

# Odonatological Abstract Service

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**2215.** Aoki, T. (1997): Dragonflies inhabiting Shijimi River in Shijimi-cho, Miki City, Hyogo Prefecture. *Sympetrum Hyogo* 4: 15. (in Japanese with English summary). [A survey on the Odonata fauna of Shijimi River, Japan was carried out on 26 May 1996. Relatively clear water from Donto-dam before joining Ogo River enabled the development of gomphid species such as *Nihonogomphus viridis*, *Stylogomphus suzukii*, *Onychogomphus viridicostus*, *Asiagomphus pryeri*, *Trigomphus citimus tabei*, *Gomphus postocularis*, and *Sieboldius albardae*. Increasing water pollution downstream reduced gomphid diversity.] 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

**2216.** Aoki, T. (1997): *Lanthus fujiacus* (FRASER) was discovered in Kobe City, Hyogo Prefecture. *Sympetrum Hyogo* 4: 4. (in Japanese with English summary). [I collected an ultimate instar larva of *L. fujiacus* at Arima-cho, Kobe on July 9, 1996. This species has often been found at habitats of *Epiophlebia superstes*. I heard that the latter species was found there, so I tried to collect the former species. It was successful, and the total number of species recorded in Kobe counts 89 including 14 species in Gomphidae.] (Author) 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

**2217.** Aoki, T. (1997): Odonata fauna of Kobe City, Part 5. (Lestidae). *Sympetrum Hyogo* 4: 2-4. (in Japanese with English summary). [*Lestes sponsa*, *L. japonicus*, *Sympecma paedisca*, and *Indolestes peregrinus* are treated. *L. japonicus* seriously has been influenced negatively by destruction of habitats.] 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

**2218.** Aoki, T. (1997): The Odonata fauna of Kobe City, Part 6. (Calopterygidae). *Sympetrum Hyogo* 4: 25-27. (in Japanese with English summary). [*Calopteryx atrata* Selys 1853, *C. cornelia* Selys 1853, *Mnais pruinosa* Selys 1853, *Mnais nawai* Yamamoto, 1956. The status of *C. japonica* Selys 1869 in the Kobe region is unknown; only old records are existing.] 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

**2219.** Muraki, A. (1997): A case of oviposition of *Epiophlebia superstes* in Gifu Prefecture. *Sympetrum Hyogo* 4: 16-17. (in Japanese with English summary). [A female *E. superstes* was laying eggs into bryophytes in Gifu Pref. in 1975. This is the 12th prefecture in which this species was found ovipositing into mosses.] Address: not stated

**2220.** Nishu, S. (1997): Report of the survey trip of the Hyogo Society of Odonatology, Part 1 in 1996. *Sympetrum Hyogo* 4: 8-13. (in Japanese with English summary). [27 species have been recorded on April 28 and May 6, 1996. Special emphasize was given to *Libellula angelina*. This endangered species was found in low abundance at Sara Pond, Fukuden-cho, Ono City, but none was observed in the additionally visited habitat Maruodani, Kobe City. "The latter pond lost its water because of drought in 1994, leak from cracks of pond walls caused by the great earthquake in 1995 and complete drainage for the repairing works in 1995 and 1996." In 1970's, more than ten habitats of *L. angelina* in Hyogo Prefecture were known, but actually only Sara Pond seems to bear a population. Even this habitat is threatened by a local government "development plan". Action has to be taken, to enable survival of the species at Sara Pond.] Address: Nishu, S., 247 Gunge Shonomoto, Mikage-cho, Higashinda-ku, Kobe, Hyogo, 658-0057, Japan. E-mail: Snishu@mx2.nisiq.net

**2221.** Nishu, S. (1997): Report of the survey trip of the Hyogo Society of Odonatology, Part 2 in 1996. *Sympetrum Hyogo* 4: 18-24. (in Japanese with English summary). ["The Hyogo Society of Odonatology had a survey tour for *Mortonagrion hirosei* visiting Momojima Pond, Kinosaki-cho, Hyogo Prefecture on July 20-21. Estimation of the individual number was made through the marking-recapturing method. 100 males were marked and released, and 92 males were captured on the next day including 13 marked ones. The total number of this damselfly inhabiting this pond was estimated to be at the order of 10,000 for the time. Masses of this species were found sleeping at night. Most of them were roosting on stalks at a height of 10 to 20 cm above water-level. [...]"] A list of 41 species recorded in the framework of the survey is listed in a table.] Address: Nishu, S., 247 Gunge Shonomoto, Mikage-cho, Higashinda-ku, Kobe, Hyogo, 658-0057, Japan. E-mail: Snishu@mx2.nisiq.net

**2222.** Nishu, S. (1997): Report of the survey trip of the Hyogo Society of Odonatology, Part 3 in 1996. *Sympetrum Hyogo* 4: 28-31. (in Japanese with English summary). ["An immature male *Stylurus nagoyanus* was caught in Mt. Funakoshi, Sayo-cho in 1993. This is the only record of this species in Hyogo Prefecture until today. Immature imagoes of this species are known to migrate to distant places, and we had a survey trip to find the original habitat. One of our members, Mr Inoue, once happened to see a gomphid dragonfly much like this species along Ibo River, hence we had a survey trip to this river on September 8, 1996. The results were not successful, but we recorded 14 species in 6 families including many males and 3 females of *Onychogomphus viridicostus* and 5 males of *Anisogomphus maaki*." (Author) In addition species lists for five localities are given in two tables.] Address: Nishu, S., 247 Gunge Shonomoto, Mikage-cho, Higashinda-ku, Kobe, Hyogo, 658-0057, Japan. E-mail: Snishu@mx2.nisq.net

**2223.** Sogame, S. (1997): A male *Sympetrum pedemontanum elatum* with an aberrant wing brown marking. *Sympetrum Hyogo* 4: 14. (in Japanese with English summary). [A male *S. pedemontanum elatum* had a round colourless area in the brown marking on right forewing. This area is thinner than the other parts, and was found broken after the specimen was kept in a triangular paper.] Address: not stated

**2224.** Wada, N.; Inoue, K. (1997): First record of *Zyxomma obtusum* from Kuroshima island, Taketomi-cho, Okinawa Prefecture. *Sympetrum Hyogo* 4: 5-7. (in Japanese with English summary). [A male *Z. obtusum* was caught on Kuroshima Island, Japan, a small oceanic island located between Ishigaki and Iriomote Islands. "This crepuscular insect was found at 20:00 - 21:00 attracted to a fluorescent lamp in a passage of a cottage in Marine Research Center. This species had been found only on North and South Borodino Islands in Japan, but in 1996 a female was caught by Mr Akira Nishida on June 23 at Nishi-funatsukibashi, Iriomote Island (Nishida, A. 1996) and males and females were captured by Mr Osamu Tabata on June 30 to July 2 at Taisho Pond, Iriomote Island [...]. Thus this is the third record outside N. and S. Borodino Islands. Oguma, K. recorded a male of this species in 1915. The specimen is labelled "Okinawa, VIII, 1902", but no additional material had been found from Okinawa Main Island, and many males and females have been found after 1958 on N. and S. Borodino Islands which are in Okinawa Prefecture, thus the Oguma's specimen had been supposed to have come from N. or S. Borodino Island. The new discovery of this oceanic species from islands outside N. and S. Borodino Islands brought a discussion on the possibility to be found on Okinawa Main Island. Another point to be mentioned is that this male was attracted to an artificial light. Lieftinck (1954) writes "Females often attracted to light", and it is advised to try "light trap method" for further studies." (Authors)] Address: Inoue, K., 5-9 Fuminosato 4-chome, Abeno-ku, Osaka 545, Japan

**2225.** Altmooß, M. (1998): Möglichkeiten und Grenzen des Einsatzes regionalisierter Zielarten - dargestellt am Modellbeispiel des Biosphärenreservates Rhön. *Laufener Seminarbeiträge* 8/98: 127-156. (in German). [This is an extensive and sound discussion of methods and fundaments for the use of a regionalised target species concept. Odonata are considered as good target species; in the studied area *Calopteryx virgo* / *C. splendens*, *Gomphus vulgatissimus*, *Coenagrion hastulatum*, *Lestes dryas*, *Aeshna juncea*, *A. subarctica* / *Somatochlora arctica*, *Cordulegaster boltonii*, and *Sympetrum flaveolum* are important umbrella species for nature conservation measures.] Address: Altmooß, M., Projekt "Zoologischer Artenschutz im Biosphärenreservat Rhön", Bauerbacher Str. 46, D-35043 Marburg, Germany.

**2226.** Aoki, T.; Nishu, S. (1998): A survey for discovery of new breeding sites colonized by *Ictinogomphus pertinax* (Selys) in southwestern Hyogo Prefecture. *Sympetrum Hyogo* 5: 16-20. (in Japanese with English summary). [*I. pertinax* extends its range northeastward in Japan. It was found at Ushimado in eastern part of Okayama Prefecture in 1980, and at Akashi in southwestern part of Hyogo Prefecture in 1987. "In 1994, the senior author found a new locality at Kakogawa, some 25 km northwest to Akashi. The area from Ushimado to Kakogawa has been left unrecorded for this species." On 18 August 1997 five members of the Hyogo Society of Odonatology tried to fill the blank. Eleven localities - with splendid dragonfly populations - were visited, but they failed to discover this southern gomphid species. The results of the survey a compiled in a table including 24 species.] 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

**2227.** Aoki, T. (1998): Odonata fauna of Kobe City, Part 7. (Platycnemididae, Epiophlebiidae, Petaluridae). *Sympetrum Hyogo* 5: 21-22. (in Japanese with English summary). [*Platycnemis foliacea sasakii*, *Copera annulata*, *Epiophlebia superstes*, and *Tanypteryx pryeri* are recorded in Kobe City. "*E. superstes* was found at Arima in Mt. Rokko area on June 12, 1996 (two larvae), on July 9, 1996 (two larvae) and on May 25, 1997 (oviposition incisions). These records are rediscoveries after 60 years for this area."] 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

**2228.** Fincke, O.M. (1998): The population ecology of *Megaloprepus coerulatus* and its effect on species assemblages in water filled tree holes. In: Dempster, J.P. & I.F.G. Mclean (Eds.): *Insect populations: in Theory and Practice*. Kluwer Academic Publishers. London: 391-416. (in English). ["Although its larvae are restricted to tree holes, the influence of *M. coerulatus* extends beyond that microhabitat via its effects on intraguild predators, such as *Dendrobates* and *Toxorhynchites*, that also breed in other phytotelmata. The evidence to date suggests that the abundance of *M. coerulatus* is primarily affected by biotic factors during the larval stage, specifically obligate siblicide and cannibalism followed by intraguild predation. Within this competitive framework, at a local level, population size should be affected by abiotic factors. The number of generations a tree hole can support annually reflects

rainfall patterns as well as nutrient input (e.g. leaf and fruit detritus), which influences growth rate and adult body size via increased prey productivity. Among forests, body size probably reflects evolutionary responses to differences in tree-hole nutrient levels. Finally, changes in forest composition would affect the abundance of *Megaloprepus* because tree holes are non-randomly distributed with respect to tree species. There is no evidence that adult *Megaloprepus* are limited by the availability of prey (i.e. spiders) or by predation. Their ability to find tree-hole oviposition sites may be more limiting than their capacity to produce excess eggs. However, in seasonal forests, persistence of *Megaloprepus* depends on adults surviving the dry season. Adults are also the dispersal stage. Because *Megaloprepus* avoids large, man-made clearings, it may be particularly vulnerable to habitat fragmentation." (Author)] Address: Finke, O.M., Dept Zool., Univ. Oklahoma, 730 Van Vleet Oval, Room 314, Norman, OK 73019, USA. E-mail: fincke@ou.edu

**2229.** Franz, D. (1998): Das Blaukehlchen. ISBN 3-89104-582-4: 140 pp. (in German). [Odonata rarely seem to be the prey of *Luscinia svecica* (Aves). On page 104 a few records are compiled, among them a note on a picture of a male *Libellula depressa* preyed by the Bluethroat.].

**2230.** Grosser, N.; Rötzer, B. (1998): Realisierbarkeit eines Zielartenkonzepts auf regionaler Ebene. - Ergebnisse einer Projekt-Diskussion im Bereich der Gemeinde Friedenfels, Landkreis Tirschenreuth (Oberpfalz). Laufener Seminarbeiträge 8/98: 121-126. (in German). [A students project group discussed - in the framework of the realisation of the communal landscape plan of the community Friedenfels, Bavaria - the possibilities to use target species for a sound realisation of measures. Some theoretical thoughts to select target species are presented. These species are discussed on the in reality existing level of restrictions among a community and acceptance of nature conservation measures by its population. Among the target species without any conflict potential are *Calopteryx virgo*, *C. splendens*, and *Cordulegaster boltonii*.] Address: Grosser, N., Fachhochschule Erfurt, Fachbereich Landschaftsarchitektur, Leipziger Str. 77, D-99085 Erfurt, Germany. E-mail: grosser @la.fh-erfurt.de

**2231.** Marabini, J. (1998): Die Rolle von Ziel- und Leitarten für die Renaturierung von Moorteichen - am Beispiel eines ABSP-Projektes im Aischgrund. Laufener Seminarbeiträge 8/98: 165-168. (in German). [Activities of human beings in ancient times e.g. to create and to run carp ponds provided suitable habitats for some specialized plants and animals. This paper discusses activities to manage abandoned ponds for nature conservation purposes. Examples given are the plant genus *Utricularia*, the moor frog (*Rana arvalis*), and *Leucorrhinia dubia*, *L. rubicunda*, and *L. pectoralis*.] Address: Marabini, J., Landratsamt Erlangen-Höchstadt, Schloßberg 10, D-91315 Höchstadt/Aisch, Germany

**2232.** Matsuda, I. (1998): Memories of the late Mr. Hiroshi Itoh. *Sympetrum Hyogo* 5: 2-3. (in Japanese with English summary). ["Mr. Hiroshi Itoh passed away on July 14, 1997 at the age of 62. He was a very kind person, and he had often guided us to many good habitats of various species. An oral tumour was found

in October, 1995, and the operation was carried out successfully. But it metastasized to the lung, and he had operations during July to October, 1996. He had recovered well, and he attended field meetings and the Celebrating Party of Mr. Y. Miyatake held on June 1, 1997. In early July he was hospitalised again, and could not recover this time. He, with his kind and heartily personality, will live in our heart forever." (Author)] Address: not stated

**2233.** Müller, J. (1998): Die Libellenfauna (Insecta: Odonata) der Naturschutzgebiete Mahlpfuhler Fenn, Jävenitzer Moor und Benitz des Tanger-Gebietes und der Altmark-Heiden in Sachsen-Anhalt. *Abh. Ber. Mus. Naturk. Magdeburg* 20: 3-18. (in German with English summary). [The odonate fauna of two bog moors (Mahlpfuhler Fenn, Jävenitzer Moor) and a gravel pit (Benitz), Sachsen-Anhalt, Germany, is documented in detail. The species are arranged according to ecological groups of habitat preference and the zoogeographical distribution. The species list accounts 42 species, 19 of them are commented.] Address: Müller, J., Frankefelde 3, 39116 Magdeburg, Germany. E-mail: FaunOek.Jmueller@t-online.de

**2234.** Muraki, A.: (1998): Record of dragonflies of Kohama Island, Yaeyama, Okinawa Pref. made by the late Mr. Hiroshi Itoh. *Sympetrum Hyogo* 5: 4. (in Japanese with English summary). ["The late Mr. Hiroshi Itoh visited Kohama Island on May 13, 1996, but he has not reported on the results. He found seven species including *Ictinogomphus pertinax*, *Brachythemis contaminata*, *Pseudothemis zonata*, and *Tholymis tillarga* which are new to this island." (Author)] Address: not stated

**2235.** Nishu, S. (1998): A supposed hybrid between *Anax parthenope julius* and *A. n. nigrofasciatus* emerged from a bred larva. *Sympetrum Hyogo* 5: 31-33. (in Japanese with English summary). ["A final instar larva of a suspicious species was caught at a dragonfly pond in Amagasaki No.3 Power Plant of Kansai Electric Power Co. on August 9, 1997. It resembled that of *Anax n. nigrofasciatus*, but larvae of this species are univoltine which generally reach the final instar much later. It was brought home, and emerged on September 11, the same year. It is a male *Anax* which shows three features intermediate between *A. parthenope julius* and *A. n. nigrofasciatus*, seven features like the latter while a feature like the former. Thus it is most probably a hybrid between these two species, and the second record of emerged hybrids in this combination of species." (Author)] Address: Nishu, S., 247 Gunge Shonomoto, Mikage-cho, Higashinda-ku, Kobe, Hyogo, 658-0057, Japan. E-mail: Snishu@mx2.nisiq.net

**2236.** Nishu, S. (1998): A survey report of *Libellula angelina* Selys in Hyogo Pref., 1997. *Sympetrum Hyogo* 5: 5-8. (in Japanese with English summary). ["*L. angelina* was seen in many places in Hyogo Pref. until several years ago, but Sara Pond, Fukuden-cho, Ono City is the only known habitat for this endangered species in this prefecture at present. Members of the Hyogo Society of Odonatology visited this pond on April 29 and May 11, and two additional localities on April 29." Two males were found in May at Sara Pond. The environmental condition of the habitat seem to have recovered and be comparable with that formerly existing. In spite of this first side indication, low

abundance demonstrates that at least one ecological factor must prevent the species to settle on this habitat.] Address: Nishu, S., 247 Gunge Shonomoto, Mikage-cho, Higashinda-ku, Kobe, Hyogo, 658-0057, Japan. E-mail: Snishu@mx2.nisiq.net

**2237.** Nishu, S. (1998): A survey report of *Mortonagrion Hirosei* Asahina in Hyogo Pref., 1997. *Sympetrum Hyogo* 5: 9-11. (in Japanese with English summary). [M. Hirosei was surveyed during 20-21 July 1997 at three localities in the northern part of Hyogo Prefecture, Japan. Abundance was higher than the years before (Counts of sleeping specimens). But contrarily to the previous year the specimens were found sleeping rather dispersed and not congregated. A list of 23 additional species found at the four localities is appended.] Address: Nishu, S., 247 Gunge Shonomoto, Mikage-cho, Higashinda-ku, Kobe, Hyogo, 658-0057, Japan. E-mail: Snishu@mx2.nisiq.net

**2238.** Nishu, S. (1998): First discovery of the locality of *Stylurus nagoyanus* (Asahina) in Hyogo Prefecture. *Sympetrum Hyogo* 5: 12-15. (in Japanese with English summary). [A male *S. nagoyanus* was found in Hyogo Pref. in 1993, but the larval habitat was unknown. Izushi River in the northern part of this prefecture turned out to be a reproductive habitat of the species: 3 males, 1 female and 8 larvae were caught on 21 July 1997, and 2 males and 1 female were caught on September 21. The habitat seems to provide suitable conditions, and was dwelled by one of the Japanese Red Data Book species, *Macromia daimoji* too. 23 additional species recorded at this locality are listed in a table.] Address: Nishu, S., 247 Gunge Shonomoto, Mikage-cho, Higashinda-ku, Kobe, Hyogo, 658-0057, Japan. E-mail: Snishu@mx2.nisiq.net

**2239.** Reck, H. (1998): Der Zielartenansatz in großmaßstäbiger Anwendung - anhand von Beispielen aus Eingriffsplanung, Flurbereinungsverfahren sowie der Erfolgskontrolle von Pflege- und Entwicklungsplänen. *Laufener Seminarbeiträge* 8/98: 43-68. (in German). [Target species concepts are used to focus assessment of environmental impacts or nature conservation measures on so-called umbrella species or selected species of special importance for nature conservation purposes. This paper compiles such concepts and exemplifies them on different levels of planning. Odonata are used to demonstrate the deduction of renaturation aims for the peat bog / fen habitat mosaic of the Wurzachener Ried, Baden-Württemberg, Germany.] Address: Reck, H., Ökologiezentrum der Univ. Kiel, Fachabteilung Landschaftsökologie, Schauenburger Str. 112, D-24118 Kiel, Germany

**2240.** Sachtleben, J. (1998): Von der Theorie in die Praxis - zur Umsetzung des bayerischen Arten- und Biotopschutzprogrammes auf der Grundlage von Ziel- und Leitarten. *Laufener Seminarbeiträge* 8/98: 157-164. (in German). [Report on the current status of realisation of the Bavarian Programme for Species and Habitat Conservation. Odonata are referred as good target species on several occasions.] Address: Sachtleben, J., Projektgruppe ABSP / PAN Partnerschaft, Rosenkavalierplatz 10, D-81925 München, Germany. E-mail: panp@t-online.de

