobrazie zhivotnyh Sibiri, pp. 19-20, Tomsk St. Univ., Tomsk (Russ.). – (Inst. Anim. Syst. & Ecol., Siberian Br., Russ. Acad. Sci., Ul. Frunze 11, RUS-630091 Novosibirsk).
A brief outline of odonatol. research in Siberia (1856-), without bibliography.

(12403) HARITONOV, A.Yu., 1998. Strekozy (Insecta, Odonata) yuzhnogo Zaural'ya. – The dragonflies (Insecta, Odonata) of southern Transuralia. *Mater. vseross. Konf. bespozvon. Zhivot. yuzhn. Zaural.*, Kuran, pp.

345-347. (Russ., with Engl. title). – (Inst. Anim. Syst. & Ecol., Siberian Br., Russ. Acad. Sci., Ul. Frunze 11, RUS-630091 Novosibirsk).
A checklist of 51 spp., with information on the status, larval habitat and adult phenology of all spp., and with a biogeographic analysis of the fauna.

(12404) HILLBRIGHT-ILKOWSKA, A., 1998. Różnorodność biologiczna siedlisk sładkowodnych: problemy, potrzeby, działania. – [Biodiversity in freshwater habitats: problems, needs, achievements]. *Idee ekol.* (Szkice) 13(7): 13-54. (Pol., with Engl. s.). – (Dept Hydrobiol., Inst. Ecol., Pol. Acad. Sci., Dziekanów Leśny, PO-05-092 Łomianki).
A review of the situation in Poland, with only a passing reference to the Odon.

(12405) HONG, Y.C., 1998. Establishment of fossil entomofaunas and their evolutionary succession in North China. *Entomologia sin.* 5(4): 283-300. (With Chin. s.). – (Beijing Mus. Nat. Hist., 126 Tianqiao St., Beijing-100050, P.R. China).
Based on large material from the Paleozoic, Mesozoic and Tertiary strata of northern China, 3 evolutionary mega-stages, incl. 14 fossil insect faunas and 29 insect assemblages have been established. These are here described, and the odon. are also included.

(12406) HORVÁTH, G., B. BERNÁTH & G. MOLNÁR, 1998. Dragonflies find crude oil visually more attractive than water: multiple-choice experiments on dragonfly polarotaxis. *Naturwissenschaften* 85(6): 292-297. – (Dept Biol. Physics, Eötvös Univ., Puškin u. 5-7, HU-1088 Budapest).
Enallagma cyathigerum, Ischnura pumilio and Sympetrum vulgatum, both sexes, were used in the experiments. It is demonstrated that polarotaxis is the most important mechanism which guides odon. in their habitat choice and oviposition site selection, which is the reason they are attracted by crude or waste oil, tar or asphalt.

(12407) INOUE, K., 1998. [A conversation with a Swiss lady in the Engadine on insect conservation]. *Nikkon-kyo Newsl.* 33/34: 1-19. (Jap.). – (5-9, Fuminosato 4-chome, Abeno-ku, Osaka, 545-0004, JA).
At the instant when he took a voucher specimen of Somatochlora alpestris, at Lej da Staz nr St. Moritz, Switzerland, the Author was approached by an annoyed casual passer-by, addressing him on "nature conservation". He responded friendly, telling about dragonfly biology and explaining her that the removal of a required voucher specimen can by no means affect the status of the population. She understood, agreed and translated what she heard to her 2 children. Here, a verbatim record of the conversation is reproduced. – The results of this Engadine survey were published in the paper listed in *OA* 8414.

(12408) JELLINEK, T., 1998. Aus dem Naturmuseum. Exponat des Monats April: eine Libelle aus der oberen Unterkreide NE Brasiliens. *Nat. Mus.* 128(4): 125-126. – (c/o Abt. Ent., Senckenberg Mus., Senckenberganl. 25, D-60325 Frankfurt/Main).
Senckenberg Mus. acquired ca 150 Lower Cretaceous insect specimens of various orders from the "Chapada do Araripe" deposits of Santana Formation, NE Brazil. Here is shown a superbly preserved odon. specimen, with some general text on the collection.

(12409) JENNIONS, M.D., 1998. Tibial coloration, fluctuating asymmetry and female choice behaviour in the damselfly Platycypha caligata. *Anim. Behav.* 55(6): 1517-1528. – (Smithsonian Trop. Res. Inst., Unit 0948, APO AA 34002-0948, USA).
The territorial P. caligata has a courtship behaviour where ♂♂ wave the white anterior surface of all 6 laterally enlarged tibiae at ♀♀. This white tibial surface was altered by using black paint to determine the effect on ♂ behaviour of a 25% reduction in area, or an increase in asymmetry between the left and right side of the body. Behavioural data on courtship, mating and fighting were collected for ♂♂ already holding territories. Neither a reduction in the area nor an increase in asymmetry of tibial whiteness affected mating rate, courtship rate or fighting behaviour. These manipulations also had no significant effect on the daily presence at the study site. ♂♂ whose tibial whiteness was experimentally removed also showed no decrease in mating rate or change in fighting behaviour while territorial. The complete removal of tibial whiteness did, however, lead to a significant reduction in daily presence, possibly due to a reduced ability to acquire or hold a territory. There was no relationship between natural levels of asymmetry in tibial whiteness and mating rate, courting rate or fighting behaviour for ♂♂ with territories. However, the natural area of tibial whiteness was significantly positively related to both mean ♂ mating rate and copulation duration for territorial ♂♂. This result suggests that a phenotypic correlate of area of tibial whiteness, probably body size, is sexually selected through ♀ choice

among ♂♂ that already hold territories.

(12410) KALKMAN, V. [?], 1998. Rivierrombout terug in Nederland. – [Gomphus flavipes in the Netherlands again]. *Vlinders* 13(4): 26. (Dutch). – (Oude Rijnsburgerweg 38, NL-2342 BC Oegstgeest).
The sp. was sighted (?) at several localities along the Waal R., E of Nijmegen. These are the first records for the Netherlands since 1902. The author of the note, the localities and the date are not stated.

(12411) KANO, K., 1998. [Lyriothemis pachygastra display induced by the neuropteran, Hybris subjacens]. *Gekkan-Mushi* 332: 42-43. (Jap.). – (No. 601, 19--17, Koishigawa 5-chome, Bunkyo-ku, Tokyo, 112--0002, JA).
Near a perching Hybris, the dragonfly ♂ hovered, with its abdomen bent upward; Kinu R., Utsonomiya, Tochigi pref., 9-VIII-1997. When the neuropteran took off, the dragonfly followed it and continued the display. It is suggested, the behaviour was induced by body colour, resembling that of ♀ L. pachygastra.

(12412) KANO, K. & H. KITA, 1998. [Hovering flight in young Orthetrum albistylum speciosum and Lyriothemis pachygastra males]. *Gekkan Mushi* 334: 19-20. (Jap.). – (First Author: No. 601, 19-17, Koishigawa 5-chome, Bunkyo-ku, Tokyo, 112-0002, JA).
In a marsh in Chichibu, Saitama, 2 Orthetrums were for ca 30 min alternating the flight with 4-5 s hovering, ca 80 cm above the ground. They were catching prey, consuming it in perching position. Similar behaviour was noticed in a Lyriothemis ♂. This type of "feeding" hovering is different from the reproductive behaviour in mature ♂♂.

(12413) KANO, K., T. MIYAHATA, K. OKAZAKI & F. KOBAYASHI, 1998. [Non-tandem sperm transfer in Chlorogomphus brunneus costalis]. *Gekkan-Mushi* 333: 39-40. (Jap.). – (First Author: No. 601, 19-17 Koishigawa 5-chome, Bunkyo-ku, Tokyo, 112-0002, JA).
In most dragonflies sperm transfer takes place while in tandem. The hitherto reported exceptions are Euphaea yayeyamana, Cordulia aenea amurensis, Crocothemis servilia mariannae and Leucorrhinia dubia orientalis. Herewith, C. brunneus costalis is added to the list. The process is briefly described and photographically documented (Amami-oshima; 13--VI-1998).

