

Odonatological Abstract Service

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1997

- 3093.** Carletti, B.; Terzani, F. (1997): Descrizione di *Pseudagrion simplicilaminatum* spec. nov. della Repubblica del Congo (Odonata: Coenagrionidae). *Opusc. zool. flum.* 152: 1-7. (Italian with English summary). ["The new species is described and illustrated, and its affinities with *P. flavipes leonensis* Pinhey, 1964 and *P. thenartum* Fraser, 1955 are outlined and discussed. Holotype ♂: Kintele, 6-IX-1978, paratypes ♂: Kintele, 5-I-1980, II-1980, III-1980, XII-1980; — Voka, I-1980; — Djili, XII-1979; — Loufoula, I-1980." (Authors)] Address: Carletti, B., Viale Raffaello Sanzio 5, I-50124 Firenze, Italy
- 3094.** Fujimoto, K. (1997): New Record of *Neurothemis* from Inomote Island of the Ryukyus. *Aeschna* 33: 27-28. (in Japanese with English summary). [*Neurothemis* sp. and *Rhyothemis phyllis* are documented along with weather maps.] Address: not stated in English
- 3095.** Katatani, N.; Muraki, A. (1997): Records of the Odonata taken in Palau, Part I. *Aeschna* 33: 1-10. (in Japanese with English summary). [5 species were collected from 27 Feb. to 1 March 1996 on Palau (Carolinean Islands, SE of the Philippines). *Agriocnemis femina* (Brauer 1868), *Ischnura senegalensis* (Rambur 1842), *Teinobasis palauensis* Lieftinck 1962, and *Hemicordulia lulico* Asahina 1940 were illustrated. The latter is compared with *Hemicordulia mindana* Needham & Gyger 1937 from the Ryukyus. *I. senegalensis* was detected for the first time on Palau, and the previously unknown ♀ of *T. palauensis* is illustrated and described for the first time.] Address: Muraki, A., Shigino-nishi 3-4-2-309, Jôtô-ku, Osaka C., Osaka 536, Japan
- 3096.** Kitagawa, K. (1997): Records of the Odonata from Penang Island, Malaysia. *Aeschna* 33: 11-18. (in Japanese with English summary). [32 species were taken in 1995 and 1996, of which 17 species are new records from Penang Island. These records total the known species to 54. *Prodasineura collaris* (Selys 1860), *P. notostigma* (Selys, 1860), *Calicnemia chaseni* (Laidlaw 1928), *Microgomphus chelifer* Selys 1858, and *Orchithemis pulcherrima* Brauer, 1878 are documented by back and white photos, and in the case of *Prodasineura* species with drawings of the synthorax.] Address: Kitagawa, K., Imai 1-11-6, Asahi-ku, Osaka C., Osaka, 535-0011, Japan
- 3097.** Kitagawa, K. (1997): Records of the Odonata from Sarawak, Malaysia]. *Aeschna* 34: 5-10. (in Japanese with English summary). [In Dec. 1990, 27 odonate species from Kuching were brought on record. Drawings illustrate the labrum of ♀ *Vestalis amaryllis* and *V. atropa*. Black and white photos refer to *Prodasineura dorsalis*, *Amphicnemis wallacei*, *Coeliccia coomansi*, *Indaeschna grubaueri*, *Brachygonia oculata*, and *Euphaea* sp.] Address: Kitagawa, K., Imai 1-11-6, Asahi-ku, Osaka C., Osaka, 535-0011, Japan
- 3098.** Kitagawa, K.; Sugitani, A.; Hayashi, K.; Masaki, N.; Muraki, A.; Katatani, N. (1997): Records of the Odonata of Hong Kong, Part IV. *Aeschna* 34: 11-21. (in Japanese with English summary). [In June, July, and Oct. 1996, a total of 69 species was recorded, of which *Cercion sexlineatum* is a new addition to the Hong Kong odonate fauna.] Address: Kitagawa, K., Imai 1-11-6, Asahi-ku, Osaka C., Osaka, 535-0011, Japan
- 3099.** Kohama, T. (1997): Odonata from Kohama Island, the Ryukyus. *Aeschna* 33: 19-20. (in Japanese with English summary). [On 20 Sept., 1985, 8 odonate species - in total new to the island - were recorded.] Address: not stated in English
- 3100.** Kohama, T. (1997): Odonata from Shimoji Island of Aragusuku Islands, the Ryukyus. *Aeschna* 33: 21-22. (in Japanese with English summary). [On 18 July, 1985, 6 odonate species were recorded.] Address: not stated in English
- 3101.** Moriyasu, A. (1997): A record of the larvae of *Macromia daimoji* OKUMURA from Shikoku, Japan. *Aeschna* 34: 36. (in Japanese). [29-XII-1996; documentation of the habitat.] Address: not stated in English
- 3102.** Moriyasu, T. (1997): Larval development of *Macromia daimoji* OKUMURA in nature. *Aeschna* 33: 31-36. (in Japanese with English summary). [Kurashiki-city, Okayama Pref., Japan; the study documents extensively the larval growth of *M. daimoji*; larval development lasts 2 years including 9 instars.] Address: not stated in English
- 3103.** Naraoka, H. (1997): A list of dragonflies in Hotokenuma marsh, Aomori Prefecture (Insecta, Odonata). *The Journal of The Natural History of Aomori* 2: 19-21. (in English translation of Naoya Ishizawa in *Digest of Japanese Odonatological Short Communications* 8, 1998). [The history of a water body near Misawa City, Japan is briefly outlined along with a list of 34 odonate species recorded.] Address: Naraoka,

H., 36-71, Motoizumi, Fukunoda, Itayanagi-cho, Kitagun, Aomori Prefecture, 038-3661, Japan

3104. Schmidl, J. (1997): Adephege Wasserkäfer in schwäbischen Niedermooren - Faunistische Ergebnisse von Aufsammlungen in Kleingewässer-Neuanlagen der Natur- und Artenschutzprogramme. (Coleoptera: Halipidae, Noteridae, Dytiscidae, Gyrinidae). Ber. naturforsch. Gesell. Augsburg 56: 6-17. (in German, with English summary). [Bayern, Germany; *Sympetma fusca*, *Brachytron pratense*, *Aeshna grandis*, *A. juncea*, *Somatochlora flavomaculata*, and *Sympetrum striolatum* are listed from different localities in Sept. 1995.] Address: Schmidl, J., Lettenstr. 8, D-90562 Kalchreuth, Germany

3105. Sugimura, M. (1997): Migrant species of the Odonata into Kochi Prefecture recorded in the first half of the 1990's. *Aeschna* 33: 23-25. (in Japanese with English summary). [*Anaciaeschna jaspidea*, *Anax guttatus*, *Brachydiplax chalybea*, *Sympetrum cordulegaster*, *S. fonscolombii*, *Hydrobasileus croceus*, and *Tholymis tillarga* are treated.] Address: Sugimura, M., 9-7, Uyamasatsuki-cho, Nakamura City, Kochi Prefecture, 787, Japan

3106. Tabata, O. (1997): New Record of *Zyxomma obtusum* SELYS from Inomote Island of the Ryukyus. *Aeschna* 33: 29-30. (in Japanese with English summary). [*Z. obtusum* was recorded at three dates in 1996.] Address: Tabata, O., Shoubuen-cho 79-18, Kamigamo, Kita-ku, Kyoto C., Kyoto 603-8064, Japan

3107. Tone, S.; Yagi, T. (1997): Records of the exceptional migration of *Anax guttatus* (Burmeister) and *Traema virginia* (Rambur) out of seasons in 1994 at Mie Prefecture, central Japan. *Aeschna* 34: 29. (in Japanese with English summary). [This is a detailed account on migrating *A. guttatus* and *T. virginia* in dependence of weather conditions.] Address: Yagi, T., Otobe 2113-102, Tsu C., Mie 514-0016, Japan

3108. Yoshida, M. (1997): A study on the migration of Odonata for extending their habitats. *Aeschna* 33: (in Japanese with English summary). [Japan; the paper compiles the ability of different odonate species to colonise new water bodies from published studies.] Address: not stated in English

1998

3109. Bernabei, S.; Di Girolamo, I.; Iavarone, I. (1998): Alcune note sul popolamento macrobentonico del fiume Arone (Lazio, Italia). *Riv. Idrobiol.* 37: 203-209. (in Italian with English summary). [The checklist of macrozoobenthos of the River Arone, Italy includes 11 species of Odonata. Of interest are *Pyrrhosoma nymphula* and *Onychogomphus uncatius*. No additional odonatological details are given.] Address: Bernabei, S., Istituto Superiore di Sanita, Laboratorio di Igiene Ambientale, Viale Regina Elena 299, I-00191 Roma, Italy

3110. Cordero Rivera, A.; Pérez, F.J.E. (1998): Mating frequency, population density and ♀ polychromatism in the damselfly *Ischnura graellsii*: an analysis of four natural populations. *Etologia* 6: 61-67.

(in English with Spain summary). ["The maintenance of ♀ polychromatism in *I. graellsii* is addressed by reanalysing data from two natural populations studied by Cordero (1992, *J. Anim. Ecol.*, 61:769-780) and two additional populations. We used mark-resighting methods to estimate mating frequency by ♀ morphs. Results indicate that ♀ mating probability is positively related to ♂ density in three populations, but androchrome (♂-like ♀♀) only mated less often than gynochromes in one sample. ♀ morphs did not differ in size and oviposition frequency. Nevertheless, among populations, androchrome frequency was positively related to an index of ♂ density. We suggest that population density might have an effect on the maintenance of ♀ morphs in *I. graellsii*, but this does not seem to be because androchrome ♀♀ avoid matings. A more accurate analysis of the benefits and costs of mating in polychromatic damselflies is needed." (Authors)] Address: Cordero Rivera, A., Departamento de Ecología e Biología Animal, Universidade de Vigo, E.U.E.T. Forestal, Campus Universitario, 36005 Pontevedra, Spain. E-mail: acordero@uvigo.es

3111. Deliry, C. (1998): Nouveaux articles ou études concernant les libellules dans la région Rhône-Alpes. *Sympetrum piémontais* 38: 2-3. (in French). [France; regional odonatological bibliography covering the period 1996/98 and abstracting in most cases unpublished expertises.] Address: Deliry, C., La Paluette, 2338 route de Belley, F-38490 Aoste, France

3112. Glotzhober, R. (1998): Tiger seen in Ohio's Hill Country. *WildOhio*. Spring 1998. *WildOhio* (Ohio Division of Wildlife newsletter) Spring 1998: 17. (in English). [Ohio, USA; *Cordulegaster erronea*] Address: Glotzhober, R., Ohio Natural history society, 1982 Velma Ave., Columbus OH 43211-2497, USA. E-mail: bglotzhober@ohiohistory.org

3113. Naraoka, H. (1998): Establishment of *Pseudothemis zonata* to central and south of Aomori. *Gekkan-Mushi* 342: 45- (in Japanese). [5. July 1998; published records from Aomori Pref., Japan are compiled, and the current range extension is discussed with special emphasis to global warming. A translation of the paper is published in *Digest of Japanese Odonatological Short Communications* 14] Address: Naraoka, H., 36-71, Motoizumi, Fukunoda, Itayanagi-cho, Kitatsuguru-gun, Aomori Prefecture, 038-3661, Japan

3114. Taketo, A. (1998): On the Odonate fauna of Ishikawa and Fukui Prefectures in 1998. *Tombo* 41: 33-36. (in Japanese with English summary). [Two adult ♂♂ of *Trigomphus ogumai* were captured at Daishoji, Ishikawa Pref., Japan at its northern range limit on the Japan Sea side. New locality records of rare species, include *Sympetma p. paedisca* (a coastal pond at Hakui / Ishikawa), *Nihonogomphus viridis* (Nata River / Ishikawa), *Lyriothemis pachygastra* (Mihama/Fukui), and *Onychogomphus viridicosta* (Kanazu, Fukui). *Indolestes peregrinus* is spreading into the Kaga district/Ishikawa; oviposition into young rice stem has repeatedly been observed at Daishoji. Influenced by the climatic conditions of 1998, seasonal appearance of several Odonata was advanced considerably: e. g. mating and oviposition of *Enallagma boreale circulatum* were observed in early May at a pond in a hilly region of Komatsu. The succession of the odonate fauna in newly formed ponds in Kanazawa, was documented by

mainly collecting exuviae. Within 6 years, 46 species were recorded from this sanctuary. Both northern (e. g. *Coenagrion lanceolatum*) and southern (e. g. *Anaciaeschna martini*) species coexist in these ponds.] Address: Taketo, A., 1-19, Ishibiki 1-chome, Kanazawa City, 920, Japan

1999

3115. Aoki, T.; Kondoh, S. (1999): A note on reproductive behaviour of *Sympetrum striolatum imitoides* BARTENEF in Kobe. *Aeschna* 35: 37-40. (in Japanese with English summary). [Compared with other Japanese *Sympetrum*-species, with the exception of *S. uniforme*, pre-reproductive behaviour of ♂ *S. striolatum imitoides* seems to be unique. Their continuous hover flight starts just before ♀♀ arrive at the water for oviposition (about 10:30 J.S.T.), and lasts for about an hour. At the same time other ♂♂ wait for ♀♀ perching around the pond. Apparently two tactics for mating are used.] Address: Aoki, T., Rokko Island High School, Naka 4-chome, Koyo-cho, Higashinada-ku, Kobe, 658-0032, Japan. E-mail: taoki@ma3.justnet.ne.jp

3116. Clausnitzer, V. (1999): Dragonfly (Odonata) records of Kawamega Forest, western Kenya, with notes on the ecology of rain forest species. *Journal of East African Natural History* 88 (2003): 17-23. (in English). [The list of 51 recorded Odonata includes ten new records for Kenya. "Some of the species have their centre of distribution in West Africa. Ecological notes on different adaptation strategies of rain forest dragonflies are given, mainly focusing on visibility and flight behaviour of the ♂♂. Seasonality patterns of the observed dragonflies and distinct behavioural features of selected species, e.g. *Hadrothemis* and *Gynacantha* are described." (Author)] Address: Clausnitzer, Viola, Liebenauer Str. 180, D-06110 Halle/Saale, Germany. E-mail: wesche@mailier.uni-marburg.de

3117. Deliry, C. (1999): Nouveaux articles ou études concernant les libellules dans la region Rhône-Alpes. *Sympetrum piémontais* 39: 9-11. (in French). [France; regional odonatological bibliography covering the period 1997/98 and abstracting unpublished expertises in most cases.] Address: Deliry, C., La Paluette, 2338 route de Belley, F-38490 Aoste, France

3118. Deliry, C. (1999): Nouveaux articles ou études concernant les libellules dans la region Rhône-Alpes. *Sympetrum piémontais* 42: 17-21. (in French). [France; regional odonatological bibliography covering the period 1997-2000 and abstracting unpublished expertises in most cases.] Address: Deliry, C., La Paluette, 2338 route de Belley, F-38490 Aoste, France

3119. Desmeules, M. (1999): *Compte-rendu littéraire: Les Odonates du Québec*. Par Jean-Guy Pilon et Denise Lagacé. 1998. Corporation Entomofaune du Québec, Chicoutimi, Québec. 367 pages. ISBN 2-9802763-2-4.. *Nouv'Ailes* 9(3): 12. (in French) [Review] Address: Publisher: Entomofaune du Québec, 637, blvd Talbot, suite 108, Chicoutimi, QC G7H 6A4, Canada

3120. Futahashi, R. (1999): Notes on unusual connection and copulation in some species of dragonflies. *Aeschna* 36: 47-56. (in Japanese with

English summary). [25 cases of interspecific connection and copulation, 8 cases of triple-connection, and 4 cases of ♂-♂ tandems are documented.] Address: not stated in Japanese

3121. Futahashi, R.; Futahashi, H. (1999): Records of large scale migration of *Sympetrum cordulegaster* (SELYS) and *Sympetrum depressiusculum* (SELYS) in 1997 and emergence of both species in 1998 at Toyama Pref. *Aeschna* 36: 33-42. (in Japanese with English summary). [Many migratory adults of both species were found during a period between 6 Oct. and 10 Nov. 1997 at the reclaimed land of Kairyumachi Sinmamoto City Toyama Pref. Japan. Some immature specimen were likewise found there during 18 June and 7 Aug. 1998. "Some of them seemed to be very immature or just emerged. This fact suggests that these species emerged there although neither larvae nor exuviae have been found." Intermediate specimens between *S. depressiusculum* and *S. frequens* were recorded at the same locality.] Address: not stated in Japanese

3122. Haase, P. (1999): Zoonosen, Chemismus und Struktur regionaler Bachtypen im niedersächsischen und nordhessischen Bergland. *Ökologie und Umweltsicherung* 18. 157 pp., appendix. (in German with English summary). [From 1996 to 1999 limnological investigations on upper courses of near natural brooks of the mountainous areas of Lower Saxony and northern Hesse (Germany) were carried out. The aim of these studies was the development and description of a regional typology of brooks. In total more than 200 macrozoobenthos species including *Cordulegaster boltonii* and *Thecagaster bidentata* were found.] Address: Univ.-Gesamthochschule Kassel, Fachgebiet Landschaftsökologie und Naturschutz, Nordbahnhofstr. 1a, D-37213 Witzenhausen, Germany

3123. Hujihara, H.; Adati, T. (1999): Records of the emergence of *Macromia daimoji* OKUMURA from Asida river at Hirosima Prefecture. *Aeschna* 36: 57-58. (in Japanese). [Japan; five records from May and June 1998 are documented.] Address: not stated in English

3124. Hutchinson, R. (1999): *Rayon Entomologie: Corbet, P.S. 1999. Dragonflies: Behaviour and ecology of Odonata*. Comstock Publishing Associates, Ithaca NX. 829 pp. *Nouv'Ailes* 9(3): 7. (in French) [Review of Philip Corbet's outstanding book.] Address: Hutchinson, R., 12, chemin de la Savane, apt. 12, Gatineau (Québec), Canada, J8T 1P7

3125. Itoh, S. (1999): A ♂ *Aeshna juncea* (L.) that misidentified a dead branch as a female. *Aeschna* 35: 51. (in Japanese). [Photodocumentation] Address: Itoh, S., Kinoshita 4-9-7-102, Wakabayashi-ku, Sendai-shi, Miyagi, 984-0047 Japan

3126. Katatani, N.; Muraki, A. (1999): Records of the Odonata taken in Palau, Part II. *Aeschna* 35: 9-22. (in Japanese with English summary). [The Libullidae of Palau, Caroline Islands are treated in some detail. Observations were made from 27 Feb. to 1 Mar. 1996. "*Agrionoptera cardinalis* is forest-hunting insects and is chiefly confined to lower altitudes. Adults are usually most abundant near the seacoast. The mature ♂♂ hold territories in shady places of jungle marshes and pools behind the beach. ♀♀ may wander far from their breeding places, congregating in sunlit spots and

clearings. Further, many individuals settle on the branches of mangroves [...]. *Neurothemis t. terminata* is a very common and widespread species, occurring in both grassland and marsh. As to extent of brown wing color, ♂♂ form a homogeneous series. ♀♀ have androchromatic wings and heterochromatic wings." ♀♀ with androchromatic wings dominate on heterochromatic in Palau. "♂♂ of *Rhyothemis phyllis vitellina* have two large brown spots on base of hind wing separated by opaque yellow coloring. On the other hand ♀♀ are with polychromatic wing pattern and very variable as to extent of dark marking." *Ischnura senegalensis* and *Orthetrum s. sabina* are added new to the list of Odonata of Palau, now totalling in 20 species. Colour patterns of ♂ synthorax, ♂ genitalia and caudal appendices of *Agrionoptera cardinalis* Lieftinck 1962 (Palau) are compared with *A. sanguinolenta* Lieftinck, 1962 (Truk, Guam), and *A. insignis* (Rambur 1842) (Iriomote Islands, Palawan Islands, Mindanao, Philippines.) Address: Muraki, A., Shiginonishi 3-4-2-309, Jôtô-ku, Osaka C., Osaka 536, Japan

3127. Kawashima, I.; Itoh, S. (1999): Notes on the last instar larva of *Somatochlora alpestris* (Selys, 1840) (Odonata, Corduliidae) from Hokkaido, Northern Japan. *Aeschna* 36: 25-31. (in English, with Japanese summary). [The external morphology of the last instar larva of *S. alpestris* from Hokkaido, Japan is described and illustrated in detail.] Address: Kawashima, I., Nagasawa 1-50-9, Yokosuka-shi, Kanagawa, 239-0842 Japan

3128. Kishi, K. (1999): Records of the Odonata in Bali Island, Indonesia. *Aeschna* 35: 23-35. (in Japanese with English summary). [Ten collecting trips to Bali between Dec. 1984 and April 1991 totaled in 42 odonate species; additional material referred in the paper rises the number of Odonata to 44. The author discusses the difference in faunal composition between the western and eastern part of Bali; four odonate taxa are known only from the western part. The records are documented in detail, some of the species are illustrated with black and white photos.] Address: not stated in English

3129. Kitagawa, K.; Ichii, H. (1999): Records of the Odonata from Southern Thailand. *Aeschna* 36: 59-68. (in Japanese with English summary). [62 species were taken at Trang, southern Thailand in 1991. The list includes an undescribed *Macromia*, which is illustrated by drawings and a black and white photo. In addition, *Tetrathemis irregularis hyalina* Kirby, *Drepanosticta khaochongensis*, *Euphaea pahyapi*, *Aciagrion borneense*, *Rhinagrion mima*, *Macrogomphus borikhanensis*, *Megalogomphus sumatranus*, *Macromia chaiyaphumensis*, and *Macromia cupricincta* are stressed or documented by black and white photos.] Address: Kitagawa, K., Imaiti 1-11-6, Asahi-ku, Osaka C., Osaka, 535-0011, Japan

3130. Kitagawa, K. (1999): Rediscovery of *Lin-aeschna polli* from Borneo. *Aeschna* 35: 41-42. (in Japanese). [*L. polli* was recorded in March 1997 at Kimanis Road (Crocker Range), Sabah, Borneo, Malaysia.] Address: Kitagawa, K., Imaiti 1-11-6, Asahi-ku, Osaka C., Osaka, 535-0011, Japan

3131. Lissak, W. (1999): Erstnachweis für Bodenständigkeit des Südlichen Blaupfeils (*Orthetrum brunneum*) im Landkreis Göppingen. *Naturkundliche*

Mitteilungen Landkreis Göppingen 18: 4-5. (in German). [clay pit near Ottenbach, Landkreis (county) Göppingen, Baden-Württemberg, Germany; 12.07.1990; in 1991 the habitat was filled with building rubble.] Address: Lissak, W., Schubartstr. 12, D-73092 Heiningen, Germany. E-mail: W.Lissak@naturschutzzentrum-schopfloch.de

3132. Maibach, A.; Meier, C. (1999): 11. Libellen-Symposium in Neuchâtel, 21.11.1998. *Nachrichten des Schweizer Zentrum für die Kartographie der Fauna* 17: 34-38. (in German, French and Italian). [Summaries of the following lectures are presented: 1. Beat Oertli : Altitude et diversité des Odonates 2. Antoine Gander: Suivi des populations des larves de libellules dans un décapage expérimental de roselière inondée de la Grande Caricaie. (Groupe d'étude et de gestion de la Grande Caricaie; GEG). 3. Riccardo Pierallini: Le libellule delle Bolle di Magadino. Aggiornamenti sull'inventoria degli Odonati in Ticino. Gruppo di lavoro «Libellule Ticino» 1998. 4. Stefan Kohl: Reisebericht vom 3. Alp-Adriatischen Libellensymposium in Kroatien. 5. Alain Maibach : Suivi de la colonisation d'un étang amortisseur de crues pour les libellules 1993-1998 - étang de Suchy (VD) 6. Peter Knauss: Beobachtungen zur Populationsökologie von *Somatochlora alpestris* 7. Irene Flöss: Struktur- und Raumnutzung von *Somatochlora flavomaculata* in einer zürcherischen Moorlandschaft 8. Hansruedi Wildermuth: Die Paarung von *Somatochlora alpestris* 9. Gerhard Vonwil: Überwachung von Libellenbeständen - Möglichkeiten und Grenzen 10. Ernst Grütter: Einige Dias zur Eiablage von *Coenagrion mercuriale*] Address: CSCF, Terreaux 14, CH-2000 Neuchâtel, Switzerland

3133. Matsuda, I. (1999): A record of *Rhyothemis variegata imperatrix* SELYS with developed dark marks of the wings. *Aeschna* 35: 45-46. (in Japanese). [A black and white photo documents the ♀ with the dark wings caught at 11 July 1997.] Address: not stated in Japanese

3134. Moriyasu, T. (1999): A record of larva of *Macromia daimoji* OKUMURA from Oita Prefecture, Kyushu, Japan. *Aeschna* 35: 52. (in Japanese). [A brief documentation of the record of a larval *M. daimoji* along with a picture of the habitat are presented.] Address: not stated in English

3135. Moryasu, T. (1999): Notes on moulting and regeneration of an anterior leg in the larvae of *Macromia daimoji* OKUMURA. *Aeschna* 36: 43-45. (in Japanese). [Japan; the moulting is documented by 11 black and white photos.] Address: not stated in Japanese

3136. Nishida, T. (1999): The Odonata in the United States of America, mainly in the State of Michigan. *Aeschna* 36: 1-20. (in Japanese with English summary). [61 odonate species are documented in most cases for Michigan and in some cases for California, Oregon, and Florida, USA. The record of *Libellula vibrans* seems to be a new state record for Michigan. Many species are documented with colour photos.] Address: not stated in Japanese

3137. Ozono, A. (1999): A record of *Tholymis tillarga* from Nara Prefecture. *Gekkan-Mushi* 342: 44. (in Japanese). [Japan, 18 and 25 Sept. 1998; a translation of the paper is published in *Digest of Japanese*

Odonatological Short Communications 14] Address: Ozono, A., 5-7-5, Myomihigashi, Habikino City, 576-0012, Japan

3138. Pinratana, A.; Hämäläinen, M. (1999): Checklist of dragonflies recorded at Doi Inthanon. *Malangpo* 16: 150-154. (in English). [The checklist of Doi Inthanon mountain, Chiang Mai prov., Thailand, totals to 117 odonate species. A brief history of odonatological research in the region is outlined; some of the species are commented, and the phenology of each species is presented.] Address: Hämäläinen M., Dept Applied Zool., P.O.Box 27, FIN-00014 University of Helsinki, Finland; E-mail: matti.hamalainen@helsinki.fi

3139. Schmidt, B. (1999): Effizienzkontrolle von Besucherlenkungsmaßnahmen an naturnahen Fließgewässern - tierökologische Untersuchungen an der mittleren Jagst. *Landesamt für Umweltschutz Baden-Württemberg, Naturschutz-Info* 2/99: 16-19. (in German). [The paper summarises the results of an (unpublished) extensive study to analyse and assess the impacts of canoeing on the fauna of the river Jagst, Baden-Württemberg, Germany. Special emphasis is given to birds and Odonata. Scrapping on ground causes drift of larvae, leaving the canoe causes death of larvae by trampling, driving the boats can influence the emergence of Odonata by crippling or alerting predators. Some more detailed results of this study can be taken from the paper of Schorr (2000) (see OAS 1943).] Address: Schmidt, B., Sandöschstr. 28; D-88048 Friedrichshafen, Germany. E-mail: Schmidt-empire@gmx.de

3140. Suda, S. (1999): A record of *Macromia urania* Ris from Taiwan. *Aeschna* 35: 43. (in Japanese). [A ♂ *M. urania* was caught at 27 June 1997, a ♀ at 11 July 1997; the habitat (Chii-Man-Ru) is documented with a photo.] Address: not stated in Japanese

3141. Yeh, W.C. (1999): Notes on three aeshnid species from Thailand. *Malangpo* 16: 144-145. (in English). [First records for Thailand are *Anax indicus* Lieftinck 1942 and *A. panybeus* Hagen 1867; *Petaliaeschna pinratana* Yeh, 1999 is synonymized with *P. flavipes* Karube, 1999. The species / specimens are discussed and described in detail. The discussion includes a specimen of *A. indicus* from Nepal (Phewa Tal, Pokhara, 25. Sept. 1986, coll. G.S. Vick). In addition, misidentifications resp. illustrations of *A. guttatus* in papers of Laidlaw (1921) and Kennedy (1934) are documented, which turned out to be *A. indicus*.] Address: Yeh, W.-C., Division of Forest Protection, Taiwan Forestry Research Institute, 53 Nanhai Road, Taipei, Taiwan, R.O.C. E-mail: wcyeh@serv.tfri.gov.tw

3142. Yokoi, N. (1999): Dragonflies of Central Laos in mid-summer. *Malangpo* 16: 146-149. (in Japanese with English summary). [The paper documents in detail the results of an excursion to Laos from 30 July to 4 Aug. 1998. In total, 50 species were collected, among them, 24 are new records for Laos. The current (1999) checklist of the Odonata of Laos totals to 123 species. Figures of *Argioconemis rubeola* Selys, 1877 (this taxon is considered a ssp. of *A. rubescens* Selys, 1877), *Pseudagrion pruinatum* (Burmeister 1839), *Devadatta ducatrix* Lieftinck 1969, *Orolestes* sp., and *Macromia*

sp. are presented.] Address: Yokoi, N., 2-37-11, Kaisei, Koriyama, Fukushima, 963-8851, Japan

3143. Yokoyama, T. (1999): Notes on the duration of egg stages on some dragonflies in Hokkaido. *Aeschna* 35: 49-50. (in Japanese). [Latin names of the 16 species are not given.] Address: Yokoyama, T., 1-15-303, Higashi 22chome, Kita 19jo, Higashi-ku, Sapporo City, 065, Japan

3144. Yoshida, M.; Yagi, T.; Futahashi, R. (1999): Early Records of some Odonata in 1998 at central Japan. *Aeschna* 36: 21-24. (in Japanese). [Phenological data of 26 odonate species are presented.] Address: Yagi, T., Otobe 2113-102, Tsu C., Mie 514-0016, Japan

2000

3145. Aoki, T. (2000): Evidence of rapid decreasing of Aka-tombo in Kobe. *Symnet* 8: 3-4. (in English). [Japan; revisiting localities known to harbour great populations of *Sympetrum frequens* in 1999 showed, that abundance has decreased dramatically, or the species may even have disappeared.] Address: Aoki, T., Rokko Island High School, Naka 4-chome, Koyochi, Higashinada-ku, Kobe, 658-0032, Japan. E-mail: taoki@ma3.justnet.ne.jp

3146. Arai, Y. (2000): A report on night oviposition of *Lestes temporalis* Hanseman [sic]. *Gekkan-Mushi* 358: 5. (in Japanese). [Japan, *Lestes temporalis* Selys 1883] Address: Arai, Y., 1233-2, Oaza Sueno, Yorii-machi, Osato-gun, Saitama Pref., 369-12, Japan.

3147. Barlow, A.E. (2000): Additions to the checklist of odonata from New Jersey. *Argia* 12(3): 21-25. (in English). [6 new additions total the list of Odonata of New Jersey, USA to 178; Sussex County with 132 species is probably the hot spot of odonate diversity in the USA.] Address: Barlow, A.E., 10 Belle Court, Budd Lake, NJ 07828, USA. e-mail: a.barlow@smtphost.elsevier.com

3148. Barlow, A.E. (2000): Observation of Odonata utilizing ants as prey. *Argia* 12(3): 32-33. (in English). [USA; New Jersey; the feeding behaviour of *Erythemis simplicicollis*, *Plathemis lydia*, and *Pachydiplax longipennis* on ants (*Formica exsectoides*) is described; exclusively ♀♀ (12 subsequent visits of the anthill) where observed to use ants as prey.] Address: Barlow, A.E., 10 Belle Court, Budd Lake, NJ 07828, USA. E-mail: a.barlow@smtphost.elsevier.com

3149. Beckemeyer, R. (2000): Dragonfly dogs: canine collecting companions. *Argia* 12(3): 35-36. (in English). [R. Beckemeyer reports on experiences with his Labrador retriever spotting and chasing Odonata.] Address: Beckemeyer, R.J., 957 Perry Ave., Wichita, KS 67203-3141, USA. E-mail: royb@southwind.net

3150. Beckemeyer, R. (2000): Some arcane dragonfly publications from the past. *Argia* 12(3): 36-37. (in English). [The paper refers to some hidden dragonfly tales, some referring to very personal interests of the

author: Aman, P. 1883-1884. "Essai sur le vol des Insectes, Rev. Sci. net. Montpellier. 3rd Ser. n et III. Lamborn, R.H. (Editor) 1890. Dragon flies vs mosquitos. Appleton. New York. Randolph, V. 1925. Life among the dragonflies. Little Blue Book No. 818. Haldeman-Julius. Girard, Kansas. Tillyard, R.J. 1917. The biology of dragonflies. Cambridge University Press. Cambridge. (chapter on Odonata and aviation) The paper also refers to a list of the Odonata of the state New York (W. Beutemiller) and the observation of a mass migration of Odonata on 2 June 1880 at Weymouth, Massachusetts] Address: Beckemeyer, R.J., 957 Perry Ave., Wichita, KS 67203-3141, USA. E-mail: royb@southwind.net

3151. Beckemeyer, R.J. (2000): Some county Odonata records for Kansas and Nebraska for 1999 and 2000. *Argia* 12(3): 27-28. (in English). [USA; Kansas, Nebraska; of some interest is the rediscovery of *Telebasis salva* in Kansas.] Address: Beckemeyer, R.J., 957 Perry Ave., Wichita, KS 67203-3141, USA. E-mail: royb@southwind.net

3152. Behrstock, R.A. (2000): Results of a brief odonate survey at East Sandia Spring, Reeves Co., Texas, including a new state record of Paiute dancer (*Argia alberta*, Kennedy, 1918). *Argia* 12(3): 13-15. (in English). [The paper lists the Odonata from the Balmorhea State Park (region), Texas, USA, and discusses the attempts to (re)discover *Argia leonora* Garrison, 1994.] Address: Behrstock, R.A., 9707 S.Gessner #3506, Houston, TX, 77071-1032, USA. E-mail: rbehrstock@aol.com

3153. Cannings, R.; Cannings, S. (2000): Post-meeting field trip. *Argia* 12(3): 6-7. (in English). [The 2000-DSA-post-meeting field trip resulted in some most southern range records, and in the extremely rare *Somatochlora brevicincta*.] Address: Cannings, R.A., Royal British Columbia Museum, 675 Belleville Street Victoria, British Columbia V8W 9W2. Canada. E-mail: rcannings@royalbcmuseum.bc.ca

3154. Cashatt, T. (2000): Hine's Emerald workshop 2000. *Argia* 12(3): 8-10. (in English). [July 12-14, 2000, a workshop to train 38 field biologists to recognize the federally listed *Somatochlora hineana* and its habitats was organised in Door County, Wisconsin, USA. The training sessions consisted of class room instructions as well as field trips to breeding sites in Door Co.] Address: Cashatt, E.D., Illinois State Museum, 1920 10 1/2 St., Springfield, IL 62703, USA. E-mail: cashatt@museum.state.il.us

3155. Chazal, A.C. (2000): Two Virginia records for *Enallagma weewa*. *Argia* 12(3): 26-27. (in English). [USA; Virginia; detailed documentation of two records of *E. weewa*.] Address: Chazal, Anne, Virginia Dept of Conservation and Recreation, Div. Natural Heritage, Richmond, Virginia, USA

3156. Cordero Rivera, A. (2000): An analysis of multivariate selection in a non-territorial damselfly (Odonata: Coenagrionidae). *Etologia* 8: 37-41. (in English with Spain summary). [The relationship between fitness and phenotypic traits (body, thorax and wing length, head width and date of emergence) was studied in a sample of 187 ♂♂ and 113 ♀♀ of *I. graellsii* by means of a multivariate regression analysis of selection. ♂ fitness was estimated as lifetime mating

success divided into three multiplicative episodes: lifespan, visits / lifespan and matings/visit (mating efficiency). In ♀♀, reproductive success was estimated from the lifetime number of ovipositions divided into lifespan, visits / lifespan and ovipositions/visit. Results indicated the absence of directional selection but highly significant nonlinear selection was observed in both sexes in respect to the date of emergence and body proportions. These results suggest that selection acts simultaneously on the multivariate phenotype and several traits should therefore be included in the selection analysis." (Author)] Address: Cordero Rivera, A., Departamento de Ecología e Biología Animal, Universidade de Vigo, E.U.E.T. Forestal, Campus Universitario, 36005 Pontevedra, Spain. E-mail: acordero@uvigo.es

3157. Donnelly, N. (2000): Farangpo 2000 - Hong Kong, Thailand and Cambodia. *Malangpo* 17: 160-162. (in English). [Odonatological report of a trip to these 3 Asian countries.] Address: Donnelly, T., 2091 Partridge Lane, Binghamton, NY 13903, USA. E-mail: tdonnel@binghamton.edu