**2241.** Sasamoto, A. (1998): A female *Davidius nanus* having aberrant wings. *Sympetrum Hyogo* 5: 34-35. (in

Japanese with English summary). ["A female *Davidius nanus* having aberrant wings emerged from a larva which I caught in Kyoto prefecture. Its right fore-wing lacks 3rd radius and has several small vein aberrations. In its right hind-wing the pterostigma is long and curved and includes postnodal nerves, in addition, many disordered veins and spaces are found. The exuvia has also transformed right hind wing sheath. The other specimens caught at the same time were normal." (Author)] Address: not stated

**2242.** Sogame, S. (1998): A malformed exuvia of *Onychogomphus viridicostus* (OGUMA). *Sympetrum Hyogo* 5: 30. (in Japanese with English summary). [74 exuviae of *O. viridicostus* collected along the shore of Hazu River, Takarazuka City, Hyogo Prefecture, Japan, contained an exuvium with only 9 segments. In addition, the 7th segment is fused with the 8th at the left side when seen ventrally.] Address: not stated

**2243.** Sogame, S. (1998): Dragonflies inhabiting Hatsuka River in Sanda City, Hyogo Prefecture. *Sympetrum Hyogo* 5: 28-29. (in Japanese with English summary). [Between May 1996 and August 1997, 19 taxa could be recorded from the river. The occurrence of *Calopteryx japonica* and a strong population of *Platycnemis foliacea sasakii* indicate a quite good water quality.] Address: not stated

**2244.** Sogame, S. (1998): Odonate fauna of Takarazuka City, Hyogo Prefecture. *Sympetrum Hyogo* 5: 23-27. (in Japanese with English summary). [66 odonate species could be recorded between 1992 and 1997. 8 of them are new compared with a compilation published in 1982, but also 8 species couldn't be confirmed.] Address: not stated

## 1999

**2245.** Aoki, T. (1999): Odonata fauna of Kobe City, Part 8 (Libellulidae 2 and supplements). *Sympetrum Hyogo* 6: 9-13. (in Japanese with English summary). [13 libellulid species - excluding the genus *Sympetrum* - and *Anax guttatus*, *Ictinogomphus pertinax*, *Ashna juncea*, and *Stylurus oculus* are documented for Kobe City, Japan.] 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

**2246.** Azuma, T.; Aoki, T. (1999): Supposed westward expansion of *Ictinogomphus pertinax* in southern part of Hyogo Prefecture. *Sympetrum Hyogo* 6: 2-3. (in Japanese with English summary). ["Some new breeding sites of *I. pertinax* were found in the southern part of Hyogo Prefecture in 1998. They are situated some kilometers west of the known localities. It is very likely that this species started to extend its breeding sites westward after" - a ten years lasting interruption - "since the first finding in the southern part of Hyogo Prefecture." (Authors)] 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

**2247.** Bezdecka, P. (1999): The current state of dragonfly research in the Bélé Karpaty (White

Carpathians), Czech Republic. In: Hanel, L. (Ed.): Vazky 1999. Sborník referátu z mezinárodního semináře konaného v Podblanickém ekocentru CSOP ve Vlasimi 6.-7.3.1999. ISBN 80-86327-00-0: 69-72. (in Czech with English summary). [List of 36 Odonata (37 taxa) from the Carpathian mountains resp. the Region of the Czech - Slovakian border.] Address: Bezdecka, P., Správa CHKO Bílé Karpaty, Nádražní 318, CZ 76326 Luhacovice, Czech Republic

**2248.** Carl, M. (1999): Biomonitoring zur Ökologie und Renaturierung anthropogen veränderter Lebensräume des bayerischen Salzachauen-Ökosystems von Freilassing bis zur Mündung in den Inn. Berichte der Akademie für Naturschutz Laufen 23: 121-131. (in German). [In the framework of a revitalisation project of the river Salzach, Bavaria, Germany, *Thecagaster bidentata* was considered a good bioindicator for assessing success of measures undertaken. This assumption is based on the known distinct factors characterising the habitat of the species. Going ahead with the revitalisation measures *T. bidentata* turned out to be insufficiently suitable to indicate and assess the middle to large scale measures. Even natural factors may influence the habitat of larvae, while an indicator for revitalisation measures has to react on a causal scale: The species is a good indicator for microhabitats, but not for the ecosystem of the alluvium. Thus, it was excluded from the list of bioindicator species that will be used to assess the success of the revitalisation in future.] Address: Carl, M., Gollenbergstr. 12, D-82299 Türkenfeld, Germany

**2249.** Cempírek, J. (1999): The dragonflies of the town České Budjovice I. (southern Bohemia). In: Hanel, L. (Ed.): Vazky 1999. Sborník referátu z mezinárodního semináře konaného v Podblanickém ekocentru CSOP ve Vlasimi 6.-7.3.1999. ISBN 80-86327-00-0: 47-52. (in Czech with English summary). [Two localities (forest lake, gravel-pit) in the environs of České Budjovice, Czech Republic were surveyed for their odonate fauna. 33 excursions between 1985 and 1988 are documented in detail in a "present-absent-table" for the forest lake and the gravel pit (5 excursions).] Address: Cempírek, J., Vidov 37, 370 07 České Budejovice, Czech Republic

**2250.** Devai, G.; Miskolczi, M. (1999): Faunistic data on dragonflies (Odonata) of the creek Ölyvös (E-Hungary). *Studia odonatol. hung.* 5: 5-13. (in Hungarian with English summary). [The paper presents faunistic data based on an adults collection of the geographical microregion Bihari-sík in E-Hungary (administrative area of the settlements Berettyóújfalu, Bojt, Mezöpeterd). Between 1983 and 1986, 28 species were recorded along the Ölyvös, a typical small and fast-flowing creek of the Hungarian plains. *Coenagrion pulchellum*, *C. ornatum*, *Sympecma fusca*, *Brachytron pratense*, *Sympetrum flaveolum*, and *S. meridionale* should be mentioned.] Address: Devai, G., Department of Ecology, Kossuth L. University, H-4010 Debrecen, P.O. Box 71, Hungary

**2251.** Devai, G.; Miskolczi, M. (1999): Revelation of the facts and prediction of the state for the dragonfly (Odonata) fauna of the Aggtelek National Park and its surroundings. *Studia odonatol. hung.* 5: 47-65. (in Hungarian with English summary). [Aggtelek National Park, North-Hungary; the paper compiles and

discusses literature data of 22 species including *Coenagrion lunulatum* and *C. scitulum*.] Address: Devai, G., Department of Ecology, Kossuth L. University, H-4010 Debrecen, P.O. Box 71, Hungary

**2252.** Hanel, L. (1999): A six-language dictionary of the central European dragonflies. In: Hanel, L. (Ed.): Vazky 1999. Sborník referátu z mezinárodního semináře konaného v Podblanickém ekocentru CSOP ve Vlasimi 6.-7.3.1999. ISBN 80-86327-00-0: 105-116. (in Czech with English summary). [The popular names of 78 central European Odonata are compiled covering the Latin, Czech, Slovak, Hungary, German, and English languages.] Address: Hanel, L., Správa chránené krajinné oblasti Blaník, 257 06 Lounovice pod Blaníkem 8, Czech Republic. E-mail: blantik@schkocr.cz

**2253.** Hanel, L. (1999): An odonatological bibliography of the Czech Republic. In: Hanel, L. (Ed.): Vazky 1999. Sborník referátu z mezinárodního semináře konaného v Podblanickém ekocentru CSOP ve Vlasimi 6.-7.3.1999. ISBN 80-86327-00-0: 93-104. (in Czech with English summary). [About 200 papers with original odonatological information and covering 1859 - 1999 are compiled in this list] Address: Hanel, L., Správa chránené krajinné oblasti Blaník, 257 06 Lounovice pod Blaníkem 8, Czech Republic. E-mail: blantik@schkocr.cz

**2254.** Hanel, L. (1999): The directory of co-workers of dragonfly research in the Czech Republic. In: Hanel, L. (Ed.): Vazky 1999. Sborník referátu z mezinárodního semináře konaného v Podblanickém ekocentru CSOP ve Vlasimi 6.-7.3.1999. ISBN 80-86327-00-0: 117-119. (in Czech with English summary). [The list compiles 40 addresses of persons co-operating in the Czech Dragonfly Project.] Address: Hanel, L., Správa chránené krajinné oblasti Blaník, 257 06 Lounovice pod Blaníkem 8, Czech Republic. E-mail: blantik@schkocr.cz

**2255.** Hanel, L. (1999): The dragonflies (Odonata) of the nature Reserve "Podlesí" in the Protected Landscape Area Blaník (Central Bohemia, Czech Republic). In: Hanel, L. (Ed.): Vazky 1999. Sborník referátu z mezinárodního semináře konaného v Podblanickém ekocentru CSOP ve Vlasimi 6.-7.3.1999. ISBN 80-86327-00-0: 53-59. (in Czech with English summary). [A total of 29 odonate species were collected between 1992 and 1999. The two ponds studied are characterised by chemical parameters (including sediment load with heavy metals) and vegetation. The Odonata are arranged in a table, which provides information on phenology, dominance, and autochthony of the species. Some species of interest are *Lestes dryas*, *Sympecma fusca*, *Coenagrion hastulatum*, *Erythromma najas*, *Aeshna grandis*, *Anax parthenope*, *Anaciaeschna isocetes*, *Somatochlora metallica*, *Orthetrum albistylum*, *Sympetrum danae*, *S. flaveolum*, and *Leucorrhinia pectoralis*.] Address: Hanel, L., Správa chránené krajinné oblasti Blaník, 257 06 Lounovice pod Blaníkem 8, Czech Republic. E-mail: blantik@schkocr.cz

**2256.** Hanel, L.; Zelený, J. (1999): The Red List of Odonata in the Czech Republic - 1999 version. In: Hanel, L. (Ed.): Vazky 1999. Sborník referátu z mezinárodního semináře konaného v Podblanickém ekocentru CSOP ve Vlasimi 6.-7.3.1999. ISBN 80-86327-00-0: 77-

81. (in Czech with English summary). [Based on the 1997-state of information a Red List of the Czech Republic is presented. The list also contains the Czech names of the Odonata.] Address: Hanel, L., Správa chránené krajinné oblasti Blaník, 257 06 Lounovice pod Blaníkem 8, Czech Republic. E-mail: blanik@schkocr.cz

**2257.** Hanel, L. (1999): Topical knowledge on dragonflies (Odonata) in the Czech Republic territory. In: Hanel, L. (Ed.): Vazky 1999. Sborník referátu z mezinárodního semináře konaného v Podblanickém ekocentru CSOP ve Vlasimi 6.-7.3.1999. ISBN 80-86327-00-0: 7-15. (in Czech with extensive English summary). [The paper outlines the current status of odonatological research in the Czech Republic starting with the first studies published in the end of the 19th century. In 1994 a National Biodiversity projekt "Dragonflies" was started, which enforced recent odonatological research. As a aim of this project, handbooks were released, and educating of persons interested in Odonata was started. The first results of these endeavours were presented in 1999 in the framework of an odonatological meeting in Vlasim. Assessed on the basis of 100 km<sup>2</sup> squares, in the end of the 20th century odonatological information of app. 1/3 of all squares is available. Middle term aims of odonatological studies are the preparation of a Red List and realising an atlas of the Czech Odonata.] Address: Hanel, L., Správa chránené krajinné oblasti Blaník, 257 06 Lounovice pod Blaníkem 8, Czech Republic. E-mail: blanik@schkocr.cz

**2258.** Hatanaka, N. (1999): Report of the survey trip of the Hyogo Society of Odonatology, Part 4 in 1998. *Sympetrum Hyogo* 6: 33-35. (in Japanese with English summary). [The rare *Stylurus nagoyanus* (imagoes), and *Macromia daimoji* (larvae) were observed on 6 September 1998 at Izushi River, Izushi-cho, Hyogo Prefecture, Japan. A table with additional records of 18 taxa is appended.] Address: not stated

**2259.** Hlásek, J. (1999): The dragonfly *Nehalennia speciosa* - a new species in the Czech Republic. In: Hanel, L. (Ed.): Vazky 1999. Sborník referátu z mezinárodního semináře konaného v Podblanickém ekocentru CSOP ve Vlasimi 6.-7.3.1999. ISBN 80-86327-00-0: 75-76. (in Czech with English summary). [*N. speciosa* is described from the boggy fen "Kramafka" (Czech mapping square 6854). The locality is situated in the Protected Landscape Area Trebonsko (South Bohemia). In total 37 mostly freshly hatched specimens (17 males and 20 females) were found on 14. July 1998. The habitat is characterized by the plant community of *Caricetum rostratae*. Co-occurring species are *Aeshna juncea*, *Calopteryx splendens*, *Coenagrion hastulatum*, *C. puella*, *Cordulia aenea*, *Erythromma najas*, *Ischnura elegans*, *Lestes sponsa*, *Leucorrhinia rubicunda*, *Libellula quadrimaculata*, *Platycnemis pennipes*, *Pyrrhosoma nymphula*, *Sympecma fusca*, *Sympetrum danae*, and *S. vulgatum*.] Address: Hlásek, J., 39181 Veselí nad Lužnicí I/308, Czech Republic

**2260.** Huber, A. (1999): Data on the dragonfly (Odonata) fauna of the Landscape Protection Area of Middle-Tisza and its surroundings. *Studia odonatol. hung.* 5: 29-46. (in Hungarian with English summary). [Hungary; between April 1994 and November 1996, 38 species were collected at 51 localities. Records of

*Coenagrion pulchellum*, *Erythromma najas*, *E. viridulum*, *Sympecma fusca*, *Stylurus flavipes*, *Epithea bimaculata*, *Lestes virens*, *Brachytron pratense*, *Sympetrum depressiusculum*, *S. flaveolum*, *S. meridionale*, and *S. pedemontanum* should be noted.] Address: Huber, A., Department of Ecology, Kossuth L. University, H-4010 Debrecen, P.O. Box 71, Hungary

**2261.** Isley, M. (1999): Flutter by, dragonfly, that we may know you better. *Lake County News-Chronicale* 19 July 1999: 1, 3. (in English). [Copy of a report of the WDA-symposium in a regional newspaper, printed in the Nord. *Odonatol. Soc. Newsl.* 7(1): 18.] Address: not stated

**2262.** Lucan, R. (1999): The first discovery of the dragonfly *Coenagrion scitulum* in the Czech Republic. In: Hanel, L. (Ed.): Vazky 1999. Sborník referátu z mezinárodního semináře konaného v Podblanickém ekocentru CSOP ve Vlasimi 6.-7.3.1999. ISBN 80-86327-00-0: 73-74. (in Czech with English summary). [4.7.1997 a small population of *C. scitulum* was found near the village Sisma (district Prerov, central Moravia) behind a dam. Unfortunately the habitat was destroyed later by the destruction of the dam as a consequence of a big flood.] Address: Lucan, R., U rev'ru 151, CZ-76872 Chvalcov, Czech Republic

**2263.** Marík, J. (1999): A note to the occurrence of the dragonfly *Cordulegaster boltonii* in the vicinity of the town As (western Bohemia, Czech Republic). In: Hanel, L. (Ed.): Vazky 1999. Sborník referátu z mezinárodního semináře konaného v Podblanickém ekocentru CSOP ve Vlasimi 6.-7.3.1999. ISBN 80-86327-00-0: 61-63. (in Czech with English summary). [Several specimens of *C. boltonii* were observed near the Czech-German border. The habitats are briefly characterized and co-occurring odonate species are listed.] Address: Marík, J., Dukelská 26, CZ-35002 Cheb 2, Czech Republic

**2264.** Matsuda, I. (1999): A late emergence of *Anax nigrofasciatus nigrofasciatus*. *Sympetrum Hyogo* 6: 38. (in Japanese with English summary). [A male *Anax n. nigrofasciatus* emerged at an outdoor pond on October 13, 1998 from a larva caught on October 10 at a dragonfly pond in Amagasaki City, Hyogo Prefecture. This record is noteworthy as a case of very late emergence." (Author)] Address: not stated

**2265.** Mocek, B. (1999): A current state of the dragonfly (Odonata) research in the eastern Bohemia. In: Hanel, L. (Ed.): Vazky 1999. Sborník referátu z mezinárodního semináře konaného v Podblanickém ekocentru CSOP ve Vlasimi 6.-7.3.1999. ISBN 80-86327-00-0: 17-46. (in Czech with English summary). [508 odonatological data from 97 localities and referring to 46 species (collected between 1981 and 1997) are detailed in an extensive table.] Address: Mocek, B., Regional Museum of Eastern Bohemia, Dept Natural History, Eliscino Nábřezí 465, CZ-50001 Hradec Králové, Czech Republic. e-mail: mvc@mvc.anet.cz

**2266.** Moens, J. (1999): *Libellen boeiende getuigen van een ver verleden*. Limburg University Centre-nieuws Feb. 1999: 20-24. (in Dutch). ["Dragonflies, fascinating witnesses from a far past." This is an introduction into dragonfly biology directed to a general reader. The paper is illustrated with some black and white drawings, and a portrait of Prof. Dr. Jos Moens.] Address: Moens, J., Dept. S.B.M., Limburgs Universitair

Centrum, Universitaire Campus, B-3610 Diepenbeek, Belgium

**2267.** Moriyasu, T. (1999): Larvae of *Macromia daimoji* first caught at Chikusa River, Hyogo Prefecture. *Sympetrum Hyogo* 6: 8. (in Japanese with English summary). [Two final instar larvae of *M. daimoji* were caught on 3 January 1998 in the Chikusa River, Ako City, Hyogo Prefecture, Japan.] Address: not stated

**2268.** Naraoka, H. (1999): On the *Forcipomyia* (*Pterobasca*) *tokunagai* Oka and *Asahina* (Diptera: Ceratopogonidae). *Journal of natural History of Aomori* 4: 17-21. (in Japanese (Translation by H. Naraoka and N. Ishizawa)). [The paper compiles published records of the ceratopogonid *F. (Pterobasca) tokunagai* parasitizing Japanese Odonata. The author adds some new material collected between 1985 and 1998 (*Mnais pruinosa* Selys 1853, *Davidius moiwanus* (Okumura 1935), *Davidius fujiana* Fraser, 1936, *Sympetrum darwinianum* (Selys 1883), *S. frequens* (Selys 1883), *S. eroticum* (Selys 1883), *S. infuscatum* (Selys 1883), *Trithemis aurora* (Burmeister 1839), and *Pseudothemis zonata* Burmeister, 1839). More recently published assumptions, Ceratopogonidae would stuck Odonata during emergence are rejected. The author didn't find just emerged dragonflies parasiticed, but parasitism on mature dragonflies was recognized. Parasitism is interpreted to depend on congruence of flight period of the ceratopogonid and odonate specimens.] Address: Naraoka, H., 36-71, Aza-Motoizumi, Fukunoda, Itayanagi-cho, Kita-gun, Aomori Prefecture, 038-3661, Japan

**2269.** Nishu, S. (1999): Report of the survey trip of the Hyogo Society of Odonatology, Part 3 in 1998. *Sympetrum Hyogo* 6: 29-32. (in Japanese with English summary). [Mojima Pond, Kinosaki-cho Hyogo Prefecture, Japan was visited during July 19-20, 1998. The society carried out annual survey trips for *Mortonagrion Hirosei* since the first discovery in 1992. It is planned to construct a sewage treatment plant at Kinosaki-cho, and a part of the habitat has to be filled up. Construction works had started already. *M. Hirosei* inhabits also the part to be destroyed. Some larvae of this species were found together with the larvae of *Ischnura senegalensis* which is a strong predator on the former species. Two additional habitats of *M. Hirosei* were visited. *Stylurus nagoyanus*, *Onychogomphus viridicostus*, and *Macromia daimoji* have been found at Izushi River.] Address: Nishu, S., 247 Gunge Shonomoto, Mikage-cho, Higashinda-ku, Kobe, Hyogo, 658-0057, Japan. E-mail: Snishu@mx2.nisq.net

**2270.** Nishu, S. (1999): *Stylurus oculus* first found in Hyogo Prefecture. *Sympetrum Hyogo* 6: 3. (in Japanese with English summary). [The species was caught on 18 July 1998 at the seashore of Suma, Kobe City, Japan. It is the 98th Odonata reported from the Hyogo Pref., and the 90th in Kobe City.] Address: Nishu, S., 247 Gunge Shonomoto, Mikage-cho, Higashinda-ku, Kobe, Hyogo, 658-0057, Japan. E-mail: Snishu@mx2.nisq.net