(12414) KARUBE, H., 1998. [Dragonflies evidenced during the 1997 Tanzawa survey, Kanagawa prefecture]. *Kanagawa-Chûhô* 122: 6. (Jap., with vernacular nomencl.). – (3573-142, Kayama, Odawara, Kanagawa, 250-0852, JA).
The records of 7 spp., incl. Anisogomphus maacki and Somatochlora uchidai, brought together during 4 field trips in the Tanzawa Hills.

(12415) KARUBE, H., 1998. [Lestes japonica in Kanagawa prefecture]. *Kanagawa-Chûhô* 122: 1-5. (Jap.). – (3573-142, Kayama, Odawara, Kanagawa, 250-0852, JA).
L. japonica has been originally (1883) described by Selys from "Yokohama" in Kanagawa pref., but no other specimen has been ever since reported from the prefecture. Here, 5 ♂ and 2 ♀, taken at a pond in a Yokohama park on 30-VIII-1996, are brought on record. It is emphasized that the vegetation of the pond was transplanted from southern Hyogo, where L. japonica is a common sp. The transplantation took place in April 1996, therefore it is not unlikely the dragonfly was brought in with it then. The Author is warning against this kind of transplantations that may cause disturbance in the natural distributions of various organisms.

(12416) KARUBE, H., 1998. [Occurrence of Onychogomphus viridicostus in Kanagawa prefecture in the recent years]. *Kanagawa-Chûhô* 122: 5-6. (Jap.). – (3573-142, Kayama, Odawara, Kanagawa, 250-0852, JA).
Lately, the number and strength of populations of this sp. have much diminished in Kanagawa pref. Here, adult and larval specimens are brought on record from 5 localities in Odawara and Atsugi.

(12417) KETELAAR, R., 1998. Speerwaterjuffer in het nauw. – [The delicate situation of Coenagrion hastulatum in the Netherlands]. *Vlinders* 13(4): 19-21. (Dutch, with Engl. s.). – (Asterstraat 37, NL-6708 DJ Wageningen).
In the Netherlands the sp. is restricted to the mesotrophic, moderately acid, groundwater-fed fens. At present only 10 populations are known. An updated distribution map is provided.

(12418) KETENCHIEV, H.A. & A.Yu. HARITONOV, 1998. *Opredelitel' strekoz Kavkaza.* – [*Identification key for the dragonflies of the Caucasus*]. Kabardino--Balkarskiy gosud. Univ., Nal'chik. 120 pp. ISBN 5-

-7558-0017-0. (Russian). – (Second Author: Inst. Anim. Syst. & Ecol., Siberian Br., Russ. Acad. Sci., Ul. Frunze 11, RUS-630091 Novosibirsk).
This is a small handbook on the odon. fauna of the Caucasian region (82 spp.), Russia, with emphasis on the adult and larval keys. The local status, habitat requirements, regional distribution, and adult and larval diagnostic figs are provided for all spp. also included are concise chapters on odon. morphology and biology, and on field and laboratory methods of research. A brief outline of the history of exploration of the regional fauna is enhanced by a comprehensive bibliography.

(12419) KINOSHITA, R., 1998. [A case of breeding Macromia daimoji]. *Gekkan-Mushi* 332: 42. (Jap.). – (44-17-1, Kita-karusuyama, Setagaya-ku, Tokyo, 157-0061, JA).
A mortality record of 10 larvae of various instars.

(12420) KIPPING, J., 1998. Ein Beitrag zur Libellenfauna (Odonata) Rumäniens. *Mauritiana* 16(3): 527-538. (With Engl. s.). – (Ringstr. 5/6, D-04600 Altenberg).
Mainly in the Mures R. system, 33 localities were surveyed during 1994-1997. 46 spp. are brought on record. Cercion lindeni, Coenagrion ornatum, Hemianax ephippiger and Cordulegaster heros are of particular interest in Romania.

(12421) KOSSENKO, S.M. & C.H. FRY, 1998. Competition and coexistence of the European Bee-eater Merops apiaster and the Blue-cheeked Bee-eater Merops persicus in Asia. *Ibis* 140(1): 2-13, col. pl. incl. – (Second Author: Dept Zool., Univ. Aberdeen, Tillydrone Ave., Aberdeen, AB9 2TN, UK).
Studies were conducted over a 10-yr period on the 2 spp., breeding in mixed and separate colonies in Turkmenistan, Uzbekistan, Tajikistan and Oman. Their diets were similar, though M. apiaster has a preference for small insects (beetles, ants, termites) and M. persicus for large dragonflies and cicadas. The diet in mixed colonies is also different from that in monospecific colonies. Mean (and range) percentage values of odon. representation in the diets are as follows: M. apiaster, mixed: 5.6 (0.4-13.7), monospecific 5.3 (0.9-9.6); M. persicus, mixed: 15.5 (0.3-39.5), monospecific 13.7 (0.6-36.3)%.

(12422) KOTARAC, M., 1998. *Presoja vplivov na okolje za AC odsek Maribor-Lenart za floro in vegetacijo, favno ter biotope: kačji pastirji (Odonata).* – [*Assessment of the impact of the superhighway, Maribor-Lenart, on flora, vegetation, fauna and biotopes: dragonflies (Odonata)*]. Prirodoslovni muzej Slovenije, Ljubljana. ii+6 pp. (Slovene). – (Requests for copies to: Slovene Mus. Nat. Hist., P.O. Box 290, SI-1001 Ljubljana).
20 spp. are listed from 9 localities, Styria, Slovenia, and conservation measures are suggested. The high environ. quality and the rich odon. assemblage of the Stara Pesnica R. are emphasized.

(12423) KRYUKOVA, N.A., V.V. GLUPOV & A.Yu. HARITONOV, 1998. Morfofunkcional'naya struktura populyacii gemocitov strekoz roda Aeschna F. (Odonata). – [Morpho-functional population structure of haemocytes in the dragonfly genus Aeshna F. (Odonata)]. *Problemy Ent. Ross.* 1: 218-219. (Russ.). – (Third Author: Inst. Anim. Syst. & Ecol., Siberian Br., Russ. Acad. Sci., Ul. Frunze 11, RUS-630091 Novosibirsk).
The evidence is based on larval A. grandis and A. juncea.

(12424) KUHN, K. & K. BURBACH, [Eds], 1998. *Libellen in Bayern.* Eugen Ulmer, Stuttgart. 334 pp. ISBN 3-8001-3495-8. (Hardcover, 19.5×26.0 cm). – Price: DEM 58.-- net. – (Publishers: Wollgrasweg 41, D-70599 Stuttgart-Hohenheim).
A very beautifully made-up, comprehensive monograph on the odon. fauna of Bavaria (74 spp.), Germany. Well balanced and highly informative text is the result of a mutual effort of over 50 authors, which in itself is a rather unique feature in this kind of publications. – The main chapters are: "Allgemeines zur Biologie der Libellen" (pp. 11-18); "Bearbeitungsraum" (pp. 19-25); "Geschichte der Libellenfaunistik in Bayern" (pp. 26-31); "Datengrundlagen" (pp. 32-34); "Landesweite Auswertung" (pp. 35-52); "Die einzelnen Arten" (pp. 53-201); "Lebensräume" (pp. 202-254); "Ausgewählte Naturräume und ihre Libellenfauna" (pp. 255-290); "Libellenschutz" (pp. 291-306); "Aufgaben der Libellenforschung" (pp. 307-311). – Species "monographs" are signed by the respective Authors, and include chapters on the distribution and status and on habitat ecology and biology. Also provided for each sp.: a portrait, general distribution map, Bavarian distribution map, a vertical distribution graph, and the adult phenology graph. – The book is very richly illustrated, the photographs are of excellent quality. Very valuable are also habitat

photographs. – This is probably the best regional monograph so far available. Much of the information it contains is of extralimital interest as well. – Considering the scope and the high typographic quality, the price of the book is rather moderate.