3158. Donnelly, T.W. (2000): Change in *Cannaphila insularis* common name. *Argia* 12(3): (in English). [Verbatim: "The Common Names Committee of the DSA has changed the common name of *C. insularis* (Libellulidae) from Narrow-winged Skimmer to Gray-waisted Skimmer. This change was to accommodate the necessity of giving *Cannaphila vibex* a common name, as the latter species was recently reported from Nuevo Leon, Mexico, and thus will be included in the new dragonfly manual by Needham, Westfall, and May (in which numerous species found in the northernmost Mexican states and the Caribbean islands will first be given English names). The name "narrow-winged skimmers" is being retained for the genus *Cannaphila*, and the most obvious field mark of *C. insularis*, the gray pruinosity at the base of the black abdomen of mature ♂♂, is now featured in its common name."] Address: Donnelly, T., 2091 Partridge Lane, Binghamton, NY 13903, USA. E-mail: tdonnel@binghamton.edu

3159. Donnelly, T.W. (2000): Dot-map project - hung up on *Lestes*! *Argia* 12(3): 31-32. (in English). [The author takes *Lestes disjunctus*, *forcipatus*, and *australis* for three distinct species. Due to insufficient identification keys (in the past) this taxonomic problem causes difficulties to map the three taxa in USA. Additional problems refer to taxa which intergrade (*Aeshna interrupta* vs. *A. lineata*; *Sympetrum semicinctum* vs. *S. occidentale*; *Erythemis simplicicollis* vs. *E. collocata*; *Epitheca costalis* vs. *E. petechialis*; *Amphiagrion saucium* vs. *A. "abbreviatum"*.)] Address: Donnelly, T., 2091 Partridge Lane, Binghamton, NY 13903, USA. E-mail: tdonnel@binghamton.edu

3160. Donnelly, T.W. (2000): Farangpo 2000 - Hong Kong, Thailand, and Cambodia. *Argia* 12(3): 18-21. (in English). [The most interesting species from different localities in Hong Kong, Thailand, and Cambodia are dealt with.] Address: Donnelly, T., 2091 Partridge Lane, Binghamton, NY 13903, USA. E-mail: tdonnel@binghamton.edu

3161. Donnelly, T.W. (2000): History of American Odonata studies - Edmund M. Walker. *Argia* 12(3): 33-35. (in English). [This is an additional contribution to the serie of important North American odonatologists

written by N. Donnelly with a significant contribution on his personal cooperation with E. Walker: "There are dozens (perhaps hundreds) of odonatists who can truly say that he was the most helpful, enthusiastic, and inspirational odonatist that they have ever known." Address: Donnelly, T., 2091 Partridge Lane, Binghamton, NY 13903, USA. E-mail: tdonnel@binghamton.edu

3162. Donnelly, T.W. (2000): Late records in the northeastern United States and eastern Canada. *Argia* 12(3): 28. (in English). [Causes for the late records may be a late start of flying season due to bad weather conditions or the absence of violent weather in August.] Address: Donnelly, T., 2091 Partridge Lane, Binghamton, NY 13903, USA. E-mail: tdonnel@binghamton.edu

3163. Donnelly, T.W. (2000): Na-Nick of the north strikes again - a visit to Churchill, Manitoba. *Argia* 12(3): 12-13. (in English). [Manitoba, Canada; 9 species were collected including *Aeshna septentrionalis*. A brief note on roosting site selection of *A. sitchensis* (warm, gravel road and others), and *A. septentrionalis* (large granite glacial boulders). Species started to fly at temperatures of 14°C.] Address: Donnelly, T., 2091 Partridge Lane, Binghamton, NY 13903, USA. E-mail: tdonnel@binghamton.edu

3164. Dunkle, S. (2000): Fun in Oz. *Argia* 12(3): 15-18. (in English). [This is a nice talk on Odonata based on a four month trip to Australia, and how to spot them.] Address: Dunkle, S., Biol. Dept, Collin County Community College, 2800 E, Spring Creek Parkway, Plano, TX 75074, USA

3165. Futahashi, R.; Futahashi, H.; Araki, Y (2000): Supposed records on migration of *Sympetrum depressiusculum* (SELYS). *Aeschna* 37: 28-30. (in Japanese). Address: not stated in English

3166. Glotzhober, B. (2000): Bernie V. Counts Jr., Ohio, dead at 42. *Argia* 12(3): 3-4. (in English). [obituary] Address: Glotzhober, R., Ohio Natural History Society, 1982 Velma Ave., Columbus OH 43211-2497, USA. E-mail: bglotzhober@ohiohistory.org

3167. Hämäläinen, M. (2000): Additions and corrections to dragonfly lists of five protected areas in Thailand. *Malangpo* 17: 156-157. (in English). [Additions to previously reported Odonata of Khao Yai National Park, Khao Soi Dao Wildlife Sanctuary, Doi Suthep - Pui national Park, Phu Kradung National Park, and Doi Inthanon National Park are made. Some species reported are critically discussed.] Address: Hämäläinen M., Dept Applied Zool., P.O.Box 27, FIN-00014 University of Helsinki, Finland; E-mail: matti.hamalainen@helsinki.fi

3168. Hämäläinen, M.; Yeh, W.-C. (2000): Polycanthagyna ornithocephala - again a new aeshnide to the Thai fauna. *Malangpo* 17: 158-159. (in English). [2 ♀♀ of *P. ornithocephala*, new additions to the Thai fauna, were caught at Kanchanaburi province, Kroeng Kra Via alt 22 Oct. 1999. One of the specimens is described in detail, and the species' distribution is briefly outlined. The species is compared with *P. erythromelas* and *P. melanictera*. In addition, habitat and habits are briefly described. *Tetracathagyna waterhousi*, a likewise rare species in Thailand, is reported from the same place

from 2 May 2000.] Address: Hämäläinen M., Dept Applied Zool., P.O.Box 27, FIN-00014 University of Helsinki, Finland; E-mail: matti.hamalainen@helsinki.fi

3169. Hernández, J.M. (2000): Geographic distribution of *Crocothemis servilia* (Drury) (Odonata: Libellulidae) in Cuba. *Argia* 12(3): 28-29. (in English). [The Asiatic *C. servilia* was first recorded on Cuba in Dec. 1994; the present knowledge, based on collection of the author in successive years, is documented.] Address: Hernández, J.M.R., Apartado Postal 2004, Sancti-Spiritus, Cuba CP 60100

3170. Hutchings, G. (2000): DSA annual meeting, 27 July - 1 August 2000, British Columbia. *Argia* 12(3): 4-6. (in English). [Canada, British Columbia; this report includes lists of species collected in the framework of the meeting.] Address: Hutchings, G., 971 Arundel Drive, Victoria BC, Canada V9A 2C4

3171. Ishizawa, N. (2000): Aka-tombo at Otemachi in 1999. *Symnet* 8: 9-10. (in English). [Counts of *Sympetrum frequens*, *S. infuscatum*, and *S. darwinianum* are presented and discussed. "It is likely that because of continuation of the climate change, the period of descent from highlands in *S. frequens* may be later than usual."] Address: Ishizawa, N., 1644-15, Yamaguchi, Tokorozavva City, Saitama Pref., Japan. E-mail: isizawa7@mars.ccn.ne.jp

3172. Ishizawa, N. (2000): Articles on Aka-tombo in newspapers. *Symnet* 8: 2-3. (in English). [Finding a note in a more popular book on insects on a migratory swarm of *Sympetrum frequens* at June 21, 1973, the register of the regional newspaper was consulted to find out more details on this mass swarm. Disappointingly, only very few information on the migration were to extract from the newspapers. Some additional notes on articles with information of Odonata are listed, and the reasons are discussed why so little information on Odonata is present in newspapers.] Address: Ishizawa, N., 1644-15, Yamaguchi, Tokorozavva City, Saitama Pref., Japan. E-mail: isizawa7@mars.ccn.ne.jp

3173. Ishizawa, N. (2000): *Sympetrum frequens* at Omori Pond (3). *Symnet* 8: 10-11. (in English). [In *S. frequens* more fertilized eggs were found in mid autumn than in early or late autumn. Data on larval growth, size of sexes at emergence, and the start of reproduction period are presented.] Address: Ishizawa, N., 1644-15, Yamaguchi, Tokorozavva City, Saitama Pref., Japan. E-mail: isizawa7@mars.ccn.ne.jp

3174. Ishizawa, N. (2000): Thermoregulation in calopterygid damselflies. *Nature & Insects* 35(11): 14-17. (in Japanese). [This is a detailed survey of the thermoregulation in *Mnais pruinosa costalis* and *Calopteryx cornelia* in Japan. Mean thoracic temperature, mean weight, thoracic length, and wing loading are measured and compared. "In the orange-wing ♂, the relation of the temperature of thorax (tth) to the ambient temperature in the sun was highly correlated and the regression coefficient was larger than 1.0, while in the hyaline-wing ♂, those coefficients were lower, and Tth of the latter was highly thermoregulated. So was the immature hyaline-wing ♂, too [...]. The experiment (the bodies except wings were covered and exposed to the light of 75 W halogen lamp from over 25 cm) proved that wing colour did not affect

thoracic temperatures. Immature adults thermoregulated their thoracic temperatures rather lower than mature adults. Tth of the hyaline-wing ♂ increased higher than the orange-wing ♂, probably due to their lighter weight and the scantiness of pruinescence. In orange-wing ♂♂ their bodies were heavily pruinose and this may reflect the sunshine and keep Tth not so high in the direct sunshine. But due to it they can not be superior to hyaline ♂♂ at small sunlit spaces in the shaded areas, while hyaline-wing ♂♂ are superior in such areas. The ♀ of *M. p. costalis* has a relatively large thorax and this may be common among damselflies. This may be helpful for ovipositing ♀♀ to prevent from losing Tth in the water. In a ovipositing ♀ of *Cercion sieboldii*, Tth was lower by 3.8°C than that of her partner, and the difference was far larger than that (0.2°C) of other pairs ovipositing on the surface of water. ♀♀ of *M. p. costalis*, of which wing loading is larger are said to perch on the canopies of trees in the daytime except during oviposition to maintain high Tth. In ♂♂ of *C. cornelia*, they perch nearby streams or on boulders stuck out from the streams, so their Tth are low and their wing beat frequency is small. But their wing loading is light and they can fly easily, though they are not so agile." A translation of the paper is available from Naoya Ishizawa, or IDF.] Address: Ishizawa, N., 1644-15, Yamaguchi, Tokorozavva City, Saitama Pref., Japan. E-mail: isizawa7@mars.ccn.ne.jp

3175. Kano, K.; Yokoi, N. (2000): On the plant worms of Odonata. *Nature & Insects* 35(11): 6-9. (in Japanese translated in English by Naoya Ishizawa). [A parasitic fungus belonging to the Clavicipitaceae, Ascomycota was found on *Sympetrum infuscatum*, Yasato-cho, Ibaraki Pref, Japan. The paper describes the infection route and compiles reports with information on "plant worms" on Odonata. A translation of the paper is available from Naoya Ishizawa, or IDF.] Address: Yokoi, N., 2-37-11 Kaisei, Koriyama, Fukushima, 963-8851 Japan

3176. Karube, H. (2000): Records of the New Caledonian Odonata. *Aeschna* 37: 37-42. (in Japanese). [26 species are listed; *Isosticta robustior*, *Caledopteryx maculata*, *Oreaeschna dominatrix*, *Synthemis miranda*, *Synthemis fenella*, and *Metaphya elongata* are documented by black and white photos.] Address: Karube, H., Kanagawa Prefect. Mus. Nat. Hist., 499 Iryuda, Odawara, Kanagawa, 250, Japan

3177. Kitagawa, K. (2000): The Odonata of Thailand taken by Mr. Jyun Hase. *Aeschna* 37: 33-36. (in Japanese with English summary). [In 1991, 15 odonate species were collected at Khao Yai, Central Thailand. 3 species, *Ceriaton azureum*, *Lathrecista a. asiatica*, and *Zygomma petiolatum*, are new additions to the odonate fauna of Khao Yai.] Address: Kitagawa, K., Imaiti 1-11-6, Asahi-ku, Osaka C., Osaka, 535-0011, Japan

3178. Kitching, R.L. (2000): Food webs and container habitats: The natural history and ecology of phy-totelmata. . Cambridge Univ. Press, New York. ISBN 0-521-77316-4: xiii + 431 pp. (in English). ["[...] An annex (p. 301-384) is a bestiary. Phylum by phylum, from Platyhelminthes to Chordata, it gives a brief account of each major taxon, for some at the level of phylum, for some arthropods down to the level of family. It provides a classification, down to the level of

species, of some of the taxa (Annelida, Crustacea, Odonata, Culicidae, Chironomidae, Ceratopogonidae, Psychodidae, Phoridae, Syrphidae, Coleoptera, Acari, and frogs) in tables. This classification was a brave undertaking because it seems to be the first to attempt a listing for the fauna of all phytotelmata. [...]" (Book review of J. H. Frank, Entomology & Nematology Dept., University of Florida, Gainesville, FL 32611-0630, USA; published in *Florida Entomologist* 84(3): 461-462, 2001).]

3179. Kitowski, I. (2000): The food of Mantagu's Harrier (*Circus pygargus*) in the post-fledging period on the carbohydrate peat-bog near Chelm. *Walory Przyrpdnicze Chelmskiego Parku Krajobrazowego i Jego Najblizszych okolic*: 177-182. (in Polish with English summary). [Chelm (51°08N 27°37E), Poland; "Odonata indet." account to 1,7% of the diet.] Address: not stated

3180. Kowalik, W.; Stryjecki, R. (2000): The invertebrates macrofauna of the Chelm Landscape Park peat-bog pools with special regard to the water mites (Hydracarina). *Walory Przyrpdnicze Chelmskiego Parku Krajobrazowego i Jego Najblizszych okolic*: 165-176. (in Polish with English summary). [Poland; Odonata are not detailed at the genus or species level.] Address: not stated

3181. Lauder milk, E. (2000): New Kentucky records. *Argia* 12(3): 26. (in English). [USA, Kentucky; *Enallagma daeckii*, *Telebasis byersi*] Address: Lauder milk, E.L., 199 Meadow View Drive, '3, Frankfort, KY 40601, USA. E-mail: Ellis.Laudermilk@mail.state.ky.us

3182. Maibach, A.; Meier, C. (2000): 12. Libellen-Symposium in Neuchâtel, 27.11.1999. *Nachrichten des Schweizer Zentrum für die Kartographie der Fauna* 19: 38-42. (in German, French and Italian). [Summaries of the following lectures are presented: 1. T. Maddalena: *Novità dal Ticino - Gruppo di Lavoro «Libellule Ticino»* 2. N. Dulka: *Approche autécologique de trois espèces de Coenagrionidae (Odonata: Zygoptera) en Suisse Occidentale (Coenagrion puella, C. pulchellum, Enallagma cyathigerum)* 3. Ch. Keim: *Recolonisation par les Odonates des gravières du Verney (Martigny, VS) asséchées en 1998* 4. B. Oertli: *Prédiction des peuplements d'Odonates des étangs suisses*. 5. H. Wildermuth: *Das Rotationsmodell zur Pflege von kleinen Libellengewässern - Rückblick auf 15 Jahre Praxis*. 6. H. Humbert-Droz & S. Dubouchet: *Suivis spatial et temporel d'une population d'Orthetrum brunneum sur la Seymaz (GE)*. 7. R. Hoess: *Libellenbeobachtungen im Kanton Bern in Zusammenhang mit dem Jahrhunderthochwasser vom Mai 1999*] Address: CSCF, Terreaux 14, CH-2000 Neuchâtel, Switzerland

3183. Matsumura, T.; Uéda, T. (2000): A report on the vertical distribution of Aka-tombo on Akasage, Fukui Pref. and marking survey of *Sympetrum frequens*. *Symnet* 8: 6-8. (in English). [The distribution of *S. frequens*, a species known to disperse in summer to higher altitudes, was studied along a transect at 14 different elevations. The abundance increased significantly above 1000m a.s.l. Additional data are presented for *S. infuscatum*, *S. darwinianum*, and *S. eroticum*. Marking of 709 specimens of *S. frequens* resulted in a recapture of an individual 72 km apart from

the marking locality.] Address: Ueda, T., Ishikawa Agricultural College, Suematsu, Nonoichi, Ishikawa Pref., 921, Japan

3184. Mauffry, B.; Roble, S.; Tennessen, K. (2000): New state records of Odonata for West Virginia in the collection of the late Paul D. Harwood. *Argia* 12(3): 29-31. (in English). [USA; West Virginia; Based on a collection of app. 5000 specimens, three new state records could be added to the list of West Virginia Odonata: *Lestes inaequalis*, *Pantala flavescens*, and *Pantala hymenaea*. Some of the voucher specimens and publications of Harwood are critically discussed.] Address: Mauffray, B., 4525 N.W. 53rd Lane., Gainesville, FL 32653, USA. E-mail: iori@afn.org

3185. Nakai, K. (2000): Watching a migration of Aka-tombo in swarms. *Symnet* 8: 2. (in English). [Japan; 27 July, 1991 a swarm of migrating *Sympetrum frequens* was observed. It is described in detail. The number of the involved (mature) specimens is estimated at 800000 per hour.] Address: Nakai, K., Tsubata-machi, Kahoku-gun, Ishikawa Pref., Japan

3186. Nikula, B. (2000): Bog hopping and stream sloshing in the Maine woods. *Argia* 12(3): 10-12. (in English). [84 odonate species were collected in end of June, 2000 in the northeastern part of Maine, USA. *Anax longipes* is an addition to the Maine Odonata list. *Somatochlora hineana* could - contrary to 1999 - not be traced, but the quite recently described *Neurocordulia michaeli* Brunelle, 2000 was. The most interesting species are listed locality-wise.] Address: Nikula, B., 2 Gilbert Lane, Harwich Port, MA 02646, USA. e-mail: odenews@capecod.net

3187. Paulson, D. (2000): New records from Washington and Idaho. *Argia* 12(3): 25-26. (in English). [Records of *Coenagrion interrogatum*, *Aeshna subarctica*, *Nehalennia irene*, and *Epitheca spinigera* are documented in detail.] Address: Paulson, D.R., Slater Museum, Univ. of Puget Sound, Tacoma, WA 98416, USA. E-mail: dpaulson@ups.edu

3188. Sasamoto, A.; Ushijima, K (2000): Records of the Odonata collected at Kathmandu Valley, in Nepal. *Aeschna* 37: 1-12. (in Japanese with English summary). [Between 1997 and 1999, 50 species were recorded. Some are illustrated by black and white photos (*Rhinocypha trifasciata*, *Coeliccia renifera*, *Ceriagrion fallax*, *Gynacanthaeschna sikkima*, *Cephalaeschna masoni*, *Aeshna petalura*, *Anaciaeschna donaldi*, *Scalmogomphus bistrigatus*, *Macromia moorei*, *Sympetrum haematoneura*) or drawings (*Aciagrion olympicum*, *abarrant Crocothemis* sp.).] Address: not stated in English

3189. Tabata, O.I. (2000): A Record of *Lyriothemis elegantissima* Selys from Tokunosima Island. *Aeschna* 37: 27. (in Japanese). [Japan, 13-VII-1999] Address: Tabata, O., Shoubuen-cho 79-18, Kamigamo, Kita-ku, Kyoto C., Kyoto 603-8064, Japan

3190. Thiele, V.; Berlin, A.; Wichert, R. (2000): Zur Kenntnis zoologischer Taxa (Avifauna, Lepidoptera, Trichoptera, Odonata, Saltatoria) im Bereich von Knochenhauerwiese und Galgenbruch (Hansestadt Rostock). *Archiv der Freunde der Naturgeschichte in Mecklenburg* 39: 85-104. (in German). [Mecklenburg-Vorpommern, Germany; 20 odonate species are listed

for three localities. The list includes *Aeshna viridis* and *Leucorrhinia pectoralis*.] Address: Thiele, V., biota, Am Au Graben 2, D-18273 Güstrow, Germany

3191. Tsubuki, T. (2000): A record of *Sympetrum darwinianum* at the Yunomaru heights. *Symnet* 8: 8-9. (in English). [Japan; some altitudinal records of (mature) *S. darwinianum*, and observations on pre-reproductive *S. frequens* are reported.] Address: not stated

3192. Tsubuki, T. (2000): Observation on *Sympetrum frequens* and *Sympetrum darwinianum* at Soja City, Okayama Pref. in the early November. *Symnet* 8: 9. (in English). [Japan; faunistic data on the two species] Address: not stated

3193. Tsubuki, T. (2000): Seasonal fluctuations of Aka-tombo in the peripheries of Mogusayama, Hino City, Tokyo in 1997. *Symnet* 8: 11-13. (in English). [Japan; detailed documentation of seasonality of *Sympetrum frequens*, *S. infuscatum*, *S. speciosum*, *S. darwinianum*, and *S. eroticum* between July and December 1997.] Address: not stated

3194. Ueda, T. (2000): "The Japanese" and dragonflies. *Symnet* 8: 1. (in English). [The paper documents the titel pages of the journal "The Japanese" which first was published in 1888, the 21th year of the Meiji era. Obviously it was a nationalistic magazine aimed to try to avoid europeanism in Japan. Some of the items of the journal refering to Odonata are briefly noted, and the special relationship between Japan (Akitsushima - Country of Dragonflies) and dragonflies is briefly outlined.] Address: Ueda, T., Ishikawa Agricultural College, Suematsu, Nonoichi, Ishikawa Pref., 921, Japan

3195. Ugai, S. (2000): Hybrid records of dragonflies in Japan. *Nature & Insects* 35(11): 18-22. [The paper documents and compiles extensively hybrids between odonate species in Japan. A translation of the paper is available from Naoya Ishizawa, or IDF.] Address: not stated

3196. Ushiyama, M. (2000): Rescue works of larvae in swimming pools. *Symnet* 8: 5. (in English). [The author describes the situation of school ponds in Japan used for swimming purposes; cleaning of the ponds prior emergence of Odonata leads to the destruction of the dragonfly population. The author describes who it may be possible to combine the functions "swimming pond for pupils" and "habitat of Odonata".] Address: not stated

3197. Wagner, D.L. (2000): Dragonfly and damselfly workshop, University of Connecticut. *Argia* 12(3): 8. (in English). [Report from a workshop organised in May 2000.] Address: Wagner, D.L., Ecol. & Evol. Biology, U. Box 42, Univ. Connecticut, Storrs, CT 06269, USA. E-mail: dwagner@uconnvm.uconn.edu

3198. Watanabe, K. (2000): *Coeliccia* of Thailand and Malaysia. *Nature & Insects* 35(11): 2-5. (in Japanese (translated in English by Naoya Ishizawa)). [The paper lists all known species of the genus *Coeliccia* in a table along with the countries they occur. Areal maps and information on altitudinal distribution of *C. didyma* (Selys 1863), *C. poungyi* Fraser 1924, *C. loogali* Fraser 1932, *C. chromothorax* (Selys 1891), and

C. doisuthepensis Asahina 1984 are presented. *C. cyanomelas* Ris 1912, *C. flavicauda* Ris 1912, and *C. ryukyuensis* Asahina 1951 are discussed from the evolutionary point of view. A translation of the paper is available from Naoya Ishizawa, or IDF.] Address: not stated

3199. Watanabe, Y. (2000): Attachment apparatus of dragonfly eggs. *Nature & Insects* 35(11): 10-13. (in Japanese (translated in English by Naoya Ishizawa)). [Eggs are enclosed by a gelatinous substance which is interpreted as an adaptation to protect the eggs. The substance is discussed from an evolutionary point of view. Eggs and their specific attachment apparatus are documented for the followings species: *Ischnura asiatica*, *Copera annulata*, *Anax parthenope julius*, *Stylurus annulatus*, *Asiagomphus amamiensis*, *Gomphus postocularis*, *Nihonogomphus viridis*, *Sinictinogomphus clavatus*, *Onychogomphus forcipatus*, *Sympetrum frequens*, *Epithea bimaculata sibirica*, and *Deielia phaon* A translation of the paper is available from N. Ishizawa, or IDF.] Address: Watanabe, Yoko, 4-14, Nishida-cho, Nishinomiya City, Hyogo Pref., 662-0034, Japan

3200. Yokoyama, T. (2000): Notes on the durations of the egg stages on some dragonflies in Hokkaido 2. *Aeschna* 37: 22-26. (in Japanese). [*Mnais pruinosa*, *Lestes sponsa*, *Sympecma paedisca*, *Coenagrion ecornutum*, *C. hylas*, *Enallagma circulatum*, *Nehalennia speciosa*, *Gomphus postocularis*, *Davidius moiwanus*, *Trigomphus melampus*, *Oligoaeschna pryeri*, *Aeshna juncea*, *A. nigroflava*, *Somatochlora viridiaenea*, *S. arctica*, *S. alpestris*, *Cordulia aenea*, *Epithea bimaculata*, *Lyriothemis pachygastra*, *Sympetrum frequens*, *S. darwinianum*, *S. infuscatum*, *S. eroticum*, *Sympetrum kunkeli*, *S. risi*, *S. flaveolum*, *Sympetrum danae*, *Leucorrhinia intermedia*.] Address: Yokoyama, T., 1-15-303, Higashi 22chome, Kita 19jo, Higashi-ku, Sapporo City, 065, Japan

3201. Yoshida, M. (2000): Collecting and breeding data of some odonate larvae, 3rd report. *Aeschna* 37: 13-21. (in Japanese with English summary). [Japan; 19 species are treated.] Address: not stated in English

3202. Yoshida, M. (2000): Dispersive record of *Boyeria maclachlani* (SELYS) at Yahagi River. *Aeschna* 37: 28. (in Japanese). Address: not stated in English

3203. Zschunke, R. (2000): Untersuchungen zum Einfluss des Wetters auf das Verhalten der Gebänderten Prachtlibelle (*Calopteryx splendens*) unter besonderer Berücksichtigung der Reviermännchen. Diplomarbeit im Fachbereich Biologie (Zoologie) der Universität des Saarlandes. 100 pp. (in German). [River Nied, Saarland, Germany; Effects of weather on *C. splendens* were surveyed in 1999; special emphasis was given to territorial ♂♂. Meteorological data (air-temperature, 400 - 700nm - radiation, UV-radiation, wind speed, relative atmospheric humidity, and rain / precipitation) were measured continuously. These data were plotted against the dynamic of the population and the behaviour of selected specimens. Air temperature and visible radiation determined the behaviour of *C. splendens* predominately. Wind velocity influenced the behaviour. Atmospheric humidity was equal at maturation places and territories; there was no indication that teneral specimens prefer places with higher humidity than mature specimens. In addition, this

M.Sc. includes observations on behaviour of *C. splendens* during the solar eclips of 11/08/1999, and many additional information on population dynamics, sex-ratio, roosting site selection, diurnal activity, etc. This study provides highly significant information on the influence of weather on the behaviour of Odonata.] Address: Zschunke, R. E-mail: rasz@gmx.de

2001

3204. Abbott, J. (2001): The 2001 DSA annual meeting at Junction, Texas. *Argia* 13(3): 2-4. (in English). [*Erythemis peruvia* - new to the USA - was collected at the South Llano River State park, Texas. In addition species lists from several localities in Texas and New Mexico, USA are provided.] Address: Abbott, J.C., Patterson Labs 219, School of Bio. Sci., University of Texas, Austin TX 78712, USA. E-mail: jcabbott@mail.utexas.edu

3205. Akagi, M. (2001): Observation on a swarming aka-tombo. *Symnet* 9: 5. (in English). [Japan, Miyauchi, Tottori, Pref.; July 3, 2001, report on an aggregation of *Sympetrum frequens*.] Address: Akagi, M., Nichinan-cho, Hino-gun, Tottori Prefecture, Japan

3206. Araki, Y.; Futahashi, R. (2001): Record of collecting and breeding of larvae of *Anax guttatus* in Toyama Prefecture. *Aeschna* 38: 35-38. (in Japanese with English summary). ["We collected some larvae of *A. guttatus* at Daimon-machi and Asahi-machi, Toyama Prefecture in October and November 1998. This is probably the northernmost record of the larvae of this tropical migratory species in Japan. According to our breeding data the egg period was 11 to 19 days, and the larvae period was 55 to 88 days. Hence, the larvae we collected outdoors are supposed to have been originated from the eggs laid in August and September 1998 In 1998 autumn, we found many adults of *Anax guttatus* but it was not easy to find the larvae mainly because of the difficulty in identifying young larvae. But we also speculate that the eggs or the young larvae of this species could not adequately adapt themselves to the cold climate of the late autumn in the Hokuriku district because no late-stage larvae was found through our repeated research in October and November at Shimmato-city and Himi-city (Toyama Prefecture) where we observed its reproductive behavior many times since September."] Address: not stated in English

3207. Barlow, A.E. (2001): Second annual report of the new Jersey Odonata Survey including a state record and numerous county records. *Argia* 13(3): 18-22. (in English). [*Somatochlora kennedyi* was discovered on June 7, 2001 in New Jersey, USA. 36 additional species to counties are briefly discussed.] Address: Barlow, A.E., 10 Belle Court, Budd Lake, NJ 07828, USA. E-mail: a.barlow@smtphost.elsevier.com

3208. Beckemeyer, R. (2001): "How far to Wiwili?" "Quince Minutos! (Fifteen minutes)" a Nicaraguan adventure. *Argia* 13(3): 9-14. (in English). [This is an extensive report of collecting Odonata in the mud of Nicaragua.] Address: Beckemeyer, R.J., 957 Perry Ave., Wichita, KS 67203-3141, USA. E-mail: royb@southwind.net

- 3209.** Brockhaus, T. (2001): Libellen (Odonata). In: Verein zur Förderung von Landschaftspflege und Naturschutz & Stadtverwaltung Chemnitz, Umweltamt (Hrsg.): Pflanzen-Tiere-Lebensräume in Chemnitz. Ein Arten- und Biotopschutzkonzept: 178-188. (in German). [37 odonate species are known to occur in Chemnitz, Sachsen, Germany. The species - including historical data - are listed in a table. 24 species are discussed in detail, the distribution of some is mapped.] Address: Brockhaus, T., An der Morgensonne 5, D-09387 Jahnsdorf, Germany. E-mail: T.Brockhaus@t-online.de
- 3210.** Brown, G. (2001): Rhode Island update. *Argia* 13(3): 22. (in English). [Current results of odonatological mapping of Rhode Island, USA are presented including details on *Aeshna mutata*.] Address: Brown, Virginia, The Nature Conservancy, 159 Waterman Avenue, Providence, RI, 02906, USA
- 3211.** Buidin, C. (2001): Première mention de *Sympetrum* (*Sympetrum*) *semicinctum* Say (Odonata: Libellulidae) par la Côte-Nord du Saint-Laurent. *Faberies* 26(2): 82. (in French). [Quebec, Canada; 1 ♀, 9-IX-2000.] Address: Buidin, C., 1 ch. du Grand Ruisseau, Rivière-Saint-Jean, QC, G0G 2N0, Canada
- 3212.** Daigle, J.J. (2001): Cades cove dragonfly blitz II. *Argia* 13(3): 6. (in English). [Report from a regional meeting including a list of twelve new species for the Great Smoky Mountains National Park, Tennessee, USA.] Address: Daigle, J., 2166 Kimberley Lane, Tallahassee, FL 32311, USA. E-mail: jdaigle@nettally.com
- 3213.** Deliry, C. (2001): *Sympétrum piémontais* n°1 à 46. Un retour sur les activités du GRPLS *Sympetrum piémontais* 47: 12-15. (in French). [The French "Groupe de Recherche et de Protection des Libellules 'Sympetrum'" is definitely one of the most active dragonfly associations within our community of odonatologists. This paper compiles the essentials of the work starting in 1986/87 and is a significant document of dragonfly research in France.] Address: Deliry, C., La Paluette, 2338 route de Belley, F-38490 Aoste, France
- 3214.** Donnelly, N. (2001): There are definitely no flying fishes on the road to Mandalay. *Argia* 13(3): 15-18. (in English). [Report from a collecting trip to Myanmar / Burma.] Address: Donnelly, T., 2091 Partridge Lane, Binghamton, NY 13903, USA. E-mail: tdonnel@binghamton.edu
- 3215.** Futahashi, M.; Fukui, M.; Yoshida, M.; Yokoyama, T. (2001): Breeding records of eggs and larvae of *Sympetrum depressiusculum* (Selys, 1841). *Aeschna* 38: 24-26. (in Japanese with English summary). [The authors outline that "previous breeding records regarded most of the offspring of *S. depressiusculum* caught in Japan as hybrids between *S. depressiusculum* and *S. frequens*." To obtain "genuine *S. depressiusculum*", specimens thought to have just reached the coastal area of Japan from overseas were caught. Eggs reared to the imago proved to be typical *S. depressiusculum*.] Address: Yokoyama, T., 1-15-303, Higashi 22chome, Kita 19jo, Higashi-ku, Sapporo City, 065, Japan
- 3216.** Futahashi, R.; Futahashi, H.; Araki, Y. (2001): Observation of copulation and oviposition of *Sympetrum cordulegaster*. *Aeschna* 38: 39-40. (in Japanese with English summary). [Records of copulation behaviour of *S. cordulegaster* in Japan are rare. The authors present photographs of the copulation and oviposition ("Flying-oviposition into the water") of this species.] Address: not stated in English
- 3217.** Gianti, M. (2001): Segnalazioni faunistiche italiane. *Coenagrion mercuriale* ssp. *castellani* Roberts, 1948 (Odonata: Coenagrionidae). *Boll. Soc. ent. ital.* 133(3): 267. (in Italian). [*C. castellani* is for the first time recorded for Piemonte, N Italy (1 ♂, 2 ♀♀, Salmour/CN, 13-VI-1999). Its distribution in Italy is briefly outlined.] Address: Gianti, M., Via Divisione Cuneese 17, I-12023 Garaglio CN, Italy
- 3218.** Hachiya, K. (2001): Seasonal fluctuations of adult *Sympetrum frequens* and *Sympetrum infuscatum* at rice paddies in Hokkaido. *Symnet* 9: 6-9. (in English). [In 1998 and 1999, the emergence and pre-reproductive period of *Sympetrum frequens* and *S. infuscatum* was studied near Sapporo, Hokkaido, Japan.] Address: Hachiya, K., Kuriyama-cho, Yubari-gum, Hokkaido, Japan
- 3219.** Higashi, K. (2001): Kotee of dragonflies and quails. *Symnet* 9: 1-2. (in English). [Japan; "Kotee is said to be an art of moulding on a plaster wall with only a trowel by a plasterer." This paper reports extensively on a kotee representing dragonflies.] Address: Higashi, K., Department of Applied Biological Sciences, Faculty of Agriculture, Saga University, Honjyo-machi 1, Saga, 840-8502, Japan. E-mail: higashik@cc.saga-u.ac.jp
- 3220.** Ikezaki, Y. (2001): The extinct and seriously endangered species of insects in Nagasaki prefecture. *Nature & Insects* 36(11): 23-25. (in Japanese with English title). [Japan, the list of 5 insect species includes *Mortonagrion Hirosei*, and *Libellula angelina*.] Address: not stated
- 3221.** Ishizawa, N. (2001): Capture of a ♀ *Sympetrum frequens* Selys with highly reflective wings. *Gekkan-Mushi* 370: 31-32. (in Japanese). ["I captured a ♀ *S. frequens* of which wings were highly reflective at Mikajima, Horinouchi, Tokorozawa City, Saitama Prefecture on September 18, 2001. It was fine, and the air temperature was 29.113 at 2:50 p.m. The dragonfly perched on a rope, and was rather inactive in flight. The abdominal dorsum was dark brown; body weight: 301 mg, abdominal length: 28.7 mm, fore wing: 35 mm, hind wing: 33.5 mm, the total weight of four wings: 11 mg, rather heavier than those of ordinary ones (8.9+1.3 mg, n=16). The wings were glistening like those of teneral soon after emergence. The body sizes were not so different from ordinary ones except the fore wings. The ♀ had a large fore wings for its body, because such a dragonfly of which fore wings exceed 35 mm is rarely seen. I compared the dragonfly with ordinary ones on the effect of wings on body temperature by irradiating them with a halogen lamp (75W) from over 20 cm apart. Fig. 1 shows the changes of the odds of the body temperatures of the same ♀♀ before and after cutting off wings at intervals of 30seconds. Body temperatures (Tb) were measured with a thermocouple (diameter, 0.05 mm) connected to a digital thermometer by inserting the probe to the center of the 1 thorax, 1 mm up the mesothoracic spiracle. The starting Tb was 25°C (some specimens 23.5°C) at 22-24°C of indoor temperature. The odds of Tb of the highly reflective ♀

was 3.3 °C for 3 minutes, higher than those of the ordinary ones (1.3 ±0.4, n=10). I don't know why it was so high, however, the haemolymph might have remained inside the wings, absorbing the radiation heat of the lamp, and it might have been taken into the thorax. That might have raised the body temperature. In the same case as this, I saw a ♂ of the species at Sawairi in Mt. Nyugasa, Nagano Prefecture (1,450 m a.s.l.) (Ishizawa, 1988: *Nature & Insects* 23 (13): 28). The ♂ was not so active and weak in flight. If Tb was high, it must have flown actively, however, curiously it did not. Did it only look weak in fluttering because of the high reflection? Such cases have been reported; one ♂ and one ♀ of *S. frequens* were caught by Takasaki (1996: *Symnet* (5): 8), one ♂ by Udono (1997: *Symnet* (6): 4), and the dragonflies were said to be not so different from ordinary ones besides the physically high reflection. (Taken from *Digest Jap. Odonatol. Short Comm. No. 12*, February, 2002; fig 1 and photo 1 are omitted.) Address: Ishizawa, N., 1644-15, Yamaguchi, Tokorozava City, Saitama Pref., Japan. E-mail: isizawa7@rivo.mediatti.net