**2271.** Oka, I. (1999): Report of the survey trips of the Hyogo Society of Odonatology, Part 1 and 2 focused to *Libellula angelina*. *Sympetrum Hyogo* 6: 23. (in Japanese with English summary). [A total of 18 members of the Society failed on 3 and 24 May 1998 to discover this endangered species in Sara Pond, Ono

City, Hyogo Prefecture, while between 1991-1994, about 200-300 imature specimens were observed every year at both Yude Pond in Kobe City and Sara Pond in Ono City. The species disappeared in 1995 at the former pond, and in 1997 at the latter pond. The law regulation - started in 1993 - couldn't stop the extinction of *L. angelina*. A brief note is made to longevity of a specimen marked at emergence (53 days). Additional species recorded in the framework of the survey are listed in appended tables.] Address: not stated

**2272.** Olajos, P.; Kiss, B. (1999): Data on the dragonfly (Odonata) fauna of the north-eastern part of the Hungarian flatland Tiszai-Alföld. *Studia odonotologica* 5: 15-28. (in Hungarian with English summary). [A total of 43 species was collected at 54 localities in the eastern part of Great Hungarian Plain. Records of *Leucorrhinia caudalis*, *L. pectoralis* and *Aeshna cyanea* are considered of special regional interest. In addition, *Brachytron pratense*, *Aeshna viridis*, *Stylurus flavipes*, *Ophiogomphus cecilia*, *Epithea bimaculata*, and *Sympetrum depressiusculum* should be noted.] Address: Olajos, P., Hortobágy Nemzeti Park, Igazgatóság, H-4024 Debrecen, Sumen u.2, Hungary

**2273.** Potrykus, W.; Strätz, C.; Weid, S. (1999): Zum Vorkommen der Gemeinen Keiljungfer [*Gomphus vulgatissimus* (Linnaeus 1758)] in Oberfranken. *Ber. naturf. Ges. Bamberg* 73: 51-64. (in German). [Compilation and mapping of records of *G. vulgatissimus* in the region Oberfranken, Bayern, Germany. In addition records of the regionally rare *Onychogomphus forcipatus* are dealt with.] Address: Strätz, C., Alexanderstr. 5, D-95444 Bayreuth, Germany. E-mail: chris.straetz@bth.de

**2274.** Sálek, P. (1999): The faunistic research of dragonflies (Odonata) in three marshes in the district Vsetín (north Moravia, Czech Republic). In: Hanel, L. (Ed.): *Vazky 1999. Sborník referátu z mezinárodního semináře konaného v Podblanickém ekocentru CSOP ve Vlasimi 6.-7.3.1999*. ISBN 80-86327-00-0: 65-68. (in Czech with English summary). [A total of 22 species were recorded at three localities. Some management measures are proposed to improve situation for Odonata.] Address: Sálek, P., Visnovce 1093, CZ-746824 Hulín, Czech Republic

**2275.** Sasamoto, A.; Inoue, K. (1999): *Anax guttatus* caught at Aonogahara, Hyogo Prefecture. *Sympetrum Hyogo* 6: 36-37. (in Japanese with English summary). ["Sasamoto visited Sara Pond and Hira Pond in Aonogahara, Hyogo Prefecture on October 10, 1998, and caught 1 male and 1 female *Anax guttatus*. Next day Inoue visited Sara Pond, not knowing the former's findings, and caught 1 male of the same species. In both cases several males of this tropical aeshnid species were observed patrolling rapidly in search of females along the shore, and Sasamoto found a female ovipositing solitarily. This female was brought home, and laid ca 2,000 eggs in two days. Eggs started to hatch 15 days after oviposition under the room temperature of about 20°C." ] Address: Inoue, K., 5-9 Fuminosato 4-chome, Abeno-ku, Osaka 545, Japan

**2276.** Sogame, S. (1999): Odonate fauna of Kohzuki and the neighbouring localities in Sanda City, Hyogo Prefecture. *Sympetrum Hyogo* 6: 4-7. (in Japanese with English summary). [Between 1996 and 1998, 47 species were recorded. The survey stressed on the

fauna of sunny irrigation ponds (For riverine Odonata see Sogame 1998).] Address: not stated

**2277.** Yagi, T. (1999): Collection records of *Anax guttatus* in Sanda City, Hyogo Prefecture. *Sympetrum Hyogo* 6: 38. (in Japanese). [Two records of *A. guttatus* are communicated.] Address: not stated

**2278.** Yagi, T. (1999): Poster exhibition at the 9th Dragonfly Citizen Summit in Kobe. *Sympetrum Hyogo* 6: 39. (in Japanese). [A poster of *Mortonagrion hirosei* without further explanations presented on 23 August 1998 is documented.] Address: not stated

## 2000

**2279.** Alvo, R.; Campbell, D. (2000): Pre-fledged Common Loon, *Gavia immer*, on an acidic lake dies with food bolus in esophagus. *Can. Field-Nat.* 114(4): 700-702. (in English). ["A moribund pre-fledged Common Loon (*Gavia immer*) with a bulge in its throat was collected from acidic Silvester Lake. It died soon afterwards. Dissection of the bird revealed that the bulge was a food bolus containing Yellow Perch (*Perca flavescens*), dragonfly larvae (*Somatochlora cingulata* and *Aeshna* sp.), crayfish (*Cambarus robustus*) and whirligig beetles (*Dineutus* sp.). We suggest this bird may have swallowed a large fish that punctured the esophagus on its way to the proventriculus, causing peristalsis to cease. Food subsequently swallowed could not move beyond the esophagus, thus forming the bolus. The loon may have swallowed the large fish because food of suitable size for a bird of that size was in short supply due to the lakes acidity." (Author)] Address: Alvo, R., 58 Rue Parulines, Hull, PQ J9A 1Z2, Canada

**2280.** Bánkúti, K.; Devai, G.; Miskolczi, M. (2000): Data on the dragonfly (Odonata) fauna of the Aggtelek region based on a survey of exuvia. *Studia odonatol. hung.* 6: 21-25. (in Hungarian with English summary). [In 1993, 18 odonate species (exuviae) were collected at 17 localities in Aggtelek National Park, N-Hungary. The list includes *Coenagrion ornatum* and *Ophiogomphus cecilia*.] Address: Devai, G., Department of Ecology, Kossuth L. University, H-4010 Debrecen, P.O. Box 71, Hungary

**2281.** Bechly, G. (2000): A new fossil damselfly species (Insecta: Odonata: Zygoptera: Coenagrionidae: Ischnurinae) from Dominican Amber. *Stuttg. Beitr. Naturk. (B)* 299: 1-9. [*Ischnura velteni* sp. n. is described from an unknown locality, Dominican Republic, Eocene-Miocene (female holotype: Do-5687, in SMNS, Stuttgart). It represents the first fossil record of this genus, and it is one of the smallest known fossil Odonata. Its systematic position is outlined and discussed.] Address: Bechly, G., Staatliches Museum für Naturkunde, Abt. Paläontologie, Rosenstein 1, D-70191 Stuttgart, Germany. E-mail bechly@gmx.de

**2282.** Bedjanic, M.; Pirnat, A. (2000): A contribution to the knowledge of the dragonfly fauna (Insecta,

Odonata) of the Vipava valley, W-Slovenia. *Natura Sloveniae* 2(2): 29-45. (in Slovene with extensive English summary). ["An annotated list of 32 dragonfly species collected at 27 localities during the 1994-2000 period is given. Three species, viz. *Ceriatagrion tenellum*, *Anax parthenope*, and *Libellula fulva*, are new for the investigated area. The records of *Coenagrion ornatum*, *Cerion lindenii*, *Cordulegaster heros*, *Somatochlora flavomaculata*, and *Orthetrum c. coerulescens* are also briefly commented as they deserve attention from zoogeographical or nature conservation point of view. A list of 44 dragonfly species, hereto reported from the Vipava valley with its surroundings, is compiled and an odonatological bibliography of the investigated area is presented." (Authors)] Address: Pirnat, Alja, Biološki Institut, ZRC SAZU, Novi trg 5, SI-1000 Ljubljana, Slovenia. E-mail: alja@zrc-sazu.si

**2283.** Beutler, H. (2000): Landschaft in neuer Bestimmung. *Russische Truppenübungsplätze*. Findling. Neuenhagen. ISBN 3-933603-11-0. 192 pp. (in German). [Texts directed to a public interested in nature, and intrusive colour photos elucidate the outstanding importance of the former military training areas of the Russians in Germany for nature conservation purposes. In an appendix, 12 of these training areas are characterised in detail. As far as odonatological data are available, these are compiled. Of special interest are *Coenagrion mercuriale*, *Nehalennia speciosa*, *Aeshna viridis*, *Epithea bimaculata*, *Leucorrhinia albifrons*, *L. caudalis*, *L. pectoralis*, and lake-populations of *Cerion lindenii* and *Onychogomphus forcipatus*.] Address: Beutler, H., Kirschallee 35, D-15848 Stemmen, Germany

**2284.** Bezdecka, P. (2000): Dragonflies (Odonata) of the Chriby Highlands (Moravia, Czech Republic). In: Hanel, L. (Ed.): *Vazky 2000. Sborník referátu III. celostátního semináře odonatologu, který se konal v Chráněné krajinné oblasti Trebonsko 15.-18.6.2000*. Vlasim. ISBN 80-86327-12-4: 154-161. (in Czech with English summary). [The survey of 47 localities resulted in 35 Odonata, which are briefly commented. The region seems to be a hot spot for the rare *Cordulegaster boltonii* and *Thecagaster bidentata* in the Czech Republic.] Address: Bezdecka, P., V. Vaculky 994, CZ-68605 Uherské Hradiště, Czech republic. E-mail: pbezdecka@iol.cz

**2285.** Bösel, A. (2000): Hat *Aeshna subarctica* (Walker 1908) in Nordostdeutschland eine Überlebenschance? *Natur und Landschaft* 76(6): 257-261. (in German with English summary). ["The exuvia of *A. subarctica* have been recorded since 1995 in the Göldeitzer Moor mire in the German regional state of Mecklenburg / Western Pomerania. Occurrence declined within 6 years from 322 to 12 hatched individuals. This is associated with the simultaneously observed disappearance of *Sphagnum* ssp. The loss of *Sphagnum* plants is due to intensive drainage and elevated nutrient availability. In the Horster Moor mire, a presumably extinct population re-established itself after restoration measures as an abundant and autochthonous population. Restoration of the Horster Moor site, where peat had previously been extracted industrially commenced in 1986 by water-logging this ombrogenous bog. At first, *Sphagnum* cover developed only slowly. Finally, however, in shallow flooded areas a stand of *Eriophorum* ssp. with mossy bog ponds



developed. In areas where manual peat-digging was practised, too, flooded Sphagnum grew again after the water level rose. Consequently, after 14 years of recultivation, *A. subarctica* has re-established itself with a major autochthonous population. However, this population remains endangered by eutrophication of its larval waters." In Western Pomerania 9 additional localities with records of *A. subarctica* are known, which are in total severely threatened. The author therefore take at medium-terms the extinction of this dragonfly in north-eastern Germany as likely. Comment of M. Schorr: *A. subarctica* is not occurring in Germany, the correct taxa is *Aeshna subarctica elisabethae* Djakonov, 1922.] Address: Bönsel, A., Vasenbusch 15, D-18337 Gresenhorst, Germany. E-mail: andre.boensel@gmx.de

**2286.** Burkart, G.; Burkart, W. (2000): Två nya trollsländearter för Gotland! *Körkmacken* 27: 14-15. (in Swedish). [Two new Odonata for Gotland. *Sympetma fusca* and *S. paedisca* have been discovered in late April 2000 on the island of Gotland, Sweden. Both species are new for the island, and *S. paedisca* never has been observed prior 2000 in Sweden. Hence, a new Swedish name "Sibirisk vinterflickslända" is proposed.] Address: Burkardt, G. & W., Am Emel 7, D-27412 Wilstedt b. Bremen, Germany

**2287.** Burkart, W. (2000): Trollsländefynd, *Aeshna mixta*. *Körkmacken* April 2000: 3. (in English with Swedish notes). [This is a faunistic note on a record of *A. mixta* which is new to the Island of Gotland, Sweden. Locality information are very detailed, but the date of record (probably 1999) is missing.] Address: Burkardt, W., Am Emel 7, D-27412 Wilstedt, Germany.

**2288.** Burmeister, E.-G. (2000): Der Einsatz von Bti-Präparaten zur Steckmückenbekämpfung - Hintergründe, Risiken und Bedenken. *Berichte der Akademie für Naturschutz, Laufen* 24: 125-136. (in German with English summary). ["In the last years in Germany, especially in Bavaria, mosquito control has come into high demand. Mosquito populations, within their natural turnover have not increased, but the contact zones between mosquito and man have. Recreational activities, sports and sports fields, camping sites, restaurants etc. are entering areas like alluvial flood plains or flooded areas of lakes dominated by mosquitoes. The same applies to residential areas. The extract from *Bacillus thuringiensis israelensis* (Bti) was developed for biological pest-control (endo-toxin) effective specifically against mosquitoes (Culicidae) and black-flies (Simuliidae), according to assurances by the producer and persons with interests in using Bti. The difficulties with Bti applications are demonstrated here. Bti has also been used against non-biting midges (Chironomidae) in the impoundments of the Danube river (Bavaria). This study documents further that other animals in small ponds are also killed. Together with the primary effect on target and non-target organisms also the secondary effect on higher levels in the food chains, such as birds and bats, is to be emphasised: the reduction of the masses of mosquitoes and midges, the basis for their nutrition. Pest control with Bti is an intervention in the biocoenotic systems of valuable habitats. In the present work, the biology of mosquitoes, their control with modern methods and aspects, the effect on animal life in habitats and the studies on the success of the pest-control are documented. The most

problematic applications of this special insecticide in protected areas are discussed. Some alternative methods for prevention against mosquitoes are given." (Author) In table 1 literature data on impact of Bti on taxa is compiled. Short time studies - up to 1 month - on Odonata (*Calopterygidae* spp., *Ischnura elegans*, *Aeshna* sp., *Sympetrum striolatum*, *Orthetrum brunneum*) didn't find any influence on the taxa. In two studies population density of *Coenagrionidae* and *Anax* sp. was reduced.] Address: Burmeister, E.-G., Zoologische Staatssammlung, Münchenstr. 21, D-81247 München, Germany

**2289.** Catling, P.M.; Jones, C.D.; Pratt, P. (Eds) (2000): Ontario Odonata, vol. 1. In: Catling, P.M., C.D. Jones & P. Pratt (Eds): Ontario Odonata, vol. 1. Toronto Entomologist's Association, Toronto, Ontario. 153 pp. (in English). [This is the first volume of a series devoted to the Ontario (Canada) Odonata. Plenty odonatological contributions - as far as they are "scientific papers" they are abstracted in OAS 9 - are published. The issue contains some additional organisational information and comments as follows: "Ontario Odonata Projects", "News: 1. A new species of *Neurocordulia* (Odonata: Anisoptera: Corduliidae) from eastern North America", 2. Damselflies and dragonflies (Odonata) of Ontario: resource guide and annotated list, and 3. A field guide to the Dragonflies and Damselflies of Algonquin Provincial Park". "Notice to contributors" introduces and organises the Ontario Odonata Survey. An index of 1999 Ontario species closes the impressive contribution to the knowledge of North American Odonata.] Address: Alan J. Hanks, 34 Seaton Drive, Aurora, Ontario, Canada L4G 2K1. E-mail: A.Hanks@aci.on.ca

**2290.** Catling, P.M.; Jones, C.D.; Pratt, P. (2000): Introduction to the 1999 Ontario Odonata Summary Records. In: Catling, P.M., C.D. Jones & P. Pratt (Eds): Ontario Odonata, vol. 1. Toronto Entomologist's Association, Toronto, Ontario: 54-145. (in English). [29 odonatologists contributed to the Ontario odonate survey. The data are presented in a table giving information on species, county, location, latitude and longitude of localities, collecting date, collector, and status (imago, larva); the table includes 3612 records. In addition, information of weather conditions in 1999 and trends, analyses and notable records of selected species are given. Special emphasize is given to *Anax junius*, *Epithea canis*, and *Sympetrum vicinum*] Address: Catling, P.M., 2326 Scrivens Drive, R.R. 3, Metcalfe, Ontario K0A 2P0, USA. E-mail: brownell@achilles.net

**2291.** Cempírek, J. (2000): A contribution to the knowledge of dragonflies (Odonata) of the pond Svárov near Porič nad Sázavou (Central Bohemia). In: Hanel, L. (Ed.): Vazky 2000. Sborník referátu III. celostátního semináře odonatologu, který se konal v Chránené krajinné oblasti Trebonsko 15.-18.6.2000. Vlasim. ISBN 80-86327-12-4: 114-117. (in Czech with English summary). [A fishpond - surveyed in 1991 - harbours 18 odonate species.] Address: Cempírek, J., Vidov 37, 370 07 České Budejovice, Czech Republic

**2292.** Cempírek, J. (2000): Dragonflies (Odonata) of three peat bogs in the Sumava mountains. In: Hanel, L. (Ed.): Vazky 2000. Sborník referátu III. celostátního semináře odonatologu, který se konal v Chránené

krajinné oblasti Trebonsko 15.-18.6.2000. Vlasim. ISBN 80-86327-12-4: 130-143. (in Czech with English summary). [The list of 17 species include *Coenagrion hastulatum*, *Aeshna juncea*, *A. subarctica elisabethae*, *Somatochlora alpestris*, *S. arctica*, and *Leucorrhinia dubia*.] Address: Cempírek, J., Vidov 37, 370 07 České Budejovice, Czech Republic

**2293.** Chovanec, A. (2000): Dragonflies (Insecta: Odonata) as indicators of the ecological integrity of aquatic systems - a new assessment approach. *Verh. Internat. Verein. Limnol.* 27: 887-890. (in English). [Odonata are considered reliable indicators for assessing the "ecological quality of land-water ecotones and the habitat heterogeneity (e.g. structural components like aquatic vegetation) of water bodies. In view of the new European water management legislation, the development of new practical assessment approaches is essential. One of the major targets of the draft Council Directive establishing a Framework for Community Action in the Field of Water Policy (EU Water Framework Directive, EUWFD; EUROPEAN UNION COUNCIL 1998) is to classify the ecological status of surface waters in a five-stage system ("high", "good", "moderate", "poor", "bad"). Within this process, investigations of the biological community play a major role. The ecological status of water bodies can be assessed by comparing the status quo of the habitat and a reference condition [...]. The goal of this paper is to demonstrate a new approach to assess aspects of the ecological integrity of standing waters or wetlands by analysing dragonfly communities. The method has been designed to meet the requirements of the new EUWFD" using the dragonfly fauna of the Tritonwasser and Priessnitz Pond (Austria) as case studies.] Address: Chovanec, A., c/o Umweltbundesamt, Spittelauer Lände 5, A-1090 Wien, Austria. E-mail: chovanec@ubavie.gv.at

**2294.** David, S. (2000): Dragonflies (Insecta-Odonata) of the Slovak-Moravian Carpathians Mountains and the Dolnovazska niva Lea. *Biodiversitas Slovaca* 1: 61-69. (in English with Slovakian summary). [Between 1988 and 1993 21 localities of the Biele Karpaty mountains, Povazie Valley, Myjakské pahorkatiny Hill-land and Dolnovazska niva Lea were surveyed. 28 odonate species including the rare Slovakian *Sympetma fusca*, *Lestes virens*, *L. viridis*, *Ischnura pumilio*, *Anax imperator*, *Epiptera bimaculata*, *Crocothemis erythraea*, and *Sympetrum pedemontanum* could be traced. The species of different water body types are classified as *Orthetrum* - *Libellula depressa*-, *Lestes* - *Sympetrum* - *Aeshna mixta*- and *Anax* - *Erythromma najas*-coenoses.] Address: David, S., ÚKE SAV, Akademická 2, SK-94901 Nitra, Slovakia. E-mail: david@pribina.savba.sk

**2295.** Devai, G.; Miskolczi, M. (2000): Data on the dragonfly (Odonata) fauna of the Aggtelek region based on a survey of adults. *Studia odonotol. hung.* 6: 5-19. (in Hungarian with English summary). [In 1992 and 1993, 40 odonate species (imagos) were collected at 54 localities in Aggtelek National Park, N-Hungary. The species-wise documentation includes *Coenagrion ornatum*, *Ophiogomphus cecilia*, and *Sympetrum depressiusculum*.] Address: Devai, G., Dept of Ecology, Kossuth L. University, H-4010 Debrecen, P.O. Box 71, Hungary

**2296.** Devai, G.; Miskolczi, M. (2000): Results of biodiversity monitoring on community level by dragonflies (Odonata) in the inundation area (HNBM Programme, Pilot Project) of River Tisza between Tiszabercel and Balsa (NE-Hungary). *Studia odonotol. hung.* 6: 27-54. (in Hungarian with English summary). [This is an attempt to characterise odonate species assemblages on the community level building so called coenoses. The study was realized in the framework of the Hungarian National Biodiversity Monitoring (HNBM)-Programme at six localities in the floodplain of river Tisza. Ox-bows are characterised by a *Ischnura elegans*-*Orthetrum albistylum*-coenoses, marshes by the *Lestes sponsa*-*Sympetrum sanguineum* coenoses. The localities are documented in detail by habitat parameters and photographs as well as by species assemblages.] Address: Devai, G., Department of Ecology, Kossuth L. University, H-4010 Debrecen, P.O. Box 71, Hungary

**2297.** Di Giovanni, M.V.; Goretti, E.; Larporta, E.; Ceccagnoli, D. (2000): Larval development of *Libellula depressa* (Odonata, Libellulidae) from pools in central Italy. *Ital. J. Zool.* 67: 343-347. ["The developmental stages of the larvae of *L. depressa* were investigated for three years in permanent freshwater pools in central Italy. Eleven instars (F-0 - F-10) of *L. depressa* were discriminated by size and scatter plot. Scatter plots were constructed using the following measurements: labium length, head width, metafemur length, forewing-pad length, and total larval body length. Prolarvae instar was derived by Dyer's law. The mean growth rate coefficient values were about 0.77 for isometric parameters and 0.51 for the forewing-pad allometric parameter. *L. depressa* appeared to be a 'spring species', as defined by Corbet, and the population we studied had a mainly semivoltine life history and, probably, a small proportion of the larvae a univoltine cycle. Eggs showed direct development."] Address: Di Giovanni, M.V., Dipto Biol. anim. & Ecol., Univ. Perugia, Via Elco di Sotto, 1-06123 Perugia

**2298.** Dolný, A.; Volná, K.; Veselý, M. (2000): On the occurrence of dragonflies (Odonata) in two nature reserves of south-east Asia (Thailand, Malaysia). In: Hanel, L. (Ed.): *Vazky 2000. Sborník referátů III. celostátního semináře odonatologů, který se konal v Chráněné krajinné oblasti Trebonsko 15.-18.6.2000.* Vlasim. ISBN 80-86327-12-4: 171-174. (in Czech with English summary). [24 taxa are listed for Chiang Mai (Thailand) and Kenong Rimba State Park (Malaysia).] Address: Dolný, A., Katedra biologie e ekologie, Přírodovědecká fakulta Ostravské university, Bráfova 7, CZ-70103 Ostrava 1, Czech Republic.