(12425) LAISTER, G., 1998. Leitbild-Libellen, Donau--Traun-Krems-Auen. *Naturk. Jb. Linz* 42/43 [1996/1997]: 181-196. (With Engl. s.). – (Amt Natur--Umweltschutz, Abt. Naturk. Stn, Neues Rathaus, Hauptstr. 1-5, A-4041 Linz).
Based on the original conditions of the Danube-Traun--Krems floodplain area (Austria), a checklist of 34 spp. that were probably indigenous to this region is provided. By means of comparison with the current fauna, the present habitat degradation is pointed out, and detailed management measures to improve the situation are suggested.

(12426) LAURILA, A., J. KUJASALO & E. RANTA, 1998. Predator-induced changes in life history in two anuran tadpoles: effects of predator diet. *Oikos* 83(2): 307-317. – (Div. Popul. Biol., Dept Ecol. & Syst., P.O. Box 17, FIN-00014 University of Helsinki).
The effects of the non-lethal presence of a predator on behaviour and larval life history of Rana temporaria and Bufo bufo tadpoles were studied. Predator diet was manipulated in order to ascertain whether the differences in chemically perceived predation risk affect the tadpoles. Tadpoles of both sp. were raised at 2 food levels either in the absence of the predator or in the presence of an insect-, frog- or toad-fed larval Aeshna juncea. R. temporaria tadpoles lowered their activity in the presence of a predator and also avoided the predator spatially. They showed the strongest response to tadpole-fed predators. The number of days elapsed since the last provisioning of food affected the behaviour of both spp. In R. temporaria, differences in activity level between predator treatments vanished as the food resources were depleted. In B. bufo, activity was lower in the presence of a toad-fed predator shortly after food had been added to the containers. Spatial avoidance of predators by B. bufo was stronger in the presence of a toad-fed predator than when an insect- or frog-fed predator was present. In both tadpole spp. growth rate was higher at the high food level but remained unaffected by the predator treatments. In both spp. individuals at higher food level metamorphosed earlier and at larger size. The metamorphic responses to predator treatments differed between the spp. R. temporaria metamorphosed later and at larger size in the presence of tadpole-fed predators than in the control treatment or in the presence of an insect-fed predator. B. bufo metamorphosed earlier in the presence of a toad-fed predator, but this was only slightly correlated to metamorphic size. Manipulations of predator diet affected tadpole life history in both spp. However, predator effects on larval life history were not mediated by tadpole behaviour in either spp.

(12427) *LIBELLULA*. Mitteilungsblatt der Gesellschaft deutschssprachiger Odonatologen (GdO), Vol. 17, No. 3/4 (Dec. 1998). – (c/o Mrs U. Krüner, Gelderner Str. 39, D-41189 Mönchengladbach).
Blischke, H., C. Brauns & D. Kuck: Die Libellenfauna unterschiedlicher Gewässertypen des mittleren Allier im LIFE-Gebiet Joze-Maringues, Frankreich (pp. 117--147); – *Weihrauch, F.*: Die Entwicklung von Gomphus vulgatissimus (L.) in Kiesgrubengewässern: seltene Ausnahme oder lediglich übersehen? (Anisoptera: Gomphidae) (pp. 149-161); – *Hampe, A.*: Libellen in Ober- und Mittellauf eines südspanischen Flusses: ein ökologischer Vergleich (pp. 163-172); – *Samu, S.*: Zur Populations- und Verhaltensökologie von Coenagrion lunulatum (Charpentier) (Zygoptera: Coenagrionidae) (pp. 173-193); – *Fliedner, H.*: Johann Franz Christian Heyer (1777-1864) und sein Beitrag zur Kenntnis der Libellen, 2. Teil (pp. 195--228); – *Dierschke, V.*: Zum Vorkommen von Libellen auf der Ostseeinsel Hiddensee (pp. 229-235); – *Ruddek, J.*: Gomphus flavipes (Charpentier) neu für Bremen (Anisoptera: Gomphidae) (pp. 237-238). – *Blank, M., D. Diehl & C. Kolmer*: Gomphus flavipes (Charpentier) am Rhein bei Köln (Anisoptera: Gomphidae) (pp. 239-242); – *Werzinger, S. & J. Werzinger*: Gomphus flavipes (Charpentier) zurück in Bayern (Anisoptera: Gomphidae) (pp. 243-245); – *Freyhof, J., I. Steinmann & T. Krause*: Weitere Funde von Gomphus flavipes (Charpentier) im Rhein (Anisoptera: Gomphidae) (pp. 247-252); – *Suhling, F., C. Schütte & K.-G. Leipelt*: Erneute Schlupfnachweise von Aeshna affinis Vander Linden im niedersächsischen Drömling (Anisoptera: Aeshnidae) (p. 253); – *Postler, E. & W. Postler*: Entwicklung von Gomphus vulgatissimus (L.) im Dortmund-Ems-Kanal (Anisoptera: Gomphidae) (p. 254).

(12428) *LINDENIA*. Notiziario dell'Ufficio nazionale italiano della Società odonatologica internationale, Napoli, No. 29 (22 Dec. 1998). – (c/o Dr C. D'Antonio, Via A. Falcone 386/b, I-80127 Napoli).

In addition to various management notes, the issue includes the following scientific communications: *Busetto, A.*: Disegno: Stylurus flavipes (p. 125; record, with fig.); – (*Anonymous*): La famiglia Cordulegastridae Banks, 1892 in Italia (pp. 125-127; with distribution maps); – Checklist; delle "libellule" nella letteratura italiana (pp. 127-128; with comprehensive bibliography).

(12429) MACHADO, A.B.M., 1998. [Odonata]. *In*: A.B.M. Machado et al., [Eds], Livro vermelho das espécies ameaçadas de extinção da fauna de Minas Gerais, pp. 495-497, 499-509, Fundação Biodiversitas, Belo Horizonte, ISBN 85-85401-07-9. – (Depto Zool., Inst. Cienc. Biol., Univ. Federal Minas Gerais, Caixa Postal 486, BR-31270-901 Belo Horizonte, MG).

Out of the 670 odon. spp. hitherto known from Brazil, 218 spp. were recorded from the state of Minas Gerais. Castoraeschna margarethae, Aeshna (Hesperaeschna) eduardoi, Heteragrion obsoletum, H. petiense, and Mecistogaster asticta are threatened with extinction. In the present "Red Book" these are monographically dealt with. Their distribution maps and complete bibliographies are included.

(12430) *MARTINIA*. Revue scientifique de la Société Française d'Odonatologie, Vol. 14, No. 4 (Dec. 1998). – (c/o J.-L. Dommanget, 7 rue Lamartine, F-78390 Bois-d'Arcy).

Jolivet, S. & F. Vaillant: Inventaire préliminaire des odonates du département des Deux-Sèvres (pp. 119--136); – *Le Calvez, V.*: Les odonates de la forêt dominiale de Notre-Dame (départements du Val-de--Marne et de Seine-et-Marne) (pp. 137-145); – *Dommanget, J.-L. & R. Chalmel*: Rubrique bibliographique (pp. 145-150). – A corrective note on *J.-L. Dommanget*'s paper in 14(1) appears on p. 136, authored by *J.-P. Boudot, J.-M. Prot & J.-L. Dommanget.*

(12431) MATSUKI, K., 1998. [On the number of mental and lateral setae in larval Acisoma p. panorpoides]. *Gekkan-Mushi* 334: 31-32. (Jap.). – (1575-14, Hazama 3-chome, Funabasi, Chiba, 274-0822, JA).