3222. Ishizawa, N. (2001): Early reproductive behaviours in aka-tombo in Honshu. *Symnet* 9: 13. (in English). [Japan; August records of oviposition of *Sympetrum frequens* and *S. infuscatum* are compiled.] Address: Ishizawa, N., 1644-15, Yamaguchi, Tokorozava City, Saitama Pref., Japan. E-mail: isizawa7@mars.ccn.ne.jp

3223. Jones, C.D. (2001): Ontario hosts the first Great lakes Odonata meeting. *Argia* 13(3): 4-6. (in English). [Report from the meeting held from July 3-6, 2001 including some species collected in the framework of the meeting.] Address: Jones, C.D., Box 182, Lakefield, Ontario, K0L 2H0, Canada. E-mail: colin.jones@mnr.gov.on.ca

3224. Kawasima, I. (2001): A Record of *Somatochlora clavata* OGUMA, from Gifu City, Gifu Prefecture. *Aeschna* 38: 8. (in Japanese). [Japan, a record of *S. clavata* from 22 Oct. 1996 is documented along with the cooccurring species.] Address: not stated in English

3225. Kawasima, I. (2001): The Records of Odonata from Mikasa City, Sorachi Province, Hokkaido. *Aeschna* 38: 17-23. (in Japanese with English summary). [Japan; 28 species are listed.] Address: not stated in English

3226. Keiper, J.B.; Casamatta, D.A. (2001): Benthic organisms as forensic indicators. *Jl N. Am. benthol. Soc.* 20(2): 311-324. (in English). ["Forensic entomology is the use of the presence or absence of specific sarcophagous insect life stages to gain information on the time since death, cause of death, and other facets of criminal investigation. ... It is especially useful in providing important supporting evidence during investigations of mysterious or suspicious deaths." Based on literature, a review is given of 5 forensic odonate records, pertaining to the larvae of *Calopteryx*, *Argia*, *Ischnura*, *Zoniagrion*, and *Gomphus*, all from the USA. Records of *Ischnura* and *Gomphus* were associated with human remains.] Address: Keiper, J.B., Dept Invert. Zool., Cleveland Mus. Nat. Hist., 1 Wade Oval Dr., University Circle, Cleveland, OH 44106, USA. E-mail: jkeiper@cmnh.org

3227. Khrokalo, L.A. (2001): [Environmental separation of dragonfly larvae (Insecta: Odonata) in some regions of Ukraine]. *Biologia*, (Kiev?) 14(2): 183-186. (in Russian). [36 odonate species were recorded at 7 localities; they are analysed according to their abundance. The list includes rare European species or species near the boundaries of their ranges as *Lestes virens*, *Erythromma viridulum*, *Brachytron pratense*, *Aeshna cyanea*, *Aeshna viridis*, *Anaciaeschna isocoles*, *Epithea bimaculata*, *Sympetrum flaveolum*, *S. meridionale*, *Leucorrhinia albifrons*, *L. pectoralis*, *L. rubicunda*, and *Leucorrhinia caudalis*.] Address: Khrokalo, L.A., Dept Zool., Fac. Biol., Shevchenko Univ., Volodymirska 64, UKR-01033 Kiev, Ukraine

3228. Kitagawa, K. (2001): The Odonata of the paddy field in Sri Lanka collected by Mr.Terunobu HIDAHA. *Aeschna* 38: 41-43. (in Japanese with English summary). [11 common odonate species from Sri Lanka are documented.] Address: Kitagawa, K., Imaiti 1-11-6, Asahi-ku, Osaka C., Osaka, 535-0011, Japan

3229. Kondoh, S. (2001): Notes on dragonflies in Rokko Island, an artificial island in Kobe, Hyogo Pref., Japan. *Aeschna* 38: 1-7. (in Japanese with English summary). [Between Sep. 1991 and Dec. 1999, 26 odonate species were recorded.] Address: Kondoh, S., 1-214-719, Koyo-cho, Naka 2-chome, Higashinada-ku, Kobe City, 658 Japan

3230. Kumashiro, B.R.; Nishida, G.M.; Beardsley, J.M. (2001): Listings of new state records of immigrant insects in the Hawaiian Islands for the years 1991-1998. *Proc. Hawaii, ent Soc.* 35: 157-169. (in English). [*Crocthemis servilia* is listed for 1994] Address: Kumashiro, B.R., Hawaii Dept Agric., P.O. Box 22159, Honolulu. HA 96823-2159, USA

3231. Liu, R.K. (2001): The symbolic importance of insects in jewelry. *Trans. Am. ent. Soc.* 127(32): 167-171. (in English). ["5 insect orders are symbolically important in jewelry, viz. Homoptera, Coleoptera, Lepidoptera, Odonata, and Diptera, of which the portrayals of butterflies are the most numerous. In the dragonfly, its importance symbolically was probably due to its swift flight and the capacity of rapid change of direction. Thus, Native Americans equate it to the whirlwind, swiftness and activity. By Plains Indians, who used its image on shirts, it was regarded as a spirit helper in warfare. The dragonfly is also used in the jewelry of the Navajo and Zuni. There is a XII dynasty Egyptian dragonfly amulet, but its significance is unknown. It is the emblem of summer for Chinese, who also regard the dragonfly as a symbol of instability and weakness, almost matched by the Japanese regard of it as denoting irresponsibility and unreliability, but both these cultures use its image in adornment. Western jewelers employed it as a motif in 19th and 20th century jewelry."] Address: "Ornament" Ed. Office, P.O. Box 2349, San Marcos, CA 92079, USA

3232. Nagayama, S. (2001): Memories on dragonflies. *Symnet* 9: 3-5. (in English). [This is a very personal report on the dragonflies of the childhood, and the relations between man and dragonflies. Special emphasis is given to methods catching them by hand or using a rod and line.] Address: Nagayama, S., Tatsuguchi-cho, Nomi-gun, Ishikawa Prefecture, Japan

- 3233.** O'Brien, M. (2001): *Somatochlora tenebrosa* at Ives Road Fen, Lena Wee Co, Michigan (Corduliidae). *Argia* 13(3): 22-24. (in English). [The paper updates the present knowledge on the occurrence of *S. tenebrosa* in Michigan; the new habitat of the species traced on July 1, 2001 is described in some detail.] Address: O'Brien, M., Insect Division, Museum of Zoology, University of Michigan, Ann Arbor, MI 48109-1079, USA. E-mail: mfobrien@umich.edu
- 3234.** Paulson, D. (2001): *Hetaerina pilula* from Costa Rica. *Argia* 13(3): 24. (in English). [21-II-1967] Address: Paulson, D.R., Slater Museum, Univ. of Puget Sound, Tacoma, WA 98416, USA. E-mail: dpaulson@ups.edu
- 3235.** Paulson, D. (2001): Maine Trip. *Argia* 13(3): 15. (in English). [Records made end of June 2001 include species which seem to extend their ranges.] Address: Paulson, D.R., Slater Museum, Univ. of Puget Sound, Tacoma, WA 98416, USA. E-mail: dpaulson@ups.edu
- 3236.** Paulson, D. (2001): *Orthemis schmidti* is a widespread species. *Argia* 13(3): 24-25. (in English). [*Orthemis schmidti* Buchholz 1950 was found in the collection of D. Paulson from Ecuador, Guatemala, Costa Rica, Peru, Venezuela, Trinidad, Surinam, and Brazil. *O. ferruginea*, *O. discolor*, and *O. schmidti* are compared to each other.] Address: Paulson, D.R., Slater Museum, Univ. of Puget Sound, Tacoma, WA 98416, USA. E-mail: dpaulson@ups.edu
- 3237.** Pusch, M.; Köhler, S.; Wanner, S.; Ockenfeld, K.; Hoffmann, A.; Brunke, M.; Grünert, U.; Kozerski, H.-P. (2001): Ökologisch begründetes Bewirtschaftungskonzept für die Spree unter dem Aspekt der bergbaubedingten Durchflußreduktion. *Berichte des Leibniz-Institut für Gewässerökologie und Binnenfischerei Berlin* 11. 244 pp. (in German). [River Spree, Brandenburg, Germany; the larval abundance of *Gomphus vulgatissimus* in relation to the distance from the shore line and the degree of naturalness was investigated. It is concluded that a reduction of the water volume will lead to a drying out of the habitats near the shore line with a drastic impact on larval abundance and probably the conditions of eggs to develop.] Address: Pusch, M., Institut für Gewässerökologie und Binnenfischerei im Forschungsverbund Berlin e.V., Müggelseedamm 310, D-12561 Berlin, Germany. E-mail: pusch@igb-berlin.de
- 3238.** Rodrigues, G.G.; Scharf, B.W (2001): Review of benthic invertebrate fauna in extremely acidic environments (pH < =3). *Mine Water and the Environment* 20: 114-121. (in English). ["Some benthic invertebrate species are able to colonise habitats in extremely acidic waters. We compiled a list of acid-resistant benthic invertebrates from the literature and extended it by studying extremely acidic mining lakes in eastern Germany. Acid-resistant species were registered for some habitats with pH < 3, such as volcanic-lakes, acid strip streams, and acidic mining lakes. Twenty nine taxa were found in waters with pH below 3. Diptera comprised 48.3% of the total number of taxa, followed by Coleoptera with 10.3%, Trichoptera 10.3%, Ephemeroptera, Megaloptera, and Plecoptera each with 6.9%, and Odonata, Hirudinea, and Acari each with 3.5%. *Chironomus* (Diptera: Chironomidae) were the most common genus in extremely acidic environments with 9 species. [...]"] (Authors) *Coenagrion mercuriale* is reported from a mining lake near Grünewalde, Brandenburg, Germany (13°34'E 51°30'N) with a pH value of 3. Comment: It should be considered that *C. mercuriale* in Brandenburg is extremely rare, only one locality is known (Mauersberger 2000), and that the described habitat should be quite exceptional for this species. The general discussion on acid water tolerance of Odonata by the authors ignores most significant literature on the subject, and even the fact that there are many bog dwelling species in Germany or world wide. In addition, none of the publications on the odonate fauna of the brown coal mining lakes in eastern Germany is considered.] Address: Rodrigues, G.G.; Scharf, B.W., UFZ - Centre for Environmental Research Leipzig-Halle, Dept of Inland Water Research, Magdeburg, Brückstr. 3 a, D-39114 Magdeburg, Germany. E-mail: rodrigues@gm.ufz.de
- 3239.** Rose, J.S. (2001): Dragonfly days. *Argia* 13(3): 6-7. (in English). [The report from a dragonfly meeting in May 2001 in Weslaco, Texas, USA, includes species records.] Address: Rose, J.S., Biology Dept, Box 90338, Duke University, Durham, NC 27708, USA. E-mail: jsr6@duke.edu
- 3240.** Sasamoto, A. (2001): Records of the Odonata collected from Sichuan of China by Kyoto University Butterfly Research Club. *Aeschna* 38: 13-16. (in Japanese with English summary). [Five taxa are documented with black and white photos or drawings: *Megalestes distans* Needham 1930, *Anisogomphus maacki* (Selys, 1872), *Bayadera melanopteryx* Ris 1912, *Orthetrum melania* (Selys, 1883), which is treated by some authors as a subspecies of *Orthetrum triangulare* (Selys, 1878), and *Planaeschna* sp.] Address: not stated in English
- 3241.** Sergio, F.; Bijlsma, R.G. (2001): *Falco subbuteo* Hobby. *BWP Update* 3(3): 133-156. (in English). [New information on food of the hobby, yielded by intensive studies conducted in Great Britain, France, Netherlands, Germany, and Italy are compiled. Dragonflies play an important role as food, *Cordulegaster boltonii* is communicated as a prey example from UK. Prey remains at the nest and under perches account near Groningen, the Netherlands to 7.2%, and in a study area comprising a border region of Belarus and Poland to 52% of all prey items. "A perch-hunting third-calender-year ♀ captured 142 insects with 301 attempts between 07.51 and 19.21 hours on 31 Aug.-2 Sept., 1997, mostly *Aeshna* and *Sympetrum* species." (probably near Groningen).] Address: Sergio, F., Raptor Conservation Research Unit, Museo Tridentino di Scienze Naturali, Via Calepina 14, 38100 Trento, Italy. E-mail: Fabrizio.sergio8@tin.it
- 3242.** Tennessen, K. (2001): A visit to the Mississippi museum of natural science. *Argia* 13(3): 25-26. (in English). [Brief report on two lectures held at the new established museum. The huge metal fence that leads to the front doors is including motifs of large metal dragonflies and mayflies painted black.] Address: Tennessen, K., 1949 Hickory Ave. Florence, AL 35630, USA. E-mail: ktennessen@aol.com
- 3243.** Tsubuki, T. (2001): Group migration of *Sympetrum frequens* at Toshima-ku, Tokyo in early summer. *Symnet* 9: 9. (in English). [An early summer migration (27 June 2001) of *S. frequens* at Toshima-ku,

Tokyo, Japan is reported in detail.] Address: Tsubuki, T., Jumonji middle and high school, Toshima-ku, Tokyo, Japan

3244. Tsubuki, T. (2001): Shelters for bad weathers in *Sympetrum* species. *Symnet* 9: 11-12. (in English). [Information on resting sites and behaviour of *Sympetrum eroticum*, *S. frequens*, and *Sympetrum pedemontanum elatum* under bad weather conditions (rain, overcast) are described in detail.] Address: not stated

3245. Tsubuki, T.; Sumiko, I.; Noriko, O. (2001): *Sympetrum infuscatum* and *Sympetrum frequens* at the Yunomaru Heights in early August, 2000. *Symnet* 9: 8. (in English). [Japan; some notes on diurnal and seasonal change of abundance of *S. infuscatum* and *S. frequens* near the Jizo pass (about 1650 m a.s.l.) are reported.] Address: Tsubuki, T., Jumonji middle and high school, Toshima-ku, Tokyo, Japan

3246. Ueda, T. (2001): One example of oviposition site of *Sympetrum frequens*. *Symnet* 9: 10. (in English). [An oviposition in a river habitat of the standing water dwelling *S. frequens* is documented.] Address: Ueda, T., Ishikawa Agricultural College, Suematsu, Nonoichi, Ishikawa Pref., 921, Japan

3247. Ueda, T. (2001): Two cases of evening migration in *Sympetrum frequens*. *Symnet* 9: 12-13. (in English). [Kanazawa City, Japan; Sept.11, 1989; Sept. 21, 1994.] Address: Ueda, T., Ishikawa Agricultural College, Suematsu, Nonoichi, Ishikawa Pref., 921, Japan

3248. U.S. Fish and Wildlife Service (2001): Hine's Emerald Dragonfly (*Somatochlora hineana*) Recovery Plan. Fort Snelling, MN. 120 pp. (in English). [Verbatim: EXECUTIVE SUMMARY Hine's Emerald Dragonfly Recovery Plan Current Status: The Hine's emerald dragonfly, *Somatochlora hineana*, was listed as endangered in January 1995. Extant Hine's emerald dragonfly populations are currently known to persist in Illinois, Wisconsin, Michigan, and Missouri. The Illinois population is the most genetically diverse, and the Wisconsin populations are the largest and presumably most secure. Information on the status of the Michigan and Missouri populations is limited because of their recent discoveries. Historically known from Ohio and Indiana, it is thought to be extirpated from these states. Habitat Requirements and Limiting Factors: The Hine's emerald dragonfly occupies marshes and sedge meadows fed by calcareous groundwater seepage and underlain by dolomite bedrock. In general, these areas are characterized by the presence of slowly flowing water and nearby or adjacent forest edges. Known occupied habitats are currently restricted to the lower Des Plaines River valley, in Illinois; northeastern Door County and Cedarburg Bog, Wisconsin; areas of the Hiawatha National Forest, in the Upper Peninsula of Michigan, three areas in the Lower Peninsula of Michigan, and at three fens in Missouri. Loss of this already rare and restricted habitat to agriculture, commercial and industrial development is the primary cause of the species' decline. Loss of remaining habitat from the same pressures, combined with successional change in the existing habitats and disruption of ecological and hydrological processes, are threats to surviving populations. Recovery Objectives: The objective of this recovery plan is to restore the Hine's

emerald dragonfly to viable populations so that it may be removed from the Federal list of Endangered and Threatened Wildlife and Plants. Recovery Criteria: Each of the two Recovery Units contains a minimum of three populations composed of at least three subpopulations. Each subpopulation contains a minimum of 500 reproductive adults for 10 consecutive years. Within each subpopulation, there are at least two breeding habitat areas, each fed by separate seeps and/or springs. For each population, the habitat supporting at least three subpopulations should be legally or formally protected and managed for Hine's emerald dragonfly, using long-term protection mechanisms such as watershed protection, deed restrictions, land acquisition, or nature preserve dedication. In addition, mechanisms protecting the up gradient groundwater should also be in place. Actions Needed: 1. Protect and manage extant populations 2. Conduct studies 3. Conduct searches for additional Hine's emerald populations 4. Conduct an information and education program 5. Conduct a reintroduction and augmentation program 6. Review and track recovery progress Total Cost of Recovery: The total estimated cost for the recovery actions outlined in this plan is \$13,163,000. These recovery actions will benefit not only the Mine's emerald dragonfly, but entire natural communities and other environmental amenities such as drinking water. Many of the actions described in this recovery plan are already funded by existing programs in agency and private organization budgets. The cost estimate represents expenditures over a 20 year time period. Date of Recovery: Full recovery of this species could occur within 10 years of initially meeting the recovery criteria for delisting. It is anticipated that recovery could occur as soon as 2019. This recovery plan has been prepared by the Mine's emerald dragonfly Recovery Team under the leadership of Dr. Dan M. Johnson with assistance in writing the document by Deanna Zercher of the Illinois Natural History Survey in Champaign, Illinois.] Address: U.S. Fish and Wildlife Reference Service 5430 Grosvenor Lane, Suite 110 Bethesda, Maryland 20814 301-492-6403 or 1-800-582-3421

3249. Utzeri, C. (2001): Il sapore delle libellule. *Lindenia* 35: 149-150. (in Italian). [Carlo Utzeri is reflecting on the taste of dragonflies on the opportunity of a publication in the newspaper "La Stampa", issue 28-05-2001 written by Dr. Edoardo Raspelli.] Address: Utzeri, C., Dipartimento di Biologia Animale e dell'Uomo, Università di Roma "La Sapienza", Viale dell'Università 32, I-00185 Roma, Italy. E-mail: carlo.utzeri@uniroma1.it

3250. Worthen, W.B. (2001): New dragonfly records for Sierra County, New Mexico. *Argia* 13(3): 14-15. (in English). [The collecting of Odonata in July 2001 resulted in 17 species.] Address: Worthen, W.B., Biology Dept, Furman University, Greenville, SC 29613, USA. E-mail: worthen@furman.edu

3251. Yanoviak, S.P. (2001): The macrofauna of water-filled tree holes on Barro Colorado Island, Panama. *Biotropica* 33(1): 110-120. (in English). ["The fauna of water-filled tree holes in neotropical forests is not well documented. Cumulatively, 54 macroinvertebrate and 5 vertebrate taxa were found in artificial and natural tree holes censused over four wet seasons on Barro Colorado Island, Panama. Most of

the species were in the insect order Diptera, occurred as aquatic larvae in tree holes, and were detritivore/omnivores. Half (49%) of the collected species are considered specialists in this and similar container habitats, and three invertebrate taxa were previously unknown from tree holes. Successional patterns were weak in the tree holes, but some taxa predictably colonized holes shortly after they were filled. The mosquito *Culex urichii* was more common and abundant in artificial than in natural tree holes; occurrence frequencies and densities of most other taxa were similar between hole types. [...] *Libellula* sp. was a very rare occupant in natural tree holes on BCI; the only natural tree hole occurrence of *Libellula* sp. was in large, highly insulated holes of a recently fallen *Platypodium clegans* near a stream; however, this species sometimes colonized large artificial holes located in treefall gaps and was common in moats surrounding greenhouses. Larvae of the remaining five species of odonates - "*Gynacantha membranalis*, *Triacanthagyna dentata*, *Mecistogaster linearis*, *M. ornata*, and *Megaloprepus caerulatus*" - (along with larvae of the mosquito *Toxorhynchites theobaldi* and *Dendrobates auratus* tadpoles), were the top predators in tree holes. The behavior and ecology of these odonate species have been studied extensively by O. Fincke and S.P. Yanoviak." (Auhor)] Address: Yanoviak, S.P., Dept Zool., Univ. Oklahoma, Norman, Oklahoma 73019. USA

3252. Yokoyama, T. (2001): Notes on the duration of the egg stages of some dragonflies in Hokkaido. *Aeschna* 38: 9-12. (in Japanese). [Data of 27 odonate species from Hokkaido, Japan are presented.] Address: Yokoyama, T., 1-15-303, Higashi 22chome, Kita 19jo, Higashi-ku, Sapporo City, 065, Japan

3253. Yoshida, M. (2001): Collecting and breeding data of some odonate larvae, 4th report. *Aeschna* 38: 27-34. (in Japanese with English summary). [Japan; 26 species are treated.] Address: not stated in English

3254. Zasykina, I.A.; Ryabukhin, A.S. (2001): Amphibiotic insects of the Northeast of Asia. Pensoft, Sofia-Moscow & Backhuys, Leiden. ISBN 954-642-138-3 (Pensoft) & 90-5782-089-7 (Backhuys): vii+183 pp.- [An annotated list is presented of the 24 odonate taxa known to occur in NE Asia. Their regional distribution and habitat types are stated, and an exhaustive bibliography is provided. The records are not critically discussed as *Coenagrion lunulatum* and *C. vernale* nom. nud. and *Sympetrum danae* and *S. scoticum* are treated each as valid species. *Enallagma antiquum* Bartenef, 1911 is also listed; the status of this taxon is unknown and not described in the paper of Bartenef listed in the bibliography.]

3255. Zawadzka D.; Zawadzki J. (2001): Breeding populations and diets of the Sparrowhawk *Accipiter nisus* and the Hobby *Falco subbuteo* in Wigry National Park (NE Poland). *Acta Ornithol.* 36: 25-31. (in English with Polish summary). [The diet composition of the two species was studied by the analysis of pellets and prey remains. Sparrowhawks fed on birds (97% of prey items, 99% of food biomass) and insects (43% of prey, 1% of biomass). Sparrowhawks specialized in forest birds, positively selecting *Parus* spp., *Turdus* spp., *Picidae* and *Ficedula* spp. Hobbies hunted mainly birds of open habitats (*Alauda arvensis*) and woodland

(*Anthus trivialis*). As usually, Odonata are among the prey of the Hobby, but they account only 3,7 % of the prey items and 0,1% of the biomass. Surprisingly, in one case even Sparrowhawks preyed on Odonata.] Address: Zawadzka D., Zawadzki J. , 25 Czerwca 68b/15, 26-600 Radom, Poland

2002

3256. Adriaens, T (2002): Dragonflies of the northern part of Western Flanders: status, importance and conservation. *Gomphus* 18(1-2): 15-40. (in Dutch, with English and French summaries). ["The odonatofauna of the north of the province West-Flanders (Belgium) is relatively well-known. This article deals with historical and recent distribution of observed species (31 in total) and aims to determine the most important sites (species diversity, rarity) for dragonflies. Sites were clustered in respect to species composition using TWINSPAN software. Division levels were then displayed in a GIS-environment, so as to get an idea about the usefulness of the current ecodistricts in interpreting distribution patterns of dragonflies in the region. The Houtland ecodistrict, a region of pleistocene sands, appeared most species diverse, with the Bell Heather Reserve fen (Zevenkerke) displaying the highest species richness in the region (22 species). No less than three Red List species were recorded in this district, the latter probably being extinct: *Cordulia aenea*, *Leucorrhinia dubia*, and *Coenagrion pulchellum*. The ecodistrict "dunes" is important for the vulnerable *Ischnura pumilio*. It is suggested that ecodistricts might be too detailed for interpreting dragonfly distribution. Finally we present ideas for maintaining and managing populations of some delicate species." (Author) The following species are discussed in detail: *Sympetma fusca*, *Lestes barbarus*, *Ischnura pumilio*, *Coenagrion pulchellum*, *Cercion lindenii*, *Erythromma najas*, *Gomphus pulchellus*, *Cordulia aenea*, *Crocothemis erythraea*, *Leucorrhinia dubia*, and *Sympetrum fonscolombii*.] Address: Adriaens, T., Instituut voor Natuurbehoud, Kliniekstraat 25, B-1070 Brussel, Belgium. E-mail: tim.adriaens@instnat.be

3257. Adriaens, T (2002): Verslag van de excursie naar Den Diel en het Buitengoor (Mol) op 19 augustus 2001. *Gomphus* 18(1-2): 41-43. (in Dutch, with French summary). [Belgium; in spite of quite unfavourable weather condition, 21 odonate species were recorded. The list includes the rare or threatened species *Ceriatrigon tenellum*, *Erythromma najas*, *Orthetrum coerulescens*, and *Sympetrum depressiusculum*.] Address: Adriaens, T., Instituut voor Natuurbehoud, Kliniekstraat 25, B-1070 Brussel, Belgium. E-mail: tim.adriaens@instnat.be

3258. Anonymus (2002): Erläuterung zur Titelseite: Prachtlibelle. *Hydrologie und Wasserbewirtschaftung* 46(6): 312. (in German). [A ♀ *Calopteryx virgo meridionalis* was printed on the journal's front page. Brief remarks on the species and on the Odonata in southern Europe (compiled from G. Jurzitza's book) are added.] Address: not stated

3259. Baker-Schommer, M. (2002): What's in a name? Understanding the Latin names of dragonflies. *Dragonfly news* 42: 10-14. (in English). [Origins and

meanings of the names of UK's Odonata are outlined basing on the book of H. Fliedner "Die Bedeutung der wissenschaftlichen Namen europäischer Libellen" - Libellula suppl. 1, 111 pp., 1997.] Address: not stated

3260. Beckemeyer, R. (2002): George H. Bick, Honary member, the Dragonfly Society of the Americas. *Argia* 14(3): 4-5. (in English). [R. Beckemeyer introduces the recognition of Dr. George H. Bick as Honary Member of DSA, and briefly outlines some milestones in his odonatological work.] Address: Beckemeyer, R.J., 957 Perry Ave., Wichita, KS 67203-3141, USA. E-mail: royb@southwind.net

3261. Beckemeyer, R. (2002): Some Odonata records for the Oxley Nature Center, Tulsa County, Oklahoma. *Argia* 14(3): 12-13. (in English). [USA, a brief survey of a pond and the insect collection of the Center resulted in many new County records.] Address: Beckemeyer, R.J., 957 Perry Ave., Wichita, KS 67203-3141, USA. E-mail: royb@southwind.net

3262. Bedjanic, M.; Salamun, A. (2002): Additional notes on the last larval instar of *Epophthalmia vittata cyanocephala* Hagen, 1867 from Sri Lanka (Odonata: Corduliidae). *Opusc. zool. flumin.* 204: 1-6. (in English). [The original description of the larva (cf. M. Bedjanic, 2000, *Odonatologica* 29: 57-61) is supplemented on the basis of appreciable fresh material, collected in Oct. 2001 in northern and central Sri Lanka. The measurements, illustrations and additional descriptions of some morphological features of the exuviae are presented and a considerable variation in the peculiarly shaped labial palps is pointed out. The current knowledge of the larval forms in the genus is briefly outlined, and comments on ecology, distribution and adult phenology of the endemic *E. v. cyanocephala* are supplied.] Address: Bedjanic, M., Fram 117/A, SI-2313 Fram, Slovenia. E-mail: matjaz.bedjanic@guest.arnes.si

3263. Behrstock, R.A. (2002): First known U.S. population of the Tropical Sprite *Nehalennia minuta* (Selys) (Odonata: Coenagrionidae). *Argia* 14(3): 9-10. (in English). [In January 2000, *N. minuta* was first recorded for the USA in Florida. Additional specimens of the species were found on 26 February 2002 at Key West, Florida. The species is compared morphologically with *N. pallidula*. Co-occurring species are briefly outlined.] Address: Behrstock, R.A., 9707 S.Gessner #3506, Houston, TX, 77071-1032, USA. E-mail: rbehrstock@aol.com

3264. Bramati, J. (2002): Vergnügungssüchtige Libellen? Was treibt Männchen von *Calopteryx splendens* (Gebänderte Prachtlibelle) in eine Riesenrutsche? *mercuriale* 2: 26- (in German). [Two cases where *C. splendens* ♂♂ were observed in a glass covered slide of a swimming pool.] Address: Bramati, J., Hauptstr. 111, D-74595 Langenburg, Germany

3265. Bried, J. (2002): Miscellaneous Mississippi. *Argia* 14(3): 17-18. (in English). [Mississippi, USA; special emphasis is given to the records of *Ischnura prognata*, *Dromogomphus spinosus*, *D. spoliatus*, and *Argia fumipennis*.] Address: Bried, J., Mississippi State University, Dept Biol. Sciences, Rm 130 Harned, PO Box GY, Mississippi State, MS 39762, USA

3266. Brook, J.; Brook, G. (2002): Small Red-eyed Damselfly proven breeding in Kent. *Dragonfly news* 42: 17. (in English). [*Erythromma viridulum*, 29/07/2002, near Dartford, Kent, UK; some additional records are also documented.] Address: not stated

3267. Brunel, C. (2002): Les Odonates de Picardie. État d'avancement de l'inventaire. *Martinia Hors Série* 4: 9-12. (in French). [The paper compiles and discusses historical and more recent data (up to the end of the 1980th) on the 48 odonate taxa of the Picardie which comprises the departments Somme, Aisne, and Oise located in northwestern France.] Address: Brunel, Christine, 8, rue de Général Frère - Appt. 7, F-80080 Amiens, France

3268. Buchwald, R.; Schiel, F.-J. (2002): Möglichkeiten und Grenzen gezielter Artenschutzmaßnahmen in Mooren - dargestellt am Beispiel ausgewählter Libellenarten in Südwestdeutschland. *Telma* 32: 161-174. (in German, with English summary). [Conservation management measures for *Leucorrhinia pectoralis*, *Ceragrion tenellum*, and *Nehalennia speciosa* are presented. These dwellers of mires are used to discuss prospects and limits of special management action plans. "As the primary habitats of these species are destroyed partly or even completely throughout Central Europe, management measures are mandatory. The following prerequisites are necessary: detailed knowledge of biology and ecology of the target-species, its specificity for the habitat-type mire, consideration of possible other objects of protection, adequate abiotic conditions (especially hydrology and trophic status), monitoring of the resulting effects, and information of the public. In intact primary habitats, management measures have to be omitted. On the other hand, conservation of mires can not be limited to the protection of dynamic processes and of abiotic resources, but has to take into consideration the needs of mire species and species-groups as well." (Authors)] Address: Schiel, F.-J., Inst. Naturschutz und Landschaftsanalyse, Turenenweg 9, D-77880 Sasbach, Germany. E-mail: Franz-Josef.Schiel@INULA.de

3269. Buczyński, P.; Serafin, E. (2002): Wazki Parku Krajobrazowego Pojezierza I²awskiego. Zespó³ Parków Krajobrazowych w Jerzwa³dzie, Jerzwa³d: 31 pp. (in Polish). [Between 1998 and 2002, P. Buczynski surveyed the Odonata of the landscape park of the I²awskie lakes, located in the northern part of Poland. This nice booklet which is directed to the visitors of the park, bases on the results resp. the checklist of the survey. Additional information of dragonfly morphology and biology, Latin and Polish names of the Odonata, habitats, how to observe Odonata, threats, and an identification key of the regional dragonfly imagoes are the main contents of the booklet.] Address: Buczynski, P., Dept of Zool., Marie Curie-Skłodowska University, Akademicka 19, PL-20-033 Lublin, Poland. E-mail: pbuczyns@biotop.umcs.lublin.pl Wydawca Zespól Parków Krajobrazowych w Jerzwaldzie 14-233 Jerzwa³d 67, Poland. tel./fax 089 758 85 27 e-mail: park-jeziorak@pro.onet.pl www.jezioro.com.pl

3270. Bulánková, E.; Halgos, J. (2002): Characteristic macroinvertebrates of temporal waters of the Morava wetland. *Verhandlungen der Gesellschaft für Ökologie*, Cottbus 2002: 269. (in English). [The

Odonata of the Morava (March) wetland (designated as a 'wetland of international importance' under the 'Ramsar' Convention in 1993) was surveyed in 1999 and 2001-2002. The fauna is differed according to the habitat types "temporal waters" (*Lestes barbarus*, *L. viridis*, *L. dryas*, *Coenagrion pulchellum*, *Cordulia aenea*), "fens" (*Lestes virens*, *L. viridis*, *L. sponsa*, *Aeshna isosceles*, *Libellula quadrimaculata*, *Sympetrum flaveolum*, *Sympetrum pedemontanum*), and "riparian flood plain and extra flood plain palustrine wetlands", "spring palustrine wetlands", and "summer and autumnal palustrine wetlands" (no Odonata.) Address: Bulankova, Eva, Institute of Ecology, Faculty of Natural Sciences, Comenius University, Mlynská dolina B-II, SK-84215 Bratislava., Slovakia. E-mail: Bulankova@nic.fns.uniba.sk

3271. Busch-Nowak, A. (2002): Schlupf einer *Libellula depressa* im Oktober. *mercuriale* 2: 22-23. (in German). [Baden-Württemberg, Germany; on 6 October, 2001, a freshly emerged *L. depressa* was found; questions of voltinism are discussed.] Address: Busch-Nowak, A., Eichenbaumstr. 4 D.74564 Tiefenbach, Germany. Alexanderbusch-Nowak@web.de

3272. Cating, P.M. (2002): Pygmy Snaketail (*Ophiogomphus howei*), new to Canada. *Argia* 14(3): 11-12. (in English). [June 22, 2002, St. John River, New Brunswick, Canada. The habitat and co-occurring Odonata are described.] Address: Catling, P.M., 2326 Scrivens Drive, R.R. 3, Metcalfe, Ontario K0A 2P0, Canada. E-mail: brownell@achilles.net

3273. Chanpaisaeng, J.; Khunwiset, S. (2002): Survey of Odonata adults at Ao Luk, Krabi province, Thailand. *Malangpo* 19: 191. (in English). [From July to October 2001, 11 odonate taxa were recorded in the western part of southern Thailand, some 800 km from Bangkok. They are listed in a tab. Imagoes were collected at three habitats at Ao Luk, at a palm garden, a community forest, and slopes of a hill forest.] Address: Jariya Chanpaisaeng and Sirikanya Khunwiset, Department of Entomology, Faculty of Agriculture, Kasetsart University, Bangken, Bangkok 10900, Thailand

3274. Che Salmah, M. R.; Abu Hassan, A.; Azmi, M. (2002): Safe pre-emergence herbicides for dragonflies (*Libellulidae*) in the rice fields. *Malangpo* 19: 186-190. (in English). [The herbicides Propanil, Quiclorac, and Bensulfuron were applied as pre-emergence treatments in an experimental rice plots. The population of libellulids - in the plots - different at the genus level were found to be higher and significantly different in the herbicide treated plots compared to control plots that were manually weeded twice in the season. "The herbicides were considered safe for the libellulids and presumably for other macroinvertebrates in the rice fields."] Address: Che Salmah, Md Rawi; Abu Hassan, Ahmad, School of Biological Sciences, Universiti Sains Malaysia, 11800 Minden, Penang, Malaysia Azmi Man, Malaysian Agriculture Research Institute, Bertam, Seberang Perai, Malaysia