**2299.** Dunkle, S.W. (2000): *Dragonflies through binoculars.* Oxford University Press. ISBN 0-19-511268-7: 266 pp, 47 plates. (in English). [I hesitate to write that it will be possible to identify with certainty a specimen using a binocular and using this book. To do so, (1) a lot of "plate-turing" will be necessary, and (2) stamp-scaled photos will not enable you in every case to identify the species. I think the blatant title of the book - I expected figures and photos definitively enabling the secure identification of a specimen - "dazes" the real quality of Sid Dunkle's book. It contains a lot of sound information on North American Anisoptera well organised in app. 15 introductory chapters and 307 species accounts. After careful reading, Sid's

description of the very species will enable you in fact to identify a specimen: extensive information on identification, body features, and similar species provide a lot of help from one of the leading odonatologist, if not the authority on identification of North American Odonata. But, in field and using a binocular: is there enough to read the text and to find the plate with the very species? I feel not competent to assess this book resp. its didactical concept. Therefore I would recommend to read the reviews of Ken Tennessen in *Argia* 12(3), or Colin Jones in *Ontario Odonata* Vol 2. (Martin Schorr)

**2300.** Fischer, S. (2000): Kleiner Beitrag zur Ernährung des Drosselrohrsängers *Acrocephalus arundinaceus*. *Berliner ornithologische Berichte* 10: 49-51. (in German with English summary). [Odonata regularly are a preferred prey of the Great Reed Warbler, *A. arundinaceus* (Aves). In contrast to this, no Odonata could be found as prey at the Müggelsee, Berlin, Germany.] Address: Fischer, S., Anzengruberstr. 23, D-12043 Berlin, Germany

**2301.** Friess, T. (2000): Libellen (Odonata) und Wanzen (Heteroptera) aus dem Naturschutzgebiet "Gut Walterskirchen" am Wörthersee. *Carinthia* (II) 190/110: 517-530. (in German with English summary). [14 odonate species are listed from the "Walterskirchen" property, W of Krumpendorf, on the northern shore of Wörthersee, Carinthia, Austria. 4 of these are redlisted and their occurrence and biology are outlined in some detail.] Address: Friess, T., Inst. Zool., Univ. Graz, Universitätsplatz 2, A-8010 Graz, Österreich

**2302.** Gerhards, E. (2000): Der fliegende Tod (Gottfried von Wedig, Stilleben, 1639), Wallraf-Richartz-Museum, Köln. *SWR-Schulfernsehen Schuljahr 1999/2000* (3): 22-23. (in German). [A still life with a fly (Diptera: Muscidae) is described and background information on diseases caused by flies in past centuries are outlined. A dragonfly is sitting on an apple situated in a bowl. The text of the paper is layouted using *Aeshna cyanea*, but no reference is made to Odonata. Probably dragonflies symbolise most best a "flying death".] Address: SWR Schulfernsehen, Hans-Bredow-Straße, D-76530 Baden, Germany

**2303.** Gerken, B.; Böttcher, H.; Leitfeld, D.; Lohr, M.; Dörfer, K.; Leushacke-Schneider, C. (2000): Beurteilung von Regenerationsmaßnahmen durch vegetationskundliche und faunistische Untersuchungen - Beispiele aus der Oberweserniederung. *Angewandte Landschaftsökologie* 37: 205-216. (in German with English summary). [Results of a project to restore floodplain dynamics in the alluvium of the river Weser, Germany are briefly outlined. A status quo analysis was realized in 1989, restoration measures started in 1993. Vegetation was mapped in detail, and its succession and dynamic in the floodplain channel are illustrated. 32 species of Odonata are compiled in a table. Prior to the measures, 14 (1989) and 12 (1993) species could be observed. Species number increased in 1994 to 20, and 23 - 25 in 1995-1999. Dominance and abundance of species pulsated depending on habitat diversity and dynamic of water regime and vegetation development. Special emphasize is given to Lestidae, and the dependence of the genus from reed vegetation. The results demonstrate that measures as well as natural factors (flood) modify species composition, and make it

sometime difficult to assess the "success" of the measures in a political framework.] Address: Lohr, M., An der Kirche 22, D-37671 Hötter, Germany. E-mail: mlrohr@fh-hoexter.de

**2304.** Gueffroy, D.; Lieckweg, T. (2000): Zur Odonatenfauna des Fintlandsmoores (Landkreis Ammerland). *Dossera*, Oldenburg 2000: 53-65. (in German with English summary). ["On 10 excursions during 1999 the dragonfly fauna of the Fintlandsmoor, Ammerland county, was surveyed. The main focus of the survey was on the southern dystrophic rewetted bog and the undisturbed section of the former raised bog, which is situated in the centre of the nature reserve. A total of 15 indigenous dragonfly species were found. With reference to former surveys performed in 1973-78 and 1986 an increasing eutrophication was clearly shown by the changes in species composition. Currently suggestions for land-use, which would help secure the presence of certain endangered species such as *Ceragrion tenellum*, *Aeshna subarctica*, and members of the genus *Leucorrhinia*, are being developed and strengthened in order to protect these species within this region. It is important to note, that through a spatial separation of functions the conflicts between species protection, tourism, and natural succession will be reduced. The high dragonfly species diversity as well as the species composition are indicative of the extreme natural value of the Fintlandsmoor." (Authors)] Address: Gueffroy, D., Littenweilerstr. 36c; D-79117 Freiburg, Germany. E-mail: gueffroy@uni-freiburg.de

**2305.** Halacka, K.; Hanel, L. (2000): Dragonflies (Odonata) of the alluvial area of the lower stream of the river Dyje (Southern Moravia, Czech Republic). In: Hanel, L. (Ed.): *Vazky 2000. Sborník referátu III. celostátního semináře odonatologu, který se konal v Chráněné krajinné oblasti Trebonsko 15.-18.6.2000*. Vlasim. ISBN 80-86327-12-4: 118-129. (in Czech with English summary). [An intensive study from 1997 to 1999 along 32 stretches of the river Dyje, resulted in a total of 32 odonate species. Remarkable species are, *Lestes virens*, *L. dryas*, *Ischnura pumilio*, *Aeshna affinis*, *Anaciaeschna isocetes*, *Anax parthenope*, *Gomphus vulgatissimus*, *Orthetrum albistylum*, *O. brunneum*, *Sympetrum danae*, and *S. meridionale*.] Address: Hanel, L., Správa chráněné krajinné oblasti Blaník, 257 06 Lounovice pod Blaníkem 8, Czech Republic. E-mail: blanik@schkoc.cz

**2306.** Hanel, L.; Hlásek, J.; Cempírek, J.; Ciesla, M.; Dolný, A.; Fikáček, M.; Flíček, J.; Honcu, M.; Mocek, B.; Rejl, J.; Rus, I.; Sálek, P.; Zelený, J. (2000): List of dragonflies (Odonata) found during the 3rd Odonatological Days in June 2000 in the protected landscape area Trebonsko (southern Bohemia). In: Hanel, L. (Ed.): *Vazky 2000. Sborník referátu III. celostátního semináře odonatologu, který se konal v Chráněné krajinné oblasti Trebonsko 15.-18.6.2000*. Vlasim. ISBN 80-86327-12-4: 66-77. (in Czech with English summary). [A total of 36 species were found at ten localities during 15.-18. June 2000]. The species list includes some (very) rare Czech species as *Sympetma fusca*, *Lestes virens*, *L. dryas*, *Coenagrion hastulatum*, *Erythromma najas*, *Ischnura pumilio*, *Nehalennia speciosa*, *Gomphus vulgatissimus*, *Ophiogomphus cecilia*, *Cordulegaster boltonii*, *Orthetrum albistylum*, *Crocothemis erythraea*, *Leucorrhinia dubia*, *L.*

pectoralis, and *L.rubicunda*.] Address: Hanel, L., Správa chránené krajinné oblasti Blaník, 257 06 Lounovice pod Blaníkem 8, Czech Republic. E-mail: [blanik@schkocr.cz](mailto:blanik@schkocr.cz)

**2307.** Hanel, L. (2000 ): Note on dragonflies (Odonata) of the pools along-side Labe river near Celákovice (Central Bohemia). In: Hanel, L. (Ed.): Vazky 2000. Sborník referátu III. celostátního semináře odonatologu, který se konal v Chránené krajinné oblasti Trebonsko 15.-18.6.2000. Vlasim. ISBN 80-86327-12-4: 102-113. (in Czech with English summary). [Recently 25 species could be traced in the study area. Compared with data from 1889 to 1956 this is a significant loss of species.] Address: Hanel, L., Správa chránené krajinné oblasti Blaník, 257 06 Lounovice pod Blaníkem 8, Czech Republic. E-mail: [blanik@schkocr.cz](mailto:blanik@schkocr.cz)

**2308.** Hanel, L. (2000 ): Preliminary list of dragonflies (Odonata) in the protected landscape area Krivoklátsko (Central Bohemia). In: Hanel, L. (Ed.): Vazky 2000. Sborník referátu III. celostátního semináře odonatologu, který se konal v Chránené krajinné oblasti Trebonsko 15.-18.6.2000. Vlasim. ISBN 80-86327-12-4: 86-94. (in Czech with English summary). [28 species including the rare *Lestes virens*, *Coenagrion hastulatum*, *Erythromma najas*, *Gomphus vulgatissimus*, and *Sympetrum danae* are listed from 22 localities.] Address: Hanel, L., Správa chránené krajinné oblasti Blaník, 257 06 Lounovice pod Blaníkem 8, Czech Republic. E-mail: [blanik@schkocr.cz](mailto:blanik@schkocr.cz)

**2309.** Hanel, L. (2000): The world Red List of Odonata - version 1996. In: Hanel, L. (Ed.): Vazky 2000. Sborník referátu III. celostátního semináře odonatologu, který se konal v Chránené krajinné oblasti Trebonsko 15.-18.6.2000. Vlasim. ISBN 80-86327-12-4: 162-170. (in Czech with English summary). [This is a documentation of the IUCN Red List of Odonata, which in 1996 comprised 162 species. No species occurring in the Czech Republic are included in this list.] Address: Hanel, L., Správa chránené krajinné oblasti Blaník, 257 06 Lounovice pod Blaníkem 8, Czech Republic. E-mail: [blanik@schkocr.cz](mailto:blanik@schkocr.cz)

**2310.** Honcu, M.; Waldhauser, J. (2000): The dragonflies (Odonata) of the ponds Hranicni rybnik and jedlovské rybnik in the Lusation mountains (northern Bohemia, Czech Republic). In: Hanel, L. (Ed.): Vazky 2000. Sborník referátu III. celostátního semináře odonatologu, který se konal v Chránené krajinné oblasti Trebonsko 15.-18.6.2000. Vlasim. ISBN 80-86327-12-4: 78-85. (in Czech with English summary). [This study presents for the first time odonatalogical results from the Luzické hory Mountains. In total, 23 species including *Anax imperator*, *Aeshna juncea*, and *Cordulegaster boltonii* which are rare in the Czech Republic, are listed.] Address: Honcu, M., District Museum, CZ-47001 Česká Lípa, Czech Republic.

**2311.** Jelený, J.; Hanel, L. (2000): Comments on dragonflies (Odonata) of the Sumava mountains (southern Bohemia). In: Hanel, L. (Ed.): Vazky 2000. Sborník referátu III. celostátního semináře odonatologu, který se konal v Chránené krajinné oblasti Trebonsko 15.-18.6.2000. Vlasim. ISBN 80-86327-12-4: 144-153. (in Czech with English summary). [A compilation of available data totals in 40 odonate species. Among them are *Lestes macrostigma*, *Erythromma najas*,

*Coenagrion hastulatum*, *C. pulchellum*, *Aeshna caerulea*, *A. subarctica elisabethae*, *Thecagaster bidentata*, *Cordulegaster boltonii*, *Somatochlora alpestris*, *S. arctica*, *Sympetrum pedemontanum*, *S. danae*, *S. meridionale*, *Leucorrhinia albifrons*, *L. rubicunda*, and *L. dubia*.] Address: Hanel, L., Správa chránené krajinné oblasti Blaník, 257 06 Lounovice pod Blaníkem 8, Czech Republic. E-mail: [blanik@schkocr.cz](mailto:blanik@schkocr.cz)

**2312.** Kroehling, A. (2000): Renaturierung der Ergoldinger Au - Vorstellung der bisherigen Umsetzung (1995-1999). Selbstverlag Markt Ergolding: 26 pp. (in German). [Report of the realisation of an ambitious action plan for revitalising the floodplain of the Ergoldinger Au in Bavaria, Germany. Starting in 1991, in the successive period conservation and developing measures were realised. The report presents the results and the efficiency of measures for the period between 1995 and 1999. Odonata are referred and presented as "umbrella-species" or used as examples in the framework of environmental education. The booklet is a didactically very interesting combination of landscape or measurement plans with colour photos of species and habitats, and some general, but very interesting biological information. It can be ordered for 4 Euro at the address below.] Address: Markt Ergolding, Lindenstr. 25, D-84030 Ergolding, Bayern

**2313.** Lindenia No. 32 (2000): LINDENIA. Notiziario dell'Ufficio nazionale italiano della Società odonatologica internazionale, Napoli. Lindenia No. 32: 135-138. (in Italian). [Announcements of odonatalogical symposia; Dragonflies in WWW; *Anax* (Hemianax) ephippiger sightings in Italy, 1998- 2000] Address: C. D'Antonio, Via A. Falcone 386/b, 1-80127 Napoli, Italy: E-mail: [lindenia@freemail.it](mailto:lindenia@freemail.it)

**2314.** Meier, C.; Zucchi, H. (2000): Zur Bedeutung von Regenwasserrückhaltebecken für Libellen (Odonata): ein Beitrag zum urbanen Artenschutz. Osnabrück naturw. Mitt. 26: 153-166. (in German with English summary). ["The investigations were carried out at 5 selected rainwater retention basins in the city of Osnabrück, Lower Saxony, Germany, where 22 out of the 27 regional species were evidenced. Though most of these were generalists, the results indicate the importance of city retention basins for the preservation of the fauna."] Address: Meier, C., Girardetstr. 71, D-45131 Essen, Germany.

**2315.** Mermet, E.; Galli, P. (2000): Contributo alla conoscenza delle libellule (Insecta: Odonata) del Varesotto. Bollettino della società di scienze naturali 88(1-2): 19-23. (in Italian with English summary) [Records of 47 species are documented and commented.] Address: Mermet, E., Civico Museo Insubrico di Storia Naturale, Piazza Giovanni XXIII, I-21056 Induno Olona, Italy.

**2316.** Mitchell, F.L.; Lasswell, J.L. (2000): Digital dragonflies. American Entomologist 46(2): 110-115. (in English). [The authors present a method conserving the colours of collected specimens. Odonata were refrigerated for app. 30 min, and put on a scanner. Catching dragonflies, handling, hard- and software are described in detail to realise optimal results of colour preservation. This interesting method is a combination of a conservative collection with dried pinned or acetoned specimens and a data base with identical

scanned specimens.] Address: Lasswell, J.L, Institution Texas Agric. Exp. Stn., Route 2 Box 00, Stephenville, TX 76401, USA.