Different numbers of setae were described by various authors in the individuals from Taiwan (11-13/6-7), continental China (14/7) and Japan (12/7; 11/6). The subject is briefly discussed.

(12432) McPEEK, M.A., 1998. The consequences of changing the top predator in a food web: a comparative experimental approach. *Ecol. Monogr.* 68(1): 1--23. – (Dept Biol. Sci., Dartmouth Coll., Hanover, NH 03755, USA).

Changing the top predator in a food web often results in dramatic changes in species composition at lower trophic levels: many spp. are extirpated and replaced by new species in the presence of the new top predator. These shifts in species composition also often results in substantial alterations in the strengths of species interactions. However, some spp. appear to be little affected by these changes that cause species turnover at other positions in the food web. An example of such a difference in species responses is apparent in the distributions of coenagrionids among permanent water bodies with and without fish as top predators. Enallagma spp. segregate between ponds and lakes that do and do not support fish populations, with each lake type having a characteristic Enallagma assemblage. In contrast, spp. of Ischnura, the sister genus to Enallagma, are common to both fish and fishless ponds and lakes. Previous research has shown that Enallagma spp. segregate because they are differentially vulnerable to the top predators in each lake type: Anisopt. in fishless lakes and fish in fish lakes. This paper reports the results of a series of laboratory and field experiments quantifying the mortality and growth effects of interactions in the food webs surrounding Enallagma and Ischnura in both lake types. These results are compared to determine how features of the food web change to force segregation of Enallagma between the lake types but permit Ischnura to inhabit both. – The results of experiments conducted in a fishless lake show that damselflies are not food limited in this lake type, but that they do strongly compete via interference mechanisms. Interference effects between the genera are symmetrical. Ischnura spp. have substantially higher growth rates than Enallagma spp. under all conditions in fishless lakes. Although both Enallagma and Ischnura experience substantial mortality from predation by Anax and Aeshna spp., the top predators in fishless lakes, these display a significant bias towards feeding on Ischnura. Mortality rates due to anisopt. predation are not density dependent. The results of experiments done in a fish lake indicate that Zygopt. are food limited and thus compete for resources in fish lakes. Ischnura growth rates are also substantially higher than Enallagma in the fish-lake system. Basiaeschna and Epitheca spp., that coexist with fish do not impose significant mortality on coexisting damselflies, but they do compete for resources with

the Zygopt., and they may also generate feeding interference in the damselflies. Fish impose significantly higher mortality on Ischnura than on coexisting Enallagma, and this mortality is negatively density dependent. – The coexistence of Enallagma and Ischnura is fostered in both lake types by trade-offs in their abilities to avoid predators and to utilize resources. Native Enallagma are better at avoiding coexisting predators in each lake type, but these abilities come at the expense of the ability to utilize resources effectively and to avoid the predator found in the other lake type. In constrast, Ischnura are better at utilizing resources in both lake types, but these abilities come at the expense of effectively avoiding both fish and Anisopt. Understanding the trade-offs faced by spp. at similar trophic positions within a food web is critical to predicting changes in food webs following major environmental perturbations such as changing the top predator.

(12433) *NIEUWSBRIEF VAN DE NEDERLANDSE VERENIGING VOOR LIBELLENSTUDIE*, Vol. 2, No. 4 (Dec. 1998). (Dutch). – (c/o W.J. Hoeffnagel, Krekelmeent 72, NL-1218 ED Hilversum).
A list of indoor meetings and field trips 1999, with various management notices.

(12434) NOVELO-GUTIERREZ, R. & A. RAMIREZ, 1998. The larva of Macrothemis inacuta (Odonata: Libellulidae). *Ent. News* 109(5): 301-306. – (First Author: Depto Ent., Inst. Ecol., A.C., Aptdo Postal 63, MX-91000 Xalapa, Veracruz, Mexico).
A detailed description and illustrations of ultimate instar, with notes on ecology. It is similar to M. celeno, but can be distinguished by a stouter movable hook, larger lateral spines and dorsal protuberances on abd. seg. 8-9. Larvae were found living in lentic environments, in muddy areas close to the shore, where emerging and floating vegetation was present.

(12435) *ODONATA-STUDIUM LARVALE*, Vol. 2 (1998), ISSN 1416-8308. – (c/o Dr K. Bánkuti, Mátra Múzeum, Kossuth u. 40, HU-3200 Gyöngyös).
Ambrus, A., K. Bánkuti & T. Kovács: Larval and adult data on the Odonata fauna of Burgenland (Austria), 2 (pp. 5-8); – Data on the Odonata fauna of the Kisalföld and the West-Hungarian marginal zone, 2 (pp. 9-16); – The Odonata fauna of the Szigetköz (pp. 17-39); – *Ambrus, A., K. Bánkuti, B. Czányi, P. Juhász & T. Kovács*: Larval data to the Odonata fauna of Hungary (pp. 41-52); – *Ambrus, A., K. Bánkuti, G. Csóka & T. Kovács*: Faunistical data to the Odonata fauna of the Körös-Maros National Park (pp. 53-60); – *Olajos, P., B. Kiss & P. Juhász*: Faunistical research on the dragonfly (Odonata) fauna of the Körös-Maros National Park (pp. 61-70; Hung., with Engl. s.).

(12436) *ODONATOLOGICAL LIBRARY NEWS*, No. 22 (5 Apr. 1998), No. 23 (6 Dec. 1998). Published by the Kansai Research Group of Odonatology. (Jap., with Engl. title). – (c/o K. Inoue, 5-9, Fuminosato 4--chome, Abeno-ku, Osaka, 545-0004, JA).
In the 2 issues, 736 recent Japanese titles are listed.

(12437) The *OHIO DRAGON-FLIER*. Newsletter of the Ohio Odonata Society, Vol. 8, No. 1 (Jan. 1998), No. 2 (June 1998), No. 3 (Oct. 1998). – (c/o B. Glotzhober, Ohio Hist. Soc., 1982 Velma Ave, Columbus, OH 43211-2497, USA).
Most notes and articles are by the Editor (B. Glotzhober) and are not signed. Major signed articles: [No. 1]: *Chordas, S.W.*: Common spreadwing captured the first week of April in Ohio (p. 4); – *[Glotzhober, B.]*: "All counties" list grows (p. 4); – *Glotzhober, B.*: A tribute to Bob Alrutz (pp. 5-6, with bibliography). – [No. 2]: *Chordas, S.W. & E.G. Chapman*: Some fish have high hopes (p. 1); – *Glotzhober, B.*: Addition to Ohio's Odonata (p. 2); – *Mitchell, R.*: Mites on Odonata (p. 3). – [No.3]: *[Glotzhober, B.]*: New records for endangered damselfly (p. 1; Argia bipunctulata); – *Schultz, D.*: A first swipe at Odonata monitoring at the Denison University Biological Reserve (p. 1); – *Moulton, K.*: Anax junius all over the place? (p. 3); – *Moody, D.*: The awesome narrow--winged damsels (p. 3; note on phylogeny); – *[Glotzhober, B.]*: New state species in nearby states (p. 4). – The issues contain also numerous minor notes, book reviews, announcements, meeting reports, and the 1998 membership list (No. 2, pp. 4-5).