3275. Clarke, D. (2002): Growth and autumnal decline of feeding in captive-reared first-year larvae of the Azure Hawker *Aeshna caerulea* (Ström). *J. Br. Dragonfly Society* 18(1/2): 9-12. (in English). ["In temperate latitudes, larvae of Odonata show a decline

in rate of development and food intake in late summer autumn in preparation for surviving adverse winter conditions. I was able to characterize this by monitoring the production of faecal pellets by larvae of *A. caerulea*. Faecal pellet production correlates with prey intake (Corbet 1999: p.105). The results appear to confirm expectations that seasonal factors are involved in the regulation of the life-history of this species. The study also enabled comparisons to be made with field observations of larval growth-rates." (Author)] Address: David Clarke, Tullie House Museum & Art Gallery, Carlisle CA3 8TP

3276. Coppa, G. (2002): Gestion et protection des milieux aquatiques. *Martinia Hors Série* 4: 13-15. (in French). [Conservation measures for the Odonata of bog and fen moors in northern France are briefly outlined. The paper includes a map with localities of special importance resp. conservation status for Odonata in the region Champagne-Ardenne.] Address: Coppa, G., 1, rue du Courlis, F-08350 Villers-sur-Bar, France

3277. Cordoba-Aguilar, A. (2002): Sensory trap as the mechanism of sexual selection in a damselfly genitalic trait (Insecta: Calopterygidae). *American Naturalist* 160: 594-601. (in English) ["During copulation, males of some calopterygid damselfly species displace the sperm stored in the spermatheca: the male genital appendages enter into the spermathecal ducts and physically remove sperm. In *Calopteryx haemorrhoidalis*, the genital appendages are too wide to penetrate the spermathecae, but males use a different mechanism in which the aedeagus stimulates the vaginal sensilla that control spermathecal sperm release. Since these sensilla are used during egg fertilization and oviposition, it was hypothesized that this function evolved before the male stimulatory ability. I investigated this using *Hetaerina cruentata*, a species whose position in the Calopterygidae phylogeny is more basal than *Calopteryx*. Given this position and having determined that males of this species are not able to displace sperm of their conspecific females during copulation, it was expected that *H. cruentata* females would eject sperm when stimulated with the aedeagi of *C. haemorrhoidalis* but not when stimulated with the aedeagi of their conspecifics. This prediction was confirmed. In order to investigate the widespread nature of this result, some other *Calopteryx* species *Calopteryx xanthostoma* and *Calopteryx virgo* were investigated. The results were similar to those of *H. cruentata*: conspecific males were unable to stimulate their females, but females ejected sperm when stimulated with *C. haemorrhoidalis* aedeagi. Morphometric analysis suggests that the mechanistic explanation for the stimulatory ability of *C. haemorrhoidalis* genitalia is that the aedeagal region that makes contact with the vaginal sensilla is wider in *C. haemorrhoidalis* than in the other species. These results suggest that the sensory "bias" shown and shared by *H. cruentata*, *Calopteryx splendens*, *C. virgo*, and *C. haemorrhoidalis* females represents an ancestral condition and that the male stimulatory ability is absent in the evolutionary history of the clade. These pieces of evidence as well as another one presented elsewhere, which indicates that *C. haemorrhoidalis* males vary in their stimulatory ability, constitute the three criteria for a case of sexual selection via exploitation of a female sensory bias. These results

also provide support to the sensory trap hypothesis that indicates that the female bias in this case, egg fertilization and oviposition evolved in a context different from sexual selection. Considering that the male genital appendages responsible for physically removing spermathecal sperm in other calopterygids are present in *C. haemorrhoidalis*, I suggest that males were once able to displace spermathecal sperm physically. Such ability may have been later impeded by a reduction in size of the spermathecal ducts. Possibly, one of the latest events in this sequence is the male's stimulatory ability. This hypothetical series of events suggests a coevolutionary scenario in which the central actor is the sperm stored in the spermathecae." (Author) Address: Cordoba-Aguilar, A., Centro de Investigaciones Biologicas, Universidad Autonoma del Estado de Hidalgo, Apdo. P. 69-1, Plaza Juarez, Pachuca, Hidalgo 42001, Mexico E-mail: acordoba@uaeh.reduaeh.mx

3278. Correia, A.M. (2002): Niche breadth and trophic diversity: feeding behaviour of the red swamp crayfish (*Procambarus clarkii*) towards environmental availability of aquatic macroinvertebrates in a rice field (Portugal). *Acta Oecologica* 23: 421-429. (in English). [*P. clarkii* (Girard 1852), "an alien species in Portugal, may have dramatic effects on aquatic communities by depleting all food resources available, just after its introduction. The purpose of this study was to evaluate, through the concept of niche breadth, whether the diet of this species reflected the temporal changes of aquatic macroinvertebrate availability once it is acclimated. Petraitis' index of niche breadth and Herrera's trophic diversity index were used to evaluate the trophic behaviour of *P. clarkii* towards available resources over time and intraspecifically (size classes and sex) in a rice field in Portugal. Results from this study showed that the consumption of aquatic macroinvertebrates by *P. clarkii* reflected their seasonal availability. The high values of niche breadth and trophic diversity indicated resource use according to trophic availability, diversified diets and different individual exploitation of resources regardless of size or sex. These findings suggest that in habitats where *P. clarkii* is already acclimated, it adjusted its trophic behaviour to the seasonal availability of aquatic macroinvertebrates. The large niche breadth and high trophic diversity presented by *P. clarkii* enables it to successfully expand its range to new areas, when other environmental conditions are favourable, as has been observed in Portugal and worldwide." (Author) In autumn, "Lestidae" belong to the diet of *P. clarkii*.] Address: Correia, Alexandra Manjal, Centra de Biologia Ambiental (CBA), Department Zoologia (Museu Bocage), Museu Nacional de Historia Natural, Universidade de Lisboa, R. Escola Politecnica, 58, 1269-102 Lisbon, Portugal: E-mail: amarcal@fc.ul.pt

3279. Curry, J. (2002): Observations on *Neurocordulia*. *Argia* 14(3): 13-14. (in English). [From June to August 1999, *N. molesta* and *N. yamaskanensis*, were observed. Both species are extremely rare in Indiana, USA. They started their flight activities shortly before dusk, flying with an extraordinary speed. This short period of time before getting dark, was used to pair and to feed. The author wonders how these Odonata could capture prey at such low levels of light, and how they could feed sufficiently in such a short period of time. There is evidence that

the biomass over the river is as dense as a "soup" of small insects filling the air (based on collecting insects with a net driving with a boat on the river). "Based on this experience, I can't help wondering if the Shadowdragons were foraging by flying through the "soup" of tiny insects and scooping them up with their legs without ever targeting individual prey. The long spines of the tibiae could form a very nice net for sweeping tiny insects from the air. This would be similar to what some marine mammals do when plowing through a concentration of algae or krill with their mouths open. If so, the questions about how shadowdragons see prey in low light, why they never deviate the flight path while foraging, and how they are able to feed themselves in only 20 or 30 minutes would be answered." Address: Curry, J., Biology Dept, Franklin College, 501 E. Monroe Street, Franklin, IN 46131-2598, USA. E-mail: CURRYJ@franklincoll.edu

3280. Daigle, J.J. (2002): Nicj-at-night: episode II. *Argia* 14(3): 14-15. (in English). [In Aug. 2002, 56 odonate species, 27 new to Nicaragua, were caught near Bartola.] Address: Daigle, J., 2166 Kimberley Lane, Tallahassee, FL 32311, USA. E-mail: jdaigle@netally.com

3281. Deliry, C. (2002): Études générales, dossiers et suivi des sites (à jour: septembre 2002). *Sympetrum piémontais* 49: 2-8. (in French). [France, Rhône-Alpes, Ain, Hautes-Alpes, Ardèche, Drôme, Isère, Loire, Rhône, Savoie, Haute-Savoie; very brief reports on odonatological research activities at 46 habitats in different Departments in France are outlined; the focus is set on species of Appendix II and IV of the European Habitat Directive.] Address: Deliry, C., La Paluette, 2338 route de Belley, F-38490 Aoste, France. www.sympetrum.org

3282. Deliry, C. (2002): Nouveaux articles, études ou notes concernant le libellules dans la région Rhône-Alpes-Dauphiné. *Sympetrum piémontais* 49: 11. (in French). [List of 22 papers or expertises referring to the odonate fauna of southeastern France.] Address: Deliry, C., La Paluette, 2338 route de Belley, F-38490 Aoste, France. www.sympetrum.org

3283. Deliry, C. (2002): Rapport moral 2001. *Sympetrum piémontais* 49: 21-22. (in French). [Some historical data on Odonata in the region of Grenoble, France are documented along with some recent records from 2001 from different Departments in France including data on *Coenagrion mercuriale*, *Leucorrhinia caudalis*, *L. albifrons*, *Oxygastra curtisii*, *Boyeria irene*, and others.] Address: Deliry, C., La Paluette, 2338 route de Belley, F-38490 Aoste, France. www.sympetrum.org

3284. Donnelly, T.W. (2002): DSA northeastern field trip to the Tug Hill Plateau, New York. *Argia* 14(3): 6. (in English). [50 species were found in a - from the odonatological point of view - poorly known region of the New York state, USA.] Address: Donnelly, T., 2091 Partridge Lane, Binghamton, NY 13903, USA. E-mail: tdonnel@binghamton.edu

3285. Dunkle, S.W. (2002): Minter J. Westfall, Jr., Honary member, the Dragonfly Society of the Americas. *Argia* 14(3): 4. (in English). [Sid Dunkle very personally introduces into the recognition of Minter Westfall as Honary Member of DSA.] Address: Dunkle, S., Biol.

Dept, Collin County Community College, 2800 E, Spring Creek Parkway, Plano, TX 75074, USA. E-mail: SDunkle@cccc.edu

3286. Endlein, T. Strohm, E.; Poethke, H.-J. (2002): Reproduction in a heterogeneous landscape: The consequences of habitat quality for reproduction and larval development in a damselfly. *Zoology (Jena)* 105 (Suppl. 5): 17. (in English). [Verbatim: "A landscape provides a heterogeneous mosaic of unsuitable and more or less suitable habitat patches. The differences in habitat quality affects survival and other fitness parameters of individuals and therefore oviposition of adults varies among habitats. In this study, we investigated variations in reproduction and larval development of the damselfly *Coenagrion puella* (Coenagrionidae: Odonata) in three neighbouring ponds (A, B, D in the following) in Bavaria/Germany. We examined (1) the density of egg laying ♀♀ as a measure of the number of eggs laid per pond, (2) the number of emerging adults, and (3) the size of the exuviae at each pond. The number of ovipositing ♀♀ was recorded by observation. Surprisingly, much more ♀♀ laid their eggs in D, the smallest of the three ponds compared to A and B. To count the number of emerging larvae a gauze fence was used as an emergence substrate that allowed standardised collection of exuviae. At D, 22 times more larvae emerged per meter shore line than from each of the large ponds. To compare the success of development in the different ponds we calculated the proportion of successfully developing larvae (estimated total number of eggs laid into a pond divided by the estimated total number of emerging adults). The smallest pond showed the highest estimated success, though the variance was high. The length of the tibia and praementum of a sample of ♂ exuviae was measured with high precision (1/1000 mm). Exuviae at pond D were significantly larger than exuviae at pond A and B over the whole emergence period. In conclusion, unexpectedly the smallest pond seems to offer the best conditions for larval development and survival for the damselflies and is preferred by ovipositing ♀♀. The causes for these small scale differences in habitat quality are not yet known."] Address: Endlein, T., Ecological Station Fabrikschleichach and Department of Animal Ecology and Tropical Biology Theodor-Boveri-Inst., University of Würzburg, 97074 Würzburg, Germany. E-mail: endlein@biozentrum.uni-wuerzburg.de

3287. Feldwieser, G. (2002): Doppelter Irrtum: Männchen von *Lestes viridis* (Gemeine Weidenjungfer) ergreift Männchen von *Enallagma cyathigerum* (Gemeine Becherjungfer). *mercuriale* 2: 25. (in German). [The accompanying picture documenting the linkage between a ♂ *Chalcolestes viridis* with a ♂ *E. cyathigerum* can be seen at www.SGIbellen.de.] Address: Feldwieser, G., Gönningerstr. 27, D-72793 Pfullingen, Germany

3288. Feldwieser, G. (2002): Paarungsrad von *Aeshna cyanea* (Blaugrüner Mosaikjungfer) benutzt anderes Paarungsrad der gleichen Art als Sitzunterlage. *mercuriale* 2: 26- (in German). [The picture which documents the situation can be seen at www.SGIbellen.de.] Address: Feldwieser, G., Gönningerstr. 27, D-72793 Pfullingen, Germany

3289. Feldwieser, G. (2002): Zu einer Beobachtung von *Leucorrhinia rubicunda* (Nordische Moosjungfer) im Raum Reutlingen. *mercuriale* 2: 6-7. (in German). [Documentation of two specimens of the regional very rare *L. rubicunda* from the former military training area NSG Listhof, Baden-Württemberg, Germany from 25. and 26. May 2001.] Address: Feldwieser, G., Gönningerstr. 27, D-72793 Pfullingen, Germany

3290. Freeland, J.R.; Conrad, K.F. (2002): Genetic similarity within and among populations of the Variable and Azure damelflies (*Coenagrion pulchellum* and *C. puella*). *Hydrobiologia* 479(1-3): 69-73. (in English). ["In the first half of this century, seven species of the damselfly genus *Coenagrion* regularly bred in Britain. Since that time, two of these species have become extinct, and three currently have highly restricted distributions. Of the remaining two species, *C. puella* is both common and abundant, but *C. pulchellum*, while more common than most *Coenagrion* species, is experiencing a national decline in Britain. The reasons for the decline of *C. pulchellum* are poorly understood, and therefore its future in Britain is difficult to predict. The aim of this study was to investigate genetic relationships among populations of *C. puella* and *C. pulchellum*. We obtained mitochondrial sequence data from 36 *C. puella* and *C. pulchellum* individuals collected from five different sites across central England. These revealed three haplotypes with high overall similarity. Hybridisation between *C. puella* and *C. pulchellum* was suggested by (1) The sharing of a haplotype between *C. puella* and *C. pulchellum*, and (2) The fact that morphological characters of sympatric *C. puella* and *C. pulchellum* populations are not always species-specific. More research is required before we can determine whether or not hybridisation is playing a role in the decline of *Coenagrion* species in the U.K." (Authors)] Address: Freeland, Joanna R., Dept of Biological Sciences, Open University, Walton Hall, Milton Keynes, Buckinghamshire, MK7 6AA, U.K.

3291. Fuhlendorf, S.D.; Englea, D.M.; Arnold, D.C.; Bidwella, T.G. (2002): Influence of herbicide application on forb and arthropod communities of North American tallgrass prairies. *Agriculture, Ecosystems and Environment* 92: 251-259. (in English). ["The primary approach used for reducing "weeds" in the native grasslands of the North American Great Plains is the application of a broadleaf-selective herbicide, which could have important implications to native plant and arthropod diversity. The objectives of this study were to identify the influence of herbicides on the forb and arthropod community composition, richness, and density, and determine relationships among the forb and arthropod communities in a tallgrass prairie of the North American Great Plains. In 1994, arthropod and forb communities were evaluated in eight treatment units and then a broadleaf-selective herbicide was applied to four of these units. Sampling of arthropod and forb communities were sampled under similar conditions in 1995 for post-treatment effects. These communities were highly variable across years regardless of treatment (herbicide and no herbicide). The herbicide treatment caused a reduction in overall forb dominance the year after treatment. Species richness increased from 1994-1995 in both treatments but the increase was less in the herbicide treatment. The herbicide application had no overall effect on forb species composition. The lack of effect of herbicide on

the forb community composition coupled with a significant effect on species richness suggests that an important effect of herbicide application was a reduction of rare forbs. Analysis of these tallgrass communities did not yield significant differences in arthropod abundance or richness between grasslands treated with a herbicide and grasslands not treated with a herbicide. The arthropod community was defined by extreme variability across years reflecting extreme fluctuations regardless of herbicide application." (Authors) "Coenagrionidae" are among the sampled taxa.] Address: Fuhlendorf, S.D.. Department of Plant and Soil Sciences, Oklahoma State University, Stillwater, OK 74078-6028, USA . E-mail: fuhlend@mail.pss.okstate.edu

3292. Gassmann, D.; Hämäläinen, M. (2002): A revision of the Philippine subgenus *Risicnemis* (*Ignecnemis*) Hämäläinen (Odonata: Platycnemididae). *Tijdschrift voor Entomologie* 145: 213-266. (in English). ["Descriptions and diagnoses of both sex of all 15 previously recognized species are provided, and five new taxa are described: *R. antoniae* sp. n. and *R. rubricercus* sp. n. from northeastern Mindanao, *R. pistos* sp. n. from southeastern Mindanao, and *R. kaiser* sp. n. and *R. nigra* sp. n. from Samar. The ♀♀ of 11 species are described for the first time. Keys to ♂♂ and ♀♀ are provided. Based on extensive new collections from across the Philippine archipelago, the distribution of all species is mapped. Characters of the ♂ ligula and appendages and the ♀ prothorax were studied by scanning electron microscopy." (Authors)] Address: Gassmann, D., Inst. of Evolutionary and Ecological Sciences, Leiden University, c/o National Museum of Natural History, P.O. Box 9517, 2300 RA Leiden, The Netherlands. E-mail: gassmann@naturalis.nnm.nl

3293. Geppert, C.; Müller, J.; Xylander, W.E.R. (2002): Marking of insects for finding them again at night. *Zoology (Jena)* 105 (Suppl. 5): 17. (in English). [Verbatim: "Marking of insects for the purpose of ecological studies has been used since 1920 (3). These methods only enable researchers to find insects again during daylight. Markings that allow to study the nocturnal behaviour of insects have been used and tested only occasionally due to the difficult procedures (1,2, 4). To investigate the roosting site behavior of odonates, we developed a marking method that can be used quickly on a large number of individuals without harming them. From the end of May until the end of August 2001 a total of 1907 damselflies, *Calopteryx splendens* Harris 1782 (1203 F and 704 E and 1659 dragonflies of different species (1067 F and 565 E were marked in the open cast mining area Berzdorf, about 5 km from Görlitz/Saxony. The following substances for marking were tested: 1) colored substances, applied to the thorax and/or the abdomen (Night pen, UHU neon glue, Pilot super color whit, Jenzi Tages-leuchtfarbe), 2) adhesive foils, applied to the thorax and/or the wings (glow-in-the-dark paper, reflecting foil), 3) substances for injection, injected into segments of the abdomen (Visible Implant Fluorescent Elastomer System). A 8 W/12 V UV fluorescent light (black light) was used for the detection of the insects at night. The following criteria were used to evaluate the marking procedures: good adhesion to the insect body, quick application, short drying period, low impairment of the insects, strong fluorescence at night as well as visibility during

the day. These criteria were best met by the viscous paint "Jenzi Tagesleuchtfarbe". The outstanding feature of the paint was a maximum fluorescence at night of up to 4 meters distance. Marked insects showed no impairment in their behavior and could be observed during matings. With the help of this method it was possible to find 125 out of 1,872 marked *C. splendens* again at night. While this only constitutes a recapture rate of 6.6%, it is high considering the extremely difficult circumstances of the nocturnal search. 1 Heller, K.-G. & O. von Helversen (1990): Survival of a phaneropterid bush-cricket studied by a new marking technique (Orthoptera: Phaneropteridae). *Entomol. Gener.* 15 (3): 203-208. 2 Hunger, H. & W. Röske (2001): Short range dispersal of the Southern Damselfly (*Coenagrion mercuriale*, Odonata) defined experimentally using UV fluorescent ink. *Z. Ökologie Naturschutz* 9, 181-187. 3 Stonehouse, B. (1978): Animal marking. University Park Press, Baltimore. 4 Wheye, D. & P. R. Ehrlich (1985): The use of fluorescent pigments to study insect behaviour: investigating mating patterns in a butterfly population. *Ecol. Entomol.* 10, 231-234."] Address: Xylander, Dr. W., Staatliches Museum für Naturkunde Görlitz, PF 300154, D-02806 Görlitz, Germany. E-mail: Naturmuseum.GR.Dr.Xylander@t-online.de

3294. Glotzhober, R.C.; McShaffrey, D. (Eds) (2002): The dragonflies and damselflies of Ohio. Ohio Biological Survey Bulletin New Series Volume 14 Number 2: ix + 364 pp. - (in English). [This manual, based on Ohio, will work for Ontario to Tennessee, and from Missouri to New Jersey. In addition to the 162 Ohio species, 18 are found in neighboring states that are included in the keys (larvae: to the genus level, imagoes: to the species level). The book is organized in three parts resp. 17 chapters (I: Natural history, Collection and preservation of Odonata, History of Ohio odonatology, How to use the book; II: Photographing Odonata; III: Identification keys), and references, and six appendices. The book is lavishly illustrated, with 460 line drawings and wing scans. State maps show the distribution of all the species in Ohio at the county level, and the monographic descriptive accounts includes generous information on the natural history of each species. There are 88 color photos of adults; my impression is that some of them are reproduced too dark. In spite of this, they give me - unexperienced in North American Odonata - a significant impression of many species from Ohio. This is a heavy weighted, helpful, and very complete regional fauna with a lot of significant information on Odonata. (M. Schorr).] Address: \$40 plus shipping and handling (\$5) and Ohio Tax (\$2.30 if applicable). Send cheque to Ohio Biological Survey, Inc., P.O. Box 21370, Columbus, OH 43221-0370, USA

3295. Goffart, P. (2002): *Compte-rendu de l'excursion sur l'Ourthe moyenne, de Marcourt à Hotton, due 26 juin 2002.* *Gomphus* 18(1-2): 50-52. (in French with Dutch summary). [Belgium; 9 odonate species were recorded; main emphasis was given to *Oxygastra curtisii* which was recorded at six stretches of the river Ourthe. Foraging behaviour of a ♂, and oviposition of a ♀ are described. In addition, records of the stream dwelling species *Gomphus pulchellus*, *G. vulgatissimus*, and *Onychogomphus forcipatus* are briefly commented upon.] Address: Goffart, P., Unité d'Écologie et de Biogéographie, 5, Place Croix-du-Sud,

B-1348 Louvai-la-Neuve, Belgium. E-mail: goffart@ecol.ucl.ac.be

3296. Gonseth, Y.; Monnerat, C. (in Zusammenarbeit mit: Rene Hoess, Christian Keim, Tiziano Maddalena, Alain Maibach, Claude Meier, Peter Weidmann, Hansruedi Wildermuth) (2002): Rote Liste der gefährdeten Libellen der Schweiz. Hrsg. Bundesamt für Umwelt, Wald und Landschaft, Bern, und Schweizer Zentrum für die Kartographie der Fauna, Neuenburg. BUWAL-Reihe Vollzug Umwelt: 46 pp. (in German, with Italian, French and English summaries). ["The Red List 2002 of the Swiss Dragonflies has been established applying the criteria and using the threatened species categories proposed by the IUCN (2001). The procedure used was adapted from GARDENFORS & al. (2001). Of the 72 native species of the Swiss fauna, 26 (36%) are threatened, while 12 (17%) are potentially endangered (NT). Out of the 72 species listed in the Red List, 2 are at present extinct in Switzerland (RE), 12 are nearly extinct (CR), 7 are endangered (EN) and 5 are vulnerable (VU). Species of marshes and of gravel banks along rivers are the most threatened. The Red List 2002 replaces the one published in 1994 (MAIBACH & MEIER in DUELLI 1994) and based on different criteria. This explains the rather important differences between the two, differences that essentially concern the proportion of species included in the categories of least threat. The comparison of the Red List 1994 and the Red List 2002 shows most convincingly the evident degradation of the situation where the most threatened species are concerned: two have not been observed for ten years and five others have suffered a severe decline." (Authors) The species included in the list are briefly discussed.] Address: BUWAL, Dokumentation, CH-3003 Bern, Schweiz.. E-Mail: docu@buwal.admin.ch. Bestellnummer VU 9011-D (gratis)

3297. Grand, D. (2002): La faune odonatologique de la fontaine vauclusienne du Lamalou (Hérault). *Martinia* Hors Série 4: 23-26. (in French). [The odonate fauna of the headwaters of the rivers Argens (n = 10) and Lez (n = 13) (taken from literature data) is compared with the fauna of the headwater of the Lamalou (n = 30). The habitat is described in detail and some species are discussed. *Coenagrion mercuriale* - a species of special conservation concern in Europe - is dominant. The emergence and sex-ratio of exuviae (♂♂: 49% of 233 exuviae) of *Boyeria irene* are outlined, and the oviposition behaviour of *Cordulegaster boltonii* is described likewise including a note on sex-ratio (♀: 58,2% of 337 collected exuviae).] Address: Grand, D., Impasse de la Voûte, F-69270 St. Romain-au-Mont d'or, France

3298. Grand, D. (2002): Sur la distribution de *Macromia splendens* (Pictet, 1843) en région méditerranéenne française: complément et synthèse. *Martinia* Hors Série 4: 17-22. (in French). [The paper documents efforts to trace *M. splendens* in the French mediterranean region including some localities published in the 19th and early 20th century. *M. splendens* was found only at the Ardèche whilst e.g. the species was lost for the type locality at the Lez near Montpellier. Co-occurring species are listed and some remarks on the behaviour and the habitat of *M. splendens* are made.] Address: Grand, D., Impasse de la Voûte, F-69270 St. Romain-au-Mont d'or, France

3299. Greff, N.; Manach, A.; Tillier, P. (2002): Atlas des Odonates de Bretagne. État d'avancement et éléments de réflexion. *Martinia*, Hors Série 4: 59-77. (in French with English summary). [Distribution maps of 55 odonate species for the region of Brittany in western France (Departments: Côtes-d'Armor, Finistère, Îlle-et-Vilaine, Loire-Atlantique, Morbihan) are presented.] Address: Greff, N., Ossée, F-38510 Sermerieu, France.

3300. Grillet, E.M.; Legendre, P.; Borcard, D. (2002): Community structure of Neotropical wetland insects in Northern Venezuela. I. Temporal and environmental factors. *Arch. Hydrobiol.* 155(3): 413-436. (in English). ["The temporal distribution of aquatic insects in relation to habitat conditions was assessed in some northern Venezuelan Neotropical wetlands. The hypothesis that abiotic and biotic factors interacting in time may simultaneously explain the community structure of aquatic organisms was evaluated. Larval insects were sampled over a one-year period in five wetland types; 13 variables were quantified to describe each habitat. Partial redundancy analysis was used on insect abundance data to partition the variance into four components: a) pure environmental variation without seasonal effect, b) seasonal variation of environmental factors, c) pure temporal factors (months), and d) unexplained variation. Our results showed that pure and temporally-structured environmental factors (a + b) explained between 30 % and 58 % of the variation of insect abundances within wetlands, whereas pure temporal factors also significantly contributed 13 % - 29% to variation in taxa abundance. Physical factors (rainfall and water depth), wetland trophic state (phytoplankton), and water chemistry (mainly CO₂ and alkalinity) were significantly associated to community structure variability. We hypothesize that the interplay of trophic conditions, related chemical conditions, wetland duration, and insect life history patterns, all of which are mediated by seasonal fluctuation in rainfall, could largely account for the temporal distribution of the insect taxa in these wetlands.."] (Authors) Odonata are treated at the family level.] Address: Grillet, Maria Eugenia, Laboratorio de Biología de Vectores. Instituto de Zoología Tropical. Facultad de Ciencias. Universidad Central de Venezuela, Apartado 47058, Caracas 1041-A, Venezuela. E-mail: mgrillet@strix.ciens.uvc.ve

3301. Grillet, E.M.; Legendre, P.; Borcard, D. (2002): Community structure of Neotropical wetland insects in Northern Venezuela. II. Habitat type and environmental factors. *Arch. Hydrobiol.* 155(3): 437-453. (in English). ["This study examined the spatial distribution of wetland insects in relation to selected environmental variables in northeastern Venezuela. Sampling was carried out over two sampling periods (rainy and dry season) in seven wetland types (brackish and freshwater herbaceous swamps, mangrove swamps, freshwater ponds, clear-cut marsh forests, small irrigation canals, and swamp forests), covering three environmental gradients (salinity, aquatic vegetation type, and habitat permanence). Using the partial redundancy analysis, we determined that occurrence and abundance of insects was significantly ($P < 0.05$) accounted for by the relative contributions of pure environmental (29-34 %) and habitat type-related (12-15 %) variations among wetlands. Water chemistry (salinity), wetland trophic state (phytoplankton), habitat heterogeneity (aquatic vegetation type), and habitat physical features (depth

and habitat permanence) were significantly associated to community structure. Insect richness was higher in the less saline, more vegetated, and less temporary wetlands. Our findings add to previous results suggesting that adversity, productivity, heterogeneity and permanence of the habitat represent important axes along which Neotropical wetland insect communities are organized." (Authors) Odonata are treated at the family level.] Address: Grillet, Maria Eugenia, Laboratorio de Biología de Vectores. Instituto de Zoología Tropical. Facultad de Ciencias. Universidad Central de Venezuela, Apartado 47058, Caracas 1041-A, Venezuela. E-mail: mgrillet@strix.ciens.uvc.ve

3302. Hämäläinen, M. (2002): The species list of Thai dragonflies increases steadily - an update. *Malangpo* 19: 176-179. (in English). ["*Anaciaeschna martini* (Aeshnidae), *Macromia arachnomima* (Corduliidae) and *Nesoxenia lineata* (Libellulidae) are recorded from Thailand for the first time. Preliminary comments are presented on several other species new to Thailand, so far identified to genus level only. References to recent papers (published in 1999-2002), reporting additions to the Thai odonate fauna, are also given." (Author)] Address: Hämäläinen M., Dept Applied Zool., P.O.Box 27, FIN-00014 University of Helsinki, Finland; E-mail: matti.hamalainen@helsinki.fi

3303. Harrison, S.S.C.; Harris, I.T. (2002): The effects of bankside management on chalk stream invertebrate communities. *Freshwater biology* 47: 2233-2245. (in English). ["1. Communities of aquatic macroinvertebrates and the terrestrial adult phases of aquatic insects were investigated from short stretches of English chalk streams with two different bankside vegetation types: simply structured grazed grass (grazed) and structurally complex herbaceous vegetation with scattered trees (ungrazed). Macroinvertebrates were sampled in spring, summer, autumn and winter 1996-97 from three aquatic habitats: mid-channel gravel, patches of the aquatic macrophyte *Ranunculus* and marginal emergent macrophytes. The terrestrial adult phases of aquatic insects were sampled in spring, summer and autumn from bankside vegetation. 2. Total macroinvertebrate abundance did not differ between stretches with different bankside vegetation. Taxon richness of mid-channel gravel was, however, significantly higher in ungrazed compared with grazed stretches and Shannon diversity (H') of mid-channel gravel and marginal vegetation was significantly higher in ungrazed compared with grazed stretches. Total abundance, taxon richness and H' of the terrestrial adult phases of aquatic insect were significantly higher from the bankside vegetation of ungrazed compared with grazed stretches. 3. Ordination of communities of aquatic macroinvertebrates and terrestrial adults demonstrated that individual families of both groups were generally more abundant in ungrazed stretches. Many more families were significantly associated with ungrazed stretches than with grazed stretches. 4. This investigation has shown that high structural diversity of bankside vegetation along lowland chalk streams is accompanied at the reach scale by increased diversity of both aquatic macroinvertebrates and the terrestrial adult phases of aquatic insects. The conservation potential of such streams may thus be lowered by management practices that result in the removal or

simplification of bankside vegetation along extensive stream stretches." (Authors) *Calopteryx splendens* was significantly associated with ungrazed margins.] Address: Harrison, S., Department of Zoology and Animal Ecology, University College Cork, Lee Mailings, Prospect Row, Mardyke, Cork, U.K. E-mail: s.harrison@ucc.ie

3304. Heitz, A. (2002): Habitat und Eiablage von *Coenagion scitulum* (Gabel-Azurjungfer) an einem Fundort in Ost-Frankreich. *mercuriale* 2: 3-6. (in German). [In 2000, a population of *C. scitulum* near Passavant la Rochère, 38 km sw Epinal, Département Haute Saone, France was traced. Habitat, oviposition behaviour, and identification features are outlined.] Address: Heitz, A., Moosweg 15, D-77749 Hohberg, Germany.