**2317.** Müller, Z.; Szállassy, N.; Jakab, T.; Bárdosi, E. (2000): Faunistical data on dragonflies (Odonata) from the ancient floodplain area Berek-laposa (Sarospatak). *Studia odonatol. hung.* 6: 55-68. (in Hungarian with English summary). [The paper presents faunistical data on dragonflies collected in the ancient floodplain area Berek-laposa, situated in the geographical microregion Bodrogkbtz (administrative area of the settlement Sarospatak), Hungaria. The fieldwork was carried out in 1999 at 12 localities. The list of 33 odonate species include the rare Hungarian *Sympetrum danae* as well as *Brachytron pratense*, *Aeshna viridis*, *Epiheca bimaculata*, and *Leucorrhinia caudalis*.] Address: Müller, Z., Department of Ecology, Kossuth L. University, H-4010 Debrecen, P.O. Box 71, Hungary

**2318.** O'Brien, M. (2000): Williamson dragonfly gun confiscated! *Argia* 13(1): 22. (in English). [Verbatim: "In early February, Univ. of Michigan Dept. of Public Safety and Security conducted an inventory of firearms being stored in the Museum of Zoology While most of the attention was on the Bird, Mammal and Herpetology Divisions, it turned out that the only illegal weapon being stored here was in the Insect Division. Yes, you guessed it - the 22-cal. pistol with a soldered on 26" barrel that E.B. Williamson used to shoot down high-flying Odonata. He used 22 - cal. dust-shot rounds, which were only potent enough to bag small creatures. I suspect that E.B. subscribed to "walking softly and carrying a big stick" and certainly the weapon in question looks somewhat impressive. Officer Tim Shannon was very apologetic about confiscating the pistol, as it was illegally modified under State law and also illegal under campus policy. However, since the weapon has not been fired in probably 75 years, it will not be a loss in terms of its use. At my suggestion, they'll make the pistol inoperable and return it so we can mount it on a plaque for display. Okay, so you thought dragonflies were harmless. They used to be bigger and a lot meaner, which was why EBW carried the weapon in the field. I don't know if they ever used dynamite for catching larvae." ] Address: O'Brien, M., Insect Division, Museum of Zoology, University of Michigan, Ann Arbor, MI 48109-1079, USA. E-mail: mfobrien@umich.edu

**2319.** Rus, I. (2000): The current state of knowledge about dragonflies (Odonata) research in the vicinity of the town Kolin near Labe river (Central Bohemia). In: Hanel, L. (Ed.): *Vazky 2000. Sborník referátu III. celo-státního semináře odonatologu, který se konal v Chránené krajinné oblasti Trebonsko 15.-18.6.2000.* Vlasim. ISBN 80-86327-12-4: 95-101. (in Czech with English summary). [1995-2000, 12 localities were surveyed for their Odonata. A total of 29 species also includes *Lestes virens*, *Sympetma fusca*, *Coenagrion pulchellum*, *Erythromma najas*, *Brachytron pratense*, *Crocothemis erythraea*, and *Sympetrum flaveolum*.] Address: Rus, I., Regionální muzeum, v Kolíne, Brandlova 27, CZ-28002 Kolín I, Czech Republic

**2320.** Schulz, C.-J.; Bellstedt, R. (2000): Die Wipper: Verödung und Wiederbesiedlung eines Flusses im ehemaligen Kalirevier "Südharz", dargestellt am Beispiel aquatischer Insekten. *Abh. Ber. Nat. Gotha* 21: 103-

110. (in German). [The decline of potassium mining in Northern Thuringia, Germany led to a decrease in salinity of the river Wipper during the last years. Recolonisation of the river is documented comparing macrobenthos collections from the tenth, fifties, and ninties of the 20th century. Five odonate taxa including *Calopteryx splendens*, *C.virgo*, *Ischnura elegans*, and *Platycnemis pennipes*.] Address: Schulz, C.-J., Staatliches Umweltamt Sondershausen, Am Petersenschacht 3, D-99701 Sondershausen, Germany

**2321.** Wang, L.-J. (2000): *Dragonflies of Taiwan.* ISBN 957-30885-1-7: 349 pp. (in Chinese and English). [This is my favourite dragonfly book of the year. Liang-Jong Wang has written a fascinating book on the Taiwanese Odonata! The chapters and species accounts are written in Chinese. But to enable access to the species monographs, a brief "Natural history" and information on the distribution on the Asian scale are added. Together with the excellent, in some cases outstanding photographs of the species, you will have full access to the Odonata of Taiwan. Additional information is given - and sometimes illustrated by photographs - to morphology, life history, and behaviour. Very useful is the chapter of typical Taiwanese habitats: Photographs - reduced in scale - of the typical species of paddy fields, fish ponds, forest lakes and swamps, ponds in parks, mountain lakes, hill streams, and forest brooks are compiled and crossreferenced to the species chapter. This book definitely should not be missing in any odonatological library. (Martin Schorr)] Address: www.jjca-lendar.com.tw

**2322.** Wedmann, S. (2000): Die Insekten der oberoligozänen Fossilagerstätte Enspel (Westerwald, Deutschland). *Systematik, Biostratonomie und Palä-ökologie.* Mainzer Naturwissenschaftliches Archiv, Beiheft 23: 142 pp, Anhang. (in German with English summary). [The insect taphocoenosis from the Upper Oligocene lacustrine deposits of Enspel (Westerwald, Rheinland-Pfalz, Germany) was studied in detail. The systematic composition of the over 5000 insect fossils permits detailed paleoecological conclusions. These interpretations are based on the spectra of the different digging sites and horizons as well as on the ecological needs of the closely related extant taxa. The taphocoenosis is dominated by terrestrial insects. Aquatic taxa - including 15 specimens of Odonata - are represented with only a few fossils. *Oligaeschna jungi* is a dragonfly which is already known from a fossil site in France. Additional species are identified on the family-level. A zygopteran species is pictured on a colour plate showing the colouration of the species. The ecosystem of lake Enspel is reconstructed; Odonata are treated in some detail. The fauna of Enspel is compared with some other regional fossil deposits.] Address: Wedemann, Sonja, Institut für Zoologie und Anthropologie, Berliner Str. 28, D-37073 Göttingen, Germany. E-mail: swedman@gwdg.de

**2323.** Westermann, K. (2000): Die Eiablageplätze der Weidenjungfer (*Chalcolestes viridis*) in einem südbadischen Altrheingebiet. *Naturschutz südl. Oberrhein* 3(1): 93-107. (in German with English summary). [A survey for *C. viridis* clutches was conducted along the Old-Rhine nr Weisweil, co. Emmendingen, Baden-Württemberg, SW Germany. 37 tree and bush species with successfully hatched

prolarvae were identified, 15 of them have not been previously mentioned in the literature. Young trees and bushes, such as *Viburnum opulus*, *Alnus glutinosa*, *A. incana*, *Fraxinus excelsior*, *Ligustrum vulgare*, *Salix alba*, some smaller willow species and *Prunus padus*, appear the preferred oviposition sites. The branches were selected from close above the water to an approx. height of 25 m, the number of clutches decreasing with the height. At some distance from the water, they were rarely seen.] Address: Westermann, K., Buchenweg 2, D-79365 Rheinhausen, Germany

**2324.** Yokoi, N. (2000): A list of dragonflies collected in Central Laos. *Gekkan-Mushi* 356: 18-22. (in Japanese with English summary). [23 species are dealt with, 20 of them are recorded for the first time in central Laos. *Prodasineura auricolor* (Fraser 1927), *Protosticta taipokauensis* Asahina & Dudgeon 1987, *Ictinogomphus pertinax* (Hagen 1854), *Labrogomphus torvus* Needham 1931, *Merogomphus paviei* Martin 1904, *Epophthalmia elegans* (Brauer, 1865), *Macromia callisto* Laidlaw 1922, *Macromia chaiyaphumensis* Hämäläinen 1985, *Macromia pinratani* Asahina 1983, and *Hylaeothemis clementia* Ris 1909 are illustrated. *P. taipokauensis* and *E. elegans* are first records for Indochina. *I. pertinax* and *P. taipokauensis* are compared with specimens from Hong Kong, China.] Address: Yokoi, N., 2-37-11, Kaisei, Koriyama, Fukushima, 963-8851, Japan

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**2325.** Abbott, J.C. (2001): Distribution of dragonflies and damselflies (Odonata) in Texas. *Trans. Am. Entomol. Soc.* 127(2): 189-228. (in English). [205 species of Odonata are listed from Texas. County records, seasonal occurrence and habitat preference are given for each species. Publications containing Texas records are presented and briefly discussed in a history of the Odonata research in the state. The physiography of Odonata habitats and zoogeography of the species themselves are discussed. Texas contains a highly diverse odonate fauna, because of its unique geographic position and highly variable physical composition relative to other physiographic provinces. A total of 5,098 records of Odonata are documented from 210 counties in Texas. These records include personal collections, valid literature records, verified material in museum and personal collections, and verified photographic records." (Author)] Address: Abbott, J.C., Univ Texas, Sect. Integrat. Biol., Austin, TX 78712 USA

**2326.** Adena, J.; Handke, K. (2001): Die Libellenfauna von Grünland-Grabensystemen im Bremer Raum. *Bremer Beiträge für Naturkunde und Naturschutz* 5: 91-103. (in German with English summary). [Based on investigations starting in 1980, a compilation of the dragonfly fauna of 7 selected ditch systems in the lowlands of the Bremen area, Germany, is presented and analyzed. A total of 35 odonate species including 29 probably or securely indigenous species could be recorded. The species are discussed according their regional rarity, which discriminates the regions from other western or central European regions. Species like *Lestes sponsa*, *Coenagrion pulchellum*, *Aeshna grandis*, and *Sympetrum vulgatum* belong to the most

common Odonata whereas species like *Enallagma cyathigerum*, *Aeshna cyanea*, and *Sympetrum flaveolum* are more rare ones. The rare *Brachytron pratense*, *Aeshna viridis*, and *Anaciaeschna isosceles* build strong populations in the ditch systems in the environs of Bremen. Factors as ditch maintenance, waterflow, water supply, water level, morphology, and vegetation succession explain different odonate coenoses and habitat quality for dragonflies. The most significant threat for the odonate coenoses of the ditch systems are high frequent dredging, upsilting and build over with buildings.] Address: Adena, Julia, Geibelstr. 61, D-28215 Bremen, Germany

**2327.** Andrew, R.J.; Chandrasekhar, S. (2001): A collection of Odonata from Umrer, Nagpur district, central India, with a note on the behaviour of *Pantala flavescens* (Fabricius) in the rain. *Notul. odonatol.* 5(8): 97-108. (in English). [48 species are recorded, 5 of these are new to the fauna of central India. The behaviour of *P. flavescens* during rainfall is discussed in terms of endothermic warming. Feeding behaviour of *P. flavescens* on termites is shortly outlined.] Address: Andrew, R.J., Department of Zoology, Shri Shivaji ESA's Science College, Congress Nagar, Nagpur - 440012 (MS), India

**2328.** Andrews, S.J. (2001): Some observations on the identification of the exuviae of the final-instar larvae of the Common Blue Damselfly *Enallagma cyathigerum* (Charpentier). *J. Br. Dragonfly Society* 17( 2): 35-44. (in English). [A total of 553 exuviae of *E. cyathigerum* were collected: "Conclusions: Significant intraspecific variation in labial setation was noted and, as such, it is not considered a sufficiently consistent character to use for larval identification. It is suggested that the following amendments should be made to the commonly used specific characters to identify the exuviae of *E. cyathigerum*: (1.) Mean body length (including lamellae) about 20.5 mm (range 17 to 23.5 mm). (2.) Labial palp with a very small spine on at least one of the outer margins adjacent to the distal seta. (3.) Prominent mid-dorsal, longitudinal pale line on all visible segments except S10. (4.) Caudal lamella subnodate and about 6 mm long (range 3.5 to 7 mm), usually with one to three (rarely zero or four) narrow, transverse, dark bands; thicker setae generally reaching to (or beyond) the midpoint on both margins of the caudal lamellae." (Author)] Address: Andrews, S.J., 39 Guildford Street, Staines, Middlesex TW18 2EQ, UK

**2329.** Andreztzke, H. (2001): Naturschutzmassnahmen am Grabensystem des NSG "Borgfelder Wümmewiesen" - Erfolgskontrolle anhand der Libellenfauna. *Bremer Beiträge für Naturkunde und Naturschutz* 5: 189-196. (in German with English summary). [The efficiency of reshaping measures at stretches of the ditch system in the nature protection area "Borgfelder Wümmewiesen" is assessed using Odonata. 26, including 19 indigenous species had been observed in the area. As to expect, the more ubiquitous species could be listed completely, but the target species of oxbow lakes and fens are still lacking about 4 years after first reshaping measures. But, even successful reproduction of the more common species was missed at most of the ditches with compensation measures due to unsuitable habitat conditions (e.g. extensive mudbeds). The author concludes that for the time the measures at the draining ditches have to be

assessed as unsuccessful.] Address: Andretzke, H., BIOS, Lindenstr. 40, D-27111 Osterholz-Scharmbeck, Germany

**2330.** Aoki, T. (2001): Active flights of *Chlorogomphus brunneus costalis* in late evening. *Sympetrum Hyogo* 7/8: 70. (in Japanese with English summary). ["Active flight of many males of *C. brunneus costalis* was observed in the evening during 17:30-18:50 on June 24, 2000 at Hiwasa-cho, Tokushima Prefecture, Japan. They flew low about 1 m above ground. In early hours most males came out of the shaded stream, where females oviposited in the morning, and went away along the road (path 1) and a few males returned to the stream (path 2). In later hours most males came out and went back soon to the shaded stream (path 2). When two males encountered on the road, one chased the other. Exceptions are a female flew from the opposite side (path 3) and a male staying for feeding at a space among the trees on the road side at 3 m above ground (path 5)."] (Author) Path numbers refer to a figure with a map of the locality.] 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

**2331.** Aoki, T. (2001): Odonata fauna of Kobe City, Part 9. (Corduliidae and supplement 2). *Sympetrum Hyogo* 7/8: 6-8. (in Japanese with English summary). [*Macromia amphigena* Selys 1871, *M. daimoji* Okumura, 1949, *Epophthalmia elegans* (Brauer, 1865), *Somatochlora viridiaenea* (Uhler 1858), *S. clavata* Oguma 1922, *S. uchidai* Förster 1909, *Epithecina marginata* (Selys 1883), *Sympetrum uniforme* (Selys 1883), *Lanthus fujiacus* (Fraser 1936), *Tramea virginia* (Rambur 1842), *Tanypteryx pryeri* (Selys, 1889), *Cercion melanotum* (Selys, 1876), and *Ceriagrion nipponicum* Asahina 1967 are treated in the 9th part of the odonata fauna of the city of Kobe, Japan.] 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

**2332.** Aoki, T. (2001): Three males of *Sympetrum depressiusculum* were caught in Ibogawa-cho, Hyogo Prefecture. *Sympetrum Hyogo* 7/8: 13. (in Japanese with English summary). [*S. depressiusculum* was found on October 22, 2000 at a pond in Baba, Ibogawa-cho, Hyogo Prefecture, Japan. This record is one of the scarce records on the Setonaikai Inland Sea side, while in contrast more records on the Japan Sea side are made. The pond was visited again on November 3, but the species had disappeared.] Address: Aoki, T., Rokko Island High School, Naka 4-chome, Higashinada-ku, Kobe, 658-0032, Japan. E-mail: taoki@ma3.justnet.ne.jp

**2333.** Auerswald, J.; Franke, T.; Reisinger, E. (2001): Erfolgreiche Pflegemaßnahmen im NSG "Dreba-Plotthener Teichgebiet". *Landschaftspflege und Naturschutz in Thüringen* 38(2): 62-65. (in German). [Efficiency of conservation measures in the Nature Conservation Area "Dreba-Plotthener Teichgebiet" (Thüringen, Germany) was assessed using some indicator species. Odonata are mentioned to have developed strong populations, and the species mentioned are including e.g. *Anaciaeschna isosceles*.] Address: Auerswald, J., Landratsamt Saale-Orla-Kreis, Umweltamt, Oschitzer Str. 4, D-07907 Schleiz, Germany

**2334.** Azuma, T. (2001): Distribution of *Trigomphus melampus* in Hyogo Prefecture. *Sympetrum Hyogo* 7/8: 4-5. (in Japanese with English summary). [18 new habitats of *T. melampus* were discovered in the northern district of Hyogo Prefecture, Japan, in 1999, totaling the known habitats to 24. Larvae prefer shallow ponds with grass vegetation; it is assumed that they inhabit irrigation ditches too. The distribution of the species is limited to the northeastern parts, namely Kinokuni-gun, Toyooka City and Mikata-gun, and does not reach Yabu-gun. Abandonment of traditional rice field cultivation and development of artificial irrigation ditches are reasons for regressing populations of this species.] Address: not stated

**2335.** Azuma, T. (2001): Odonate fauna of Sanda City, Hyogo Prefecture. *Sympetrum Hyogo* 7/8: 14-20. (in Japanese with English summary). ["The odonate fauna of Sanda City, Hyogo Prefecture, Japan, had been reported only incompletely, while the urbanization owing to an exceptional rapid expansion of population has caused big loss of natural environment. [...]"] To document the remaining odonate fauna, 90 localities had been surveyed in 1998. Now, 61 species including the author's unpublished former records of 1972 and 1993 are known from the region. Sogame (1998, 1999) recorded additional 13 species; this totals the number of species to 74.] Address: not stated

**2336.** Baumann, K. (2001): Habitat und Vergesellschaftung von *Somatochlora alpestris* und *S. arctica* im Nationalpark Harz (Odonata: Corduliidae). *Libellula* 20 (1/2): 47-67. (in German with English summary). ["In 2000, thirty moorland pools and the pothole in the "Odersprungmoor" have been analysed in regard to their population of dragonflies by collecting exuviae. In the moorland-pools different data concerning the structure were surveyed in order to compare the habitat selection of the various species. In total, 705 exuviae of 10 species were collected. The species with the highest number of individuals was *Leucorrhinia dubia*. *Somatochlora alpestris* was detected in most of the pools but the populations usually were small. This species and the less frequent *S. arctica* could be found in the smallest and shallowest waterbodies. Both were able to coexist with up to 5 additional species. Larger populations of both *Somatochlora* species and *Leucorrhinia dubia* excluded each other." (Author)] Address: Baumann, Kathrin, Arbeitsgemeinschaft für Landschaftsplanung, Naturschutz und Umweltstudien (ALNUS GbR), Rudolf-Huch-Straße 6, D-38667 Bad Harzburg, Germany. E-Mail: alnus-k.baumann@t-online.de

**2337.** Bechly, G.; Brauckmann, C.; Zessin, W.; Gröning, E. (2001): New results concerning the morphology of the most ancient dragonflies (Insecta: Odonatoptera) from the Namurian of Hagen-Vorhalle (Germany). *J. Zool. Syst. Evol. Res.* 39(4): 209-226. (in English). ["The holotype specimen of the 'protodonate' *Erasipteroides valentini* (Brauckmann in Brauckmann et al., 1985) and the paratype specimen K-13 of the giant 'protodonate' *Namurotypus sippeli* Brauckmann and Zessin, 1989 from the Upper Carboniferous (Namurian B) of Hagen-Vorhalle (Germany) are redescribed, and a new specimen of *Erasipteroides* cf. *valentini* is described. The new evidence is used to refine the groundplan reconstruction of Odonatoptera and the reconstruction of odonatoid phylogeny. Prothoracic

winglets for Erasipteroides and the absence of an archaediectyon are documented. Furthermore, a very long and sclerotized ovipositor with gonangulum is described from the female holotype specimen of Erasipteroides valentini, and it is proposed that it was not used for endophytic but for endosubstratic oviposition. The record of prothoracic winglets in early 'odonatoids' and their presence in fossil Palaeodictyoptera and 'protorthopteres', indicates that the groundplan of Pterygota indeed included three pairs of wings. A phylogenetic analysis suggests that the Palaeozoic giant Meganisoptera and "higher" odonatoids (incl. crown group Odonata) together form a monophyletic group which is here named Euodonatoptera. Erasipteroides and the other 'Erasipteridae' are shown to be more closely related to Euodonatoptera than to Eugeopteridae. The description of the male primary genital structures of Namurotypus sippeli is emended and a new interpretation is proposed including new hypotheses concerning their function. The males of Namurotypus had a paired penis with a pair of lateral parameres, and a pair of leaf-like, but still segmented, gonopods. Segmented leg-like male gonopods are considered as a groundplan character of insects, while a paired penis is regarded as a putative synapomorphy of the palaeopterous insect orders Palaeodictyopteroidea, Ephemeroptera, and Odonatoptera. It is proposed that Namurotypus did not mate by direct copulation but retained the archaic deposition of external spermatophores, just like the primarily wingless insects. The sigmoidal male cerci may have been placed behind the female head and used to drag the female over the spermatophore, which is remotely similar to the mating behaviour of some extant arachnids (e.g. Amblypygi). Three hypothetical scenarios regarding the evolution of secondary copulation in modern Odonata are proposed." (Authors) Address: Bechly, G., Staatliches Museum für Naturkunde, Abt. Paläontologie, Rosenstein 1, D-70191 Stuttgart, Germany. E-mail bechly@gmx.de

**2338.** Beckemeyer, R. (2001): Biological diversity and politics: the impact of recent regulatory trends on scientists who study the taxonomy and distribution of organisms. *Argia* 13(1): 28-29. (in English). [This is a discussion of current trends in getting collecting permissions in the framework of biodiversity politics. Current regulations in India and Brazil are to assess that they will stop any transboundary scientific work on species. "This is a sad state of affairs that truly bodes ill for increasing our understanding of Earth's biodiversity."] Address: Beckemeyer, R.J., 957 Perry, Wichita, KS 67203-3141, USA. E-mail: royb@southwind.net

**2339.** Beckemeyer, R. (2001): Phop Gan Mai Tik Khrap, Thailand. *Argia* 13(1): 9-12. (in English). [Report from a birding and dragonflying trip to Thailand in early 2000. Most of the referred species are common ones with the exception of *Coeliccia kazukoae* Asahina 1984 and *Vestalis yunosukei* Asahina 1990.] Address: Beckemeyer, R.J., 957 Perry, Wichita, KS 67203-3141, USA. E-mail: royb@southwind.net

**2340.** Bedell, P (2001): Some recent Odonate records for Nebraska. *Argia* 13(2): 2. (in English). [*Ischnura barberi*, *Aeshna californica*] Address: Bedell, P., 10120

Silverleaf Terr., Richmond, VA 23236, USA. E-mail: pbedell@vci.org

**2341.** Behrends, T. (2001): Libellen-Monitoring im Rahmen des E & E-Projektes "Halboffene Weidelandschaft Höltigbaum" von 2000 - 2004. *Abh. Ber. Naturkundemus. Görlitz* 73(1): 1-2. (in German with English summary). ["Dragonfly populations of a newly established, 220-hectare comprising pasture landscape on a former military area in northern Germany near Hamburg will be investigated over a period of 5 years. An average of 100 cattle and 120 sheep graze on the semi-open landscape without any restriction. One of the main characteristics of the landscape are numerous small temporary pools on sandy or loamy soil with less nutritive substances. Most of them are flooded in winter or early spring and dry out during summer. Within the first year of this study, 22 species of dragonflies were observed, of which some were endangered or vulnerable in Germany such as *Lestes virens*, *L. barbarus*, *L. dryas*, *Coenagrion lunulatum*, and *Ischnura pumilio*. The population dynamic and short distance migration within the area of *L. barbarus* will be further investigated with a capture-mark-recapture method." (Author)] Address: Behrends, T., Inst. Ökologie und Umweltchemie, Univ. Lüneburg, Scharnhorststr. 1, D-21332 Lüneburg, Germany. E-mail: thomasbehrends@exmail.de