(12438) *PANTALA*. The international journal of odonatology. Vol. 1, No. 2 (14 Dec. 1998). Published & copyright owned by Backhuys Publishers, Leiden. Annual subscription (2 issues, annually up to ca 200 pp.): NLG 165.- net (= US $ 91.50 net). – (Orders to: Backhuys Publishers, P.O. Box 321, NL-2300 AH Leiden; – or through any subscription agent).
Corbet, P.S. & R. Hoess: Sex ratio of Odonata at emergence (pp. 99-118); – *Samraoui, B., S. Bouzid, R. Boulahbal & P.S. Corbet*: Postponed reproductive maturation in upland refuges mountains life-cycle continuity during the hot, dry season in algerian drag-

onflies (Anisoptera) (pp. 119-135); – *May, M.L.*: Macrothemis fallax, a new species of dragonfly from Central America (Anisoptera: Libellulidae), with a key to male Macrothemis (pp. 137-153); – *Schneider, W.*: Orthetrum julia falsum Longfield, 1955, new to the dragonfly fauna of Yemen and the Arabian Peninsula (Anisoptera: Libellulidae) (pp. 155-158); – *Dumont, H.J. & H. Heidari*: The genus Pseudagrion (Odonata: Zygoptera) in Iran (pp. 159-163); – *Prendergast, E.D.V.*: The Gambia: additions to the list of Odonata, and further distribution records (pp. 165-174); – *Lindeboom, M.*: Post-copulatory behaviour in Calopteryx females (Insecta, Odonata, Calopterygidae) (pp. 175-184).

(12439) PILON, J.-G. & D. LAGACÉ, 1998. *Les odonates du Québec. Traité faunistique*. Entomofaune du Quebec, Chicoutimi, viii+368 pp. ISBN 2-9802763-2-4. – Price: Can.$ 75.- net. – (Publishers: 637 blvd Talbut, suite 108, Chicoutimi, QC, G7H 6A4, CA).
Basically, this is a distribution atlas of the Odon. of Quebec, Canada (137 spp.), but it includes also a key to the adults. For each sp., the distribution map and the complete list of localities, crossreferenced to the exhaustive Bibliography, are provided. Species descriptions are omitted, but a brief statement on the type of habitat is given. – The main chapters: "Introduction" (pp. 1-11), "Morphologie imaginale" (pp. 13-24), "Liste des espèces" (pp. 25-36), "Table de détermination" (pp. 37-98), "Relevé faunistique" (pp. 99-332).

(12440) POPOVA, O.N., 1998. Izmenchivost' strekoz roda Sympetrum Newman, 1833, na primere vida S. pedemontanum All., 1766. – [Variability in the dragonfly genus Sympetrum Newman, 1833, examplified on S. pedemontanum All., 1766]. *In*: Biologicheskoe raznoobrazie zhivotnyh Sibiri, p. 85, Tomsk St. Univ., Tomsk. (Russ.). – (Inst. Anim. Syst. & Ecol., Siberian Br., Russ. Acad. Sci., Ul. Frunze 11, RUS-630091 Novosibirsk).
19 Sympetrum spp. occur in Siberia, S. pedemontanum is represented by 4 sspp. However, comprehensive examination of long series from all Siberian regions indicates that all continental populations are referable to the nominate form, S. p. elatum representing the sole infraspecifically distinct taxon.

(12441) POPOVA, O.N. & A.Yu. HARITONOV, 1998. Ekologiya strekoz roda Sympetrum (Odonata, Libellulidae) yuzhnogo Zaural'ya i sopredel'nyh territoriy. – Ecology of dragonflies of genus Sympetrum (Odonata, Libellulidae) of southern Transuralia and neighbouring territories. *Mater. vseross. Konf. bespozvon. Zhivot. yushn. Zaural.*, Kuran, pp. 262-264. (Russ., with Engl. title). – (Inst. Anim. Syst. & Ecol., Siberian Br. Russ. Acad. Sci., Ul. Frunze 11, RUS-630091 Novosibirsk).
7 spp. occur in southern Transuralia, Russia, with S. flaveolum, vulgatum and danae prevailing. S. flaveolum represents the main subject of this paper.

(12442) ROZA, F., 1998. Libellen – [Dragonflies]. *In*: E. Romeijn & W.G. Wielemaker, [Eds], KNNV-AKC-kamp Velike Bloke, Slovenië, van 13 juli tot 27 juli 1998, pp. 35-37, Kon. Ned. Natuurh. Ver., Utrecht. (Dutch). – (Asterkraag 40, NL-4823 GA Breda).
Some 20 spp. are listed from 6 localities (Bloke, Cerknica, Iška, etc.), Slovenia.

(12443) RYAZANOVA, G.I., 1998. Polovaya specifika povedeniya lichinok nasekomyh: predshestvenniki imaginal'nyh vnutrividovyh vzaimodeystviy u samcov lichinok strekoz (Odonata). – [Sex-related behaviour in insect larvae: the origins of intraspecific interactions in male dragonfly larvae (Odonata)]. *Problemy Ent. Ross.* 2: 103-104. (Russ.). – (Dept Ent., Fac. Biol., Moscow St. Univ., RUS-119899 Moscow).
A concise account, based on Calopteryx splendens.

(12444) SATOH, T., 1998. [Anax guttatus taken at Kariwa-mura, Niigata pref.] *Gekkan-Mushi* 334: 40-41. (Jap.). – (Kashiwazaki Munic. Mus., 8-35 Midori-cho, Kashiwazaki, Niigata 945-0851, JA).
1 ♀, 19-VIII-1998, with a phot. of the specimen.

(12445) SEKI, T. & K. VOGT, 1998. Evolutionary aspects of the diversity of visual pigment chromophores in the class Insecta. *Comp. Biochem. Physiol.* (B.) 119(1): 53-64. – (First Author: Div. Health Sci., Osaka Kyoiku Univ., 4-698-1, Asahigaoka, Kashiwara, Osaka, 582, JA).
In insects, 3 retinal congeners are used as the chromophore of visual pigments, viz. retinal, (3R)-3-hydroxyretinal, and (3S)-3-hydroxyretinal. Only the second of these was found in compound eyes of Odon., Hemiptera, Neuroptera, Coleoptera, Lepidoptera, and in Nematocera and Brachycera. Phylogenetic distribution of the chromophore types within insects is discussed.

(12446) *SIOJA*. [Information bulletin of the SIO Japan Branch Office], 1998, No. 1 (1 Nov. 1998). (Jap.). – (c/o K. Inoue, 5-9, Fuminosato 4-chome, Abeno-ku, Osaka, 545-0004, JA).
No other issues were published in 1998. – In 1998, the SIO membership in Japan has increased, by the end of the yr, 91 associates were registered with the regional Branch. The 15th Int. Symp. Odonatol. will be convened in Novosibirsk, Russia, July 2001.

(12447) SONNENBURG, H. & C. DENSE, 1998. Die Gebänderte Heidelibelle Sympetrum pedemontanum (Allioni, 1766) in Nordwest-Deutschland: Stand der Ausbreitung und Beschreibung neuer Fortpflanzungsgewässer (Odonata, Libellulidae). *Mitt. ArbGem. Ostwestfäl.-lipp. Ent.* 14(3): 63-80. (With Engl. s.). – (First Author: Burlagerort 29a, D-49597 Rieste).
The current distribution of S. pedemontanum in western Lower Saxony and the adjacent regions of Westphalia, Germany, is outlined and mapped, and the process of expansion is analysed. At present, the NWmost records come from Zeeland, the Netherlands.