3305. Hoess, R. (2002): Odonata found in Chiang Mai, northwestern Thailand, in May 2002. *Malangpo* 19: 180-185. (in English). [A total of 67 odonate species was collected in Chiang Mai city and its surroundings in northwestern Thailand in May 2002. Additional 11 species were identified by sight records. Exuviae representing app. 20 species were found, but not yet identified. The localities are described, and the species are documented locality wise.] Address: Hoess, R., Normannenstr. 35, CH-3018 Bern, Switzerland

3306. Hunger, H. (2002): "Keuchheitsgürtel": Überreste eines Männchens verhindern weitere Paarung eines Weibchens von *Ischnura elegans* (Große Pechlibelle). *mercuriale* 2: 25- (in German). ["Chastity belt": Remains of a ♂ *I. elegans* abdomen on a ♀ prevented additional copulations. The picture which documents this curious situation can be seen at www.SGlibellen.de.] Address: Hunger, H., August-Ganther-Str. 16, D-79117 Freiburg, Germany. E-mail: Holger.Hunger@inula.de

3307. Hunger, H.; Kunz, B. (2002): Phänologische Daten. *mercuriale* 2: 27-29. (in German). [Phenological data (2000-2002) from Baden-Württemberg (a few additional from Bayern and Saarland), Germany, of the following species are documented: *Gomphus pulchellus*, *Anax imperator*, *A.parthenope*, *Aeshna cyanea*, *Cordulegaster boltonii*, *Sympetrum fonscolombii* (Bad.-W., Saarland), *S meridionale* (Bayern), *S. striolatum*, *Sympetma fusca*, *Coenagion puella*, *Enallagma cyathigerum*, *Ischnura elegans*, *Libellula depressa*, *L. quadrimaculata*, *S. sanguineum*, and *S. vulgatum*.] Address: Kunz, B., Hauptstr. 111, D-74595 Langenburg, Germany. E-mail: kunzFOTOGRAFIE@t-online.de

3308. Jacquemin, G. (2002): Les odonates de Lorraine: rôle bio-indicateur, protection. *Martinia, Hors Série* 4: 79-84. (in French). [In the framework of FFH-Directive of the EU, the author outlines the situation of dragonflies in 1995 in the Lorraine, western France. He describes the site-protection and legal situation of the Odonata, discusses the data basis, and compiles a list of regional Odonata.] Address: Jacquemin, G., Biologie des Insectes, Université H. Poincaré, Nancy 1, BP 239, F-54506 Vandoeuvre-lès-Nancy, France

3309. Janzen, J.-W. (2002): *Arthropods in Baltic Amber*. Ampyx Verlag. Halle/Saale. ISBN 3-92795-14-8. 167 pp. (in Bilingual in English and German). [Based on extensive collection material, this book

introduces into the arthropod orders represented in Baltic amber. Each order is briefly characterised and documented by excellent colour photos. A head and wings of zygopteran Odonata are presented on page 91 of the book.] Address: Ampyx-Verlag, Dr. A. Stark, Seebener Str. 190, D-06114 Halle/Saale, Germany. E-mail: ampyxstark@aol.com

3310. Kano, K.; Karube, H. (2002): Endophytic oviposition into leaves by *Agrionomorpha fusca* from Vietnam. *Gekkan-Mushi* 381: 45-46. (in Japanese). [Silver Cloud Mountains, Cuc Phuong national Park, May 1999; the oviposition took place above the water level; after a heavy rain in next day, the leaves were flooded. A translation of the paper is published in *Digest of Japanese Odonatological Short Communications* 14] Address: Kano, K., 5-19-17-01, Koishikawa, Bunkyo-ku, Tokyo, 112-0002, Japan

3311. Katbeh-Bader, A.; Amr, Z.; Schneider, W. (2002): Odonata of Jordan. *Fragmenta entomologica* 34(1): 147-170. (in English). ["A total of 47 species of Odonata are reported from Jordan based on this study and previous records in literature. More than 600 Odonata specimens collected between 1974 and 2001 were examined and found to belong to 29 species. *Onychogomphus macrodon* and *Chalcolestes parvidens* are recorded for the first time. Several rare species known previously from only one or two sites are recorded from new localities. Number of specimens examined, collecting sites, dates of collecting, and the distribution of species in Jordan and the world is given for each species. Remarks about the status, biology or ecology of species are also provided." (Authors)] Address: Schneider, W., Hess. Landesmus., Zool. Abt., Friedensplatz 1, D-64283 Darmstadt, Germany. E-mail: w.schneider@hlmd.de

3312. Ketelaar, R. (2002): Odonata in the Netherlands, 2001. *Atropos* 17: 58-59. (in English). [This is a brief but competent account on essential records of Odonata in 2001 in the Netherlands. Records are organised according to the phenology and the weather conditions of the year. The species commented are listed as follows: *Pyrrhosoma nymphula*, *Sympetma fusca*, *Coenagrion lunulatum*, *Lestes barbarus*, *Erythromma najas*, *Sympetrum flaveolum*, *S. fonscolombii*, *Aeshna affinis*, *Anax parthenope*, *Ophiogomphus cecilia*, and *Onychogomphus forcipatus*.] Address: Ketelaar, P., p/a De Vlinderstichting, Postbus 506, NL-6700 AM Wageningen, The Netherlands. E-mail: ketelaar@vlinderstichting.nl

3313. Ketelaar, R. (2002): The recent expansion of the Small Red-eyed Damselfly *Erythromma viridulum* (Charpentier) in The Netherlands. *J. Br. Dragonfly Society* 18(1/2): 1-8. (in English). [It seems most likely that *E. viridulum* became established in the Netherlands during the early years of the 1970th. The paper documents in detail records prior and after the first proof of a reproductive population in the country. Today, *E. viridulum* is one of the most abundant species in The Netherlands. Habitat choice, phenology, and the patterns of expansion are outlined. The colonization of the Waddensea Islands also gives significant information to understand the potential of *E. viridulum* to disperse, and the most recent colonization of Great Britain.] Address: Ketelaar, P., p/a De

Vlinderstichting, Postbus 506, NL-6700 AM Wageningen, The Netherlands. E-mail: ketelaar@vlinderstichting.nl

3314. Khunwiset, S.; Chanpaisaeng, J. (2002): A survey of Odonata adults and larvae in Thong Pha Phum district, Kanchanaburi province, Thailand. *Malangpo* 19: 192-194. (in English). [Verbatim: "Thong Pha Phum area in Kanchanaburi province in western Thailand has a high biodiversity, since it is within the precincts of 3 biogeographical regions (North, South and Central) joined together. It can be classified by ecological and biogeographical factors into 3 ecoregions i.e., Tenasserim-South Thailand Semievergreen Rain Forest, Kayah-Karen Montane Rain Forest and Chao Phraya Lowland Moist Deciduous Forest. Nearness of the Andaman Sea and surrounding mountain ranges provide plenty of rainfall in this region. The survey studying and collecting Odonata adults and larvae was carried out monthly during 6 months between March 2002-August 2002 at streams in the following 5 localities: Pongpuron, Ban Lampilok, Ban Prajammai, Ban Patsaduklang and Maenamnoi. A total of 44 species of adult Odonata belonging to 36 genera in 11 families were collected by using sweep net. Larvae were collected in March 2002. The material has been identified to the family level only. They represent 7 families: Chlorocyphidae, Euphaeidae, Lestidae, Coenagrionidae, Aeshnidae, Gomphidae and Libellulidae. The streams studied have high water level and currency, which moved larvae when the heavy rain occurred."] Address: Jariya Chanpaisaeng and Sirikanya Khunwiset, Department of Entomology, Faculty of Agriculture, Kasetsart University, Bangken, Bangkok 10900, Thailand

3315. Klaus, D. (2002): Bericht von der Tagung Sächsischer Entomologen im Jahre 2002. *Entomol. Nachr. Ber.* 46(3): 209-211. (in German). [Dr. Thomas Brockhaus gave a lecture on the current status of the Odonata fauna of Saxonia, scheduled to be published in 2004. New data of 2003 should be added, and special emphasis will be given to the impacts of the flood on the Odonata in the River Elbe catchment in summer 2002.] Address: Klaus, D., Heimstätten 10, D-04571 Rötha, Germany

3316. Knijf, G. de; Lambrechts, J. (2002): Verslag van de excursie naar de vallei van de Zijpbeck en de Mechelse heid op zaterdag 30 juni 2001. *Gomphus* 18 (1-2): 43-46. (in Dutch with French summary). [Belgium; a total of 21 odonate species was observed. The list includes *Ceriagrion tenelleum*, *Ischnura pumilio*, *Cordulegaster boltonii*, *Somatochlora flavomaculata*, *Orthetrum coerulescens*, and *Leucorrhinia dubia*.] Address: Knijf, G. de, Instituut voor Natuurbehoud, Kliniekstraat 25, B-1070 Brussel, Belgium. E-mail: geert.de.knijf@instnat.be

3317. Koch, H.-M. (2002): Drei Lestiden an einem künstlichen Tümpel auf der Alb in 705 m üNN. *mercuriale* 2: 23. (in German). [Baden-Württemberg, Germany; *Lestes sponsa*, *L. barbarus*, *Lestes virens vestalis*; in addition, an attempt of an *A. cyanea* ♂ to copulate with a ♀ of *A. juncea* is reported.] Address: Koch, H.-M., Krämerstr. 40, D-72764 Reutlingen, Germany. E-mail: koch.druckerei@t-online.de

3318. Koch, H.-M. (2002): Nachweis einer 2. Generation bei mehreren Libellenarten. *mercuriale* 2:

23. (in German). [Baden-Württemberg, Germany; in December 2001, a water body was created. It was rapidly colonized in 2002 by Odonata. Exuviae of *Enallagma cyathigerum*, *Ischnura elegans*, and *Sympetrum fonscolombii* were found indicating a second generation resulting from egg depositions in early summer 2002.] Address: Koch, H.-M., Krämerstr. 40, D-72764 Reutlingen, Germany. E-mail: koch.druckerei@t-online.de
- 3319.** Krech, M. (2002): Zur Verbreitung von *Epitheca bimaculata* (Charpentier, 1825) in Mecklenburg-Vorpommern. *Archiv der Freunde der Naturgeschichte in Mecklenburg* 41: 77-86. (in German). [In 2001 and 2002, *E. bimaculata* was surveyed in the catchments of the rivers Rechnitz, Trebel, and Peene, Mecklenburg-Vorpommern, Germany. The species was traced in the marshy stretches of the rivers resp. mires run through by rivers ("Durchströmungsmoore, Flusstalmoore"). Oxbow lakes and (small) peat ponds exploited by hand were the preferred habitats. The water bodies are in most cases eutrophic or even polytrophic and lack submerged vegetation. The river bank vegetation is well developed; the fish population density seems to be high.] Address: Krech, M., Auf der Großen Mühle 7, D-99198 Erfurt, Germany
- 3320.** Kunz, B. (2002): Partnersuche mit Todesfolge: Ein kurioser Zwischenfall im Paarungsvorspiel bei *Onychogomphus forcipatus forcipatus* (Kleine Zangenlibelle). *mercuriale* 2: 24. (in German). [The behaviour of a ♀ along a rendez-vous place at the river Jagst, Baden-Württemberg, Germany is described; a curious example of ♀ mortality is reported: an accident during a rapid flight caused the splitting of a leave of *Sparganium* sp., when the ♀ flow against the leave. The head of the dragonfly was caught in the crack. The ♀ couldn't rescue herself from this situation.] Address: Kunz, B., Hauptstr. 111, D-74595 Langenburg, Germany. E-mail: kunzFOTOGRAFIE@t-online.de
- 3321.** Kunz, B. (2002): Zwei ungewöhnliche Larvenbeobachtungen von *G. vulgatissimus*. *mercuriale* 2: 21-22. (in German). [(1) An obviously unhurt larva of *G. vulgatissimus* was found dead in the crack of a weir; it is suspected that the specimen moved to this crack due to disturbance by bathing people which hindered the specimen to emerge, and tried out. (2) An extremely prolonged emergence of two larvae of *G. vulgatissimus* from the River Jagst, Baden-Württemberg, Germany is reported and (physiological) mortality factors during emergence are discussed.] Address: Kunz, B., Hauptstr. 111, D-74595 Langenburg, Germany. E-mail: kunzFOTOGRAFIE@t-online.de
- 3322.** Lambrechts, J.; Knijf, G. de (2002): Verslag van de excursie naar de vallei van de Drie Beken te Diest op zaterdag 9 juni 2002. *Gomphus* 18(1-2): 46-50. (in Dutch with French summary). [Belgium; a total of 17 odonate species was observed. The list includes *Ischnura pumilio*, *Lestes dryas*, *L. barbarus* (teneral), and *Erythromma najas*.] Address: Knijf, G. de, Instituut voor Natuurbehoud, Kliniekstraat 25, B-1070 Brussel, Belgium. E-mail: geert.de.knijf@instnat.be
- 3323.** Leconte, M. (2002): Comptes rendues des Rencontres Odonatologiques d'Aquitaine des 25 et 26 mai 2002 à l'Atelier-Gîte de Saugnacq-et-Muret (49). *Société française d'ontonologie*: La lettre des sociétaires 29: 7-8. (in French). [Report of an excursion to several localities with records of *Leucorrhinia* sp.; *L. albifrons* and *L. pectoralis* could be traced. *L. caudalis* was missing. The records are briefly documented along with co-occurring odonate species.] Address: Leconte, M., Quartier du Caù, F-64260 Arudy, France
- 3324.** Lederer, P. (2002): Damselfly "pancake net" made with fiberglass screening material. *Argia* 14(3): 18-19. (in English). [A technical solution to avoid wet nets while catching Zygoptera is presented.] Address: Lederer, P.T., 33 Hamden Avenue, Staten Island, NY, 10306, USA
- 3325.** Lin, Qi-Bin; Nel, A.; Huang, D.-Y. (2002): Phylogenetic analysis of the Mesozoic dragonfly family Liupanshaniidae (Insecta: Aeshnoptera: Odonata). *Cretaceous Research* 23(4): 439-444. (in English). ["The Chinese Lower Cretaceous dragonfly genus *Guyanaeschnidia* Lin, 1982, originally considered to be an Aeschnidae, is redescribed and transferred to the family Liupanshaniidae Bechly et al., 2001. A phylogenetic analysis of the family is presented." (Authors)] Address: Lin, Qi-Bin, Nanjing Institute of Geology and Palaeontology, Academia Sinica, Nanjing, 210008, PR China
- 3326.** Lissak, W. (2002): Neue Funde von *Orthetrum brunneum* (Südlicher Blaupfeil) im Lias-Vorland der Schwäbischen Alb (Lkr Göppingen). *mercuriale* 2: 18-19. (in German). [Baden-Württemberg, Germany; documentation of regional records of *O. brunneum* starting in 1990.] Address: Lissak, W., Schubartstr. 12, D-73092 Heiningen, Germany. E-mail: W.Lissak@naturschutzzentrum-schopfloch.de
- 3327.** Machado, A.B.M. (2002): *Neuraeschna tapajonica* sp. n. from the Amazonian region of Brazil (Odonata: Aeshnidae). *Lundiana* 3(1): 29-30. ["The new species is described and illustrated from a single ♂ (Brazil, Para, Itaituba, X-1977; deposited in Author's collection). It belongs to the dentigera-group.] Address: Machado, A.B.M., Departamento de Zoologia, Inst. Cienc. Biol., Universidade Federale de Minas Gerais, Caixa Postal 486, 31270-901 Belo Horizonte, Minas Gerais, Brazil
- 3328.** Marinov, M. (2002): Dragonflies (Odonata: Insecta) in the Bulgarian Wetlands - Current Status, Distribution and their Importance as Bio-indicators. *Proceedings of the Asian Wetland Symposium 2001 "Bringing Partnerships into Good Wetland Practices"*, 27-30 August 2001, Penang, Malaysia. ISBN 983-8614-230-8. 10 pp. (in English) [Dragonfly species in Bulgaria are overviewed and their importance for the protection of the wetlands is briefly discussed. Wetlands are one of the main subjects of the conservation activities in the country. Here a short historical review is given and their current conservation status is outlined. The main wetlands groups are overviewed according to their dragonfly fauna established up to now. As dragonflies could play a considerable role in wetlands management, some suggestions for monitoring programmes and using dragonflies as bio-indicators are provided." (Author)] Address: Marinov, M., P.O. Box 134, BG-1000 Sofia, Bulgaria. E-mail: mg_marinov@yahoo.com. Distributor: Penerbit University Sains Malaysia Co-operative Bookshop Ltd., University Sains Malaysia, 11800 USM Pulau Pinang, Malaysia

- 3329.** Matsuda, S.; Hiasa, M.; Sugihara, K.; Miyashita, M. (2002): Discovery of *Mortonagrion hirosei* from the mainland of Kyushu (Coenagrionidae). Tombo 44: 13-18. (in Japanese with English summary). [*M. hirosei* was discovered at two localities in 1998 for the first time from the main land of Kyushu, Japan. "Both sites are seaside marshes where reed bushes grow. We found andromorphic (homoeochromatic) ♀♀ at each locality. Although the distance between these two localities is only 2 km, the ratio of homoeochromatic ♀♀ differed greatly between them, being ca 1% at Mikoyama-shinden, and ca 50% at Otome-shinden. As the difference can be regarded as being genetically determined, the population of each local habitat should be conserved with no changes occurring in the type ratio." (Authors)] Address: not stated in English
- 3330.** Mauersberger, R.; Bönsel, A.; Matthes, H. (2002): *Anax parthenope* in Seenlandschaften entlang der Pommerschen Eisrandlage in Nordost-Deutschland (Odonata: Aeshnidae). *Libellula* 21(3/4): 145-165. (in German, with English summary). ["From the lake-landscapes of Mecklenburg and northern Brandenburg, Germany, 146 localities of *A. parthenope* are listed, including 29 formerly published records. Completion of development was recorded at 28 waters. In one part of the area of investigation, the UNESCO-Biosphere Reserve 'Schorfheide-Chorin', *A. parthenope* is recorded from 15 % of the lakes. In the region, distribution and abundance of the species fluctuate considerably. Especially a cold winter with deficits in the supply of oxygen below the ice cover caused a strong temporary decline in population size. If these fluctuations are not taken into account, an increase of population size from 1989 until 2002 can be assumed. Stratified clear-water lakes with a constantly balanced oxygen supply in the littoral region constitute a persistent habitat in NE Germany. Moreover, *A. parthenope* is able to colonize for a limited time numerous lakes of all trophic levels and all sizes, as long as they are bordered by reed belts." (Authors)] Address: Mauersberger, R., Bahnhofstr. 24, D-17268 Templin, Germany. E-mail: FoerderevereinUeckermark.Seen@t-online.de
- 3331.** Mauersberger, R.; Petzold, F. (2002): Seen als Habitate für *Onychogomphus forcipatus forcipatus* im Jungpleistozängebiet Nordost-Deutschlands (Odonata: Gomphidae). *Libellula* 21(3/4): 101-144. (in German, with English summary). [Brandenburg, Mecklenburg, Germany; *O. forcipatus* reproduces in 62 of 600 lakes, examined by the authors from 1989-2001. The habitat requirements can be described as follows: "volume (much) more than 30 000 m³ balanced oxygen proportion throughout the year without deficiency below ice cover often supplied by ground water in forested areas and without an outflow; accordingly with a high long-term water level amplitude low trophic state: total phosphorus mostly less than 25 mg/m³ surf zones with mineral sediment, usually at east or southeast banks exposed to wind inhabited parts of the shore are bare of vegetation or covered with thin reed belts up to 60 culms/m² (e.g. *Meso-Phragmitetum*). At the optimum habitat - mesotrophic ground-water lakes - *O. forcipatus* and *G. vulgatissimus* are the dominant anisopteran species." (Authors)] Address: Mauersberger, R., Bahnhofstr. 24, D-17268 Templin, Germany. E-mail: FoerderevereinUeckermark.Seen@t-online.de
- 3332.** Merritt, R.W.; Cummins, K.W. ; Berg, M.B.; Novak, J.A.; Higgins, M.J.; Wessell, K.J.; Lessard, J.L. (2002): Development and application of a macroinvertebrate functional-group approach in the bioassessment of remnant river oxbows in southwest Florida. *J. N. Am. benthol. Soc.* 21(2): 290-310. (in English). [Calcosahatchee River, SW Florida, USA; includes information on voltinism and larval habits for *Argia*, *Enallagma*, *Ischnura*, *Aphylla*, *Anax*, *Boyeria*, *Epithea*, *Brachymesia*, *Erythemis*, *Erythrodiplax*, *Miathyria*, *Pachydiplax*, and *Perithemis*.] Address: Merritt, R.W., Dept Ent., Fish. & Wildlife, Michigan St. Univ., East Lansing. MI 48824, USA
- 3333.** Misof, B. (2002): Diversity of Anisoptera (Odonata): Inferring speciation processes from patterns of morphological diversity. *Zoology* 105: 355-365. (in English). ["With roughly 2500 described species Anisoptera are among the species-poor suborders within insects. [...] In this analysis phylogenetic research is integrated with comparative approaches to investigate possible explanations of differential speciation rates within this suborder. A short review of phylogenetic work based on morphological characters is compared to published molecular Sistergroup comparisons are used to elucidate whether a) sexual selection, b) duration of life cycles, or c) differentiation in body size, have had a detectable effect on speciation rate. In all three analyses effects of distributional range and latitudinal distribution were controlled. These analyses suggest sexual selection promotes speciation and an increase in body size is positively correlated with speciation rate. The evolutionary significance of these results is discussed and experimental approaches that should advance our understanding of anisopteran diversity are suggested." (Author)] Address: Misof, B., Department of Entomology, Zoological Research Institute and Museum Alexander König, Adenauerallee 160, D-53113 Bonn, Germany E-mail: b.misof.zfmk@uni-bonn.de
- 3334.** Moore, N.W. (2002): The dragonflies of a Cambridgeshire pond and its surroundings in 2001. *J. Br. Dragonfly Society* 18(1/2): 13-22. (in English). [The author visited a pond at Swavesey in Cambridgeshire on most days during the flying season (30 April to 15 November) of 2001. "As a result the records for that year are more complete than for any previous year since the pond was dug in 1983 (Moore, 1987) and thus seem worth recording. An additional reason for publishing the records for 2001 is that the flying season followed the wettest winter ever recorded and it was interesting to discover, whether this had had any noticeable effect on the dragonfly fauna of the pond. This paper provides a summary of my observations, which are related to other observations made on the pond since 1983 (Moore, 1987, 2002 and unpublished). The nature of the pond's dragonfly fauna is outlined, and the value and limitations of such studies is discussed." (Author)] Address: Moore N.W., The Farmhouse, 117 Boxworth End, Swavesey, Cambridge CB4 5RA, United Kingdom
- 3335.** Moroz, M.; Maksimenkov, M.V.; Czachorowski, S.; Buczynski, P. (2002): Results of the investigation of aquatic insects (Insecta: Collembola, Ephemeroptera, Odonata, Trichoptera, Heteroptera, Coleoptera) of the Biosphere Reserve "Sporovskii". *Natural Resources 2* (National Academy of Sciences of

- Belarus. Ministry of Natural Resources and Environmental Protection. Scientific Edition): 88-94. (in Russian, with English summary) [Belorussia; 11 odonate taxa were traced, among them *Calopteryx splendens*, *Erythromma najas*, *Nehalennia speciosa*, *Epitheca bimaculata*, and *S. sanguineum*.] Address: Buczynski, P., Dept of Zool., Marie Curie-Sklodowska University, Akademicka 19, PL-20-033 Lublin, Poland. E-mail: pbuczyns@biotop.umcs.lublin.pl
- 3336.** Mulnet, D. (2002): Développement larvaire de *Leucorrhinia dubia* dans deux biotopes de tourbières. *Martinia*, Hors Série 4: 85-90. (in French). [A population of *L. dubia* in a high bog near the Puy de Dôme, Auvergne, France, was surveyed for the development time in two different habitat types: one was covered densely with *Sphagnum* mosses, while the second type was characterised by a quite sparsely vegetation and a free water column. Larval developments in type 1 lasted 5 years, while in type 2 emergence took place after three years.] Address: Mulnet, D., 330 Rue Vercingétorix, F-63110 Beaumont, France
- 3337.** Mulnet, D. (2002): Étude comparative de l'émergence de plusieurs espèces d'Odonates de tourbière. *Martinia*, Hors Série 4: 91-108. (in French). [Emergence patterns differed for 1986, 1990, and 1991 of *Leucorrhinia dubia*, *Pyrrhosoma nymphula*, *Libellula quadrimaculata*, *Somatochlora arctica*, *Lestes* sp., *Aeshna juncea*, and *A. cyanea* are presented and discussed in detail] Address: Mulnet, D., 330 Rue Vercingétorix, F-63110 Beaumont, France
- 3338.** Mulnet, D. (2002): Utilisation pratique des modèles de capture-recapture: application à une population de *Leucorrhinia dubia*. Problèmes méthodologiques concrets et perspectives. *Martinia* Hors Série 4: 39-48. (in French). [A study to estimate the size of a population of *L. dubia* in a bog near the Puy de Dôme, Auvergne, France is used to discuss in very detail the accuracy of population estimation methods.] Address: Mulnet, D., 330 Rue Vercingétorix, F-63110 Beaumont, France
- 3339.** Murray, C. (2002): Dragonflies - ancient animals under threat. *Atropos* 17: 19-25. (in English). [This is a general account on factors threatening Odonata, including brief remarks on habitat destruction, pollution, inappropriate habitat management, alteration of site hydrology, and global climate change] Address: Murray, Charlotte, English Nature North Mercia team, Attingham park, Shrewsbury, SY4 4TW, UK
- 3340.** Naraoka, H. (2002): Reproductive behaviour of *Lestes temporalis* Hanseman [sic] (Odonata, Lestidae). *Gekkan-Mushi* 381: 38-41. (in Japanese). [The oviposition of *Lestes temporalis* Selys 1883 at night and the egg deposition frequency in dependence of air-temperature are reported. A translation of the paper is published in *Digest of Japanese Odonatological Short Communications* 14.] Address: Naraoka, H., 36-71, Motoizumi, Fukunoda, Itayanagi-cho, Kitatsuguru-gun, Aomori Prefecture, 038-3661, Japan
- 3341.** O'Brien, M. (2002): Highlights from the Great Lakes Odonata meeting, Higgins Lake MI, July 1-4, 2002. *Argia* 14(3): 6-9. (in English). [The dragonfly records of different trips are outlined; records of *Somatochlora hineana* and *Aeshna sitchensis* are of some interest.] Address: O'Brien, M., Insect Division, Museum of Zoology, University of Michigan, Ann Arbor, MI 48109-1079, USA. E-mail: mfobrien@umich.edu
- 3342.** Orioux, G.; Laleure, J.-C. (2002): Les Odonates de la Loire et de l'Allier dans le département de la Nièvre. *Martinia*, Hors Série 4: 49-51. (in French). [Between 1983 and 1993 a total of 35 odonate species was recorded. The species composition of the channel, the branches, and standing waters within the floodplain are briefly compared] Address: Orioux, G., 25, rue Gambetta, F-58000 Nevers, France
- 3343.** Orszaghova, Z.; Suplatova, M.; Orszagh, I. (2002): Changes in food composition of the tree sparrow (*Passer montanus*) nestlings. *Biologia* (Bratislava) 57(2): 251-259. ["Using the neck ring method we gathered two hundred and ninety-nine samples of food for nestlings of the tree sparrow (*Passer montanus*) at two sites (the Biological station and the alder forest in the National Nature Reserve Sur). The samples were divided into 12 animal (Gastropoda, Arachnida, Odonata, Mantodea, Saltatoria, Homoptera, Heteroptera, Megaloptera, Lepidoptera, Coleoptera, Formicoidea, Diptera) and 3 vegetable (grains of wheat, pea and fragments of various plant species) food groups. Soft-bodied Arachnida, beetle larvae and butterfly caterpillars predominated in the food of the youngest nestlings throughout the breeding season. With increasing age the food contained more hard-bodied arthropods and harder components of plants and their seeds. In May, 55 diet samples for the nestlings consisted mainly of butterfly caterpillars (25%), leaf hopper larvae (21%) and beetles (19%), the animal to vegetable component ratio (A:V) was 99.1%:0.9%. In June, spiders (20%) and beetles (20%) were the most frequent items in 108 samples. Three quarters of the beetles were larvae of *Spercheus emarginatus* (Spercheidae), and wheat grains represented 25%, the A:V ratio amounted to 69.7%:30.3%. In July one hundred and four food samples were collected, including praying mantis (*Mantis religiosa*) forming 28.5% of the material, Saltatoria 24.6%, and Arachnida 12%. The other diet groups were represented by lower percentages - the A:V ratio being 97.9%:2.1%. In August, 32 samples were collected, with beetles predominating in the food (28.8%), and a high proportion of *Sialis* sp. related larvae (26.4%) and Arachnida (24%). The A:V ratio was 99%:1%." (Author)]
- 3344.** Parr, A. (2002): First and last dates. *Dragonfly news* 42: 17-18. (in English). [Compilation of early records of several odonate species in UK in spring 2002.] Address: Parr, A.J., 10 Orchard Way, Barrow, Bury St. Edmunds, Suffolk IP29 5BX, UK. E-mail: Adrian.parr@bbsrc.ac.uk
- 3345.** Parr, A. (2002): The southern Skimmer *Orthetrum brunneum* (Fonscolombe). *Atropos* 16: 31-33. (in English). [The discovery of *O. brunneum* on Guernsey rises the possibility to discover the species on the mainland of Great Britain too. Therefore, some information on range expansion on the European continent, identification features, and the biology of the species are provided.] Address: Parr, A.J., 10 Orchard Way, Barrow, Bury St. Edmunds, Suffolk IP29 5BX, UK
- 3346.** Paulson, D. (2002): New state records of *Enallagma* from Minnesota and New Hampshire. *Argia* 14(3): 12- (in English). [USA, *Enallagma clausum*

(Minnesota, 30 May 1977); E. doubleday (New Hampshire, 7 July 1974)] Address: Paulson, D.R., Slater Museum, Univ. of Puget Sound, Tacoma, WA 98416, USA. E-mail: dpaulson@ups.edu

3347. Paulson, D. (2002): Philip S. Corbet, Honary member, the Dragonfly Society of the Americas. *Argia* 14(3): 5-6. (in English). [Dennis Paulson introduces into the recognition of Dr. Philip Corbet - "the preeminent odonatologist of our time" - as Honary Member of DSA, and briefly outlines some mile stones in his odonatological work. Special emphasize is given to the fact that Philip unhesitatingly shared his knowlege and ideas with many students and colleagues over the years, and to his inspiration to his colleagues.] Address: Paulson, D.R., Slater Museum, Univ. of Puget Sound, Tacoma, WA 98416, USA. E-mail: dpaulson@ups.edu

3348. Perrin, V. (2002): Highlights of the early season. *Dragonfly News* 42: 16- (in English). [Compilation of odonate records in 2002 with special emphasis on phenology from differend localities in UK] Address: not stated

3349. Petrulevicius, J.K.; Nel, A. (2002): A new libelluloid dragonfly from late Paleocene deposits in Argentina (Odonata: Italoansida). *Eur. J. Entomol.* 99: 485-489. (in English). ["A new genus and species of "libelluloid" dragonfly, *Jujusia maizgorda* gen. n., sp. n., of the clade Italoansida Bechly, 1996, from the late Paleocene, Maiz Gordo Formation, north-western Argentina, is described. Its phylogenetic relationships within the clade Cavilabiata Bechly, 1996 are discussed."] Address: Petrulevicius, J.K., Departamento Científico Paleozoología Invertebrados, Museo de La Plata. Paseo del Bosque, s/n. 1900 La Plata, and CONICET, Argentina. E-mail: levicius@mnhn.fr

3350. Petzold, F. (2002): Beobachtungen zum Verhalten von *Aeshna crenata* und *A. grandis* an einem Gewässer in Westsibirien (Odonata: Aeshnidae). *Libellula* 21(3/4): 79-100. (in German, with Russian and English summaries). [Sedelnikowo (56°57N 75°16E), NE part of administration district of Omsk, Russia; the behaviour of the coexisting species was observed from 1999-2001 at a man-made water body that was constructed as watering-place for cattle. "*A. grandis* was numerically the more dominant species; however, no interspecific interactions were noted. The reproductive activities of both species concentrated on a section of the water with highly structured vegetation and a great amount of dead wood. Both species preferred dead wood for oviposition but *A. crenata* used other kinds of dead and fresh plant material as well." ♀ refusal behaviour against ♂ mates is discribed. "Matings were not seen in *A. crenata* and only rarely in *A. grandis*. [...] More ♂♂ than ♀♀ of *A. crenata* and clearly more ♀♀ than ♂♂ of *A. grandis* were present at water. The activity of ♀ *A. crenata* lasted four hours per day and was significantly shorter than the eight hours spent by *A. grandis*."] (Author)] Address: Petzold, F., Pappelallee 73, D-10437 Berlin, Germany. E-mail: falkpetzold@web.de

3351. Petzold, F.; Wildermuth, H. (2002): Massiver Wassermilbenbefall bei *Cordulia aenea* (Hydrachnida: Arrenurus; Odonata: Corduliidae). *Libellula* 21(3/4): 167 - 173. (in German, with English summary). ["A population of *C. aenea* heavily parasitized by larvae of

Arrenurus sp. was found at a moorland lake in northern Germany in May 2002. The parasites attached in clusters, mainly to the pleural membrane ventrally on abdominal segments 7, 8 and 9. The findings are discussed in the frame of earlier observations on parasitized corduliids with corresponding interpretations that go back as far as to the 18th century."] (Authors)] Address: Petzold, F., Pappelallee 73, D-10437 Berlin, Germany. E-mail: falkpetzold@web.de

3352. Pfeiffer, B. (2002): *Willamsonia fletcheri* encountered in Vermont. *Argia* 14(3): 10-11. (in English). [June 4, 2002, Washington County, Vermont, USA] Address: Peiffer, B., 113 Bartlett Rd, Plainfield VT, 05667, USA

3353. Purse, B. (2002): Conservation of the southern damselfly in Britain. *Biodiversity Technical Series* 1: 10 pp. (in English). [*Coenagrion mercuriale* is the only odonate species to have a national Species Action Plan (SAP) within the UK Biodiversity Action Plan. In the UK it is basically restricted to a few sites in Anglesey, West Wales, Gower, Devon, the New Forest, and the Itchen and Test valleys. Amongst these it occurs in three quite different habitat types: small lowland heathland streams, water-meadow ditches and calcareous fenland. In 1996/97 a Steering Group was set up to coordinate research and implement the SAP. A PhD was completed by Beth Purse, working under the direction of Dr David Thompson at Liverpool University, to investigate the species on heathland sites. A second PhD study is now underway to investigate the ecology of the species in its other contrasting habitats: chalk stream, watermeadow and fen. The Environment Agency has recently published a superb illustrated booklet Conservation of the southern damselfly in Britain, R7D Leaflet W1-021/L, (contact 01793 860512 or publications@wrcplc.co.uk), which summarises Beth Purse's results. Other current research has involved collecting DNA samples from all known UK sites. Analysis should show what links, if any, exist between the somewhat discrete populations in their varying habitats.] Address: Environment Agency, Rio House, Waterside Drive, Aztec West, Almondsbury, Bristol BS32 4UD, UK.

3354. Quintana, A.T.; López, C.N. (2002): New locality records for Odonata in Pico Cristal National Park, Cuba. *Argia* 14(3): 15-16. (in English). [9 species were observed in 2001.] Address: Quintana, A.T., Univ. De Oriente, Santiago, Cuba

3355. Ring, S.; Kraus, F.B.; Schierwater, B.; Hadrys, H. (2002): Evolutionary ecology and genetic diversity measures in dragonflies. *Zoology (Jena)* 105 (Suppl. 5): 73. (in English). [Verbatim: "Dragonflies provide key model systems not only to study the evolution of mating systems (Fincke & Hadrys 2001, *EVOLUTION* 55: 762) but also to address the issue of how to define operational taxonomic units in conservation biology (conservation units). Field studies on dragonfly diversity and abundance in a variety of European, African, North and South American habitats have been combined with genetic diversity measures by means of multiple nuclear and mitochondrial DNA sequence markers (including ITS1, ITS2, CO1, CO2, D-loop, ND1, 16S rDNA, and Hox genes) and neutral DNA markers (microsatel-lites, RAPDs). Information on both data sets helps to detect ecological and evolutionary effects on

population networks and species assemblages, e.g. demographic patterns of habitat fragmentation, bottleneck effects and habitat shift processes. For example, within the European members of the riverine damselfly family Calopterygidae the identification of taxonomic units is very controversial and varies from 3 to 200 reproductive entities. Despite the high number of different phenotypes, sequence analyses of four DNA loci show very low genetic diversity within and between the proposed species/subspecies. This incongruence suggests recent speciation processes. Reconstruction of habitat preferences suggests that recent habitat shifts correlate with differences in the phenotype. In a second study on the keeled skimmer *Orthetrum coerulescens* the genetic consequences of a local bottleneck have been quantified. The latter revealed a significant number of private alleles for the largest population within a local network. These alleles were lost after the breeding site was dredged and a significant mode shift in allele frequencies (typical for a genetic bottleneck) took place. This demonstrates, that despite the fast recovery potential in terms of effective population (within 2 generations) and a network of smaller populations in the surrounding, a large self-perpetuating dragonfly population was affected by a cryptic loss of genetic diversity. We acknowledge support from the DFG and BMBF." Address: Hadrys, H., Ecology and Evolution, ITZ, Tierärztliche Hochschule Hannover, 30559, Hannover, Germany. E-Mail: heike.hadrys@ecolevol.de

3356. Rosche, L. (2002): Dragonflies and damselflies of Northeast Ohio. Cleveland Mus. Nat. Hist., Cleveland/OH. ISBN 0-9717460-0-1. vii, 94 pp. (in English). [I assume, this book was planned as a guide directed to a public interested more generally in dragonflies, and to motivate it to get more and more interested in the Odonata. Larry Rosche documents the species that occur in a region that is - as J.B. Keiper states in his foreword - "fantastically rich with aquatic habitats. Fens, bogs, marshes, lakes, streams, springs and other wonderful ecosystems exist within an hour's drive of any northeastern Ohio city or town. In these areas, you can easily find a species-rich and abundant odonate fauna whose patrolling of territories, mating activities, predatory efforts and other behaviors will offer many rewarding observations. Use this guide and put names on those species you see." The book should also be useful elsewhere in the Great Lakes Region of USA and Canada, as most of the 124 species found in the scope of the book are found in Michigan, Indiana, Wisconsin, Minnesota, and Illinois as well as Ontario. The book is filled with lots of hints on identification, biology and habitat information; special emphasis is given to the phenology, and it is useful to get information on the regional rarity of the species. In general, the illustrations (most seem to be watercolor or color-pencil realized by three artists with different styles: Jacqueline Haley, Jennifer Brumfield and David Metcalf) depict the species well enough for identification. The digital images of the bluet reference guide on page 90 are very nice: The placement of all the bluets on one page is a great idea that enables the user to compare the species in one view. Some of the illustrations (Aeshnidae, Gomphidae) look digitally mounted using a morphological construction kit. It is hard to assess with the view of a European whether the illustrations fit to the reality. I think some of the artwork lacked detail in some cases, some of the perspectives

seemed to distort terminal genitalia of the damselflies (way too big), some of the colors were too muted, or in the case of the *Argia* or *Hetaerina americana*, the bodies looked like pinned. Some of the paintings - especially the clubtails - lack in contrast and details. The wire-comb binding allows the pages to lie flat, which is great. However, the cover pages will be easily ripped or bent by repeated use in the field, so a plasticized cover is recommended. The book is attractive and reasonably priced, and I think it will deserve a spot on your shelf or in your backpack when travelling through NE Ohio. (M. Schorr)] Address: Publishers: Cleveland Mus. Nat. Hist., 1 Wade Oval, University Circle, Cleveland, OH 44106--1767, USA. Price: US \$ 18.95 net

3357. Samolag, J. (2002): New records of *Coenagrion armatum* (Charp.) and *Sympetrum fonscolombii* (Selys) (Odonata: Coenagrionidae, Libellulidae) in the Wielkopolska region. *Wiad. ent.* 21(1): 51-52. (in Polish, with English title). [*C. armatum*: 2 ♂, S of lake Lusowskiego and SE of Lusówko, 7-V-2000; *S. fonscolombii*: 1 ♂, SW of Młodasko, 22-X-2000. The habitats are briefly characterised, the accompanying odonate species are listed, and the occurrence of the 2 species in Poland is briefly outlined.] Address: Samolag, J., Ul. Poznańska 72, PO-62080 Tarnowo Podgórne, Poland

3358. Schiel, F.-J. (2002): Entwicklungsnachweis von *Lestes virens vestalis* (Kleine Binsenjungfer) in der Oberrheinebene südwestlich von Baden-Baden. *mercuriale* 2: 2-3. (in German). [In 2001, near Sinzheim, Baden-Württemberg, Germany, the regional very rare *L. virens* was recorded. Its habitat is described in some detail.] Address: Schiel, F.-J., Inst. Naturschutz und Landschaftsanalyse, Turenweg 9, D-77880 Sasbach, Germany. E-mail: Franz-Josef.Schiel@INULA.de

3359. SGL Baden-Württemberg (2002): Vereinsnachrichten. *mercuriale* 2: 30-40. (in German). [Includes a discussion on the potential and importance of ♀♀ in colonisation of water bodies (Sternberg, K. H. Hunger: Ja, wo fliegen sie denn?!?), Systematics of German Odonata (Kunz, B. R. Jödicke), soldes ("Schwarzes Brett"), the minutes of the meeting of the society, a membership list etc.] Address: Kunz, B., Hauptstr. 111, D-74595 Langenburg, Germany. E-mail: kunzFOTOGRAFIE@t-online.de

3360. Stoverock, M.; Schierwater, B.; Soendgerath, E.; Braune, E.; Suhling, F.; Martens, A.; Richter, O.; Hadrys, H. (2002): Understanding the dynamics of biodiversity in African dragonflies: Genetic approaches. *Zoology (Jena)* 105 (Suppl. 5): 74. (in English). [Verbatim: "Present-day patterns of biodiversity among ecosystems have arisen over time through a variety of natural and anthropogenic factors. Understanding these factors may provide crucial insights into the effects of future environmental changes. One basic requirement here is to understand and follow population structures and dynamics, for which estimates of gene flow and genetic diversity become a sine qua non. We use molecular genetic data from the mitochondrial and nuclear genome to monitor the genetic composition of defined key species under various demographic and ecological settings. Four different DNA sequence markers allow the straightforward detection of taxonomic units at the population to genus level.