**2342.** Belgische Libellenonderzoekers (2001): Diffusion d'un communiqué de presse de Gomphus en relation avec le changement climatique et la Conférence de la Haye. *Gomphus* 17(1): 63-68. (in partly bilingual in French and Dutch). [End of November 2000 the international conference of climatic change was held in Den Haag, The Netherlands. The Belgian odonatologists used the situation to present to the public changes of odonate composition in Belgium. Climatic warming is indicated by several species; the increasing number of records is plotted in a graph showing the relative observation frequency of six southern species (*Sympetrum fonscolombii*, *Lestes barbarus*, *Crocothemis erythraea*, *Coenagrion scitulum*, *Anax parthenope*, and *Aeshna affinis*) in Wallonia during the last 20 years.] 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

**2343.** Belshe, J. (2001): Children's stories about dragonflies. *Argia* 13(1): 28. (in English). [Some brief information is given on a book "Nature stories for little folk" from the beginning of the 20th century including some dragonfly illustrations and a story about a dragonfly.] Address: Belshe, J.F., 221 SW 21 Rd., Warrensburg MO 64093, USA

**2344.** Bender, J.; Xyländer, W.E.R.; Stephan, R. (2001): Lösungsansätze im Zielkonflikt zwischen Rekultivierung und Naturschutz in der Bergbausanierung-Wiederherstellung eines Libellengewässers auf Halden des Braunkohletagebaus Berzdorf. *Abh. Ber. Naturkundemus. Görlitz* 73(1): 3-8. (in German with English summary). ["A geological depression was formed by chance during mine dumping at the Neuberzdorfer Holz. In the course of natural events the depression developed into a favourable biotope for dragonflies, in which a number of rare species have been recorded. After the closing of



mining activities in 1997 reclamation work began, which in the meanwhile has led to a nearly total destruction of the new biotope. It was agreed between the mining corporation, the conservation authorities and the Natural History Museum in Görlitz to create a similar biotope in the vicinity as a replacement for that lost through reclamation activities." (Authors) Habitat developing measures with special emphasize to Odonata are outlined.] Address: Xylander, Dr. W., Staatliches Museum für Naturkunde Görlitz, PF 300154, D-02806 Görlitz, Germany. E-mail: Naturmuseum.GR.Dr.Xylander@t-online.de

**2345.** Benedikt R. Schmidt, B.R.; Van Buskirk, J. (2001): Verhalten, Wachstum und Morphologie von Kammolch-Larven in der An- und Abwesenheit von Libellenlarven. *Rana*, Sonderheft 4: 179-191. (in German with English summary). ["We tested for predator-induced plasticity in behavioural, morphological and life-history traits of larvae of the newt *Triturus cristatus* using larvae of the dragonfly *Aeshna cyanea* as predators. There was no evidence for plasticity in morphology or life history in a controlled experiment and we found no evidence for morphological plasticity in samples taken from natural ponds. In contrast to other newt species, larvae of *T. cristatus* were more active in the presence of predatory dragonflies. We do not know why phenotypic plasticity in *T. cristatus* is different from the predator-induced defences seen in other newt species. We suggest that differences between newt species in plasticity and predator-prey interactions may affect their distribution and abundance." (Authors)] Address: Buskirk, J. van, Institute of Zoology, University of Zürich, CH-8057 Zürich, Switzerland. E-mail: jvb@zool.unizh.ch; bschmidt@zool.unizh.ch

**2346.** Bönsel, A. (2001): *Aeshna subarctica* Walker, 1908 in the Biebrza Valley (Odonata: Aeshnidae). *Wiad. entomol.* 19(3/4): 187. (in Polish with English title). [4 males and 1 female of *Aeshna subarctica elisabethae* Djakonov, 1922 were recorded at 9 Aug. 1998; co-occurring species were *Libellula quadrimaculata*, *Leucorrhinia rubicunda*, and *Sympetrum danae*.] Address: Bönsel, A., Vasenbusch 15, D-18337 Gresenhorst, Germany. E-mail: andre.boensel@gmx.de

**2347.** Borgula, A. (2001): Die Würfelnatter während und nach dem Bau des Seeuferweges am Lopper. In: *Amphibien und Reptilien in Ob- und Nidwalden*. Naturforsch. Gesell. Ob- und Nidwalden, Grafenort. 227 pp. (in German). [In the framework of conservation measures directed to the serpent *Natrix tessellata*, the emergence of *Gomphus vulgatissimus* on the shore of lake Alpnach, Switzerland was recorded. Three photographs document the emergence of the species in 1998.] Address: Borgula, A., Brambergstr. 3B, CH-6004 Luzern, Switzerland. E-mail: borgula@freesurf.ch

**2348.** Bräu, M.; Schwibinger, M.; Weihrauch, F. (2001): Die Libellenfauna der Stadt München. *NachrBl. bayer. Entomol.* 50(4): 128-137. (in German with English summary). ["A commented list of 52 Odonata, which have been reported within today's borders of the City of Munich, Bavaria, Germany is given. It "covers the 41 currently recorded species since 1990 as well as the 46 historical records. Nowadays, a number of species are restricted to only a few sites and apparently

endangered. More detailed information on the status of *Coenagrion mercuriale*, *Gomphus vulgatissimus*, *Onychogomphus f. forcipatus*, *Orthetrum coerulescens*, *Sympetrum flaveolum* and *Sympetrum pedemontanum* is given." The record of *S. meridionale* is of special faunistic interest.] Address: Weihrauch, F., Hengelerstr. 9, D-80637 München, Germany. E-mail: Florian.Weihrauch@lbp.bayern.de

**2349.** Bree, D. (2001): European Praying Mantis (*Mantis religiosa*) feeding on a Common Green Darner (*Anax junius*). In: Catling, P.M., C.D. Jones & P. Pratt (Eds): *Ontario Odonata*, vol. 2. Toronto Entomologist's Association, Toronto, Ontario: 49. (in English). ["An observation of [...] *M. religiosa* preying upon [...] *A. junius* is reported from a migration resting place for odonates on the north shore of Lake Ontario in Prince Edward County, Ontario." (Author)] Address: Bree, D., Box 123, Bloomfield, Ontario K0K 1G0, Canada. E-mail: dbree@post.kosone.com

**2350.** Bree, D.; White, H.; Deliry, C. (2001): Mantids eating dragonflies. *Argia* 13(1): 27-28. (in English). [Several recent e-mail noting mantids foraging Odonata are compiled in this contribution. Two of the observations are from North America (*Anax junius*, Ontario, Canada; *Pachydiplax longipennis*, Delaware, USA), one from France, Europe (*Anax parthenope*).] Address: David Bree: dbree@post.kosone.com; Hal White: halwhite@UDeI.Edu; Cyrille Deliry: cyrille@deliry.com

**2351.** Bree, D. (2001): Odonates of the Sandbanks Pannes during 2000. In: Catling, P.M., C.D. Jones & P. Pratt (Eds): *Ontario Odonata*, vol. 2. Toronto Entomologist's Association, Toronto, Ontario: 27-30. (in English). ["Twenty-six species of odonates are reported for the interdunal pannes at Sandbanks Provincial Park during an abnormally wet year when the pannes, which often dry out in summer, retained as much as 1.75 m of water throughout the season. Eleven of the species recorded showed evidence of larval development in the pannes. Both *Pantala hymenaea* and *Pantala flavescens* were found emerging and as teneral. Seven species are reported as new for Sandbanks Provincial Park including *Ischnura hastata* and *Leucorrhinia frigida*. The *Ischnura hastata* record represents a northern range extension in Ontario." (Author)] Address: Bree, D., Box 123, Bloomfield, Ontario K0K 1G0, Canada. E-mail: dbree@post.kosone.com

**2352.** Bridgehouse, D.W. (2001): Occurrence of *Celithemis martha* (Odonata: Libellulidae) in Nova Scotia. *Northeastern Naturalist* 8(4): 495-498. (in English). [This note augments previous historical records of *Celithemis martha* by presenting a new locality and further flight season records for Nova Scotia, Canada.] Address: Bridgehouse DW 24 Kiel Court, Eastern Passage, NS B9G 1R3, Canada

**2353.** Briscoe, A.D.; Chittka, L. (2001): The evolution of color vision in insects. *Annu. Rev. Ent.* 46: 471-510, 1 Pl. excl. (in English). ["The physiological, molecular and neural mechanisms of insect colour vision are reviewed. A review of spectral sensitivity data for 6 anisopteran species is included. Phylogenetic and molecular analyses reveal that the basic bauplan, UV-blue-green-trichomacy, appears to date back to the Devonian ancestor of all pterygote insects."] Address:

Briscoe, A.D., Dept Molec. & Cell Biol, Univ. Arizona, Tucson, AZ 85721, USA

**2354.** Brockhaus, T. (2001): Beobachtungen zur Libellenfauna der Shivapuri Berge, Nepal (Odonata). Ent. Nachr. Berichte 45(3/4): 221-223. (in German with English summary). [In May 2000, *Calphaea confusa*, *Anotogaster nipalensis*, *Neallogaster hermione*, *Davidius aberrans*, and *Orthetrum glaucum* were recorded app. 10 km N of Kathmandu. Habitats and altitudinal distribution are briefly described.] Address: Brockhaus, T., An der Morgensonne 5, D-09387 Jahnsdorf, Germany. E-mail: T.Brockhaus@t-online.de

**2355.** Brockhaus, T.; Fischer, U. (2001): Die Verbreitung von *Cordulegaster boltonii* und *Somatochlora arctica* in Sachsen - Ergebnisse aus dem Projekt "Entomofauna Saxonica". Abh. Ber. Naturkundemus. Görlitz 73(1): (in German with English summary). [The distribution of *C. boltonii* (101 localities) and *S. arctica* (11 loc.) in Saxony is briefly described.] Address: Fischer, U., Anton-Gunter-Str. 12, D-08340 Schwarzenberg, Germany

**2356.** Brockhaus, T. (2001): Untersuchungen zur Individualentwicklung, Phänologie und Populationsdynamik der Imagines von *Sympetrum pedemontanum* (Odonata: Libellulidae). Libellula 20(3/4): 115-130. (in German with English summary). ["In 1994 and 1995, *S. pedemontanum* was investigated by a mark-and-recapture study at River Zschopau in Saxony, Germany. In 1994, 23 of 281 specimen were recaptured once or more. In 1995, the recapture rate was 23 specimen of 444 specimen total. The maturation time of males was approximately eight days and a little bit longer in females. The duration of imaginal life was 13-17 days for males and 7-16 days for females. One male survived 45 days. From 77 (1994) and 211 (1995) emerged specimen, 34 (1994) and 90 (1995) were females, respectively. Emergence was strongly synchronised in both years: EM50 was seven days in 1994 and 11 days in 1995. After a strong emigration after emergence, especially in females, during the reproduction period the population remained stable at a low level." (Author)] Address: Brockhaus, T., An der Morgensonne 5, D-09387 Jahnsdorf, Germany. E-mail: T.Brockhaus@t-online.de

**2357.** Buczynski, P.; Czachorowski, S.; Lechowski, L. (2001): Some groups of water insects (Odonata, Heteroptera, Coleoptera, Trichoptera) of the projected reserve "Hanging peat bogs by Jaczno Lake" and its surroundings: results of preliminary studies. Roczn. Tow. Ochr. Przyr. "Salamandra" 5: 27-42. (in Polish with English summary). [On the north eastern edge of Poland (54°17'N 22°53'E) 37 odonate species from seven localities are listed. Here, *Chalcolestes viridis* and *Anax parthenope* reach the northernmost edge of their ranges in Poland. Other remarkable species are: *Sympecma paedisca*, *Ophiogomphus cecilia*, *Brachytron pratense*, *Anaciaeschna isoceles*, *Somatochlora arctica*, *S. flavomaculata*, *Libellula fulva*, and *Leucorrhinia caudalis*.] Address: Buczynski, P., Dept of Zool., Marie Curie-Sklodowska University, Akademicka 19, PL-20-033 Lublin, Poland. E-mail: pbuczyns@biotop.umcs.lublin.pl

**2358.** Burkart, W.; Burkart, G. (2001): Two new Odonata species for Gotland, Sweden. Nord. Odonat. Soc. Newsl. 7(1): 10. (in Swedish with English

summary). ["In an article in the journal "Körkmacken" (No. 27, August 2000, pp. 14-15) of the Gotland Entomological Society, Werner and Gudrun Burkart briefly presents their records of *Sympecma fusca* and *S. paedisca* in April 2000 at the island Gotland in the Baltic sea. Both species are new to Gotland, and the record of *S. paedisca* is the first for Sweden and Scandinavia."] Address: Burkart, W. a. G., Am Emel 7, D-27412 Wilstedt, Germany

**2359.** Burks, R.L.; Jeppesen, E.; Lodge, D.M. (2001): Pelagic prey and benthic predators: impact of odonate predation on *Daphnia*. J. N. Am. Benthol. Soc. 20(4): 615-628. (in English). ["Interactions between benthic predators and pelagic prey, such as larval odonates and *Daphnia*, are often used to describe classic predator-prey relationships in laboratory-studies. However, few field studies explore the potential impact of benthic predators on pelagic prey. Recent studies of cladocerans document diel horizontal migration (DHM), where large-bodied zooplankton (i.e., *Daphnia*) decrease their exposure to pelagic predators by seeking refuge among macrophytes. However, daphnids undergoing DHM may simultaneously increase their likelihood of encountering benthic predators that commonly occur in littoral zones. In laboratory experiments, we showed that dragonfly nymphs (*Epiheca cynosura*) effectively eliminated all *Daphnia* within 24 h, regardless of macrophyte presence or architecture. We also tested whether additions of larval damselflies (*Ischnura elegans*, *Coenagrion puella*, *C. pulchellum*) and dragonflies (*Somatochlora flavomaculata*) (total odonate density of 35-55 / m<sup>2</sup>) significantly reduced total zooplankton or benthic invertebrate abundance in field enclosures with different macrophyte densities (20, 40, 80% volume infested [PVI]). Odonates significantly reduced *Daphnia* abundance at 20 PVI. However, the magnitude of the influence of odonates on daphnids, as well as *Ceriodaphnia* and *Polyphemus*, decreased with increasing macrophyte density. Odonate predation did not significantly affect benthic taxa abundance. Thus, daphnids undergoing DHM may lower predation from pelagic predators, but our results suggest that mortality from littoral predators may be significant. The net benefit of DHM may, therefore, differ among lakes as a function of the relative threats posed by pelagic and littoral predators." (Authors)] Address: Burks, R.L., Rhodes Coll, Dept Biol., 2000 N Pkwy, Memphis, TN 38112 USA

**2360.** Cai, Z.J.; Zeng, L.J.; Feng, Z.J. (2001): Extracting the weak distorted fringes on the dragonfly wing by a correlation algorithm. Optics & Laser Technology 33(7): 493-497. (in English). ["We have proposed a simple correlation algorithm to extract weak distorted fringes buried in both background noise and random noise. The relationship among threshold value, signal to noise ratio and least frame number was discussed. The method, is efficiency to measure the shape of an object with low diffuse reflectivity. We have successfully applied the method to measure the shape of a dragonfly wing." (Authors)] Address: Cai Z.J., Tsing Hua Univ., Dept Precis Instruments, State Key Lab Precis Measurement Technol & Instru, Beijing 100084, Peoples Rep. China

**2361.** Cating, P.M.; Jones, C.D.; Pratt, P. (Eds) (2001): Ontario Odonata, vol. 2. In: Cating, P.M., C.D.

Jones & P. Pratt (Eds): Ontario Odonata, vol. 2. Toronto Entomologist's Association, Toronto, Ontario. 186 pp. (in English). [Plenty odonatological contributions - as far as they are "scientific papers" they are abstracted in OAS 9 - are published in Vol. 2 of the Ontario Odonata. The issue contains some additional information and comments as follows: "Corrections to Volume 1", "Ontario Odonata Projects", "News and comments: 1. Ontario Odonata Survey, 2. Amphagiagrion abbreviatum, a possible addition to the damselflies of northern Ontario, 3. Damselflies and dragonflies (Odonata) of Ontario: resource guide and annotated list, 4. A field guide to the Dragonflies and Damselflies of Algonquin Provincial Park", 5. A Guide to the Damselflies and Dragonflies of Ontario: Part 1 Damselflies", 6. Atlas of Ontario Odonata, 7. Value of Records" (P.M. Catling), "Recent literature" referring to Ontario, and instructions to contributors of the Ontario Odonata Survey ("Notice to contributors"). This most impressive volume closes with a species index.] Address: Alan J. Hanks, 34 Seaton Drive, Aurora, Ontario, Canada L4G 2K1. E-mail: A.Hanks @aci.on.ca

**2362.** Catling, P.M.; Brownell, V.R.; Hutchinson, R.; Ménard, B. (2001): A preliminary annotated list of the Odonata of Lanark County, Ontario. In: Catling, P.M., C.D. Jones & P. Pratt (Eds): Ontario Odonata, vol. 2. Toronto Entomologist's Association, Toronto, Ontario: 13-23. (in English). ["Eighty species of Odonata are reported for the county of Lanark in eastern Ontario at approximately 45.0176° N, 76.3630° W. The county is a Carolinian subzonal limit with southern species, such as *Celithemis eponina* and *Pachydiplax longipennis*, reaching their northern limits, and northern species, such as *Aeshna eremita*, *Gomphus adelphus*, and *Leucorrhinia glacialis*, at or near their southern limits in Ontario." (Authors)] Address: Catling, P.M., 2326 Scrivens Drive, R.R. 3, Metcalfe, Ontario K0A 2P0, USA. E-mail: brownell@achilles.net

**2363.** Catling, P.M. (2001): Emergence of Odonata in southern Ontario during cool and wet weather. In: Catling, P.M., C.D. Jones & P. Pratt (Eds): Ontario Odonata, vol. 2. Toronto Entomologist's Association, Toronto, Ontario: 44. (in English). ["Species of Odonata emerging in relatively large numbers in eastern Ontario during cool and rainy weather included *Argia moesta*, *Dromogomphus spinosus*, and *Hagenius brevistylis*. Emergence under such conditions when adults are inactive may reduce predation. Significant information on dragonfly populations can be obtained during cool and wet weather." (Author)] Address: Catling, P.M., 2326 Scrivens Drive, R.R. 3, Metcalfe, Ontario K0A 2P0, USA. E-mail: brownell@achilles.net

**2364.** Catling, P.M.; Brownell, V.R.; Pratt, P. (2001): Extension of the known range of *Argia tibialis* in Ontario beyond the Carolinian zone. In: Catling, P.M., C.D. Jones & P. Pratt (Eds): Ontario Odonata, vol. 2. Toronto Entomologist's Association, Toronto, Ontario: 4-8. (in English). ["The discovery of *Argia tibialis* on a semi-shaded path on the east side of the Nottawasaga River, 1 km northeast of Angus (44.336° N, 79.8705° W) in Simcoe Co., extends its known range 211 km to the northeast and outside the Carolinian zone. This inconspicuous species has probably been overlooked in this subunit of the Carolinian zone, and may have been present in the area for thousands of years, but a recent expansion of range into the region cannot be

completely ruled out." (Authors)] Address: Catling, P.M., 2326 Scrivens Drive, R.R. 3, Metcalfe, Ontario K0A 2P0, USA. E-mail: brownell@achilles.net

**2365.** Catling, P.M.; Brownell, V.R.; Jones, C.D.; Sutherland, D. (2001): Further northeastern extension of the range of River Bluet (*Enallagma anna*). In: Catling, P.M., C.D. Jones & P. Pratt (Eds): Ontario Odonata, vol. 2. Toronto Entomologist's Association, Toronto, Ontario: 8-10. (in English). ["The known range of River Bluet (*Enallagma anna*) is extended 322 km to the northeast to Oxford, Brant, and Peel counties in southwestern Ontario. Habitats at the newly discovered locations included a small, clean and spring-fed stream, three ditch-like, and muddy-bottomed streams, and one fast-flowing rocky river. It may have been overlooked at these locations, rather than being a recent immigrant as suggested by its general rarity and association with long established habitats." (Authors)] Address: Catling, P.M., 2326 Scrivens Drive, R.R. 3, Metcalfe, Ontario K0A 2P0, USA. E-mail: brownell@achilles.net