(12448) *SOUVENIR OF THE 5th SOUTH ASIAN SYMPOSIUM OF ODONATOLOGY*, Shri Shivaji Education Society Amravati's Science College, Nagpur, 20--21 Dec. 1998. xii+22 pp., frontispiece excl. Regional Office in South Asia, Societas Internationalis Odonatologica (SIO ROSA). Edited by and available from: Dr D.B. Tembhare, Dept Zool., Nagpur Univ. Campus, Amravati Rd, Nagpur-440010, Maharashtra, India.
[For Abstracts of papers see *OA* 12383] – *Organising Committee* (p. i); – *SIO ROSA Council* (p. ii); – *Saste, N.N., R.J. Andrew & D.B. Tembhare*: Foreword (p. iii); – *Kiauta, B.*: [International Odonatological Foundation] Message (p. v; abridged); – *Moore, N.*: [International Union for Conservation of Nature] Message (p. vii); – *Chopane, B.B.*: [Nagpur University] Message (p. ix); – *Dhotre, V.R.*: [Shri Shivaji Education Society, Amravati] Message (p. xi); – *Kalbande, H.Y.*: Dr Panjabrao, alias Bhausaheb Deshmukh, the Founder President of Shri Shivaji Education Society, Amravati: a brief life sketch (pp. 1-2); – (*Anonymous*): Nagpur through ages (pp. 3-5); – *Satputaley, A.*: Nagpur University (pp. 7-8); – *Saste, N.N.*: Shri Shivaji Education Society Amravati's Science College Nagpur: a great tradition (pp. 9-10); – *Tembhare, D.B.*: Odonatology: the biology of dragonflies and damselflies (pp. 11-12); – Societas Internationalis Odonatologica (SIO) (pp. 13-14); – *Andrew, R.J.*: SIO Regional Office in South Asia (SIOROSA) (pp. 15--16); – (*Anonymous*): Nagpur University School of Odonatology (pp. 17-22; description, list of PhD recipients, bibliography of 40 research papers, 1975--1998).

(12449) STAIN, V.Yu., 1998. Fotoperiodicheskiy kontrol' sezonnogo razvitiya u nekotoryh vidov strekoz (Odonata) i ego vysotno-zonal'naya izmenchivost. – [Photoperiodic control in seasonal development of some dragonfly (Odonata) species and its altitude alteration]. *Problemy Ent. Ross.* 2: 134-135. (Russ.). – (Dept Biol., Kabardino-Balkarskiy St. Univ., Nal'chik, Russia).
The subject was examined in Sympecma fusca and Cordulia aenea, hibernating in the Caucasian region at the adult and larval stage, resp. There are differences between the 2 spp. and between C. aenea populations from different altitudes.

(12450) STAIN, V.Yu., 1998. K zoogeografii strekoz (Odonata) Predkavkaz'ya. – [On odonate biogeography of Transcaucasia]. *Problemy Ent. Ross.* 2: 133--134. (Russ.). – (Dept Biol., Kabardino-Balkarskiy St. Univ., Nal'chik, Russia).
A systematic, 7-yr survey yielded 65 spp. from Transcaucasia, 8 of which are reported here for the region for the first time. The biogeographic composition of the fauna is analysed, and all spp. are listed.

(12451) STEPHAN, U., 1998. *Untersuchungen zur Habitatbindung der Quelljungfernarten Cordulegaster boltoni (Donovan, 1807) und Cordulegaster bidentata (Sélys, 1843) in Waldbächen des mittleren Schwarzwaldes unter besonderer Berücksichtigung der Larvalökologie*. DiplArb. Geobotanik, Fak. Biol., Univ. Freiburg, Freiburg/Breisgau. vi+110 pp., Anhang excl. – Price: DEM 48.-- net. – (Orders to the Author: Unterer Mühlenweg 73, D-79114 Freiburg/Br.).
A comprehensive comparative study on larval ecology of the 2 spp., based on allopatric and sympatric Black Forest populations, SW Germany. – The main aspects, considered in detail, are: (1) water chemistry (of no influence on habitat selection); – (2) distance from the stream source (bidentata mostly 50-300 m, boltoni abundance increasing with the increased distance); – (3) velocity (both spp. mostly 0.1 m/s, rarely up to 0.25 m/s); – (4) substrate structure (various fractions, no difference between the 2 spp.); – (5) larval position relative to the stream profile (depending on velocity, no significant difference between the 2 spp.);

– (6) max. stream depth and width (boltoni more tolerant); – (7) stream slope (not significant, but slightly greater in bidentata); – (8) tree and vegetation cover (no significant difference between the 2 spp.); – (9) substrate colour (in bidentata darker, probably a significant cue in oviposition site selection of this sp.); – (10) seeping in and minute tributaries (possibly restrictive for bidentata); – (11) water temperature (in most stream sections no difference between the 2 spp.); – (12) drought resistence (bidentata: no precise evidence, boltoni: up to 57 days); – (13) population density/m^2 (7-172; inter- and intraspecific cannibalism in larvae of different sizes); – (14) mean larval range (bidentata: 2.3 m^2, boltoni: 1.4 m^2); – (15) emergence time (3-4 weeks difference between the 2 spp.; flight periods overlapping from July to early Aug.). The patterns in adult ♂ distribution are discussed in terms of the nature of larval populations in the respective stream sections, and the factors threatening the habitats are outlined. – A valuable and inspireing study that should be made more readily available through the publication in an appropriate periodical.

(12452) SUHACHEVA, G.A., 1998. Troficheskie svyazi strekoz (Odonata): kachestvennyy i kolichestvennyy aspekty. – [Trophic relationships in dragonflies (Odonata): qualitative and quantitative aspects]. *Problemy Ent. Ross.* 2: 147-148. (Russ.) – (Inst. Anim. Syst. & Ecol., Siberian Br., Russ. Acad. Sci., Ul. Frunze 11, RUS-630091 Novosibirsk).
Based on field evidence and on serological examination, the predatory capacities of adult odon. are assessed and briefly discussed.

(12453) SUHACHEVA, G.A. & A.Yu. HARITONOV, 1998. Strekozy zapadno-sibirskoy lesostepi. – [Dragonflies of the Westsiberian forest steppe]. *In*: Biologicheskoe raznoobrazie zhivotnyh Sibiri, 108--109, Tomsk St. Univ., Tomsk. (Russ.). – (Inst. Anim. Syst. & Ecol., Siberian Br., Russ. Acad, Sci., Ul. Frunze 11, RUS-630091 Novosibirsk).
A brief review and characterisation of the fauna.

(12454) *SULZBACH-ROSENBERGER LIBELLENRUNDBRIEFE*, No. 8 (Dec. 1998). – (c/o R. Seidenbusch, Klenze Str. 5, D-92237 Sulzbach-Rosenberg). [*Seidenbusch, R.*]: Manifestierte Degeneration von Fliesswassergräben, Aussickerungsarealen und Waldkleinstbiotopen in der Region Sulzbach-Rosenberg (pp. 3-19; maps incl.).

(12455) TAKASAKI, Y., 1998. [Crocothemis servilia mariannae with glittering wings]. *Gekkan-Mushi* 334: 11. (Jap.). – (1-14 Fujimori, Meito-ku, Nagoya, 465--0026, JA).
A ♂ with strongly gittering wings is described (Okazaki, Aichi pref., 6-VII-1998). The glittering was not lost by dipping in aceton and methanol; it is considered to be due to some structural aberration of the wings. The same cases have been reported in S. darwinianum and S. frequens as well.