Microsatellites offer insights into intrapopulation structures. The genetic data provide first insights into the genetic structure, viability and dispersal potential of natural populations which differ in habitat selection, abundance, life cycle parameters and dispersal behaviour. The combination of multiple genetic markers also provides information on different evolutionary time scales and therefore accounts for the historical dimension of changes in biodiversity. The data will be used in mathematical simulation studies that will model the dynamics of dragonfly biodiversity in African dragonflies. We acknowledge support from the BMBF (BIOLOG Africa #01LC0024.) Address: Suhling F., Zool. Inst., TU Braunschweig, Fasanenstr. 3, D-38092 Braunschweig, Germany. E-mail: f.suhling@tu-bs.d

3361. Szállassy, N.; Bárdosi, E.; Szabó, Z.D.; Dévai, G. (2000): Fluctuating asymmetry and mating success in mated and solitary *Ischnura elegans* (Zygoptera: Coenagrionidae) males. *Hidrológiai Közlöny* 81: 514-516. (in Hungarian with English summary). ["The hypothesis that the more symmetrical are the wings, the greater is the success the individuals achieve in pairing was tested. [...] Neither reproductive success nor body size were correlated significantly with wing asymmetry."] Address: Szállassy, N., Dept of Ecol. Hydrobiol., University of Debrecen, Egyetem tér 1, HU-4032 Debrecen, Hungary. E-mail: szallassy@tigris.klte.hu

3362. Tarboton, W.; Taboton, M. (2002): A fieldguide to the Dragonflies of South Africa. Private publication, 2002. 97 pages. ISBN 0-620-29887-1. 97 pp. (in English). ["This colourful little fieldguide treats all 90 species of Anisoptera found in the Republic of South Africa. Following a brief introduction to classification, behaviour and identification methods, the larger part of the book is devoted to species identification. Brief texts on occurrence and identification are accompanied with distribution maps and 34 colour plates. The latter are composed of scans of specimens, the majority of which is of very fresh individuals, showing the life colours. The layout of the plates is attractive and roomy, with on average 7 scans on each plate. Distinctive features are indicated, sometimes elucidated with simple line-drawings, and the scans are sufficiently clear for the user to compare and find additional characters himself. On average there are about 3 scans per species, e.g. a dorsal aspect of both sexes and a lateral aspect of one, allowing an impression of the variability. The book is augmented with 29 photographs of free-living dragonflies, including some of the most stunning pictures of African species ever published (e.g. *Anax tristis* ♀ in flight and ovipositing). With the wealth of illustrations, identification becomes surprisingly straightforward, and the user is helped further with simple pictorial keys to families and gomphid and libellulid genera. The accessible image-oriented concept of the book is highly innovative in a group where we are used either to complicated technical keys or photoguides using field photos, allowing only limited views of characters and variation. The example is definitely one to be followed, especially in the species-rich faunas of the tropics where the scans-approach is perhaps the only way to do justice both to the diversity of Odonata and the growing interest for them. It is to be hoped the authors are planning a similar book for the Zygoptera!" (K.D. Dijkstra, taken from *Phaon* 2003:01, 11 March 2003).] Address: The book can be ordered for 200 rand, which includes postage (approx. 23 euro/US

dollar) from: Russel Friedman Books cc, P O Box 73, Halfway House 1685, SOUTH AFRICA; attention Shelley Tel 027 -11-702-2300; Fax 027-11-702-1403; Email: shelleyrh@mighty.co.za Website: vwww.rfbooks.co.za

3363. Versonnen, B.; Knijf, G. de; Vercruyssen, W.; Verhaeghe, W.; Van Wichelen, T. (2002): Four observations and first successful reproduction of *Sympetrum meridionale* (Selys, 1841) in Belgium. *Gomphus* 18(1-2): 3-13. (in Dutch, with English and French summaries). ["After nearly a century of absence, *S. meridionale* was seen 3 times in 2000 and once in 2001. There was an observation at Rekem (Limburg) on 20/06/2000, one at Harchies (Hainaut) on 25/06/2000 and one at Zelzate (East-Flanders) also on 25/06/2000 and finally one at Stekene (East-Flanders) on 01/08/2001." The specimens "of 2000 were young: twice a young ♂ (Rekem and Zelzate) and one freshly emerged ♀ at Harchies. Especially this last observation proves that *S. meridionale* was able to reproduce successfully in Belgium. Very remarkable was the predation on a young ♂ at Zelzate by a domestic cat." (Authors)] Address: Knijf, G. de, Instituut voor Natuurbehoud, Kliniekstraat 25, B-1070 Brussel, Belgium. E-mail: geert.de.knijf@instnat.be

3364. Wasscher, M. (2002): Canal damselfly *Cercion lindenii* (Selys) - a species to look out for. *Atropos* 16: 62-63. (in English). [Some information on range extension on the European continent, identification features, and biology are provided, because the possibility exists to discover *C. lindenii* on the mainland of Great Britain in near future.] Address: Wasscher, M., Minstraat 15bis, NL-3582 CA Utrecht, The Netherlands, E-mail: m.wasscher@broekhuis.nl

3365. Weihrauch, F. (2002): Ein Weibchen von *Enallagma cyathigerum* als Unterwasser-Prädator der Großen Weidenrindenlaus (Odonata: Coenagrionidae; Homoptera: Lachnidae). *Libellula* 21(3/4): 175-180. (in German, with English summary). ["A ♀ *E. cyathigerum* was observed feeding on larvae of *Tuberolachnus salignus* (Gmelin), on an accidentally submerged willow twig during a subsurface walk, possibly with the aim of oviposition. Seven or eight of the obviously soaked and half-drowned aphids were consumed within five minutes. This observation is discussed, and a list of other records from the literature of Homoptera as odonate prey is given. This is apparently the first published record of an imaginal dragonfly foraging under water." (Author)] Address: Weihrauch, F., Hengelerstr. 9, D-80637 München, Germany. E-mail: Florian.Weihrauch@t-online.de

3366. Weihrauch, F. (2002): *Enallagma* versus *Vespula*. *mercuriale* 2: 17-18. (in German). [Detailed description of the preying of a *Vespula* sp. upon *Enallagma cyathigerum*. Special emphasis is given to the habit of the *Vespula* to secure the damselfly from the surface of the water.] Address: Weihrauch, F., Hengelerstr. 9, D-80637 München, Germany. E-mail: Florian.Weihrauch@lbp.bayern.de

3367. Westermann, K. (2002): Die Abundanz schlüpfender Libellen in einem südbadischen Altrheingebiet. *Naturschutz südl. Oberrhein* 3: 215-244. (in German, with English summary). ["Within six years of research 192 000 exuviae of dragonflies were collected along two sections of side streams (2.6 km

long, 10 to 50 m wide) of the river Rhine near the village of Weisweil (County Emmendingen; Baden-Württemberg, SW Germany). Thus the successful reproduction of 34 dragonfly species could be proven. The occurrence of all species is shown in classes of abundance, spanning six orders of magnitude. 1 The most common species is *Cercion lindenii* with a maximum abundance of 15 000 emerged imagines along 50 m of the stream. The species was found in perfect habitat in a 32 to 40 m wide section of the river, where eutrophic water is running with a regular speed of 0.1 to 0.2 m/s. Here also *Platycnemis pennipes*, *Ischnura elegans* and other species reach high abundance. Optimal habitat for *Pyrrhosoma nymphula* exists along shallow sections, where there is no fish. Other species that reach their highest classes of abundance when emerging in shallow sections, are *Aeshna cyanea*, *Brachytron pratense*, *Libellula fulva*, *Sympetrum vulgatum* and *S. sanguineum*. *Gomphus pulchellus* is widely distributed in the study area and along other side streams, and reaches classes of abundance that can presumably exceed those of artificial lakes in gravel pits. Along old side streams *Calopteryx splendens*, *Chalcolestes viridis*, *Platycnemis pennipes*, *P. nymphula*, *Coenagrion puella*, *C. lindenii*, *Erythromma najas*, *Ischnura elegans*, *G. pulchellus*, *G. vulgatissimus*, *B. pratense*, *L. fulva*, and *S. striolatum* probably find optimal habitat in the southern Upper Rhine plains. Due to the large number of waters more species have also huge populations. The dragonfly communities of various stream sections can differ enormously. The biggest difference was found between a slowly and steadily running old side stream and the upper section of a cool, wide source; river ("Gießen") with summer temperatures of 14 to 17°C. While *P. nymphula*, *C. viridis*, and *Coenagrion puella* have large populations at the Gießen every year, *P. pennipes*, *C. lindenii*, *I. elegans* and other species almost entirely fail. Results obtained in this study show the current status of dragonflies in typical waters called "Altrhein" (old side stream) and "Gießen" (source river). Changes and losses in the dragonfly communities might occur as soon as the "Integrated Rhine Program" (a programme to manage high floods of the river Rhine) will come into effect." (Author)] Address: Westermann, K., Buchenweg 2, D-79365 Rheinhausen, Germany. E-mail: fosor@t-online.de

3368. Westermann, K. (2002): Schlupf einer *Gomphus vulgatissimus* im August. *mercuriale* 2: 20-21. (in German). [Documentation of a late seasonal record (9. August 2002) of *G. vulgatissimus* from an oxbox of River Rhine near Weisweil, Baden-Württemberg, Germany.] Address: Westermann, K.; Buchenweg 2, D-79365 Rheinhausen, Germany. E-mail: fosor@t-online.de

3369. Westermann, K. (2002): Zur Phänologie der Emergenz bei der Gebänderten Prachtlibelle (*Calopteryx splendens*) an südbadischen Altrheinen. *Naturschutz am südl. Oberrhein* 3: 193-200. (in German, with English summary). [Along old side streams of the river Rhine in South Baden the emergence of *C. splendens* lasts until late August or the first days of September and thus at least six weeks longer than according to data given in the literature for the Federal state of Baden-Württemberg, Germany. High floods and rainfall shortly before emergence probably lead to considerable temporal shifts in the

emergence and losses in the population.] Address: Westermann, K., Buchenweg 2, D-79365 Rheinhausen, Germany. E-mail: fosor@t-online.de

3370. Woodward, G.; Hildrew, A.G. (2002): Body-size determinants of niche overlap and intraguild predation within a complex food web. *Journal of Animal Ecology* 71: 1063-1074. (in English). ["1. Body-size may be an important feature of the structure of food webs. Detailed food web data are however scarce, particularly those including ontogenetic dietary shifts within species. We examined the predator guild in a well characterized food web, that of Broadstone Stream (UK), to assess the importance of body-size within and among species in relation to intraguild predation and niche overlap. 2. In agreement with recent food web theory, mutual predation and cannibalism were frequent and occurred in many pairwise permutations. This intraguild predation was strongly asymmetric, being determined by relative body-size within and among species, and seasonal 'ontogenetic reversals' in trophic status arose when generations overlapped. 3. Predator size determined dietary overlap, with ontogenetic shifts often outweighing taxonomic differences. Small predators had the narrowest diets, regardless of species, and were limited to feeding on a restricted subset of the total prey size-spectrum. Niche overlap decreased as pairwise differences in body-size increased among and within species. Overlap in diet also tracked seasonal changes in resource availability, being highest in summer, when prey were abundant and small, and declining progressively over time, as prey became scarcer and/or larger. The small predators also became more detritivorous as prey abundance declined and the larger prey species attained size-refugia. 4. The body-size constraints driving feeding relationships within the predator guild, in terms of both resource partitioning and intraguild predation, lend support to recent niche models of food web structure (Warren 1996; Williams & Martinez 2000). The highly interconnected food web of Broadstone Stream appeared to be structured by relatively simple rules, with seasonal and ontogenetic shifts in the size-spectrum accounting for most of the changes in predator diet and trophic position. Encounter rate in time (prey and predator mobility) and space (microhabitat use) and foraging mode also influenced prey vulnerability and niche overlap, but were secondary to the effect of body-size." (Authors) Key predator is *Cordulegaster boltonii*; thus, some focus of the study lies on this species.] Address: Woodward, G., School of Biological Sciences, Queen Mary University of London, Mile End Road, London, E1 4NS, UK. E-mail: GuyWoodward@hotmail.com

3371. Woodward, G.; Hildrew, A.G. (2002): Differential vulnerability of prey to an invading top predator: integrating field surveys and laboratory experiments. *Ecological Entomology* 27: 732-744. (in English). ["1. A new top predator, the dragonfly *Cordulegaster boltonii*, invaded Broadstone Stream (U.K.) in the mid-1990s. This provided a rare opportunity to assess the impact of a new, large carnivore on a community that has been studied since the 1970s and has one of the most detailed food webs yet published. The vulnerability of the resident species to the invader was assessed by integrating experiments, which examined discrete stages in the predation sequence, with empirical survey data. 2.

Although the new predator preyed on nearly every macro-invertebrate in the food web, vulnerability varied considerably among prey species. Size-related handling constraints initially set the predator's diet, resulting in strong ontogenetic shifts, with progressively larger prey being added while small prey were retained in the diet, as predators grew. Within the size range of vulnerable prey, encounter rate limited the strength of predation, with mobile, epibenthic species being most at risk. Contrary to most studies of interactions between freshwater predators (usually stoneflies) and prey (usually mayflies), the new predator did not elicit avoidance responses from its prey, probably because it combined a highly cryptic feeding posture with an extremely rapid attack response. 3. The invader exploited its prey heavily in experiments, even at prey densities orders of magnitude above ambient. In the field, electivity reflected prey availability, as determined by mobility and microhabitat use, rather than prey abundance or active predator choice. Consequently, the invader had skewed effects within the prey assemblage, with sedentary, interstitial species being far less vulnerable than more active, epibenthic species, some of which, including a previous top predator, have declined markedly since the invasion. 4. By examining the predation sequence in detail and integrating surveys with experiments, species traits and system characteristics that determine the strength of trophic interactions may be identified, and their potential importance in natural food webs assessed. In so doing, greater insight can be gained into which species (and systems) will be most vulnerable to invading or exotic predators, an imperative in both pure and applied ecology." (Authors)] Address: Woodward, G.; Department of Zoology and Animal Ecology, University College Cork, Cork, Ireland. E-mail: g.woodward@ucc.ie

3372. Xylander, W.E.R. (2002): Bericht des Staatlichen Museums für Naturkunde Görlitz für die Jahre 1999-2001. Abh. Ber. Naturkundemus. Görlitz 74(1): 47-158. (in German). [This impressive report on the activities of the staff of the museum in Görlitz, Sachsen, Germany includes some odonatological activities. Most prominent are the organisation of a meeting of the society of German speaking odonatologists in 2001 and the intensive surveys of the odonate fauna of the brown coal mining region of Berzdorf.] Address: Xylander, Dr. W., Staatliches Museum für Naturkunde Görlitz, PF 300154, D-02806 Görlitz, Germany. E-mail: Naturmuseum.GR.Dr.Xylander@t-online.de

3373. Xylander, W.E.R.; Richter, M. (2002): Erstnachweis der Pokalazurjungfer *Cercion lindenii* (Selys, 1840) (Odonata, Coenagrionidae) für den Freistaat Sachsen. Abh. Ber. Naturkundemus. 74(2): 273-282. (in German with English summary). [Germany; "C lindenii was recorded for the first time in Saxony in July 2002 at the Knappensee about 15 km south of the Brandenburg border. The Knappensee was formed by lignite mining and flooded about 1945. The lake exhibits a rich submerged vegetation dominated by *Myriophyllum spicatum* and a fragmented peripheral reed vegetation, especially at those sites where *C. lindenii* was found; this corresponds with the habitat characteristics from other localities. The adult density was low compared to other sites in Germany. Morphometric data show that the population from the

Knappensee corresponds to those of the eastern population in Germany (from Brandenburg) in that the specimens are larger than individuals from western populations. However, the Saxon specimens even exceeded the data of Brandenburg *C. lindenii* regarding all morphometric parameters." (Authors)] Address: Xylander, Dr. W., Staatliches Museum für Naturkunde Görlitz, PF 300154, D-02806 Görlitz, Germany. E-mail: Naturmuseum.GR.Dr.Xylander@t-online.de

3374. Yagi, T. (2002): *Aeshna juncea* male copulated with a dead female. *Gekkan-Mushi* 381: 45. (in Japanese). [pond on Mt. Daisetsu at Kamikawacho, Hokkaido, Japan, 20. August 2000; a translation of the paper is published in *Digest of Japanese Odonatological Short Communications* 14] Address: Yagi, T., 2113 Otobe, Tsu City, 514-0016, Japan

3375. Yourth, C.P.; Forbes, M.R.; Baker, R.L. (2002): Sex differences in melanotic encapsulation responses (immunocompetence) in the damselfly *Lestes forcipatus* Rambur. *Can. J. Zool.* 80(9): 1578-1583. (in English, with French summary). ["A few studies have shown that ♂ and ♀ invertebrates differ in immunity and that these differences appear related to differences in sexual dimorphism and gender differences in life histories. Melanotic encapsulation of foreign objects in insects is one form of immunity. *L. forcipatus* is moderately sexually dimorphic, and much is known about patterns of mass gain in congeners relating to differences in life history between ♂♂ and ♀♀. In this study, ♀♀ were more immunoresponsive than ♂♂ under controlled temperatures, following emergence, and at a time when parasitic mites were challenging these hosts. However, ♂♂ and ♀♀ that overlapped in mass at emergence did not differ in their immune responses. ♂♂ in better condition at emergence were more immunoresponsive than lighter ♂♂, but this relation was not found in ♀♀. Sex differences in immune expression may have implications for how ♀♀ versus ♂♂ are able to deal with challenges from parasites, under varying environmental conditions.] Address: Baker, R.L., Dept Zoo], Erindale Coll., Univ. Toronto, Mississauga, ON, L6L 2C6. Canada. e-mail: rbaker@credit.erin.utoronto.ca

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3376. Abro, A. (2003): The composition of sperm bundles in *Aeshna juncea* (L.) (Anisoptera: Aeshnidae). *Odonatologica* 32(2): 153-157. (in English). [Using light and electron microscopy, sperm packing has been studied in the large sperm bundles of *A. juncea*. "Each large bundle is built up of variously-sized smaller bundles which probably reflects the intracyst formation procedure. It is proposed that initially there is a gathering of immature sperm cells into small bundles at several sites within the testicular cyst, and secondly all sperm heads are bundled together. This construction of subunits may be of importance to bundle break-down and release of individual sperm cells after transfer to the ♀ reproductive organs." (Author)] Address: Abro, A., Department of Anatomy, University of Bergen, Arstadveien 19, N-5009 Bergen, Norway

- 3377.** Baird, J.M.; May, M.L. (2003): Fights at the dinner table: Agonistic behavior in *Pachydiplax longipennis* (Odonata: Libellulidae) at feeding sites. *Journal of Insect Behavior* 6(2): 189-216. (in English) ["Aggressive behavior of *Pachydiplax longipennis* during foraging was quantified by observing focal individuals on arrays of artificial perches. *Pachydiplax* apparently aggressively defend, for up to several hours at a time, one or a few feeding perches. Seventeen percent of all behaviors included agonistic actions, e.g., chasing or physical contact. The frequency of interactions was correlated positively with ambient temperature, solar radiation, prey density, and density of other dragonflies. Both sexes initiated and responded to intra- and interspecific aggression; intraspecific interactions were more intense, however. Males had significantly higher interaction rates and fighting success than females, and intraspecific male-male contests were particularly intense. When prey were visibly localized, contest winners commonly gained perches closer to the prey swarm, and aggressive behavior was apparently correlated with feeding opportunity. Despite the frequency of aggression, these dragonflies allocated only about 19 s, on average, to agonistic behavior during 30-min observation periods. This and other costs appear small compared to foraging benefits of occupying a favorable perch, although at a very high interaction intensity high energy costs and lower intake reduce the net energy gain." (Authors) Address: May, M.L., Dept Entom., New Jersey Agricultural Experiment Station, Cook College, Rutgers Univ., New Brunswick, NJ 08901-8524, USA. E-mail: may@aesop.rutgers.edu
- 3378.** Beckemeyer, R. (2003): Are beetle dogs smarter than dragonfly dogs? A challenge from the past. *Argia* 14(4): 21. (in English). [In *Argia* 12(3), R. Beckemeyer (see OAS 3146) reported on his dog and its useful help to trace Odonata. In a note from 1911 in the *Entomological News*, he found the story of a setter dog, who very efficiently helped to collect beetles, some never would have been collected without the help of this dog.] Address: Beckemeyer, R.J., 957 Perry Ave., Wichita, KS 67203-3141, USA. E-mail: royb@southwind.net
- 3379.** Beckemeyer, R. (2003): Dragonflies infiltrate Texas butterfly festival. *Argia* 14(4): 18-19. (in English). [Brief report on the odonatological results of the trip to Texas, USA.] Address: Beckemeyer, R.J., 957 Perry Ave., Wichita, KS 67203-3141, USA. E-mail: royb@southwind.net
- 3380.** Beckemeyer, R. (2003): New Harmony, Indiana - a stop along interstate 64 of historical interest to odonatists. *Argia* 14(4): 19-20. (in English). [During a trip across the USA, the author visited New Harmony, a town, where Thomas Say, the father of US-American entomology, spent many years of his life. R. Beckemeyer visited a museum with much information on Say, and provides some additional information on Say.] Address: Beckemeyer, R.J., 957 Perry Ave., Wichita, KS 67203-3141, USA. E-mail: royb@southwind.net
- 3381.** Beynon, T. (2003): Dragonfly conservation from the BDS. *Atropos* 19: 70-71. (in English). [Coenagrion mercuriale; status quo report on research and conservation activities in UK] Address: Beynon, T.G., 34 Church Lane, Checkley, Stoke-on-Trent ST10 4NJ, UK
- 3382.** Blaskovic, T.; Bulánková, E.; Síbl, J. (2003): First record of *Cordulegaster heros* ssp. *heros* Theischinger, 1979 (Cordulegastridae, Odonata) from Slovakia. *Biologia, Bratislava* 58(2): 293-294. (in English). [*C. heros* is added new to the Slovakian list of Odonata. 9 records of *C. heros* from the Borská nížina lowland in 2002 along with re-examined material collected in 1980, 1991, and 1998, are documented in detail.] Address: Bulankova, Eva, Institute of Ecology, Faculty of Natural Sciences, Comenius University, Mlynská dolina B-II, SK-84215 Bratislava., Slovakia. E-mail: Bulankova@nic.fns.uniba.sk
- 3383.** Bowman, N. (2003): Reports from Coastal Stations - 2002: Eccles-on-Sea, Norfolk. *Atropos* 18: 63. (in English). [United Kingdom; *Erythromma viridulum*, *Anaciaeschna isosceles*] Address: not stated
- 3384.** Brockhaus, T. (2003): *Pantala flavescens* (Fabricius) in Khumbu Himal, Nepal (Anisoptera: Libellulidae). *Notul. odonatol.* 6(1): 2-3. (in English). [Report on the observation of *P. flavescens* in the Mount Everest region in April and May 2000; *Crocothemis erythraea* is recorded from Phakding.] Address: Brockhaus, T., An der Morgensonne 5, D-09387 Jahnsdorf, Germany. E-mail: T.Brockhaus@t-online.de
- 3385.** Brockhaus, T. (2003): Ein weiteres Vorkommen von *Aeshna subarctica elisabethae* (Walker, 1908) [sic] in Sachsen (Odonata, Aeshnidae) und Hinweise zur Libellenfauna der Natura-2000-Lebensraume 7110, 7140 und 7150. *Entomologische Nachrichten und Berichte* 47(1): 27-30. (in German with English summary) [Adults and exuviae of *A. subarctica elisabethae* Djakonov, 1922 were found in a transition mire in the south of the "Muskauer Heide" (Germany, Saxony) near the Polish border in 2001 and 2002. The habitats are described, co-occurring Odonata (including *Ophiogomphus cecilia*, *Somatochlora arctica*, *Leucorrhinia pectoralis*, *L. rubicunda*, and *Sympetrum depressiusculum*), and a list of the known Saxonian localities of *A. subarctica* is given. The potential as bioindicators of the odonate fauna of the NATURA-2000-habitats 7110 (bogs), 7140 (transition mires), and 7150 (Rhynchosporion) is discussed.] Address: Brockhaus, T., An der Morgensonne 5, D-09387 Jahnsdorf, Germany. E-mail: T.Brockhaus@t-online.de
- 3386.** Brooks, S. (2003): Dragonflies. life series. ISBN 0 565 09189 8. 96 pp. (in English). [In general, I think, we are living in times with overboarding information. The same goes for odonatology. Browsing OAS, one will find more and more papers intensifying the study of details on many subjects of odonatology. That's science, and it is necessary to do so. On the other hand, one needs time to handle all these details. The outstanding book of Philip Corbet helped to do so in a very significant part of odonatology, but it is a heavy weight in any sense. Steve Brooks explicitly refers to Corbet's book, and to Jill Silsby's fine book introducing odonate species diversity. In his new book "Dragonflies", S. Brooks compiles the essentials of current knowledge in odonatology on 96 pages. He directs precise information on a reader more generally interested in dragonflies. "Most of us are aware of dragonflies and damselflies. Their aerial agility and vivid

colours are evocative of the long, hot days of summer, of shimmering lakes and dappled shade by trickling streams. But fewer people will have looked beyond the flash of blue, red, green or yellow to consider what each dragonfly is doing. This book takes you into the world of these fascinating insects and introduces you to their complex lifestyles - from the ferocious larval stages, lurking amongst plants and debris in lakes and rivers, to the breathtaking adults swooping after prey or fighting rivals to defend their territories." All information are organised in brief chapters. This also helps the advanced odonatologist to update his knowledge, and it is done in a language easy to read. The book is furnished with brilliant photographs. If one intends to motivate people's interest in dragonflies by a book, one should take Steve Brook's book. It is a really excellent book, and moderate in price (app. 15,- Euro). Of course, it should not be missing from your own odonatological library. (M. Schorr)] Address: The Natural History Museum Publishing, Cromwell Road, London, SW7 5BD, United Kingdom

3387. Brown, V. (2003): Rhode Island Odonata Atlas 2002 summary. *Argia* 14(4): 9-10. (in English). ["The fifth season of the Rhode Island Odonata Atlas was characterized by low water, a marked increase in records of southern species, a dearth of river species, and a change of place for both the project and the collection." *Williamsonia lintneri*, *Gomphaeschna antilope*, *Enallagma weewa*, *Somatochlora georgiana*, *S. linearis*, *Cordulegaster maculata*, *C. diastatops*, *Pantala flavescens*, and *P. hymenaea* are discussed in detail.] Address: Brown, Virginia, The Nature Conservancy, 159 Waterman Av., Providence, RI, 02906, USA.

3388. Buczynski, P. (2003): Remarks on the paper by W. BAZYLUK about dragonflies of the vicinities of Siemieh. *Nowy Pam. Fizjogr., Warszawa* 2003 (2002) 1(2): 207-208. (in Polish with English summary). [Basing on original material of W. BAZYLUK (2002) (compare OAS 2873) deposited in the Museum and Institute of Zoology Polish Academy of Sciences, Warszawa it can be stated, that *Sympetrum fusca* was confused with *S. paedisca*. A small collection of larvae collected in the same area by W. BAZYLUK in 1950 adds *Coenagrion hastulatum* and *C. pulchellum* to the regional list.] Address: Buczynski, P., Dept of Zool., Marie Curie-Sklodowska University, Akademicka 19, PL-20-033 Lublin, Poland. E-mail: pbuczyns@biotop.umcs.lublin.pl

3389. Butler, S.G. (2003): The larva of *Phyllomacromia trifasciata* (Rambur, 1842) (Anisoptera: Macromidae). *Odonatologica* 32(2): 159-163. (in English). [Description and illustration of a ♀ final instar larva from NW Madagascar; discussion of the generic affinities of *Phyllomacromia*.] Address: Butler S.G., Red Willow, All Stretton, Shropshire SY6 GHN, United Kingdom. E-mail: sgbutler@talk21.com

3390. Cade, M. (2003): Reports from Coastal Stations - 2002: Portland, Dorset. *Atropos* 18: 49-51. (in English). [Verbatim: "...] *Sympetrum fonscolombi* was the main Odonata immigration highlight. After an early single at Bottomcombe Quarry on 22 May, there were three ♂♂ at Yeolands Quarry on 24 June and at least four ♂♂ and a ♀ on ponds in the Bird Observatory garden from 28 June to 6 July [...]. Despite egg-laying

being observed at the latter site, the only later record involved a single ♂ seen nearby on 31 July. A Ruddy Darter *S. sanguineum* was recorded at Culverwell on 31 August, which was the first record for Portland Bill."] Address: not stated

3391. Cham, S. (2003): Small Red-eyed damselfly *Erythromma viridulum* (Charpentier) records in 2002. *Atropos* 19: 19-24. (in English). ["The colonisation of Britain by *E. viridulum* continued apace during 2002 with records coming from many more new sites across southern and south-east England. From the original sightings at the Essex coastal sites this species is now being recorded in increasing numbers further inland. The range has spread from the most northerly records in Norfolk down through Suffolk, Essex, Kent and Sussex to the most south-westerly records on the Isle of Wight. From the number of sites recorded, the main thrust inland appears to be north of the Thames estuary with the species recorded in Hertfordshire and again in Bedfordshire. [...]" (Author)] Address: Cham, S., 24 Bedford Avenue, Silsoe, Bedford, MK45 4ER UK. E-mail: SteveCham1@compuserve.com

3392. Clancy, S. (2003): Reports from Coastal Stations - 2002: Dungeness area, Kent. *Atropos* 18: 56-58. (in English). [United Kingdom; *Erythromma viridulum*, *Anax parthenope*, *Calopteryx splendens*, *Sympetrum fonscolombii*] Address: not stated

3393. Clarke, D. (2003): Blue Southern Hawker spotted. *Dragonfly news* 43: 35- [Aeshna cyanea; "I had almost forgotten about Mike Averill's appeal [...] when on 26 October I found myself watching a hawker quartering a forest ride in the Eden valley, Cumbria, in low mid-day sunshine. Fortunately, it settled to bask on low vegetation and I was able to approach undetected. The size and shape of the (yellow) dorsal patches on its thorax showed it to be a ♀ Southern Hawker. However, it was a very unusual one: all its dorsal abdominal markings were a clear blue, when this colour should have been restricted to the last segments! The sides of the thorax were the usual greenish yellow. I have not seen another like it before or since." (Author)] Address: David Clarke, david.clarke9@virgin.net

3394. Clarke, D. (2003): Cumbria produces the goods! *Dragonfly news* 43: 35. (in English). ["[...] (*Aeshna mixta*) were duly seen in September (in the best weather of the season!), and in at least three different localities. At one site in the Lindale area the species was evidently in some numbers, and mating was seen. It also seems likely that the remaining sectors of the Lancaster-Kendal canal may be one of the routes for this dragonfly's northward movements. My note had also mentioned four other species as 'desirables', at least two of which were reported: singles of Emperor and Broad-bodied Chaser were noted (in August), again in this southern extremity of the county. [...]" (Author)] Address: not stated

3395. Clausnitzer, V. (2003): Dragonfly communities in coastal habitats of Kenya: indication of biotope quality and the need of conservation measures. *Biodiversity and Conservation* 12(2): 333-356. (in English). ["This study highlights the species diversity of Odonata from coastal forests in southern Kenya, identifying indicator species for certain habitat types and emphasising the importance of conserving the last remaining coastal forest areas. A total of 78 species

were recorded from coastal habitats in southern Kenya in this study; five species for the first time in eastern Africa. Dragonfly communities relative to different habitat types from indigenous forest to cultivated landscapes are described and compared. The forest species are often confined to coastal forests of East Africa. They are stenotopic and highly sensitive to disturbance. With increasing habitat disturbance the species richness increases at first, but most of the colonisers are eurytopic species that are common and widely distributed in Africa. The species assemblages between different habitat types in the disturbed landscape are more or less the same; the beta-diversity is much lower than in different habitat types of the natural coastal landscape. In the end, management implications are briefly discussed." (Author)] Address: Clausnitzer, Viola, Liebenauer Str. 180, D-06110 Halle/Saale, Germany. E-mail: violacl@gmx.de

3396. Clausnitzer, V.; Peters, G. (2003): Identity and distribution of the little known *Aeshna meruensis* (Odonata: Aeshnidae). *International Journal of Odonatology* 6(1): 9-15. (in English). ["Status and records of *Aeshna meruensis* are published for the first time. This species has been confused with *A. rileyi* for a long time, although A.R. Waterston separated and labelled specimens of both species in the collection of the Natural History Museum, London, as early as 1974. *A. meruensis* is known from seven localities in East Africa so far, but the authors anticipate a wider distribution." (Authors)] Address: Clausnitzer, Viola, Liebenauer Str. 180, D-06110 Halle, Germany. E-mail: violacl@gmx.de

3397. Clausnitzer, V. (2003): Rediscovery of *Amanipodagrion gilliesi*, with notes on habitat, behaviour and conservation (Odonata: Megapodagrionidae). *International Journal of Odonatology* 6(1): 1-8. (in English). ["*A. gilliesi* was known previously only from four ♂♂ collected in 1959 and 1962 in the Usambara Mountains, south-east Tanzania. Recently it has been rediscovered at two shady streams in that area. The species is not living in swamps, as previously stated, but is apparently restricted to a small area in the Amani-Sigi Forest. Data on its ecology, behaviour and reproductive habitat are presented for the first time." (Author)] Address: Clausnitzer, Viola, Liebenauer Str. 180, D-06110 Halle, Germany. E-mail: violacl@gmx.de

3398. Clausnitzer, V. (2003): The synonymy of the East African *Notogomphus cataractae* Consiglio, 1978 and *N. immisericors* Campion, 1923 with *N. lectyhus* Campion, 1923. *Odonatologica* 32(1): 85-87. (in English). ["Based on the examination of the holotypes of the 3 taxa and on fresh material from Kenya, these appear conspecific. Consequently, *N. cataractae* and *N. immisericors* are placed in synonymy of *N. lectyhus*." (Author)] Address: Clausnitzer, Viola, Liebenauer Str. 180, D-06110 Halle/Saale, Germany. E-mail: violacl@gmx.de

3399. Cordoba-Aguilar, A. (2003): Predicting mechanisms of sperm displacement based on genital morphometrics in the Calopterygidae (Odonata). *Journal of Insect Behavior* 16(1): 153-167. (in English) [...] "It is widely accepted that detailed studies of the copulatory interaction of males and females are the basis for outlining the coevolutionary trajectories that both sexes

have followed [...]. Unfortunately, the study of copulatory mechanisms has been hampered by a number of practical reasons and consequently, our knowledge is limited to a few animal taxa within which the best known are the Odonata insects. [...] The main aim of this paper is to characterize the different copulatory mechanisms calopterygids utilize on the basis of genital morphometry. I test this by examining a set of calopterygids whose copulatory mechanisms have been documented. Using the same morphometric analysis, I then propose the likely mechanisms in a set of calopterygids whose mechanisms are unknown." (Author) Address: Cordoba-Aguilar, A., Centro de Investigaciones Biologicas, Universidad Autonoma del Estado de Hidalgo, Apdo. P. 69-1, Plaza Juarez, Pachuca, Hidalgo 42001, Mexico E-mail: acordoba@uaeh.reduaeh.mx