**2366.** Catling, P.M.; Jones, C.D.; Pratt, P. (2001): Introduction to the 2000 Ontario Odonata Summary Records. In: Catling, P.M., C.D. Jones & P. Pratt (Eds): Ontario Odonata, vol. 2. Toronto Entomologist's Association, Toronto, Ontario: 53-170. (in English). [23 odonatologists contributed to the Ontario odonate survey. The data are presented in a table giving information on species, county, location, latitude and longitude of localities, collecting date, collector, and status (imago, larva); the table includes 5699 records. In addition, information of weather conditions in 1999 and trends, analyses and notable records of selected species are given (*Ischnura hastata*, *Stylurus notatus*, *S. amnicola*, *Gomphaeschna furcillata*, *Gomphus viridifrons*, *Somatochlora tenebrosa*, *Macromia taeniolata*, *Sympetrum corruptum*, *S. danae*, and two hybrids: *Enallagma anna* x *civile*, *E. ebrium* x *hageni*).] Address: Catling, P.M., 2326 Scrivens Drive, R.R. 3, Metcalfe, Ontario K0A 2P0, USA. E-mail: brownell@achilles.net

**2367.** Catling, P.M. (2001): Odonata associated with temporary pools on the Burnt Lands Alvar, Ontario. In: Catling, P.M., C.D. Jones & P. Pratt (Eds): Ontario Odonata, vol. 2. Toronto Entomologist's Association, Toronto, Ontario: 23-24. (in English). ["Shallow pools on alvars are available during wet and/or cool years. Surveys of adult Odonata associated with such pools on the Burnt Lands alvar, near Ottawa, Ontario, were conducted on 11 July 2000, and on 4 Aug. 2000. Odonata associated with the temporary pools as tenerals and in sufficient numbers to suggest development in the pools included *Lestes congener*, *L. disjunctus disjunctus*, *L. forcipatus*, *L. dryas*, *L. unguiculatus*, *Ischnura verticalis*, *Nehalennia irene*, *Sympetrum costiferum* and *S. obtrusum*." (Author)] Address: Catling, P.M., 2326 Scrivens Drive, R.R. 3, Metcalfe, Ontario K0A 2P0, USA. E-mail: brownell@achilles.net

**2368.** Catling, P.M. (2001): Odonata in the University of Western Ontario Insect Collection. In: Catling, P.M., C.D. Jones & P. Pratt (Eds): Ontario Odonata, vol. 2. Toronto Entomologist's Association, Toronto, Ontario: 30-36. (in English). ["The University of Western Ontario insect collection consists of two sections. One is referred to as the "University collection" which includes

many older specimens verified by E.M. Walker and voucher specimens, and the other is referred to as the "student collections", mostly obtained during the 1960s and 1970s. A database including 176 Odonata specimens, i.e. most of the Ontario material, is included here. The principal values of the collection are (1) the vouchers for W.W. Judd's publications, (2) the older collections from well-known professional entomologists, and (3) the extensive material from the London area. This survey of Odonata in the University's collection is not only of interest with regard to mat group, but also provides a general picture of the contents of the collection that can be applied to other groups of insects. The collection is scientifically valuable and is much more than just a very good teaching collection." (Author)] Address: Catling, P.M., 2326 Scrivens Drive, R.R. 3, Metcalfe, Ontario K0A 2P0, USA. E-mail: brownell@achilles.net

**2369.** Catling, P.M.; Brownell, V.R.; Pratt, P. (2001): Range expansion of Double striped Bluet, *Enallagma basidens* in Ontario. In: Catling, P.M., C.D. Jones & P. Pratt (Eds): Ontario Odonata, vol. 2. Toronto Entomologist's Association, Toronto, Ontario: 10-13. (in English). ["First discovered in Ontario in 1985 in southern and western Essex County, *E. basidens* appears to have expanded its range northward and eastward by 100 km and since 1991 has been found in 20 additional locations. In Ontario it occurs primarily in man-made ponds including gravel pit ponds, but it has also been found on three rivers. Adults have been reported from late May to early September with a peak in late June and early July and another less prominent peak in late August." (Author)] Address: Catling, P.M., 2326 Scrivens Drive, R.R. 3, Metcalfe, Ontario K0A 2P0, USA. E-mail: brownell@achilles.net

**2370.** Catling, P.M. (2001): Review of "Distribution of damselflies and dragonflies (Odonata) of Cape Breton Island, Nova Scotia, Canada". In: Catling, P.M., C.D. Jones & P. Pratt (Eds): Ontario Odonata, vol. 2. Toronto Entomologist's Association, Toronto, Ontario: 53. (in English). ["Review of "Brunelle, Paul-Michael. 2000. Distribution of damselflies and dragonflies (Odonata) of Cape Breton Island, Nova Scotia, Canada. Parks Canada Technical Reports in Ecosystem Science no. 24: pp. iv + 52. Available from: Neil Munro, Report Series Editor, Parks Canada, Historic Properties, Halifax, Nova Scotia, B3J 1S9, Canada. Tel: 902 426 2797, FAX: 902 426 2728": This report is exceptionally good and sets a high standard for regional evaluation. It should be of interest to anyone doing regional inventories. [...]."] Address: Catling, P.M., 2326 Scrivens Drive, R.R. 3, Metcalfe, Ontario K0A 2P0, USA. E-mail: brownell@achilles.net

**2371.** Catling, P.M. (2001): Streams and rivers highlighted as major natural area protection priorities in Ontario based on damselfly and dragonfly indicators. In: Catling, P.M., C.D. Jones & P. Pratt (Eds): Ontario Odonata, vol. 2. Toronto Entomologist's Association, Toronto, Ontario: 36-43. (in English). ["The highest ranking groups of Ontario Odonata of conservation concern include globally vulnerable (G3) and provincially critically imperilled (SI) species most of which are inhabitants of large rivers and streams. In fact there are significantly more rare species in high risk categories associated with rivers and streams than would be expected on the basis of habitat frequencies

of Ontario Odonata overall. Particular Ontario rivers highlighted for biodiversity protection on the basis of Odonata are the Ausable, Ottawa, Sydenham, and Thames, and these same rivers have been highlighted by other groups of environmental indicators such as Unionid molluscs. Recent emphasis on the protection of wetlands has focussed on extensive areas with emergent plant communities, while rivers and streams have suffered seriously inadequate attention." (Author)] Address: Catling, P.M., 2326 Scrivens Drive, R.R. 3, Metcalfe, Ontario K0A 2P0, USA. E-mail: brownell@achilles.net

**2372.** Chovanec, A.; Waringer, J. (2001): Ecological integrity of river-floodplain systems-assessment by dragonfly surveys (Insecta: Odonata). Regul. Rivers: Res. Manage. 17(4-5): 493-507. ["Dragonflies are reliable indicators of the ecological quality of land-water ecotones, habitat heterogeneity and the hydrological dynamics of water bodies. In recent years, surveys of dragonfly communities have become a powerful tool for the ecological assessment of floodplain areas. The goal of this paper is to present a new approach towards assessing the ecological integrity of river-floodplain systems by analysing resident breeding dragonfly species. The methodology is based on experiences with existing approaches using macroinvertebrates as bioindicators, in particular, calculations of saprobic indices, longitudinal zonation and functional feeding group patterns. In addition to the total number of species and the number of sensitive species, the 'Odonate Habitat Index' (OHI) is a key element of the assessment method. It indicates characteristic features of a river-floodplain system, such as connectivity aspects, flow dynamics and terrestrialization processes. The OHI is calculated from the species-specific habitat values (expressing habitat preferences), abundances and the species-specific indication weight, which distinguishes eurytopic from stenotopic species. The comparison of the status quo with a reference condition allows an assessment of individual water bodies and/or of a whole area in a five-tiered classification scheme. The approach presented may also be used for the evaluation of restoration measures (e.g. reconnection of side arms) and for the definition of management objectives. Apart from the methodological framework, the results of a first application of this approach are presented in the paper as well. The study areas were selected floodplain systems of the Austrian section of the Danube and man-made inshore structures of the impounded Danube section in Vienna." (Authors)] Address: Chovanec, A., c/o Umweltbundesamt, Spittelauer Lände 5, A-1090 Wien, Austria. E-mail: chovanec@ubavie.gv.at

**2373.** Clausnitzer, H.-J. (2001): Die Zwerglibelle (*Nehalennia speciosa*) in Niedersachsen. Abh. Ber. Naturkundemus. Görlitz 73(1): 11-12. (in German with English summary). ["The occurrence of the rare damselfly *N. speciosa* in Lower Saxony is described. The habitats of the larvae and imagines differ considerably from those in southern Germany. In Lower Saxony larvae grow up in pools within bogs with relatively scarce vegetation, mostly dense carpets of *Sphagnum cuspidatum* and *Drepanocladus fluitans*. The imagines live in large tussocks of *Molinia coerulea* not far from the water." (Author)] Address: Clausnitzer, H.-J., Eichenstr. 11, D-29348 Eschede, Germany. E-mail: H.-J.Clausnitzer@t-online.de

**2374.** Conze, K.-J.; Göcking, C. (2001): 'FFH - Libellenarten' in Nordrhein-Westfalen (NRW). Abh. Ber. Naturkundemus. Görlitz 73(1): 13-15. (in German with English summary). ["The current state of knowledge about dragonfly species in Northrhine-Westfalia, which are protected by the 'flora-fauna-habitat' (ffh) directive (appendix II and IV) of the European Community, is outlined. At least historical records show that nine out of the 'ffh-dragonfly species' known in Germany were found in NRW. Four of these species (*Coenagrion mercuriale*, *Leucorrhinia pectoralis*, *Ophiogomphus cecilia*, and *Gomphus flavipes*) have been reported to exist presently in NRW. The official proposal list of NRW includes several special protection areas for the species *C. mercuriale* and *L. pectoralis*." (Authors)] Address: Conze, K.-J., LökPlan-Conze, Cordes & Kirst GmbH, Hedwigstr. 32b, D-59609 Anröchte, Germany. E-mail: lökplan@t-online.de

**2375.** Cook, T.J.P.; Janovy, J.; Clopton, R.E. (2001): Epimerite-host epithelium relationships among eugregarines parasitizing the damselflies *Enallagma civile* and *Ischnura verticalis*. *J. Parasitol.* 87(5): 988-996. (in English). ["The host-parasite interface between 2 species of damselflies and 4 species of eugregarines was examined at the ultrastructural level. *Nubenocephalus nebraskensis* organisms attached to the host midgut epithelium by means of a sucker-like protomerite; the space between the epicytic folds and host epithelium was filled with electron-dense material interpreted to be adhesive in nature. *Actinocephalus carrilynae* organisms attached by means of the epimerite, which had no epicytic folds, and by the fluted stalk with characteristic epicytic folds; host cell and parasite membranes appeared fused at some places on the epimerite. *Hoplorhynchus acanthatholius* organisms attached by means of an ovoid epimerite with backward-pointing digitations; the entire epimerite was embedded in a host cell, and host cell microvilli surrounded the stalk. *Steganorhynchus dunwoodyi* organisms attached by means of an ovoid stalk papilla enclosed in a retractable globular sheath; the papilla was covered with epicytic folds, but the sheath was not, and the sheath had a single membrane, whereas the epicytic folds had 2 or 3 membranes. The entire apparatus was inserted between epithelial cells, and the sheath was highly folded at its surface. The ultrastructural observations suggest that actinocephalid gregarines have evolved 2 general strategies for attaching to the host epithelium, that is, suckerlike protomerites, as in the case of *N. nebraskensis*, and deeply embedded epimerites inserted within or between host cells, as in the other species studied." (Authors)] Address: Janovy, J., Univ Nebraska, Sch. Biol. Sci., Lincoln, NE 68588 USA

**2376.** Couteyen, S.; Papazian, M. (2001): Contribution à la connaissance des Odonates de l'île de la Réunion 5. *Orthetrum stemmale* (Burmeister, 1839), une espèce redécouverte sur l'île (Odonata, Libellulidae). *Martinia* 17(3): 89-90. (in French with English summary). [14 Feb. 2001 *O. stemmale* has been rediscovered in la Réunion. The species was considered by Selys in 1862 as *Libellula contracta* Rambur, 1842.] Address: Couteyen, S., 188 chemin Nid Joli, F-97430 Le Tampon, La Réunion, France

**2377.** Curry, J.R. (2001): *Dragonflies of Indiana*. Indiana Academy of Sciences. ISBN 1-883362-11-3:

303 pp. (in English). [European readers may know Indiana from the mad rush of racing cars across the Indianapolis circuit. This wonderful book gives the chance to read something about fast flying beasts, the dragonflies. Dragonflies means Anisoptera, Zygoptera are not treated in the book. Curry's book starts with a brief but very readable account on a history of dragonfly biology in Indiana with some very prominent members of our community as T. Say, E.B. Williamson, and B.E. Montgomery. This chapter is followed by an account of the immature stages and life history. 97 individual species accounts, which comprise the bulk of the book, are clearly organised as follows: Most of the species in the book are represented by two photographs. These illustrate the recognition characters discussed in the text. The common names are heading each species chapter. Specific characters common or unique to the species including the mean size are listed to aid in identification ("Recognition"). "Indiana Flight season" data are based upon published reports as well as specimens in the collection of the author. "Status" indicate the current status of the species in Indiana. A "description" of the physical characteristics of the species intends to focus identification on essential morphological characters. In the paragraph "Habitat" it is outlined where the species is most commonly found to exist, including its preferred breeding habitat. Commonly observed habits ("Behaviour") may help in identification. North American "ranges" are based primarily upon published reports. A visual display of the flight season in Indiana, and distribution maps on the basis of counties where the particular species has been reported provide additional information. A glossar and a bibliography are also useful. From the European view, I personally think this is a wonderful book fascinating in its scope and in the quality of species (and habitat) photographs. I am very glad to have the book in my library. (Martin Schorr)] Address: Indiana Academy of Science, Chair of Publ. Comitt., Bill N. McKnight, c/o Park Tudor School, 7200 North College Avenue, Indianapolis, Indiana 46240-3016, USA. US\$ 32.00.

**2378.** d'Aguiar, J. (2001): Les descriptions originales des Odonates d'Europe 8. Leach, William Elford (1790-1836). *Martinia* 17(3): 115-118. (in French with English summary). [This eighth article of the series is devoted to William Elford Leach (1790-1836), who described several genera - in the case of Odonata: *Cordulia*, *Cordulegaster*, *Gomphus*, *Anax*, *Lestes*, *Calopteryx*, and *Anax imperator*.] Address: d'Aguiar, J., 7, rue Adrien Lejeune, F-93170 Bagnolet, France

**2379.** D'Aguiar, J. (2001): Sur la date de description de *Calopteryx splendens* (Harris). *Entomologiste* (Paris) 57(2): 85-88. (in French). [Evidence is given to the fact that *C. splendens* first was described in 1776 and not in 1782 as stated in odonatological literature and taxonomical lists.] Address: d'Aguiar, J., 7, rue Adrien Lejeune, F-93170 Bagnolet, France

**2380.** D'Antonio, C. (2001): Dati inediti di libellule catturate in Sicilia nella primavera del 1998. *Lindenia* 34: 145-146. (in Italian). [20 species from 27 localities in Sicilia, Italy, are listed. *Sympecma fusca*, *Coenagrion puella*, *Pyrrhosoma nymphula*, and *Orthetrum brunneum* are briefly discussed. Species with the highest locality-frequency are *Calopteryx haemorrhoidalis*, *Anax imperator* and the rare European *Coenagrion caeruleum* (ssp. *caesarum*)! ] Address:

D'Antonio, C., Via A. Falcone 386/b, I-80127 Napoli, Italy. E-mail: lindenia@freemail.it

**2381.** De Almeida Spindola, L.; Irineu de Souza, L.; Costa, J.M. (2001): Descrição da larva de *Perithemis thais* Kirby, 1889, com chave para identificação das larvas das espécies conhecidas do gênero citadas para o Brasil (Odonata: Libellulidae). Bolm Mas. nac. Rio de J. (N.S.) Zool. 442: 1-8. (in Portuguese with English summary). [The final instar larva is described and illustrated and the known Brazilian *Perithemis* larvae are keyed.] Address: Costa, J.M., Departamento de Entomologia, Museu Nacional, Universidade Federal do Rio de Janeiro, Quinta da Boa Vista, São Cristóvão, BR-20942-040 Rio de Janeiro, Brazil. E-mail: jcosta@unisys.com.br

**2382.** Denson, D. (2001): *Anax* on ice. *Argia* 13(1): 29. (in English). [*Anax junius* was collected 20th December 2000 in the Orlando area, (Florida?), USA encaged in a 1 cm thick piece of ice.] Address: not stated

**2383.** Devai, G.; Miskolczi, M. (2001): Fundamental knowledge to the long term biodiversity monitoring on the basis of dragonfly (Odonata) fauna in the inundation area of River Tisza between Tiszabercel and Balsa (HNBM Programme, Pilot Project). *Studia odonatol. hung.* 7: 13-37. (in Hungarian with English summary). [The paper compiles the results of studies performed in the framework of the Hungarian Biodiversity Monitoring Programme. The analysis of data refers to a 37year period between 1961 and 1996. In the studied region, a total of 42 odonate species was recorded. Records of the following species should be of some interest: *Brachytron pratense*, *Aeshna viridis*, *Sympetrum depressiusculum*, *S. fonscolombii*, and *Leucorrhinia pectoralis*.] Address: Devai, G., Dept of Ecology, Kossuth L. University, H-4010 Debrecen, P.O. Box 71, Hungary

**2384.** Dommange, J.-L.; Jolivet, S. (2001): Découverte d'une petite population de *Coenagrion caerulescens* (Fonscolombe, 1838) dans le département de l'Aveyron (Odonata, Zygoptera, Coenagrionidae). *Martinia* 17(3): 88. (in French). [In July 2001 in a marshy littoral habitat along the Dourdou de Camarès (affluent of the river Tarn), *C. caerulescens* was discovered. Habitat, co-occurring odonate species, and the azonal distribution in the "continental", not Mediterranean region of France are discussed.] Address: Dommange, J.-L., 7, rue Lamartine, F-78390 Bois-d'Arcy, France

**2385.** Dommange, J.-L.; Heidemann, H. (2001): In memoriam Herbert Wichmann. 1922-2000. *Martinia* 17 (4): 121-122. (in French). [Interest in dragonflies, especially dragonfly photographing, led to a friendship between H. Wichmann and J.-L. Dommange which is as important as scientific contacts among odonatologists.] Address: Dommange, J.-L., 7, rue Lamartine, F-78390 Bois-d'Arcy, France

**2386.** Dommange, J.-L. (2001): Le point sur les connaissances relatives aux Odonates du département de l'Aveyron. *Martinia* 17(3): 95-106. (in French with English summary). [On the occasion of an unpublished report about *Macromia splendens* (Pictet, 1843) in Tarn valley (Aveyron département) for the French Ministry of Development and Environment, the author presents an assessment of the Odonata recorded in Aveyron. Two

tables summarize the 57 species observed, according to their autochthonous character and their habitats. Some species are commented, and reflections about the potential number of species in different regions - depending on geographic situation and the diversity of aquatic habitats - of the Tarn catchment are made. Address: Dommange, J.-L., 7, rue Lamartine, F-78390 Bois-d'Arcy, France

**2387.** Dommange, J.-L. (2001): Rubrique bibliographique. *Martinia* 17(4): 169-175. (in French). [The odonatological bibliography covers publications from 1994 to 2001.] Address: Dommange, J.-L., 7, rue Lamartine, F-78390 Bois-d'Arcy, France

**2388.** Donnelly, N. (2001): History of Odonata study in America: Donald J. Borror (1909 - 1988). *Argia* 13(2): 4-5. (in English). [A further part of the welcome series on pioneer odonatologists.] Address: Donnelly, T., 2091 Partridge Lane, Binghamton, NY 13903, USA. E-mail: tdonnel@binghamton.edu

**2389.** Donnelly, N. (2001): Rediscovery of *Orthemis sulphurata*. *Argia* 13(2): 11-12. (in English). [The puzzle with the enigmatic *O. sulphurata* Hagen, 1868 could be solved due to specimens caught by Fred Sibley in Guayaquil, Ecuador.] Address: Donnelly, T., 2091 Partridge Lane, Binghamton, NY 13903, USA. E-mail: tdonnel@binghamton.edu