(12456) *TOMBO. ACTA ODONATOLOGICA JAPONICA*, Vol. 41, No. 1/4 (dated 31 Dec. 1998, mailed in Japan 27 Jan. 1999). – (c/o Prof. Dr S. Eda, Dept Oral Pathol., Matsumoto Dental Univ., 1780 Gobara, Hirooka, Shiojiri, Nagano, 399-0781, JA).
[At the 1998 Annual Meeting of the "Society of Odonatology, Tokyo" its name has been changed into the "Japanese Society for Odonatology" and, with the current issue, the Latin title of the journal was accordingly modified.] – [C o n t e n t s:] *Eda, S.*: Anax guttatus ovipositing in tandem, Miasa, Nagano pref. (p. 1; cover phot.); – Welcome visitors, Anax guttatus, to Nagano pref. in autumn of 1998 (pp. 2-3); – A review on the migration of Anax guttatus to the mainlands of Japan (p. 4); – *Futahashi, R. & Y. Araki*: New records of Anax guttatus from Toyama pref. (pp. 5-8); – *Saito, Y. & S. Kato*: Emergence of Anax guttatus in Shizuoka pref. (p. 8); – *Wada, S.*: Observation on Anax guttatus in Fukui pref., 1998 (pp. 9--11); – *Matsuda, L.*: Anax guttatus collected at Sakai city, Osaka pref. (p. 12); – *Ishizawa, N.*: Adaptability of male Anax guttatus to the environment of Honshu in autumn (pp. 13-16); – *Wada, S. & Y. Wada*: An unusual occurrence of Hemianax ephippiger in Fukui pref. (pp. 17-18); – *Kato, T.*: New record of Sympetrum fonscolombei from Aichi pref. (p. 16); – *Suzuki, K. & K. Miyachi*: Miscellaneous notes on the Japanese Mnais, 5-8 (pp. 19-27); – *Sawano, J., Y. Itani, Z.-H. Su & S. Osawa*: Evolutionar distance between Orthetrum p. poecilops and O. p. miyajimaense (p. 28); – *Matsuki, K.*: Description of the larva of Neurothemis t. tullia from Taiwan (pp. 29-31); – *Wada, S.*: A blackish aberrant form of Orthetrum triangulare melania found in Fukui pref. (p. 31); – *Futahashi, R. & Y. Araki*: Invasion of Odonata into an artificial pond in Toyama pref.: addition (p. 32); – *Taketo, A.*: Odonate fauna of Ishikawa and Fukui prefectures in 1998 (pp. 33-36); – *Yokoyama, T.*: The northernmost record of Planaeschna milnei (p. 36); – *Inoue, K., W. Piper & O. Tabata*: Observation on

Zyxomma obtusum in Iriomote Island (pp. 37-40); – *Yokoyama, T. & Y. Hirose*: Somatochlora alpestris from the lowest altitude in Daisetsu Mts (p. 40); – *Ogata, Y.*: An investigation on Calopteryx atrata in Yamagata pref. by a citizens' activity (pp. 41-43); – *Naruse, K. & S. Eda*: The first record of Aeschna nigroflava from Chiba pref. (p. 43); – *Yoshino, Y.*: Odonata from Nii-jima in the Izu Islands, 2 (pp. 44-45); – *Yamaguchi, M.*: Dragonflies appeared to an artificial pond in Metropolis (p. 45); – *Inoue, K. & M. Aiura*: Distribution records of the dragonflies of Tsushima Island, 6 (pp. 46-48); – *Nakahara, M.*: The difference of the larval period in Oligoaeschna pryeri (pp. 48-49); – *Kagimoto, B.*: Two cases of heterospecific tandem between Orthetrum albistylum speciosum ♂ and O. poecilops miyajimaense ♀ (pp. 50-51); – *Rai, T.*: Emergence season of Sympetrum frequens at Narashino, Chiba pref. (p. 51); – *Asahina, S.*: Reminiscences of an odonatologist (pp. 52-54); – *Eda, S.*: Dragonflies on stamps in the world, 14th report (pp. 55-58); – *Kato, S.*: Lyriothemis pachygaster in late autumn (p. 58); – *Matsuki, K., T. Someya & Y. Arai*: Records of Conservation Committee (pp. 59-61); – *Inoue, K.*: Informations on the S.I.O. (p. 62); – (*Anonymous*): Annual Meeting of the Japanese Society for Odonatology in 1998 (p. 63).

(12457) VAN DER WEIDE, M., 1998. [Werkgroepen.] Libellen (Odonata: 1504). *NieuwsBr. europ. invert. Surv. Nederland* 27: 5-6. (Dutch). – (Heidevenstraat 223, NL-6533 TP Nijmegen).
A concise outline of the organisation and scope of the current work on the Netherlands odon. fauna, as conducted by the Neth. Odonatol. Soc., the Europ. Invert. Survey, and by the Vlinderstichting (= Neth. Lepid. Foundation).

(12458) VELASCO, J. & A. MILLAN, 1998. Feeding habits of two large insects from a desert stream: Abedus herberti (Hemiptera: Belostomatidae) and Thermonectus marmoratus (Coleoptera: Dytiscidae). *Aquat. Ins.* 20(2): 85-96. – (Depto Ecol. e Hidrol., Univ. Murcia, Campus Universitario de Espinardo, ES-30100 Murcia).
Feeding habits of these 2 spp. from the Sycamore Creek, Arizona, USA were determined experimentally, by offering live vs dead prey of 3 different sizes, incl. larval Ophiogomphus bison (>12 mm). Abedus preferred live prey of small and medium size, but it took only dead odon. of the large size class. Thermonectus consumed only dead prey of all sizes, but had a preference for soft organisms, incl. odon. larvae.

(12459) YAGI, T. & N. SHIMIZU, 1998. [Y-shaped tripple connection in Lestes temporalis]. *Gekkan-Mushi* 334: 7 (Jap.). – (First Author: No. 102 Co-op Shimono, 2113 Otobe, Tsu, Mie, 514-0016, JA).
The connection and the behaviour are described and photographed. The ♂ of this sp. has long sup. app., enabling him to grasp the narrow space left unoccupied by the original ♂ on the ♀ prothorax.

(12460) YOSHIDA, M., T. YAGI & A. MURAKI, [Eds], 1998. Dragonflies and damselflies (Insecta: Odonata) of Shiga prefecture, Honshu, Japan. *Res. Rep. Lake Biwa Mus.* 10: 1-284 pp. (Jap., with Engl. s. & taxon. nomencl.). – (Orders to: Lake Biwa Mus., 1091 Oroshimo, Kusatsu, Shiga, 525-0001, JA).
A comprehensive compendium on the odon. fauna of the prefecture, with distribution maps, phenology graphs and a complete prefectural bibliography. The work is based on all available literature records, and on ca 30.000 additional records, brought together during 1985-1997 (ca 700 days) from ca 3000 localities, and which are all listed with detailed collection data. – 98 spp. are listed (Stylogomphus r. ryukyuanus and Cordulia aenea amurensis are deleted from the list), and the information on distribution, adult dispersal, habitat, life cycle, ecology, behaviour, and on adult and larval phenology are provided for each sp. Also included are sections on the occurrence of rare species, on the Biwa Lake fauna, and on the encountered cases of environment destruction. The comprehensive, lucid Engl. summary is styled and structured in a way that makes the use of the book easy also to those not familiar with the Jap. language.

1999

(12461) *ATROPOS* ["the UK's premier journal for active Lepidoptera and Odonata enthusiasts"], No. 6 (Jan. 1999). – (36 Tinker Lane, Meltham, Huddersfield, W Yorks, HD7 3EX, UK).
[Odon. articles:] *Pellow, K.*: An influx of Green Darner Anax junius (Drury) into Cornwall and the Isles of Scilly: the first European records (pp. 3-7, incl. Ed's postscript on p. 7, col. pls 2-3 excl.); – *Davey, P.*: Weather conditions leading to the 1998 Green Darner Anax junius (Drury) influx (pp. 8-12); – *Tunmore, M.*: Norfolk Hawker Aeshna isosceles: record from the Breck district (p. 33); – *Collinson, M.*: Highland Darters Sympetrum nigrescens in south-east Scotland

(p. 33); – *Parr, A.*: Late season records of Emperor Dragonfly Anax imperator (pp. 33-34); – *Tunmore, M.*: Late Broad-bodied Chaser Libellula depressa (pp. 34-35); – *Pellow, K.*: Red-veined Darter Sympetrum fonscolombei breeding in large numbers in south-east Cornwall during 1998 (p. 35); – *Whitehouse, S.M.*: Red-veined Darter Sympetrum fonscolombei breeding in the Midlands (pp. 35-36); – *Hale, J. & M. Hicks*: [Report from] At Agnes, Isles of Scilly (pp. 46--47); – *Tunmore, M.*: [Report from] The Lizard peninsula, Cornwall (pp. 48-49); – *Knill-Jones, S.A.*: [Report from] Isle of Wight (pp. 51-53); – *Clancy, S. & D. Walker*: [Report from] Dungeness area, Kent (pp. 53-54); – *Dewick, S.*: [Report from] Curry Farm, Bradwell-on-Sea, Essex (pp. 56-57); – *Odin, N.*: [Report from] Landguard Bird Observatory, Suffolk (p. 58); – *Anderson, C.*: [Report from] Minsmere RSPB Nature Reserve, Suffolk (pp. 58-59); – *Wilson, K.*: [Report from] Gibraltar Point, Lincolnshire (p. 61); – *Spence, B.*: [Report from] Spurn Bird Observatory, East Yorkshire (pp. 61-62); – *Pennington, M. & T. Rogers*: [Report from] Shetland (pp. 62-63); – *Craine, G.D. & C.J. Wormwell*: [Report from] Isle of Man (pp. 64-65); – *Parr, A.*: Migrant dragonflies in 1998, including recent decisions and comments by the Odonata Records Committee (pp. 69-72); – *Tunmore, M.*: [Book review] Cornwall Dragonfly Group Newsletter, No. 8 (p. 78).