3400. Cross, I. (2003): Tiger beetle predation on adult Common Hawker [sic!]. *Dragonfly News* 43: 33. (in English). [13-9-2002, Puddletown Forest, Dorset, UK; a teneral *Sympetrum striolatum* was drawn into the burrow of a larval Green Tiger Beetle (Coleoptera: Cicindelidae).] Address: not stated

3401. Dana, D. (2003): Quite a few Southern Hawkets from a garden pond. *Dragonfly News* 43: 33. (in English). [Isle of Wight; detailed report on *Aeshna cyanea* in a garden pond including some remarks on emergence damages. "In fact last year a ♂ came into the lounge via the French doors, looked at the television, left and returned for another look."] Address: not stated

3402. Darke, J.; Hayden, J. (2003): Reports from Coastal Stations - 2002: Skomer Island NNR, Pembrokeshire. *Atropos* 18: 68- (in English). [United Kingdom; Verbatim: "Six species of Odonata were recorded, the highlight being the first record of Banded Demoiselle *Calopteryx splendens* for the island on 15 September. Thirty-seven Migrant Hawker *Aeshna mixta* were recorded between 6 August and 14 October. There were also ten sightings of Emperor *Anax imperator* and nine of Common Darter *Sympetrum striolatum* between 1-23 September. Both of these species are known to breed on the island. Common Blue Damselfly *Enallagma cyathigerum* and Blue-tailed Damselfly *Ischnura elegans* were recorded again."] Address: not stated

3403. Deussen, M.; Voigt, H.; Zinke, J. (2003): Gomphidenfunde an der Elbe im Dresdener Stadtgebiet (Odonata). *Entomologische Nachrichten und Berichte* 47 (1): 51-52 (in German) [Records of *Gomphus vulgatissimus* and *Ophiogomphus cecilia* along the River Elbe in the area of the town of Dresden, Saxony, Germany made in 2002, are documented. The habitats are described in detail.] Address: Voigt, H., Grundstr. 152, D-01324 Dresden, Germany

3404. Dewick, S. (2003): Reports from Coastal Stations - 2002: Bradwell-on-Sea, Essex. *Atropos* 18: 59-61. (in English). [United Kingdom; a list of 19 odonate species is communicated including *Erythromma viridulum* and *Brachytron pratense*] Address: not stated

3405. Donnelly, T.W. (2003): Problems with *Tetragoneuria!*. *Argia* 14(4): 10-11. (in English). [The author outlines the history of *Tetragoneuria* / *Epithea*

in USA. New records of "*Epitheca costalis*" in Ohio, cause the continuation of the current discussion on the taxonomic status of the taxa *E. cynosura* and *E. costalis*. There is a lot of intergradation between both taxa, and a solution of the problem seems not to be in sight.] Address: Donnelly, T., 2091 Partridge Lane, Binghamton, NY 13903, USA. E-mail: tdonnel@binghamton.edu

3406. Ellenrieder, N. von; Muzón, J. (2003): Description of the last larval instar of *Aeshna* (*Marmaraeschna*) *pallipes* Fraser, 1947 (Anisoptera: Aeshnidae). *Odonatologica* 32(1): 95-98. (in English). ["The last larval instar is described and illustrated, based on reared specimens from Argentina (Salta and La Rioja provinces). The species differs from the only other *Marmaraeschna* larva known, *A. (M.) brevicercia*, by the antennae surpassing anterior margin of labrum, lateral spine of abdominal segment IX as long as segment X, and ♂ basal lamina of epiproct with rounded tip and half as long as epiproct. Both *pallipes* and *brevicercia* larvae differ from other *Aeshna* larvae by the U-shaped apical excision of epiproct and the marginal tubercles on sides of ligula medial cleft." (Authors)] Address: Ellenrieder, Natalie von, Instituto de Limnología "Dr. Raúl A. Ringuelet", C. C. 712, AR-1900, La Plata, Argentina. E-mail: ellenr@ilpla.edu.ar

3407. Fleck, G. (2003): Contribution à la connaissance des Odonates de Guyane française. Les larves des genres *Argyrothemis* Ris, 1911 et *Oligoclada* Karsch, 1889 (Insecta, Odonata, Anisoptera, Libellulidae). *Ann. Naturhist. Museum Wien* 104B: 341-352. (in French, with German and English summaries). [Le Petit Saut, French Guyana; the larvae of *Argyrothemis argentea* Ris, 1911, *Oligoclada abbreviata* (RAMBUR, 1842), and *O. pachystigma* KARSCH, 1889 are described and illustrated. In Nov. 2001, both species of the genus *Oligoclada* were frequently found in artificial water reservoirs with strongly fluctuating water levels. The taxon *O. abbreviata* *limnophila* Machado & Machado, 1993 (*Odonatologica* 22: 479-486) is critically discussed.] Address: Fleck, G., Lab. Ent. Mus. Natn. Hist. Nat., 45 rue Buffon, F-75005 Paris, France. E-mail: fleck@mnhn.fr

3408. Garner, P. (2003): An odd pair - Scarce Blue-tailed Damselfly. *Dragonfly news* 43: 34. (in English). ["We have just one breeding site for [...] *Ischnura pumilio* in Herefordshire. I first discovered the colony in 1999 confined to a small seepage in an abandoned area of Stretton Sugwas Gravel Pit, which is situated in the centre of the county, very close to the city of Hereford. On 2nd June 2002 [...]. I observed a most unusual mating attempt. A ♂ *Pyrrhosoma nymphula* grabbed an aurantiaca phase I. *pumilio* behind the neck with its anal claspers. Originally, I assumed The Large Red was attacking The Scarce Blue-tail, but it persisted and I quickly realised what was happening. The Scarce Blue-tail convulsed and wriggled, then paused and briefly kept quite still, then it fanatically twisted, arched itself and wriggled violently for almost a minute. The Large Red Damselfly hung on and after that there were several still periods [...], in between more twisting and wriggling. They remained united for about five minutes before the Large Red let go and flew off leaving the poor Scarce Blue-tail in a state of 'shock' on the stem of

a spike-rush. [...]" (Author)] Address: Peter Garner, West Malvern, Wares, UK

3409. Harp, G.L. (2003): First records for the USA and Arkansas. *Argia* 14(4): 3-4. (in English). [2 Nov. 2000, Cypress National Preserve, *Triacanthagyna septima* was recorded for the first time in the USA. In addition, *Ischnura prognata* and *Nehalennia integricolis*, recorded at two different localities, were new for Arkansas.] Address: Harp, G.L., 3206 Maplewood Terrace, Jonesboro, AR, 72401, USA. E-mail: glharp@mail.astate.edu

3410. Hedström, I.; Sahlén, G. (2003): An extended description of the larva of *Megaloprepus caerulatus* from Costa Rica (Odonata: Pseudostigmatidae). *International Journal of Odonatology* 6(1): 1-8: 23-31. (in English). ["The larva of *Megaloprepus caerulatus* is described and illustrated from specimens collected near the northern border of Barbilla National Park on the Costa Rican Caribbean slope. Habits and characters of larvae of three different size classes obtained from artificial tree holes permit the identification of small (body length 4 mm, excluding the caudal lamellae) larvae up to the final stadium. New diagnostic characters include the shape of the prementum and head." (Authors)] Address: Sahlén, G., Systematic Zoology, Evolutionary Biology Centre, Uppsala University, Norbyvägen 18D, S-752 36 Uppsala, Sweden. E-mail: goran.sahlen@zoologi.uu.se

3411. Hepper, D. (Ed.) (2003): Spelling of *fonscolombi*. *Dragonfly news* 43: 35. (in English). [Documentation of contributions of different authors on the correct spelling of *Symepterus fonscolombii* according the rules of nomenclature.] Address: Hepper, D. (Ed.), 12 Three Stiles Road, Farnham, Surrey GU9 7DE, UK. E-mail: David.Hepper@Local-Software.co.uk

3412. Hernández, J.M.R. (2003): Odonata of the Sierra las Damas, Sancti-Spiritus Province, Cuba. *Argia* 14(4): 16-18. (in English). [In 2001, 27 odonate species were recorded. They are listed and briefly commented.] Address: Hernández, J.M.R., Apartado Postal 2004, Sancti-Spiritus, Cuba CP 60100

3413. Hornung, J.P.; Rice, C.L. (2003): Odonata and wetland quality in southern Alberta, Canada: a preliminary study. *Odonatologica* 32(2): 119-129. (in English). [The study was realised in Brooks, from May until Sept. 1999. "Sixteen study sites were each visited 7 times to survey adult dragonflies and aquatic macroinvertebrates, record environmental parameters, collect water samples, record vegetative characteristics, and assess beef cattle grazing influences. 25 odonate species were recorded, of which *Ischnura verticalis* is new to Alberta. A significant negative correlation was detected between cattle presence (measured as percent stems grazed surrounding the wetland) and odonate species richness ($p = 0.022$; $r^2 = 0.322$), general species richness ($p = 0.018$; $r^2 = 0.337$), and the Shannon-Weiner diversity indices ($p = 0.060$; $r^2 = 0.230$) of the study sites. In addition, vegetation species richness and odonate species richness show a positive correlation ($p = 0.066$; $r^2 = 0.221$). A logistic regression establishes that the absence of *Coenagrion angulatum*, *Enallagma ebrium*, and *Aeshna interrupta* is associated with high cattle impacts, or low vegetation species richness. This study outlines the effect that cattle can have on wetland odonate species diversity and

recommends that measures are taken to protect wetlands, while offering an incentive and reasonable cost/benefit ratio to both rangeland and wetland managers." (Authors)] Address: Hornung, J.P., 751 General Services Building, University of Alberta, Edmonton, Alberta, T6G2H1, Canada

3414. Hunter, I. (2003): Reports from Coastal Stations - 2002: Elms Farm, Icklesham, East Sussex. *Atropos* 18: 55-56. (in English). [United Kingdom; Verbatim: "The Odonata highlight was the arrival of Small Red-eyed Damselfly *Erythromma viridulum*. They were first noticed on 10 August when seven were present. This rose to a maximum of 125, including 30 pairs, at the main site plus 10 at other sites on 19 August. The resultant close examination of all damselflies led to Red-eyed Damselfly *E. najas* being located and photographed for the first time on 18 August; it was recorded on four subsequent dates. Both Migrant Hawker *Aeshna mixta* and Common Darter *Sympetrum striolatum* were still being seen on suitable days in November."] Address: not stated

3415. Hutchings, G.E. (2003): A list of the Odonata of Athabasca sand dunes Provincial Wilderness Park, Saskatchewan. *Argia* 14(4): 4-8. (in English). [2500 odonate specimens, collected in August 2002, resulted in 22 species. "*Aeshna tuberculifera* is a very significant range extension for North America with previous records in Canada being from southern Ontario and the British Columbia / Alberta border in the southern Rocky Mountains."] Address: Hutchings, G.E., 971 Arundel Dr., Victoria, B.C., Canada, V9A-2C4. E-mail: sea-trek @islandnet.com

3416. Inoue, K. (2003): Report on the 1st Symposium of the S.I.O. Regional Office in east Asia (SIOROE). *Notul. odonatol.* 6(1): 10-11. (in English). [The Symposium was held in the National Science Museum, Daejeon, Korea during 26-29 My 2002. 51 odonatologists from Belgium, China, Germany, Japan, Korea, Russia, and Taiwan have attended. Eleven oral presentations and three posters were presented.] Address: Inoue, K., 5-9 Fuminosato 4-chome, Abeno-ku, Osaka 545, Japan

3417. Johnson, A. (2003): Two new species for Iowa. *Argia* 14(4): 4-5. (in English). [July, 2002; Iowa, USA; *Somatochlora linearis*, *Libellula incesta*; in addition the rare *Sympetrum ambiguum* is dealt with.] Address: not stated

3418. Kamimura, Y. (2003): Effects of repeated mating and polyandry on the fecundity, fertility and maternal behaviour of ♀ earwigs, *Euborellia plebeja*. *Animal Behaviour* 65: 205-214. (in English). ["I examined multiple mating and its function in ♀ earwigs, *Euborellia plebeja* (Dermaptera: Ani-solabididae). Like other earwigs, ♀♀ of this species care for their eggs and intermittently lay eggs in clutches (iteroparity). Analysis of two polymorphic allozyme loci revealed that wild-caught adult ♀♀ laid clutches with low within-brood genetic relatedness (0.210), indicating that ♀♀ were promiscuous under natural conditions. Rearing experiments in the laboratory revealed that: (1) repeated mating with a single ♂ increased ♀ fecundity (number of clutches laid) and hence the number of hatchlings produced; (2) estimated sperm number was positively correlated with hatchability; (3) when frequency of mating was controlled, polyandry

enhanced hatchability, although this effect was not statistically significant; (4) duration of maternal care varied for clutches with low hatchability, and - sometimes exceeded the mean interclutch interval. Thus, although a possible benefit of polyandry is suggested, the greater beneficial effect of repeated mating on ♀ fecundity can explain polyandrous mating in this species. Because ♀ earwigs invest considerable effort in brooding their clutches, it may be adaptive to suppress oviposition unless stored sperm ensures high fertility." (Author) The results are discussed stressing sperm removal behaviour of Odonata.] Address: Kamimura, Y., Laboratory of Animal Ecology, Dept of Biol., Tokyo Metropolitan Univ., Minamiosawa 1-1, Hachioji, Tokyo 192-0397, Japan. E-mail: kamimu@comp.metro-u.ac.jp

3419. Kano, K. (2003): Dragonflies reacted to rotating fans. *Boso no Konchu* 29: 40. (in Japanese). [Japan; *Matrona basilaris*, *Boyeria maclachlani*; a translation of the paper is published in *Digest of Japanese Odonatological Short Communications* 14] Address: Kano, K., 5-19-17-01, Koishikawa, Bunkyo-ku, Tokyo, 112-0002, Japan

3420. Karjalainen, K.; Hämäläinen, M.; Hulden, L. (2003): *Aeshna mixta* funnen i Finland och annat intressant. *Nord. Odonatol. Soc. Newsl.* 8-9(1): 6-8. (in Swedish with English summary) ["*Aeshna mixta* found in Finland and other interesting records: Migrated individuals of *A. mixta* were recorded in Finland for the first time in August-September 2002. Confirmed observations are available from several sites along the southern coast of the country (in Porvoo, Helsinki, Espoo, Kirkkonummi and Pohja), most of them from bays of the sea. The nearest autochthonous populations of *A. mixta* occur in the Riga region in Latvia, and this area might be the source of the migration to Finland. Records made by Doppler weather radar show that large insects flew from Estonia towards Helsinki in many occasions at the end of July and the beginning of August, in afternoons when southeastern winds prevailed; these insects probably were migrating *A. mixta*. A population of *Nehalennia speciosa* was found in N: Tammisaari (Ekenäs); the previous Finnish record dates back to 1981. The new "provincial records" of Finnish dragonflies made since the 1997 update in *Nord. Odonatol. Soc. Newsl.* 3(1): 10-11 are listed." (Authors) These provincial records refer to *Coenagrion puella*, *Ischnura pumilio*, *Aeshna subarctica*, *A. viridis*, *Epitheca bimaculata*, *Sympetrum sanguineum*, *Leucorrhinia pectoralis*, and *Libellula fulva*. Address: Karjalainen, S., Tyrskykuja 3 B 15, FIN-02320 Espoo, Finland. E-mail: sk@korento.net

3421. Knill-Jones, S. (2003): Reports from Coastal Stations - 2002: Isle of Wight. *Atropos* 18: 51-52. (in English). [United Kingdom; Verbatim: "Single Red-veined Darter *Sympetrum fonscolombi* were seen at Wheelers Bay on 16 June and at Culver Cliff on 17 July. A Hairy Dragonfly *Brachytron pratense* was observed at Bouldnor Forest on 16 May and a Downy Emerald *Cordulia aenea* was seen on Elmsworth Farm Pond, Newtown, on 1 June. There are now seven new sites for Small Red-eyed Damselfly *Erythromma viridulum* and over 200 were seen on Sandown canoe lake in the summer."] Address: not stated

- 3422.** Lagos, A.R.; Oliveira, C.H.P.; Gomes, V.S.M.; Alves, M.A.S. (2003): Predation on *Philaethria wernickei* (Röber) by *Anax concolor* Br. in Parque Nacional da Restinga de Jurubatiba, Rio de Janeiro, SE Brazil (Lepidoptera: Nymphalidae; Anisoptera: Aeshnidae). *Notul. odonatol.* 6(1): 11. (in English). [In March 2002, a ♀ *A. concolor* was noticed predating on the butterfly, *P. wernickei*. The dragonfly was seen eating the butterfly's head. After this, it flew off with its prey to a shrub, where, by the time the authors caught it, it had completely consumed the butterfly's head. *Philaethria* is considered as presumably unpalatable and/or aposematic. However, the possible unpalatability of *P. wernickei* apparently does not affect the voracious *A. concolor*, and the tropical kingbird, *Tyrannus melancholicus* (Vieillot) (Tyrannidae). Therefore, it seems the unpalatability of *Philaethria* spp. may not affect all predators.] Address: Alves, M.A.S., Ecologia, IBRAG, Universidade do Estado do Rio de Janeiro, Rua Sao Francisco Xavier 524, BR-20550-011 Rio de Janeiro, RJ, Brazil. E-mail: masa @uerj.br
- 3423.** Machado, A.B.M. (2003): *Neoneura moorei* spec. nov. from the amazonian region of Brazil (Zygoptera: Protoneuridae). *Odonatologica* 32(1): 89-93. (in English). ["The new species is described and illustrated from 3 ♂♂ and 3 ♀♀ collected in the state of Rondonia, Brazil (holotype ♂, allotype ♀: Ji-Parana, II-1961, deposited in the author's collection). By the arrangement of the decumbent process of the dorsal branch of the superior appendages it belongs to the *N. maria*-group whose species had never been found in Brazil. It differs from the other species of this group by its color pattern, by the structure of the 6th superior appendages and shape of the ♀ posterior prothoracic lobe." (Author)] Address: Machado, A.B.M., Departamento de Zoologia, Inst. Cienc. Biol., Universidade Federal de Minas Gerais, Caixa Postal 486, 31270-901 Belo Horizonte, Minas Gerais, Brazil
- 3424.** Maezono, Y.; Miyashita, T. (2003): Community-level impacts induced by introduced largemouth bass and bluegill in farm ponds in Japan. *Biological Conservation* 109: 111-121. (in English). ["Largemouth bass *Micropterus salmoides* and bluegill *Lepomis macrochirus* have been introduced into many countries and have become cosmopolitan exotic species. However, only a few studies show their impact on introduced communities. To investigate their impact, we performed natural snapshot experiments in 15 farm ponds in Saitama prefecture, eastern Japan. We selected 10 and 5 small ponds in similar environmental conditions, but with and without exotics, respectively. The numbers of fish, crustaceans, and nymphal odonates were smaller in ponds where exotics were found and some species were considered to be locally extinct in several ponds. On the other hand, the numbers of benthic organisms, i.e. tadpoles, chironomids, chaoborids, and Oligochaeta were more abundant in ponds with exotics. These two groups of organisms were separated clearly on the first axis of DCA, which indicates that this difference was mainly induced by bass predation. This result suggests a trophic cascade in which top-down effects induced by exotics propagated to fish, crustaceans, and nymphal odonates directly and to some benthic organisms indirectly. Therefore, when one is to conserve native organisms, attention should be paid not only to direct negative effects, but also to indirect effects propagating
- to various trophic levels. Because farm ponds are typical Japanese small lentic systems having rich biodiversities and bass and bluegill have been shown to change farm pond communities widely, conservational treatments including eradication of exotic fish should be conducted immediately." (Authors)] Address: Maezono, Y., Laboratory of Biodiversity Science, School of Agriculture and Life Sciences, The University of Tokyo, Tokyo 113-8657, Japan. E-mail: zephyrus@es.a.u-tokyo.ac.jp
- 3425.** Malikova, E.I.; Ivanov, P.Yu (2003): The larva of *Shaogomphus schmidti* (Asahina, 1956) (Anisoptera: Gomphidae). *Odonatologica* 32(2): 165-169. (in English). [The exuviae from Primorye and the Amur Region, Russia is described, illustrated and compared with *S. postocularis epophthalmus* (Selys).] Address: Malikova, E.I.; Department of Zoology, Blagoveshchensk State Pedagogical University, Lenina Street 104, RUS-675000 Blagoveshchensk, Amurskaya oblast, Russia. E-mail: helen@amur.ru
- 3426.** Manolis, T. (2003): *Dragonflies and Damselflies of California*. California Natural History Guides 72 (ISBN 0-520-23567-3). 201 pp. (in English). [A field guide has to introduce its subject to the reader. Thus, adult dragonfly anatomy, behaviour (feeding, antipredator, and reproduction behaviour, thermoregulation, dispersal), life cycles and larvae of dragonflies, family and subfamily key to dragonfly larvae, distribution (including a brief overview into Californian geographic regions), watching and identifying of dragonflies, taxonomy and nomenclature, "About the Maps", and family and subfamily key to adult dragonflies form the basement of this field guide on the first 36 pages. Species accounts refer to 108 odonate species known to occur in California (pages 39 -179): In a monographic style, each species is described in detail and compared with similar species. Its behaviour is briefly outlined, the habitat described, and the flight season given. In addition, the distribution is outlined in detail. A checklist of Californian Odonata, species of hypothetical occurrence, a glossary, references, and an index complete the book. The heart of the book are 40 plates of a breathtaking quality. They slightly resemble Dan Powell's plates in his book "Guide to the dragonflies of Great Britain", but they seem to be more precise in a scientific sense. Each species is illustrated, and details necessary to separate it from similar species are added on the plates. This book is a further addition to the (in most cases) excellent books on the North American Odonata currently published. My personal impression is, that it will be a precise and reliable tool to identify the Californian Odonata. I am fascinated from the artwork of Tim Manolis, and I can't stop thinking that the plates of the book should exist in an enlarged version for study rooms. My personal opinion is that Tim Manolis talent urgently should be used to prepare a new edition of Sid Dunkle's excellent book (*Dragonflies through binoculars*), which was disappointing in terms of the stamp like photographic illustrations. The book on Californian Odonata is priced 17,- US Dollar; this seems to me extremely good value compared with the quality of the book. (M. Schorr)] Address: University of California Press, Publicity Dept, 2120 Bekeley Way, Berkeley CA 94720, USA
- 3427.** Mauffray, B. (2003): Georgia summary. *Argia* 14(4): 5- (in English). [Status report on odonatological

activities in Georgia, USA. The contribution include addresses of three web sites, and a note on the discovery of *Gomphus adelphus* cf.] Address: Mauffray, B., 4525 N.W. 53rd Lane., Gainesville, FL 32653, USA. E-mail: iori@afn.org

3428. Moore, J. (2003): Norman Winfried Moore. *Odonatologica* 32(1): 9-18. (in English). [A biography of Dr N.W.Moore (born 24 Feb. 1923) emphasize on matters concerning the study of Odonata and nature conservational activities. His bibliography (1939-2002) comprises of app. 135 odonatological titles, but ca 45 papers on pesticides and environment are omitted.] Address: Moore, J., Department of Zoology, University of Cambridge, Downing Street. Cambridge, CB2 3EJ, United Kingdom

3429. Müller, Z.; Jakob, T.; Toth, A.; Devai, G.; Szallassy, N.; Kiss, B.; Horvath, R. (2003): Effect of sports fisherman activities on dragonfly assemblages on a Hungarian river floodplain. *Biodiversity and Conservation* 12(1): 167-179. (in English). ["We studied the dragonfly fauna along a 15 km stretch of the floodplain of the regulated, first-order river Tisza, Hungary. Data on captured and observed adults, larvae and exuvia were recorded. Observations were made from May to October 1998 and 1999 on 34 species, which is 52% of the Hungarian fauna. Classification on the basis of faunistic similarity revealed that habitat-level differences, associated with various degrees of physical anthropogenic impact on bank vegetation, can exceed variation among the water bodies of different types (backwater, pond, marsh, canal, river). The richest sites were dominated by structurally diverse macrophyte vegetation, while flowing waters (river and canal) were poorest in species. Odonata were found to be reliable indicators of small-scale habitat patterns, reflecting vegetation differences even within single water bodies where the sampling spots were arranged just a few hundred metres apart. Along a gradient of utilisation intensity, the species number of Odonata assemblages and the summed relative abundance of the five rarest species of the study area decreased linearly with increasing fragmentation of the marginal vegetation. Sports fisherman activities, implying disruption of the littoral marsh zone by establishment of clearings and excessive trampling of the banks, can also be monitored by dragonfly faunistic investigations. Our results demonstrate that conservation of these varied floodplain water bodies requires the control of sports fishing activity, suggesting that (i) to maintain the representative odonate fauna of the water bodies, some non-fragmented shores must be provided; and (ii) permanent fishing stands should not exceed 8 m mean width and should be separated by at least 12 m of intact riparian sections." (Authors)] Address: Müller, Z., Debrecen University, Department of Ecology, H-4010, Debrecen, Hungary. E-mail: muller@tigris.klte.hu

3430. Muzlanov, Yu. A. (2003): The pattern of distribution of defects of wing venation in the Banded Agrion (*Calopteryx splendens*). *Russian Journal of Developmental Biology* 34(1): 51-56. (in English). ["The distribution of morphological structures was studied in wings of *C. splendens* from different intrapopulation groups. Damselflies of odd years of emergence are characterized by a more stable pattern of ontogenetic processes according to the mean total number of venation defects. The sharply increased level of

radiation in summer 1986, which coincided with the flight of damselflies, could have caused hereditary defects expressed in a sequence of generations of even years of emergence. Apparently, most alternative features of wing venation in damselflies can be considered as markers of stability of the ontogenetic processes, which reflect, to a great extent, genotypic features of the organisms in a population. A possible mechanism has been described, which explains the proposed topological model of formation of the venation defects of different types. The increase in mean frequencies of defects can suggest an enhanced development over the aberrant epigenetic trajectories, which may lead to the elimination of these organisms under the influence of various agents, i.e., to the stabilizing selection in a population. The results obtained suggest that defects of venation arise on the stochastic basis and their frequency increases upon destabilization of ontogenetic processes not only by the environmental factors, but also by genetic stress. Venation defects can be successfully used in population biomonitoring." (Author)] Address: Muzlanov, Yu. A., Zarevskii Secondary School, Zarya, Mikhailovskii raion, Ryazan oblast, 391728 Russia

3431. Nobes, G. (2003): Small Red Damselfly *Ceriagrion tenellum* in Norfolk. *Atropos* 19: 75-76. (in English). [Verbatim: "[...] *C. tenellum* was first reported breeding in Norfolk on 3 August 1955 (Durrant 1960) when a small colony was found, including several pairs seen in copula, at Seaming Fen. However, Ken Durrant (pers. comm.) says that as far back as 1937 he knew of a colony of this species at this site, when it was present in large numbers for many years. This small Norfolk Wildlife Trust Reserve, near Dereham, is still the only known site in the county for this species and is apparently also the only extant one in East Anglia. In recent years sightings have continued in very small numbers, though in some years there have been no records and the long-term future of the colony has been in doubt. Thus it is heartening to report that a ♂ of this species was seen on 15 July 2002 flying around the small Sphagnum moss pools where it breeds [...]."] Address: Nobes, G., Springside, Carbrooke, Thetford, Norfolk, IP25 6SQ, UK

3432. Nobes, G. (2003): Southern Emerald Damselfly *Lestes barbarus* (Fabr.) - The first British record. *Atropos* 18: 3-6. (in English). [On 30/07 and 7/08/2002, *L. barbarus* was recorded at Winterton Dunes, Norfolk, UK. This first mainland record for UK is documented in detail. A comment of Adrian Parr is added.] Address: Nobes, G., Springside, Carbrooke, Thetford, Norfolk, IP25 6SQ, UK

3433. O'Brien, M.; Bright, E.; Kielb, M.A. (2003): The Odonata of the Huron Mountains, Marquette Co., Michigan. *Bulletin of American Odonatology*: 1-22. (in English). [The Odonata fauna of the Huron Mountains - 26 localities were visited - was surveyed during 1996 - 2002. This survey, combined with specimens from earlier collectors resulted in a total of 79 species known from the area, which is nearly half of Michigan's known Odonata species. In addition, 9 species are new records for Marquette County. Each of the species is briefly commented (habitat, habits), the records are documented locally wise.] Address: O'Brien, M., Insect Division, Museum of Zoology, University of Michigan,

Ann Arbor, MI 48109-1079, USA. E-mail: mfobrien@umich.edu

3434. Odin, N. (2003): Reports from Coastal Stations - 2002: Landguard Bird Observatory, Suffolk. *Atropos* 18: 61-62. (in English). [United Kingdom; *Aeshna mixta*, *Sympetrum striolatum*] Address: not stated

3435. Padeffke, T.; Suhling, F. (2002): Temporal priority and intra-guild predation in temporary waters: an experimental study using Namibian desert dragonflies. *Ecological Entomology* 28(3): 340-347. (in English) ["1. Intra-guild predation between early larval instars of two co-existing dragonflies, *Sympetrum fonscolombii* and *Trithemis kirbyi*, was investigated with respect to temporal advantage and growth. Three situations were simulated experimentally: (1) *Sympetrum fonscolombii* began development 11 days before *T. kirbyi*. (2) *Trithemis kirbyi* began development 11 days before *S. fonscolombii*. (3) Both species began on the same day. 2. With a temporal advantage of 11 days to the second species, the resulting larval density of the respective first species was significantly higher than that of the second species. 3. Without a temporal advantage, the survival of *S. fonscolombii* was higher than that of *T. kirbyi*, and *S. fonscolombii* had a larger size due to faster growth than *T. kirbyi*. Hence, it is assumed that survival depended on early oviposition as well as on larval growth. 4. To test the relevance of the laboratory results, observations at artificial ponds in the Namibian semi-desert were conducted. *Trithemis kirbyi* was the first species colonising these ponds while *S. fonscolombii* arrived 15 days later. In field samples, many more *Trithemis* larvae than *Sympetrum* larvae were found, a pattern similar to the laboratory experiments in which *T. kirbyi* enjoyed a temporal advantage." (Authors) Address: Suhling F., Zool. Inst., TU Braunschweig, Fasanenstr. 3, D-38092 Braunschweig, Germany. E-mail: f.suhling@tu-bs.de

3436. Parfitt, A. (2003): Reports from Coastal Stations - 2002: Minsmere RSPB Nature Reserve, Suffolk. *Atropos* 18: 62. (in English). [*Erythromma viridulum*, *Calopteryx splendens*, *Sympetrum fonscolombii*, *S. striolatum*] Address: not stated

3437. Parr, A. (2003): First & last dates 2002. *Dragonfly News* 43: 24-25. (in English). [Phenological data of numerous species in Great Britain are documented.] Address: Parr, A.J., 10 Orchard Way, Barrow, Bury St. Edmunds, Suffolk IP29 5BX, UK

3438. Parr, A. (2003): Migrant dragonflies in 2002 including recent decisions and comments by The Odonata Record Committee. *Atropos* 18: 18-24. (in English). [Of special interest is the first record of *Lestes barbarus* on the mainland of UK. Brief comments on *Ischnura pumilio*, *Erythromma viridulum*, *Aeshna mixta*, *Anax parthenope*, *Crocothemis erythraea*, and *Sympetrum fonscolombii* are made. A sighting of *Epithea bimaculata* was not accepted by the Records committee.] Address: Parr, A.J., 10 Orchard Way, Barrow, Bury St. Edmunds, Suffolk IP29 5BX, UK

3439. Parr, A. (2003): Migrants & vagrants 2002. *Dragonfly News* 43: 22-23. (in English). [Information identical with OAS 3424] Address: Parr, A.J., 10 Orchard Way, Barrow, Bury St. Edmunds, Suffolk IP29 5BX, UK

3440. Parr, A. (2003): Odonata Records Committee Update. *Atropos* 19: 73. (in English). [Verbatim: "Since the last issue of *Atropos* the following record has been formally accepted: Lesser Emperor *Anax parthenope* ♂ near Netherfield, Nottinghamshire, on 16 July 2002 (R. Woodward). This is the third record in five years from a small area of Nottinghamshire centred loosely on the National Water Sports Centre. In Britain 'repeat' sightings of Lesser Emperor are generally from key coastal sites such as Dungeness, Kent, though on the near Continent other favoured inland localities are known. At present there is no evidence of breeding, but with its great expanses of open water this particular region does seem attractive to the species."] Address: Parr, A.J., 10 Orchard Way, Barrow, Bury St. Edmunds, Suffolk IP29 5BX, UK. E-mail: Adrian.parr@bbsrc.ac.uk

3441. Parr, M.J. (2003): Evelyn D.V. Prendergast (1918-2001). *International Journal of Odonatology* 6(1): 95-98. (in English). [obituary] Address: Parr, M., Little Island, Stembidge, Martock, Somerset TA12 6BW, UK. e-mail: mmcz@parr37.freeseve.co.uk

3442. Paulson, D. (2003): Comments on the *Erythrodiplax connata* (Burmeister, 1839) group, with the elevation of *E. fusca* (Rambur, 1842), *E. minuscula* (Rambur, 1842), and *E. basifusca* (Calvert, 1895) to full species (Anisoptera: Libellulidae). *Bull. American Odonatology* 6(4): 101-110. (in English). ["The *E. connata* group is revised, based on examination of 855 specimens. *E. connata* of Borror (1942) is divided into four species: *E. connata* (Burmeister, 1839), *E. fusca* (Rambur, 1842), *E. minuscula* (Rambur, 1842), and *E. basifusca* (Calvert, 1895). *E. fusca* and *E. minuscula* had been previously considered subspecies of *E. connata*, while *E. basifusca* is resurrected for northern populations of *E. connata connata*. The remaining species of Borror's *connata* group - *E. abjecta* (Rambur, 1842), *E. atroterminata* Ris, 1911, *E. cauca* Borror, 1942, *E. cleopatra* Ris, 1911, *E. ines* Ris, 1911, *E. justiniana* (Selys, 1857), *E. media* Borror, 1942, *E. melanorubra* Borror, 1942, and *E. paraguayensis* (Förster, 1905) - are considered valid, with the addition of *E. bromeliicola* Westfall, 2000. A population in the Andes of Argentina is similar to *E. fusca* but is possibly specifically distinct. *Diplax portoricana* Kolbe, 1888, is probably a synonym of *E. justiniana* rather than *E. connata*, and *Diplax fraterna* Hagen, 1873, is considered a nomen nudum rather than a synonym of *E. connata*." (Author)] Address: Paulson, D.R., Slater Museum, Univ. of Puget Sound, Tacoma, WA 98416, USA. E-mail: dpaulson@ups.edu

3443. Paulson, D. (2003): Flame-tailed Pondhawk common name for *Erythemis peruviana*. *Argia* 14(4): 22- (in English). [The first USA record of this species in Texas in 2001, makes it necessary to proclaim a common name of *E. peruviana*: Flame-tailed Pondhawk] Address: Paulson, D.R., Slater Museum, Univ. of Puget Sound, Tacoma, WA 98416, USA. E-mail: dpaulson@ups.edu

3444. Paulson, D. (2003): Where to go on your next dragonfly trip. *Argia* 14(4): 20-21. (in English). [D. Paulson presents a map of the counties in USA with less than 10 species of Odonata recorded.] Address: Paulson, D.R., Slater Museum, Univ. of Puget Sound, Tacoma, WA 98416, USA. E-mail: dpaulson@ups.edu

- 3445.** Paulson, D.R. (2003): *Teinobasis budeni* sp. nov. from Pohnpei, Eastern Caroline Islands, Micronesia (Odonata: Coenagrionidae). *International Journal of Odonatology* 6(1): 33-37. (in English). ["*T. budeni* sp. nov. is described from Pohnpei, Federated States of Micronesia. Holotype ♂: Micronesia, Pohnpei, Sokehs, Nanpil River headwaters, 01 July 2001; allotype ♀: same locality, 03 February 2001, both leg. D.W. Buden; to be deposited in FSCA, Gainesville, FL, USA. The new species belongs in the Fortis-group and differs from all species in that group by characters of the ♂ appendages, ♀ ovipositor, hind prothoracic lobe, and coloration of immatures." (Author)] Address: Paulson, D.R., Slater Museum, Univ. of Puget Sound, Tacoma, WA 98416, USA. E-mail: dpaulson@ups.edu
- 3446.** Paulson, D.R.; Buden, D.W. (2003): The Odonata of Pohnpei, Eastern Caroline Islands, Micronesia. *International Journal of Odonatology* 6(1): 39-64. (in English). ["A collection of 448 Odonata specimens made on Pohnpei, Caroline Islands, Micronesia, in 2001-2002 allows a reassessment of the fauna of this small, isolated island. There are 15 species, including six species of the zygopteran genus *Teinobasis*, which apparently speciated in situ, an unusually great diversity for such a small island. One of these species was undescribed. A revised key to the *Teinobasis* of Pohnpei is included, the larvae of three species of *Teinobasis* are compared, and the ♀♀ of *T. aerides* and *Pacificothemis esakii* are described for the first time. The three odonate species represented by adequate series, *T. ariel*, *T. fortis*, and *Hemicordulia haluco*, appear to increase in body size with elevation. The island still has all of its natural habitats, although native upland forests continue to decrease as more land is cleared for agriculture. All of the odonate species seem secure at this time, although *T. nigrolutea* appears to be less common now than in the past." (Authors)] Address: Buden, D.W., Division of Natural Sciences and Mathematics, College of Micronesia-FSM, P.O. Box 159, Kolonia, Pohnpei FM 96941, Micronesia. E-mail: donbuden@comfsm.fm
- 3447.** Peters, G. (2003): Buchbesprechungen: Harald Heidemann & Richard Seidenbusch (2002): *Die Libellen Deutschland. Reihe: Die Tierwelt Deutschlands und der angrenzenden Meeresteile ("Dahl-Reihe")*, Teil (Odonata II). Goecke & Evers, Keltern. ISBN 3-931374-07-6. *Entomologische Nachrichten und Berichte* 47(1): 241-242. (in German) [Review of the publication abstracted in OAS No. 2957] Address: Peters, G., Museum für Naturkunde, Institut für Systematische Zoologie, Invalidenstr. 43, D-10115 Berlin, Germany. E-mail: thekla.kauffmann@rz.hu-berlin.de
- 3448.** Peterson, M. (2003): WDA:s andra internationella symposium om Odonatologi. *Nord. Odonatol. Soc. Newsl.* 8-9(1): 4-5. (in Swedish with English summary) [Brief and personal report on the WDA symposium held in Gällivare, Sweden in 2001. Some emphasis is given to the (unsuccessful) attempt to trace *Somatochlora sahlbergi*. Address: Peterson, M.; Åbymovägen 35, S-616 30 Åby, Sweden. E-mail: martin.peterson@mbox391.swipnet.se
- 3449.** Peterson, M. (2003): Samtliga svenska Leucorrhiniarter representerade i en enda lokal. *Nord. Odonatol. Soc. Newsl.* 8-9(1): 10. (in Swedish with English summary title) [All five Swedish *Leucorrhinia* species found in the same small lake in western Sweden: *L. albifrons*, *L. caudalis*, *Leucorrhinia dubia*, *Leucorrhinia rubicunda*, and *L. pectoralis* were found at Lillesjön, ca. 60 km north of Göteborg, Sweden.] Address: Peterson, M.; Åbymovägen 35, S-616 30 Åby, Sweden. E-mail: martin.peterson@mbox391.swipnet.se
- 3450.** Peterson, M. (2003) *Trollsländan i nordisk folk-tro.* *Nord. Odonatol. Soc. Newsl.* 8-9(1): 11-12. (in Swedish with English summary) ["The dragonfly in Nordic folklore: There are many myths around the dragonfly in the folklore all over the world. The Nordic countries are no exemption. Many local names for Dragonfly are very interesting and a lot of similarities are found between the Nordic dragonfly folklore." (Author)] Address: Peterson, M.; Åbymovägen 35, S-616 30 Åby, Sweden. E-mail: martin.peterson@mbox391.swipnet.se
- 3451.** Pietsch, T. (2003): Nachweis der Grünen Flußjungfer, Keiljungfer (*Ophiogomphus cecilia* Fourcroy, 1785) im südlichen Sachsen-Anhalt im NSG "Forst Bibra" (Burgenlandkreis. *Entomol. Mitt. Sachsen-Anhalt* 11(1): 3-6. (in German). [Bad Bibra, Sachsen-Anhalt, Germany; on 3 July 2002, a specimen of *O. cecilia* was found away from running waters on a wind sheltered meadow (*Bromion erecti*).] Address: Pietsch, T., Friedrich-List-Str. 25, D-06110 Halle/Saale, Germany. E-mail: saale-unstrut@t-online.de
- 3452.** Prather, B.; Prather, I. (2003): First Colorado record of *Celithemis elisa*. *Argia* 14(4): 3. (in English). [17 July, 2001, 18 June, 2002, 20 July, 2002, Boulder County, and 18 June, 2002, Longan County, USA] Address: not stated
- 3453.** Purse, B.V.; Thompson, D.J. (2003): Reproductive morphology and behaviour in *Coenagrion mercuriale* (Charpentier) (Zygoptera: Coenagrionidae). *Odonatologica* 32(1): 29-37. (in English). ["The reproductive morphology and behaviour of ♂ and ♀ at the northern edge of the species range, in Britain are described. Copula duration was relatively short and occurred in tussocks around the stream and oviposition usually occurred in tandem. Although there was no significant relationship between body size and clutch size, large clutches were only found in the largest individuals and larger ♀♀ produced larger, and thus better-provisioned eggs. Examination of the dimensions of the aedeagus and the ♀ sperm storage organs revealed that ♂♂ could remove rival sperm from both the bursa copulatrix and spermatheca consistent with the presence of extensive proximally oriented microspination with sperm masses on the surface of the aedeagi. ♀ store sperm from previous matings and a few partition clutches between consecutive oviposition episodes. The fulfilment of these ecological and behavioural pre-requisites and the predominance of mate guarding during oviposition suggests that sperm competition by sperm displacement is prevalent in this species and constitutes a substantial selection pressure." (Authors)] Address: Thompson, D.J., Population Biology Research Group, School of Biological Sciences (Nicholson Building), University of Liverpool, P.O. Box 147, Liverpool, L69 3BX, UK. E-mail: d.j.thompson@liv.ac.uk
- 3454.** Rehn, A.C. (2003): *Oligoclada teretidentis* spec. nov. from eastern Ecuador (Anisoptera: Libellulidae). *Odonatologica* 32(2): 171-175. (in English). ["The new sp. is described and illustrated

(holotype ♂ allotype ♀: Ecuador, Orellana prov., forested shore of oxbow lagoon near Rio Tiputini, approximately 1 km. NW of Biological Research Station, Parque Nacional Yasuni, II-X-2001; deposited in UMMZ, Ann Arbor, MI, USA). Species is peculiar in having a large yellowish patch on the ventral mesepisternum and by discrete lateral bands of pruinosity on synthorax (these bands yellow in ♀♀) and, in the ♂, by the ventral, rounded tooth at 1/2 length of cercus." (Author)] Address: Rehn, A.C., 2817 G Street Apartment 1, Sacramento, California 95816, USA

3455. Reinhardt, K. (2003): Aspects of the reproductive behaviour and physiology in three north American Gomphidae species (Anisoptera). *Notul. odonatol.* 6(1): 4-8. (in English). ["Field and laboratory observations on the reproduction of *Gomphus externus*, *G. graslinellus*, and *Progomphus obscurus* are presented from Illinois, United States. Mating of *G. externus* in the field took 12 min. 2 phases were distinguished, the first consisted of tapping movements of the ♂ hamulus, the second of pumping movements of the ♀ abdomen. The ovary yielded 5100 eggs of which 690 were laid during hand-held oviposition in the laboratory. Only eggs laid by the ♀ but not the ones dissected from the ovary developed a sticky jelly coat around themselves. Eyespots of developing embryos were visible after 13 days. This ♀ had stored approximately 200 thousand sperm (about 160 bundles) in her spermatheca. The sperm were still mobile 3 days after mating. A comparison of the penis horn length and the length of the spermathecal tubes revealed that ♂♂ cannot reach the end of the spermathecal tubes. A *G. graslinellus* ♀ was observed to employ the dipping mode of oviposition. After oviposition she had approximately 1 million sperm remaining. ♀♀ of both species showed no muscle contraction response when the cerci were touched with water, but responses to water differed between the 2 ♀ on segments 9 and 10. ♂ *P. obscurus* perched on the sandy ground along the bank without territorial behaviour though ♂♂ were observed to follow other ♂♂. The penis morphology of *P. obscurus* was similar to members of the genus *Gomphus*.] Address: Reinhardt, K., Dept Animal and Plant Sciences, University of Sheffield, Sheffield S10 2TN, UK. E-mail: bgykr@leeds.ac.uk

3456. Relyea, R.A.; Hoverman, J.T. (2003): The impact of larval predators and competitors on the morphology and fitness of juvenile treefrogs. *Oecologia* 134: 596-604. (in English). ["Studies of phenotypic plasticity typically focus on traits in single ontogenetic stages. However, plastic responses can be induced in multiple ontogenetic stages and traits induced early in ontogeny may have lasting effects. We examined how gray treefrog larvae altered their morphology in four different larval environments and whether different larval environments affected the survival, growth, development, and morphology of juvenile frogs at metamorphosis. We then reared these juveniles in terrestrial environments under high and low intraspecific competition to determine whether the initial differences in traits at metamorphosis affected subsequent survival and growth, whether the initial-phenotypic differences converged over time, and whether competition in the terrestrial environment induced further phenotypic changes. Larval and juvenile environments both

affected treefrog traits. Larval predators - *Anax*. sp. - induced relatively deep tail fins and short bodies, but there was no impact on larval development. In contrast, larval competitors induced relatively short tails and long bodies, reduced larval growth, and slowed larval development. At metamorphosis, larval predators had no effect on juvenile growth or relative morphology while larval competitors produced juveniles that were smaller and possessed relatively shorter limbs and shorter bodies. After 1 month of terrestrial competition among the juvenile frogs, the initial differences in juvenile morphology did not converge. There were no differences in growth due to larval treatment but there were differences in survival. Individuals that experienced low competition as tadpoles experienced near perfect survival as juvenile frogs but individuals that experienced high competition as tadpoles suffered an 18% decrease in survival as juvenile frogs. There were also morphological responses to juvenile competition, but these changes appear to be due, at least in part, to allometric effects. Collectively, these results demonstrate that larval environments can have profound impacts on the traits and fitness of organisms later in ontogeny." (Authors)] Address: Relyea, R.A. & J.T. Hoverman, Department of Biological Sciences, University of Pittsburgh, Pittsburgh, PA, 15260 USA. E-mail: relyea@pitt.edu

3457. Sadler, D. (2003): Water rail predating dragonflies. *Dragonfly News* 43: 33. (in English). [9-X-2002, Pagham Harbour, West Sussex, UK; *Rallus aquaticus* (Aves) preyed successfully on *Aeshna mixta* and *Sympetrum striolatum* roosting on branches by jumping vertically toward the dragonflies.] Address: not stated

3458. Sahlén, G. (2003): Nordisk Odonata møde 28-30 juni 2002 vid Gadevang, Sjælland, Danmark. *Nord. Odonatol. Soc. Newsl.* 8-9(1): 13-17. (in Swedish with English summary) [Some personal reflections and memories from the 2002 Nordic Odonatological Society meeting in Gadevang, Denmark: The paper includes some photographs of the participants and *Libellula fulva*, and a list of the 24 odonate species collected at 10 localities. Of special interest are records of *Nehalennia speciosa* and *Leucorrhinia pectoralis*. Address: Sahlén, G., Höskolan i Halmstad, SET, Box 823, SE-301 18 Halmstad. E-mail: goran.sahlen@set.hh.se

3459. Samraoui, B.; Weekers, P.H.H.; Dumont, H.J. (2003): Two taxa within the north African *Lestes virens* complex (Zygoptera: Lestidae). *Odonatologica* 32(2): 131-142. (in English). ["A study of *Lestes "virens"* in Algeria, based on SEM, size analysis, and molecular analysis of nuclear ribosomal DNA genes (18S, 5.8S) and spacers (ITS1 and 2), reveals the presence of two taxa that can be separated by the length and sequence of their ITS1 and their adult coloration, but not by molecular features in their 18S and 5.8S genes, the ITS2 spacer, and morphology. This contrasts with the *Enallagma cyathigerum*-gro, where geographically defined morphological differences were unaccompanied by differences in ITS1 and ITS2. Previous ecological data had shown the first lested to be a summer, and the second an autumnal reproducer. The red autumnal species is here named *Lestes numidicus* sp. n. (holotype ♂, allotype ♀: Algeria, Lac des Oiseaux, X-1993; deposited in IRSN, Brussels); the status of the

green summer species is discussed. It probably corresponds to *L. virens*, but this is likely to be a hybrid taxon, resulting from the postglacial introgression of *L. numidicus* with a taxon invading from the East, via the Iberian Peninsula. *L. virens vestalis* from France is likely to be introgressed as well. In case this hypothesis is confirmed, the first junior synonym available, *L. marikovskii* (Belyshev) from Kazakhstan, applies to the taxon extending from Kazakhstan-Tajikistan to Central Europe." (Authors) Address: Dumont, H.J., Univ. Gent, Inst. Animal Ecology, K.L. Ledeganckstraat 35, B-9000 Gent, Belgium. E-mail: Henri.Dumont@rug.ac.be

3460. Samways, M.J. (2003): Conservation of an endemic odonate fauna in the Seychelles Archipelago. *Odonatologica* 32(2): 177-182. (in English). ["The odonate species richness of the granitic islands of Seychelles, a biodiversity hotspot, is significantly correlated to island size. The larger islands also have the highest elevations and hence the most streams from cloud catching as well as from downpours. The Seychelles odonate fauna can be divided into 2 groups: (1) endemic species, and, (2) geographically--widespread eurytopic, vagile species. The endemic species are elevational fugitives that need high-elevation forest cover, even if secondary. They are remarkably tolerant of temporary drying out of streams. In contrast, the widespread species occur at low elevations, are pool species, and are tolerant of removal of forest cover. They emigrate when the pools dry out. Conservation of the endemic taxa depends on maintaining cloud-catching forest, although evidence suggests that their populations are maintained even where the forest is partly alien invasive trees or secondary regrowth.] Address: Samways, M.J., Department of Conservation Ecology and Entomology, University of Stellenbosch, Private Bag XI, Matieland 7602, South Africa. E-mail: samways@sun.ac.za

3461. Samways, M.J. (2003): Threats to the tropical island dragonfly fauna (Odonata) of Mayotte, Comoro archipelago. *Biodiversity and Conservation* 12(9): 1785-1792 (in English) "The dragonfly fauna of the 374 km² island of Mayotte in the western Indian Ocean comprises some widespread African species and some Comoro endemics, and is a biodiversity hotspot. This dragonfly assemblage is under threat from increasing human impact as it creeps up the water courses from the periphery of the island towards the centre. Among these impacts are indigenous tree removal and replacement growth by alien vegetation. An even greater impact and threat is detergent input into streams. The intensity of this impact is so great that the streams and rocks become white. To date, although often the wings and bodies of odonates become stained white with detergent, the dragonfly assemblage appears remarkably tolerant of this impact. However, there is differential impact, with loss of island endemic species in the most impacted areas. In contrast, the geographically widespread and eurytopic species continue to thrive in these impacted areas, at least in the short term. It is urgent to change people's water-usage behaviour, both for their benefit and for the endemic dragonfly assemblage." (Author) Address: Samways M.J., Invertebrate Conservation Research Centre, Dept Zool. & Entomol., University of Natal, P/Bag X01, Scottsville 3209, Pietermaritzburg, South Africa. E-mail: samways@un.ac.za

3462. Sasamoto, A. (2003): Aberrant wing colouration in a *Neurothemis fluctuans* (Fabr.) ♂ (Anisoptera: Libellulidae). *Notul. odonatol.* 6(1): 12. (in English). [The brown wing markings in the ♂ are one of the distinctive features of the wide spread Asian *N. fluctuans*. The brown area in the forewing extends from wing base to close to pterostigma, whereas in the hindwing, at the costal side it reaches almost the same level as in the forewing, but at the margin it bends towards the wing base. In immature stage the spots are pale yellowish, becoming gradually darker with maturity. In the ♀, the wing colouration is variable: from almost colourless to such resembling the ♂. On May 2, 2001, the author captured an aberrantly coloured ♂ at Pondok Tanjong, Perak, in peninsular Malaysia. Its forewing is similar to a typical ♂, but the hindwing colouration is much different. Only 2 or 3 costal cells are patchy brown, the remaining area of the standard spot being pale yellow. The colouration is symmetrical in both wings. Specimens with "normal" and aberrant wing colouration are figured.] Address: Sasamoto, A., 190-4 Yakuoji Tawaramoto-cho, Shiki-gun, Nara pref., 636-0341, Japan

3463. Schmidt, E. (2003): Die Torf-Mosaikjungfer *Aeshna juncea* (L., 1758) (Odonata, Aeshnidae) an Tontümpeln und an Gartenteichen im West-Münsterland und in Essen, ein ökologisches Rätsel. *Verh. Westd. Entomol. Tagung 2001*: 75-80. (in German). [Discussion of records of *A. juncea* at "atypical" habitats (clay pits, garden ponds). These habitats are compared with the typical habitats of the species in the region (transition mires, bogs). Proximate factors seem to be the structure of the vegetation, the ultimate factor may be the microclimate.] Address: Schmidt, E., Coesfelder Str. 230, D-48249 Dülmen, Germany

3464. Scott, D.A. (2003): Reports from Coastal Stations - 2002: Dursey Island, Co. Cork. *Atropos* 18: 68-69. (in English). [United Kingdom; *Sympetrum striolatum*] Address: not stated

3465. Sibley, F. (2003): 60 species in 60 ponds. *Argia* 14(4): 11-16. (in English). [Schuyler and Tempkins County, New York, USA; the paper focusses on locality / habitat frequency of the species, and discusses a lot of factors which could be responsible for species distribution.] Address: Sibley, F.C., 25 Shirley Street, Naugatuck, CT, 06770, USA. E-mail: fcs@george.peabody.yale.edu

3466. Spence, B. (2003): Reports from Coastal Stations - 2002: The Spurn Area, East Yorkshire. *Atropos* 18: 64-65. (in English). [United Kingdom; *Aeshna cyanea*, *Libellula depressa*, *Sympetrum fonscolombii*] Address: not stated

3467. Srygley, R.B. (2003): Wind drift compensation in migrating dragonflies *Pantala* (Odonata: Libellulidae). *Journal of Insect Behavior* 6(2): 217-232. (in English) ["Tailwind drift compensation serves to maximize a migrant's flight distance on a given amount of energy, and crosswind drift compensation serves to hold a course true and minimize the distance flown. With full or part compensation, airspeeds are predicted to increase with greater crosswind drift. To test whether migrating dragonflies compensated for wind drift, I measured the velocity and heading of *Pantala hymenaea* and *P. flavesces* in natural flight over a lake and the ambient wind speed and direction. *P. hymenaea* flew north-easterly

(58°), whereas *P. flavescens* flew significantly more east-north easterly (74°) throughout the day. Pantala spp. demonstrated part compensation for changes in crosswind drift within individuals (mean compensation = 54%, $P = 0.0000$), evidence for use of a ground reference to correct for drift when flying over water. Among individuals, *P. flavescens* compensated for crosswind drift. *P. hymenaea* overcompensated and then drifted downwind on one morning and compensated for crosswind drift on the next. As predicted from optimal migration theory, airspeed (5.0 m/s for both species with no tailwind) decreased with tailwind velocity both among individuals (data for both species pooled [$n = 19$], $P < 0.0001$) and within each individual as it crossed the lake ($P = 0.0016$). (Author) Address: Srygley, R.B., Dept of Zool., University of Oxford, South Parks Road, Oxford OX 1 3PS, UK; bob.srygley /@zoo/ogy.oxford.ac.uk

3468. Sykes, T. (2003): Reports from Coastal Stations - 2002: Gibraltar Point, Lincolnshire. *Atropos* 18: 64. (in English). [United Kingdom; *Aeshna mixta*, *Sympetrum foncolombii*] Address: not stated

3469. Szállassy, N.; Bárdosi, E.; Szabó, Z.D.; Szép, T.; Dévai, G. (2003): Fluctuating asymmetry, survival and mating success in ♂ *Libellula fulva* Müller (Anisoptera: Libellulidae). *Odonatologica* 32(2): 143-151. (in English). ["The studies were conducted at Kutas canal near Ártánd, Hungary. In order to reveal whether there is any relationship between wing fluctuating asymmetry and mating success in mated (observed at least once in wheel position) and solitary ♂♂ (not involved in pairing during the study period), 106 ♂♂ were marked and their wing length between arculus and pterostigma measured. Mated ♂♂ had more symmetrical forewings, but in the case of hindwings there were no differences between solitary and mated individuals. The survival rate did not differ between the 2 groups and it was constant over time. The probability of recapture was higher in mated ♂♂ and varied with time. The number of hours spent with observation did not explain the variation in the recapture rate." (Authors)] Address: Szállassy, N., Department of Ecology and Hydrobiology, University of Debrecen, Egyetem tér 1, HU-4032 Debrecen, Hungary. E-mail: szallassy@tigris.klte.hu

3470. Szállassy, N.; Bárdosi, E.; Zoltán, S.D.; Tibor, S.; Dévai, G. (2002): Fluctuating asymmetry, survival and mating success in males of dragonfly *Orthetrum coerulescens* (Odonata: Libellulidae). *Hidrológiai Közlöny* 82: 125-127. (in Hungarian, with English summary) [The studies were conducted in a population along a slow flowing creek. Survival rate of unpaired ♂♂ differed significantly from that of paired ones on the first 2 days after marking; in both paired and unpaired ♂♂ it became constant later. Recapture rate differed in the 2 groups and changed in time. Neither the forewings nor the hindwings differed significantly in their fluctuating asymmetry values between the paired and the unpaired ♂♂.] Address: Szállassy, N., Dept Ecol. Hydrobiology, Univ. of Debrecen, Egyetem tér 1, HU-4032 Debrecen, Hungary. E-mail: szallassy@tigris.klte.hu

3471. Tagg, D. (2003): Raising *Brachytron* Larvae. *Dragonfly news* 43: 34. (in English). ["In May 1999 a ♀ *Brachytron* was ovipositing in the small pond at Sparr Rough nr Wisborough Green. She seemed to lay

exclusively into dead soggy stems of the rush *Juncus effusus*, laying ar or just below the water surface. In one stem she appeared to have deposited at least 8 eggs. I took this home and kept it in a jar of water and in fact 19 larvae hatched out 3 weeks later, all neatly synchronised on the same day. They were given plenty of *Daphnia* and *Cyclops*, but within a month, although tiny and delicate-looking, they started eating each other in the traditional dragonfly manner! I returned some to the pond and concentrated on keeping four individuals. Two died for no apparent reason in the winter of 2001/2001 but the other two flourished and grew on schedule for hatching in May 2001. In April one killed and ate the other, although they were of a similar age and until then had avoided one another. They had eaten aquatic worms, Chironomid larvae and damselfly nymphs. Water Hoglouse were also taken but usually tackled when the *Asellus* were moulting. *Brachytron* larvae are much more sluggish than *Aeshna* larvae, clinging to the same piece of weed or debris and hardly moving for days at a time. They cling tightly to a finger if fished out of the water." (Author)] Address: Don Tagg, Farnham, Surrey, UK

3472. Taylor, P. (2003): Dragonfly conservation from the BDS. *Atropos* 18: 35-36. (in English). [This is a brief history of the British Dragonfly Society and its objectives with special reference on conservation activities.] Address: Taylor, Pam, Decoy Farm, Decoy Rd, Potter Heigham, Norfolk, NR29 5LX, UK

3473. Tol, J. van.; Müller, R. (2003): Forest damselflies of the Philippines, their evolution and present status, with the description of *Drepanosticta moorei* spec. nov. from Luzon (Zygoptera: Platystictidae). *Odonatologica* 32(1): 39-45. (in English). ["*D. moorei* sp. n. (holotype ♂: Philippines, Luzon, Nueva Viscaya, Sta Fe, Atbo River, 550-800 m, 10-VI-1991, in RMNH) is described, and illustrated. It is closely related to *D. belyshevi* Hämäläinen from the Philippines. Some general remarks on the historical biogeography and the present status of the family are made. The current distribution of the family (SE Asia, Middle and northern South America) presumably dates back to the Upper Cretaceous." (Authors)] Address: Tol, J. van, National Museum of Natural History, P.O. Box 9517, NL-2300 RA Leiden, The Netherlands. E-mail: tol@nmm.nl

3474. Troake, P. (2003): Reports from Coastal Station - 2001: Rye Harbour SSSI, East Sussex. *Atropos* 18: 54-55. (in English). [UK; *Brachytron pratense*, *Sympetrum striolatum*, *Aeshna mixta*] Address: not stated

3475. Tunmore, M. (2003): Reports from Coastal Stations - 2002: The Lizard, Cornwall. *Atropos* 18: 48-49. (in English). [Verbatim: "It was not a notable year for Odonata. Twelve Red-veined Darter *Sympetrum fonscolombi* were recorded at Predannack on 4 June, including a pair in cop; numbers increased to 30 there on 27 June and a ragged individual was seen on 3 August. At another site on Goonhilly Downs two were seen on 23 June. Late examples of Emperor *Anax imperator* and Golden-ringed Dragonfly *Cordulegaster boltonii* were seen on 17 and 28 October respectively."] Address: Tunmore, M., 36 Tinker Lane, Meltham, Huddersfield, West Yorkshire HD7 3ES, UK

3476. Vick, G.S. (2003): Notes on the genus *Notogomphus* Selys, 1858 in Cameroon with the

description of two new species (Anisoptera: Gomphidae). *Odonatologica* 32(1): 47-60. (in English). ["Twelve *Notogomphus* specimens from Cameroon were available for analysis. Previously only *N. spinosus* Karsch was known from the country; its holotype and allotype have been re-examined and comments are included. *N. maryae* sp. n. (holotype ♂: SW Province. Mt Kupe, Nhiangse. 25-VI-1998 and *N. moorei* sp. n. (holotype ♂: SW Province, Kodmin, 15-XII-1998 are described. The types are in the author's collection. A key to separate the 3 species is provided." (Author)] Address: Vick G.S., Crossfields, Little London, Tadley, Hants RG26 5ET, UK

3477. Viessmann, R. (2003): Libellen - Odonata. Pflanzen und Tiere in Rheinland-Pfalz - Berichtsjahr 2002 - Heft 13: 189-201. (in German). [Compilation of dragonfly records from different habitats situated in Rheinland-Pfalz, Germany. Of faunistic interest are the records of *Coenagrion mercuriale*, *C. pulchellum*, *Erythromma najas*, *Ischnura pumilio*, *Lestes barbarus*, *L. virens*, *Sympetma fusca*, *Brachytron pratense*, *Aeshna affinis*, *Anaciaeschna isosceles*, *Anax parthenope*, *Crocothemis erythraea*, *Libellula fulva*, *Orthetrum brunneum*, and *Sympetrum fonscolombii*.] Address: Viessmann, R., Gängelstockweg 8, D-67295 Bolanden, Germany. E-mail: viessmann@freenet.de

3478. Vischer, M.; Binot-Hafke, M. (2003): Artenhilfsprogramme der Bundesländer: Fauna. Natur und Landschaft 78(2): 56-63. (in German with English summary) ["In Germany there are currently 239 conservation action plans and programmes for 153 taxa groups which are (at least partially) financed and supported by the German regional states (Länder). 55 % of the programme's involve not only population records and conservation measures, but also evaluation and monitoring activities. Most programmes take vertebrates in consideration (76 %), especially birds. The present article is followed by tables of plans, programmes and measures implemented, sorted both by species group and regional state. These tables also indicate the degree of success as reported by the regional states." Special conservation action plans referring to Odonata are existing in Baden-Württemberg ("15 priority odonate species"), Bavaria (*Coenagrion lunulatum*, *C. mercuriale*, *C. ornatum*, *Nehalennia speciosa*, *Leucorrhinia pectoralis*), Bremen (*Aeshna grandis*, *A. viridis*, *Anaciaeschna isosceles*), Hamburg ("threatened odonate species"), and Thüringen (*C. mercuriale*, *C. ornatum*).] Address: Binot-Hafke, Margret, Bundesamt für Naturschutz, Fachgebiet 11.1 Zoologischer Artenschutz, Konstantinstr. 110, D-53179 Bonn, Germany

3479. Wain, B. (2003): A nice day out! Bill Wain in Oz. *Dragonfly News* 43: 20-21. (in English). [Report on observing *Petalura hesperia* south of Perth, Australia. A brief note on oviposition (?) of a ♀ *Petalura* sp. on a dark blue roof of a car is made.] Address: not stated

3480. Wallace, I. (2003): Late winter nymph of *Sympetrum fonscolombii* from N. Wales. *Dragonfly news* 43: 34. (in English). [Verbatim: "On 13.2.2001 I took a mature nymph of *S. fonscolombii* from a shallow, two year old pool constructed on the reclaimed pit heap at Point of Ayr Colliery (grid reference SJ12-83-). [...] The nymph is 17 mm long with wing pads stretching to the end of the 7th segment, and showing venation. It

might have emerged successfully if not collected, but temperature data from the nearby Bidston Weather Observatory (available on the WWW) indicates that there was quite a severe cold spell at the start of March 2001, the most severe for the entire 2000/ 2001 winter, with several successive days of minimum temperatures lower than -2°C; a soil temperature data logger operated as part of studies on the Sandhill Rustic Moth at nearby Gronant, by Adrian Spalding also recorded sub-zero soil temperatures during that cold spell. Adrian Parr informs me that an adult was taken at Heysham on 30.6.2001, which as the crow flies is about 50 miles across Liverpool Bay. Tantalisingly this could have been locally bred, but Adrian thinks it could also have been from an early spring 2001 migration. [...]"] Address: Wallace, I., Liverpool Museum, William Brown Street, Liverpool L3 8EN, UK. Ian.Wallace@nmgm.org

3481. Watanabe, M.; Mimura, Y. (2003): Population dynamics of *Mortonagrion hirosei* (Odonata: Coenagrionidae). *International Journal of Odonatology* 6(1): 65-78. (in English). ["The mark-and-recapture method was used to study the population dynamics of the endangered brackish water species, *Mortonagrion hirosei*, in a small reed community of an estuary in the warm-temperate zone of Japan. The flying season was from late May to early August. The age structure showed that newly emerged adults always stayed in the reed community and the maiden flight did not involve leaving the colony area. Although reed communities were abundant in the estuary, it appears possible that none or only very few of the individuals emigrated. Thus, both sexually immature and mature adults coexisted in the same reed community. The average distance covered by daily movements was 1.7 and 3.3 m for immature and mature ♂♂ respectively, which were longer than those for ♀♀. Since the average durations of the immature and reproductive periods were respectively about 5 and 30 days in both sexes, the individuals may have moved less than 110 m throughout their life span, which corresponds to twice the length of the habitat. The estimated daily number of adults in the community was about 200 in 2000 and 500 in 2001. As the population was isolated, the estimated input of new individuals into the population had to be the number of individuals emerging. Thus, the total number of adults in both years was estimated to be about 5,000 and 6,000 respectively." (Authors)] Address: Watanabe, M., Institute of Biological Sciences, University of Tsukuba, Tsukuba 305-8572, Japan. E-mail: watanabe@kankyo.envr.tsukuba.ac.jp

3482. Weihrauch, F.; Weihrauch, S. (2003): Spring Odonata from Alentejo (Portugal), Andalusia and Extremadura (Spain). *Opusc. zool.flumin.* 207: 1-18. (in English) ["An annotated list of 25 species recorded on the wing or as exuviae during 2 journeys to SW Iberia in spring 1999 and 2001 is presented. 3 more species were recorded as larvae. Phenological data were compared with data from the literature, obtaining particularly noteworthy early records for *Gomphus simillimus*, *Cordulegaster boltonii*, *Brachythemis leucosticta*, and *Sympetrum striolatum* for the region. For most species recorded, additional notes on biology or an assessment of abundance and distribution in the region in spring are given. The status of *Paragomphus genei*, *Anax ephippiger*, *C. boltonii*, *Oxygastra curtisii*, *Macromia splendens*, *B. leucosticta*, *Sympetrum fonscolombii*, and *S. striolatum* is discussed. *Brachytron*

pratense was not encountered at localities with former records given in the literature and the possible extinction of the outstanding population in the Goto Donana is apprehended." (Authors) Address: Weihrauch, F., Hengelerstr. 9, D-80637 München, Germany. E-mail: Florian.Weihrauch@t-online.de


3483. Wildermuth, H. (2003): Fortpflanzungsverhalten von *Somatochlora arctica* (Zetterstedt) (Anisoptera: Corduliidae). *Odonatologica* 32(1): 61-77. (in German with English summary). ["The reproductive behaviour in relation to structural habitat resources was studied at mountain bogs of the Central Alps (Tyrol, Austria). The ♂♂ searched for mates at small clearings in coniferous forests where numerous scattered oviposition sites were hidden in dense vegetation, using 3 tactics: (1) they scanned the oviposition sites by slow flights at low height over large vegetated areas (scan flight). (2) they patrolled restricted areas with frequent hover stops while chasing any intruder (patrol flight), (3) they dived repeatedly into gaps of emergent vegetation, searching for ♀♀ close to the water (dive flights). 62% of the ♀♀ remained undiscovered by ♂♂. 11% fled successfully and 27% accepted copulation (n = 139). The copulation was always initiated in the air or on the ground when both partners plunged into the vegetation following a clash. Immediately after the take off and possibly after intra-♂ sperm translocation the tandem assumed the wheel position. The pairs often circled over the clearings for several minutes and perched on sunlit branches of spruce or pine trees. 0.8-12 m above ground (mean 2.75 m. n = 20). During copulation that lasted 31-150 min (mean 85 min. n = 14) rhythmic pumping movements of the 6 basal abdominal segments with frequencies from 0.14 to 0.36 Hz were observed. Copulation terminated by disengagement of the genitalia, then the partners separated immediately or after a short tandem flight. Oviposition never followed directly upon copulation and always occurred unguarded. The oviposition sites were selected carefully at shallow puddles among emergent vegetation. Eggs were laid by touching soaked moss or turf mud with the tip of the abdomen during rhythmic dipping flight movements with mean frequency of 0.61 Hz. One oviposition bout lasted 1-3 min and featured an egg flow of 1.7-4.5 eggs per s. Ovipositing ♀♀ were sometimes successfully attacked by frogs (*Rana temporaria*). and ♂♂ were occasionally found in orb-webs of spiders (*Araneus* sp.), however, predation risk was low at rendez-vous sites. Sperm competition is discussed with respect to behaviour during copulation and to the morphology of ♂ and ♀ genitalia." (Author)] Address: Wildermuth, H., Haltbergstr. 43, CH-8630 Rüti, Switzerland. E-mail: hansruedi@wildermuth.ch

3484. Willmann, R. (2003): Die phylogenetischen Beziehungen der Insecta: Offene Fragen und Probleme. *Verh. Westd. Entomol. Tagung 2001*: 1-64. (in German). [Compilation of current knowledge, questions, and problems on the phylogenetic relationships among insecta including the Odonata.] Address: Wittmann, R., Inst. Zoologie und Anthropologie, Univ. Göttingen, Berliner Str. 28, D-37073 Göttingen

3485. Worthen, W.B. (2003): Nested-subset structure of larval odonate assemblages in the Enoree River basin, USA. *International Journal of Odonatology* 6(1): 79-89. (in English). ["Communities have a nested-subset structure if the species found in species-poor assemblages are also found in progressively more species-rich assemblages. This nested-subset structure can be caused by differential colonization rates among species, differential extinction rates among species, or nested niche space. In this study, the assemblages of larval odonates in the Enoree River of South Carolina (USA) and nine of its tributaries were found to have statistically significant nested-subset structure. In addition, the degree of nestedness in these ten streams correlated with several chemical and physical variables. Nestedness was correlated with pH, turbidity, and concentrations of silica, bicarbonate, and calcium; suggesting that differential extinction in response to environmental stress may play a role in structuring these assemblages. However, nestedness also correlated with a crude measure of habitat homogeneity. Drainages with a heterogeneous mix of substrate types (cobbles and sand) maintained different sets of species from site to site, and had the lowest nestedness scores. Drainages with exclusively sandy substrates were dominated by burrowing species at all sites, and showed the strongest nested-subset patterns. As such, nested-subset structure in these assemblages is related to both chemical and physical parameters." (Author)] Address: Worthen, W. B., Dept of Biology, Furman University, Greenville, SC, USA, 29613. E-mail: worthen@furman.edu

3486. Zhou, W. (2003): *Macromia hamata* sp. nov. from Guizhou, China (Odonata: Corduliidae). *International Journal of Odonatology* 6(1): 91-93. (in English). [*M. hamata* (holotype ♂: 01 August 2001, Fanjingshan, Guizhou, China) is described and illustrated from a single ♂, deposited at the Zhejiang Museum of Natural History.] Address: Zhou Wenbao, Zhejiang Museum of Natural History, Jiaogonglu 71, Hangzhou 310012, China

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