(12462) BAAIJENS, A., 1999. Inventarisatie Nisse: heggengebied Sluishoek 1998 – [The Nisse survey: Hedge Nature Reserve Zuid-Beveland, 1998]. *Zeeuwse Prikkebeen* 7(1): 19-24. (Dutch). – (Grote Abeele 40, NL-4388 VW Oost Souburg).
The Reserve (surface ca 80 ha) is situated S of Nisse in Zuid-Beveland, Zeeland prov., the Netherlands. 15 odon. spp., incl. Lestes barbarus, Erythromma viridulum and Crocothemis erythraea, are listed. The salinity conditions of the ponds are stated for each sp. in terms of conductivity values (0->800). Ischnura elegans, E. viridulum, Aeshna mixta and Sympetrum sanguineum were recorded in 3 ponds with conductivity values exceeding 800.

(12463) [BONAMIE, G.], 1999. Europese waterjuffers en libellen – [European damselflies and dragonflies]. *Atalanta, VZW* 27(1): 5-9. (Dutch). – (Merendreedorp 58, B-9850 Merendree).
A checklist, without any annotations or comments.

(12464) DRAGONFLY KINGDOM SAGA, 1999. *Tombo calendar 1999*. Municipality of Saga. 32 pp. (Jap., with Engl. title). – (Available from the publisher: Sakaemachi 1-1, Saga, 840-0803, JA).
A wall calendar, with 32 prize winning photos from the 9th Dragonfly Kingdom Saga Contest. Vernacular nomenclature, with precise locality data and dates.

(12465) *IDF-REPORT*. Newsletter of the International Dragonfly Fund (ISSN 1435-3393), Vol. 2, No. 1 (15 Feb. 1999). – (c/o Dr M. Lindeboom, Wolfstr. 6, D--72119 Ammerbuch).
Supported projects 1997-1999 (pp. 1-2); – *Gorb, S.V.*: The role of visual cues in mate recognition in the damselfly Coenagrion puella (L.) (pp. 3-8); – *Schutzgemeinschaft Libellen in Baden-Württemberg*: Pflege- und Entwicklungsplan Weberalten (pp. 9-12); – *O'Neill, G.*: Studies of a dragonfly biodiversity gradient in Ghana, West Africa (pp. 13-32); – *Artiss, T.*: Molecular systematics and the evolution of genitalia in libellulid dragonflies (pp. 33-36).

(12466) KANO, K., 1999. [Ovipositing female Enallagma boreale circulatum caught by Notonecta]. *Gekkan-Mushi* 335: 42. (Jap.). – (No. 601, 19-17, Koishigawa 5-chome, Bunkyo-ku, Tokyo, 112-0002, JA).
Many Enallagma tandems were ovipositing at a pond, Manza, Nagano pref., 2-VIII-1997. The abdomen of a ♀ in tandem, when immersed, was caught by N. triguttata. The ♂ climbed up, the Notonecta was brought above the surface, but it did not release, and the ♀ became motionless within 3 min.

(12467) KETELAAR, R., 1999. *Handleiding waarnemingen Nederlandse libellen*. Vlinderstichting, Wageningen. 30 pp. (Dutch). – (Publishers: Postbus 506, NL-6700 AM Wageningen).
A non-revised second edn of the work described in *OA* 11456.

(12468) KISHI, K., 1999. [A Sympetrum hybrid taken in Fujisawa City]. *Gekkan-Mushi* 335: 44-45. (Jap.). – (A-101, Mistral Shonan, 488-1 Ishikawa, Fujisawa, Kanagawa, 252-0815, JA).
Taken 21-X-1996, the ♂ has many intermediate features between S. e. eroticum and S. baccha mutatinum. A col. field phot. is provided.

(12469) *MEGANEURA*. Palaeoentomological newsletter, No. 3 (dated Winter 1998/1999; received 5 Feb. 1999). – (c/o Dr J. Dalton, Europ. Science Found., 1

quai Lezay-Marnésia, F-67080 Strasbourg).
Contains information on ESF Fossil Insects Network, Grants for travel and short visits, Meetings and Workshops, Site conservation, Electronic news, a comprehensive current bibliography on insect palaeontology, etc. The following signed articles have some odonatol. bearing: *Jarzembowski, E.*: [Fossil insect sites] Thorness Bay, UK (pp. 9-11); – *Martinez-Delclòs, X. & E. Peñalver*: Insect fossil sites in Spain (pp. 11--12).

(12470) *ODONATOLOGICAL ABSTRACT SERVICE*, No. 3 (Jan. 1999). – (c/o J. Silsby, 1 Haydn Ave, Purley, Surrey, CR8 4AG, UK).
Abstracts Nos 146-502, on 38 pp., covering 1997--1998.

(12471) VLIEGENTHART, A. & R. VAN GRUNSVEN, 1999. Dagvlinders en libellen van Kempen, 3 – [Butterflies and dragonflies of Kempen, 3]. *Agrion, Amst.* 44(1): 11-20. (Dutch). – (First Author: Nude 50, NL--3911 VK Rhenen).
From this locality in Noord Brabant prov., the Netherlands 40 odon. spp. are listed, with comments on some spp. Of national interest is the discovery of new breeding sites of Sympetrum depressiusculum and S. pedemontanum.

(12472) *W.D.A's AGRION*. Newsletter of the Worldwide Dragonfly Association, Vol. 3, No. 1 (Jan. 1999). – (c/o J. Silsby, 1 Haydn Ave, Purley, Surrey, CR8 4AG, UK).
This is the new name of the periodical, as listed in *OA* 11671, 11914 and 12103; the scope and the editorial policy remain unchanged. – [Signed scientific notes:] *Jacquemin, G.*: Three years watching Odonata in Morocco (pp. 5-6); – *Parr, M.*: "And then I arrive home ..." (p. 7); – *Clausnitzer, H.-J. & V. Clausnitzer*: Dragonflies of the Meru National Park, Kenya (pp. 7--9); – *Corbet, P.S.*: An afrotropical marvel: Zygonyx natalensis (R. Martin) (p. 10); – *Silsby, J.*: In search of Anax tristis (pp. 10-12); – *Meskin, I.*: A farm in Africa (p. 18); – *Dijkstra, K.-D.B. & N.J. Dingemanse*: Flying Goldfish: an impression from Kibale Forest, Uganda (p. 13); – *Allen, P.*: Gomphids near Georgetown, Gambia (p. 14); – *Paulson, D.*: Dragonfly questions out of Africa (pp. 14-15); – *Samraoui, B.*: A short trip to Senegal and Mauritania (p. 15); – *Graves, T.*: East African Odonata (pp. 15--16); – *Prendergast, E.*: Tanzania calling (p. 16); – *Andjus, L.*: [Obituary] Dr Zivko R. Adamovic, 1923--1998 (p. 18).