**2390.** Donnelly, N. (2001): Taxonomic problems with North American Odonata species - a last appeal for information. *Argia* 13(2): 5-10. (in English). [The following taxa are treated: *Lestes disjunctus*-complex (*disjunctus*, *forcipatus*, *australis*), *Amphiagrion saucium* (Burmeister 1839) and *A. abbreviatum* (Selys 1876), *Enallagma vernale* Gloyd, 1943 and *E. cyathigerum* (Charpentier, 1840), *Aeshna interrupta* subspecies, *Cordulegaster bilineata* (Carle 1983) and *C. diastatops* (Selys 1854), *Epithea costalis* (Selys 1871), *E. petechialis* Muttkowski 1911) and *E. cynosura* (Say 1839), *Erythemis collocata* (Hagen 1861) and *E. simplicillia* (Say 1839), *Orthemis ferruginea* (Fabricius 1775), *O. discolor* (Burmeister, 1839) and "a third species", *Sympetrum internum* Montgomery 1943, *S. janae* Carle 1993 and *S. rubicundulum* (Say 1839), *Sympetrum semicinctorum* (Say 1839) and *S. occidentale* Barteneff 1914, and *Sympetrum signiferum* Canning & Garrison, 1991 and *S. vicinum* (Hagen 1861).] Address: Donnelly, T., 2091 Partridge Lane, Binghamton, NY 13903, USA. E-mail: tdonnel@binghamton.edu

**2391.** Donnelly, N.: (2001): Watch out for warthogs! *Argia* 13(1): 15-17. (in English). [Uganda records including *Umma saphirina* Förster 1916, *Chlorocypha trifaria* (Karsch 1899), *Anax speratus* Hagen 1867, *Aethriamanta rezia* Kirby 1889, *Ceriagrion kordofanicum* Ris 1924, *Platycypha caligata* (Selys 1853), and *Chlorocypha curta* (Hagen in Selys 1853).] Address: Donnelly, T., 2091 Partridge Lane, Binghamton, NY 13903, USA. E-mail: tdonnel@binghamton.edu

**2392.** Ellwanger, G. (2001): Verbreitungskarten der Libellenarten der Anhänge II und IV der FFH-Richtlinie in Deutschland auf der Basis des Messtischblattrasters. *Abh. Ber. Naturkundemus. Görlitz* 73(1): 19-21. (in German with English summary). [The distribution of the dragonflies listed in Annex II of the Habitats Directive was analysed in a project, which was carried out on

behalf of the Federal Agency for Nature Conservation. Data about the distribution of the Annex-IV-species are lacking with the exception of *Gomphus flavipes*." (Author)] Address: Ellwanger, G., Cäsariusstr. 1b, D-53173 Bonn, Germany. E-mail: EllwangerG@bfn.de

**2393.** Engemann, R.; Marx, J.; Schwab, U. (2001): Lebensräume, Flora und Fauna im Gebiet der Pöplitzer Teiche / Dübener Heide. Naturschutz im Land Sachsen-Anhalt 38(1): 9-26. (in German). [Germany, Sachsen-Anhalt; 22 species are listed as a result of a survey in 1999. It is assumed that due to the unaccessibility of the area and the low frequency of excursions the actual number of species will be significantly higher. Of special interest are the records of the regionally rare *Calopteryx virgo*.] Address: Engemann, R., c/o pnb Gesellschaft für Landschafts- und Freiraumplanung, Münchener Str. 37, D-85221 Dachau, Germany

**2394.** Englund, R.A.; Polhemus, D.A. (2001): Evaluating the effects of introduced Rainbow Trout (*Oncorhynchus mykiss*) on native stream insects on Kauai Island, Hawaii; Contribution No. 2001-012 to the Hawaii Biological Survey, Bishop Museum. *Journal of Insect Conservation* 5(4): 265-281. (in English). ["Rainbow trout (*Oncorhynchus mykiss*) and other salmonids have been widely stocked into upland streams throughout the world to provide a basis for sport fisheries, but the effects of such introductions on indigenous and endemic aquatic insect assemblages are poorly documented. In this study, we examine the impact of rainbow trout on the indigenous and endemic entomofauna of upland streams in Kokee State Park, Kauai, Hawaii, with particular emphasis on the potential threat trout pose to populations of endemic damselflies in the genus *Megalagrion*. Rainbow trout were introduced into the upland streams of Kauai beginning in the 1920s, with over 60 years of subsequent restocking. This study indicates, however, that streams in this area still maintain diverse populations of *Megalagrion* damselflies and other indigenous and endemic aquatic insects, both in catchments containing naturally reproducing trout populations and in catchments lacking rainbow trout. Our results indicate that the indigenous and endemic aquatic insect communities in the streams under study compare favorably in terms of density and taxonomic richness with other isolated and unimpacted streams elsewhere in Hawaii, and retain high densities and relative percentages of indigenous and endemic aquatic insect taxa. Our results demonstrate that the threats posed by conspicuous introduced species such as trout should not simply be assumed a priori on the basis of postulated negative interactions, because this may divert limited resources from programs aimed at control of other, potentially more destructive introduced taxa such as inconspicuous poeciliid fishes." (Authors)] Address: Englund, R.A., Hawaii Biological Survey, Bishop Museum, 1525 Bernice Street, Honolulu, HI, 96817, USA. E-mail: englund@bishopmuseum.org

**2395.** Fleck, G.; Nel, A.; Bechly, G.; Martinez-Delclos, X. (2001): Revision and phylogenetic affinities of the Jurassic Steleopteridae Handlirsch, 1906 (Odonata : Zygoptera). *Insect Syst. Evol.* 32(3): 285-305. (in English). ["The Jurassic odonate family Steleopteridae is revised. Two new genera and species *Parasteleopteron guischari* and *Euparasteleopteron*

*viohli* are described. The phylogenetic affinities of this group are discussed. The Steleopteridae are excluded from the Epiproctophora and transferred into the Zygoptera (stemgroup). *Euphaeopsis multinervis* is redescribed and transferred to Epiproctophora: Isophlebioidea, and the genus *Pseudoeuphaea* with its four species is considered as a nomen dubium in Odonata incertae sedis." (Authors)] Address: Fleck, G., Lab. Ent. Mus. Natn. Hist. Nat., 45 rue Buffon, F-75005 Paris, France

**2396.** Fukui, M.; Iwamoto, A.; and 21 other members (Okegayanuma group of Biology Club of Iwata-minami Prefectural High School) (2001): A study of the way to breed *Libellula angelina* in the Okegayanuma, Iwata - city. *Nature and Insects* 36(7): 20-23. (in Japanese). [Introduction: Okegayanuma marsh is located at the northeast of Iwata-city, the west of Shizuoka Prefecture, and famous for the rich habitat of aquatic creatures, especially dragonflies. Among them, *L. angelina* is designated as Endangered species in RDB List. To protect the environment, local people, government and nature conservation groups are in action in closer connection. We investigated the population size since 1991. In 1993 to 1994 the population amounted 700 to 800 but thereafter it decreased and at last in 1999 only to 47 This was a critical situation. The factor of the sharp decrease was the burst multiplication of crayfish. We caught more than 20000 crayfish in the year, and from the year on we have continued to rid the marsh of it. 2. Breeding in our high school: Under the permission of the Ministry of the Environment we caught ten female of *L. angelina* in mid May, and got 5000 to 6000 eggs. We bred them in outdoor plastic containers, each containing aquatic plants, and bred 60 to 210 larvae in each container. At first we bred them with planktons which were collected from ponds, and brine shrimp and from the later stages with tubifexes and larvae of midge. 3. Result and analysis of the conditions of breeding: Larvae bred in 41 cases in 1999 to 2000 amounted 1326, and in 2000 to 2001, 1813 in 52 cases. The mean of larvae bred outdoors 36.9 for each case (total 49), and 1.3 indoors (3 cases). Larvae were bred outdoors more than indoors. This seems to be due to abundance with plankton, supply of rain water, and oxygen supply by water plants. The mean viability was 24.4%. 4. Emergence from bred larvae at Okegayanuma and its effect: Bred larvae (1300) were moved to the marsh, where emergence began on April 15, reached its peak on April 23. More than 70% of emergence from the larvae were counted. Adults of 131 were recorded. Adults came to oviposit in the containers for emergence. 5. Management of breeding containers and tracking of growth of larvae: We compared the conditions of larval growth between the containers from which intruders' larvae were eliminated and those not eliminated. Intruders were seven species; *Crocothemis servilia mariannae*, *Orthetrum albistylum speciosum*, *Lyriothemis pachygastra*, *Pantala flavescens*, *Anax parthenope julius*, *A. nigrofasciatus nigrofasciatus*, *Rhyothemis fuliginosa*. Among them *A. n. nigrofasciatus* has great impact to the larvae of *L. angelina*. Translation: Ishizawa, Naoya] Address: not stated

**2397.** Gaino, E.; Reborá, M. (2001): Apical antennal sensilla in nymphs of *Libellula depressa* (Odonata: Libellulidae). *Invertebr. Biol.* 120(2): 162-169. (in English). ["In an ultrastructural study of the apical

antenna of the last nymphal stages of *Libellula depressa* (Odonata: Libellulidae), we found long sensilla trichodea, 2 sensory pegs, and a coeloconic sensillum on the last article of the flagellum (the distal part of the antenna). The long sensilla trichodea are mechanoreceptors, almost identical to the long filiform hairs of some terrestrial insects and the first sensilla of this kind to be described in aquatic insects. Particular attention was given to the complex coeloconic sensillum, a compound sensillum innervated by 2 groups of 3 neurons wrapped in a dendritic sheath. A cuticular sleeve envelops the distal portion of the outer dendritic segment. The cuticle of the coeloconic sensillum shows wide channels and is contiguous to the underlying granular and fibrillar layer. Similar structures on the antennae of the adults of other dragonflies were identified as chemoreceptors in previous studies. We hypothesize that this larval coeloconic sensillum might likewise have a chemosensory function, responding to molecules that diffuse through the cuticle and the underlying granular and fibrillar layer, as no clear pore or pore-tubule system is visible. Alternative functions are also explored on the basis of morphological details." (Authors)] Address: Gaino, E., Univ. Perugia, Dipartimento Biol. Anim. & Ecol., Via Elce Sotto, I-06123 Perugia, Italy

**2398.** Garrison, R. (2001): Brazil 2000, or living it up (and collecting) in Rio. *Argia* 13(1): 12-15. (in English). [Report of a visit in the Museu Nacional do Rio de Janeiro working with *Hetaerina* and *Argia*, trips to the National Park of Itatiaia, to Iha de Marambaia and Cochoeira de Macucu, reflections on difficulties identifying members of the genus *Heteragrion*. The following species are mentioned in the paper: *Telebasis filiola* (Perty 1834), *Hetaerina hebe* Selys 1853, *H. rosea* Selys 1853, *Heteragrion consors* Hagen in Selys 1862, *Perilestes fragilis* Hagen in Selys, 1862, *Epigomphus paludosus* Hagen in Selys, 1854, *Forcepsioneura sancta* (Hagen in Selys, 1860), *Leptagrion elongatum* Selys 1876, *Tramea binotata* (Rambur 1842), *T. calverti* Muttkowski 1910, *Tramea cophysa* Hagen 1867, *Perithemis icteroptera* (Selys 1857), *Forcepsioneura itatiaiae* (Santos 1970), *Hetaerina proxima* Selys 1853, *Argia tamoyo* Calvert, 1909, *A.sordida* Hagen in Selys, 1865, *Macrothemis imitans* Karsch 1890, *Dasythemis venosa* (Burmeister 1839), *Orthemis cultriformis* Calvert 1899, *Triacanthagyna satyrus* (Martin 1909), *Minagrion mecistogastrum* (Selys 1876), *Elasmothemis constricta* (Calvert, 1898), *Acanthagrion gracile* (Rambur 1842), *Argia lilacina* Selys 1865, *Oxyagrion terminale* Selys 1876, *Erythrodiplax juliana* Ris 1911, *Heteragrion dorsale* Selys 1862, *Hetaerina brightwelli* (Kirby 1823), *Progomphus gracilis* Hagen in Selys 1854, and *Hetaerina longipes* Hagen in Selys 1853] Address: Garrison, R., 1030 Fondale, Azusa, CA 91702-0821, USA: rossergarrison@compuserve.com

**2399.** Glatzle, B. (2001): Die Rolle der Libellen im Nahrungsspektrum der Gebirgsstelze *Motacilla cinerea* Tunstall, 1771 an einem Tieflandfluss. *Abh. Ber. Naturkundemus. Görliitz* 73(1): 23-24. (in German with English summary). ["In 2000, three breeding pairs of the Grey Wagtail nesting along the river Oker near Braunschweig (Lower Saxony, Germany) were observed and filmed in order to analyse their food composition. The Oker river is a lowland river with high abundance of dragonflies. Corresponding with the

opportunistic feeding behaviour of the Grey Wagtail, Odonata form the dominant food component in this study, reaching up to 20 % of all prey individuals recorded." (Author)] Address: Glatzle, Birgit., Zool. Inst., TU Braunschweig, Fasanenstr. 3, D-38092 Braunschweig, Germany. E-mail: B.Glatzle@tu-bs.de

**2400.** Glover, K.: (2001): Poem: "Flash and flicker". *Argia* 13(1): 26. (in English). Address: not stated

**2401.** Goffart, P. (2001): Compte-rendu des observations d'espèces prioritaires d'Odonates en Wallonie durant la saison 2000, dans le cadre du programme d'Inventaire et Surveillance de la Biodiversité (ISB). *Gomphus* 17(1): 23-36. (in French with Dutch and English summaries). ["This report gives an account of observations made in 2000 by the Gomphus Working Group collaborators on Odonata priority species, pointed out in the "Biodiversity Survey and Monitoring" program in Wallonie because of their great rarity and/or decline. It also presents information dealing with rare southern species, expanding to the North, during the same flight-season. [...]"] (Author) The following species are treated in detail: *Sympetma fusca*, *Lestes dryas*, *Coenagrion hastulatum*, *C. mercuriale*, *C. pulchellum*, *Ceriagrion tenellum*, *Gomphus vulgatissimus*, *Thecagaster bidentata*, *Aeshna subarctica elisabethae*, *Brachytron pratense*, *Epitheca bimaculata*, *Oxygastra curtisii*, *Somatochlora arctica*, *S.flavomaculata*, *Libellula fulva*, *Orthetrum coerulescens*, *Sympetrum pedemontanum*, *Leucorrhinia rubicunda*, *Lestes barbarus*, *Coenagrion scitulum*, *Aeshna affinis*, *Anax parthenope*, *Orthetrum brunneum*, *Sympetrum fonscolombii*, and *Sympetrum meridionale*.] Address: Goffart, P., Unité d'Ecologie et de Biogéographie, 5, Place Croix-du-Sud, B-1348 Louvain-la-Neuve, Belgium. E-mail: goffart@ecol.ucl.ac.be

**2402.** Goretti, E.; Ceccagnoli, D.; La Porta, G.; Di Giovanni, M.V. (2001): Larval development of *Aeshna cyanea* (Müller, 1764) (Odonata: Aeshnidae) in Central Italy. *Hydrobiologia* 457: 149-154. (in English). ["A three-year investigation was carried out on the life cycle of *A. cyanea* in temporary freshwater pools in Central Italy. The instars were discriminated by size and scatter plot, based on measurements of labium length, head width, metafemur length, forewing-pad length and total larval body length. The prolarvae instar was derived by Dyar's law. The mean increase value index between following and previous instar was between 1.26 and 1.33 for isometric variables, and around 1.96 for the wing-pad allometric variable. *A. cyanea* entered diapause mainly at the F-2 instar, placing it almost intermediate between the Southern Spain populations, which usually overwintered in the F-3 instar, and those of England and Central Europe, who spent their last winter in F-1. *A. cyanea* appeared to be a 'summer species', as defined by Corbet (1962), and the population we studied had a semivoltine life cycle." (Authors)] Address: Di Giovanni, M.V., Univ. Perugia, Dipartimento Biol. Anim. & Ecol., Via Elce di Sotto, I-06123 Perugia, Italy

**2403.** Grand, D.; Greff, N.; Delcourt, G. (2001): *Leucorrhinia pectoralis* (Charpentier, 1825) nouveau pour le département du Rhône. *Martinia* 17(3): 107-109. (in French with English summary). [In 2000, *L. pectoralis* was recorded at two localities of the Rhône



département, France. The habitats and co-occurring species are described.] Address: Grand, D., Impasse de la Voûte, F-69270 St. Romain-au-Mont d'or, France

**2404.** Grimaldi, D. (2001): Insect evolutionary history from Handlirsch to Hennig, and beyond. *J. Paleontol.* 75 (6): 1152-1160. (in English). ["Significant investigators and aspects in the past century of insect paleontology are briefly reviewed. Despite the pervasive influence of the paleontologist Willi Hennig in systematic biology, the study of fossil insects remains more descriptive than most other paleontological areas. Hypotheses are reviewed on relationships and chronologies of early divergences in insects (Paleozoic, Lower Mesozoic), particularly living and extinct orders of the lower pterygotes and putative monophyly of the Paleoptera (Odonata + Ephemeroptera.). The Dictyoptera (Mantodea, Isoptera, Blattaria) illustrate relationships and discrepancies between stratigraphic record and phylogenetic relationships. Future directions in the field are suggested." (Author)] Address: Grimaldi, D., Amer. Museum Nat. Hist., Dept. Invertebrates, New York, NY 10024 USA

**2405.** Gubbels, R. (2001): Eerste waarneming van *Gomphus flavipes* (Charpentier, 1825) in België: een grensgeval. *Gomphus* 17(1): 3-8. (in Dutch with English and French summaries). ["First observation of *G. flavipes* in Belgium: a borderline case. In the summer of 2000 two males of *G. flavipes* were found along the river Meuse (Grensmaas) in the neighbourhood of Maasmechelen. This is the first observation of *G. flavipes* for Belgium." (Author)] Address: Gubbels, R., Langs de Veestraat 15, NL-6125 RN Obbicht, The Netherlands

**2406.** Günther, A. (2001): Differenzierung von Drohflügeln und Balzverhalten verschiedener *Rhinocypha*-Formen Sulawesi (Indonesien). *Abh. Ber. Naturkundemus. Görlitz* 73(1): 25-26. (in German with English summary). ["The genus *Rhinocypha*, which has its distribution range in southeast Asia, exhibits ritualised threatening flights and specialised courtship behaviour, both of which are closely connected with the egg deposition substrate. The differentiation of this behaviour in several *Rhinocypha* species is briefly described and discussed." (Author)] Address: Günther, A., Naturschutzinstitut Freiberg, WaisenhausstraBe 10, D-09599 Freiberg, Germany. E-mail: a.guenther@abo.freiepresse.de

**2407.** Guerold, F.; Boudot, J.-P.; Jacquemin, G. (2001): Première preuve de la reproduction d'*Aeshna affinis* Vander Linden, 1820 (Odonata, Anisoptera, Aeshnidae) et nouvelles observations d'Odonates rares en Lorraine. *Martinia* 17(3): 77-87. (in French with English summary). ["During Odonatological studies in the Lorraine area in 1999, we observed both immature and mature males of *Aeshna affinis* in the vicinity of Pont-à-Mousson. An exuvia corresponding to this species was collected on macrophytes growing in an artificial pond re-sulting from archaeological soundings. This observation constitutes the first evidence of the reproduction of *A. affinis* in the Lorraine region. Companion species and earlier records of this species in NE France are specified. Other records of rare or new species in this area (*Lestes barbarus*, *Coenagrion scitulum*, *Aeshna isoceles*, *Anax parthenope*, *Sympetrum meridionale*, *S. flaveolum*, *S. fonscolombii*,

*S. pedemontanum*, *Leucorrhinia caudalis*, *L. pectoralis*) are brought on record. *Boyeria irene* was found one time at short distance of the Lorraine limits. Some of these dragonflies are thermophilous species often regarded in progression towards the N of Europe. Some of them were known in Lorraine in the second half of the 19th century, but have not been recorded again since." (Authors)] Address: Guerold, F., Université de Metz, Équipe d'Écotoxicologie, Campus de Bridoux, BP 4116, F- 57040 - Metz Cedex 1, France. E-mail: guerold@bridoux.sciences.univ-metz.fr

**2408.** Handke, K.; Adena, J. (2001): Zur Fauna neu angelegter Gewässer in der Bremer Flussmarsch unter besonderer Berücksichtigung der Libellen. *Bremer Beiträge für Naturkunde und Naturschutz* 5: 175-188. (in German with English summary). [In the middle of the 1980th in the Niedervieland-region near Bremen, Germany due to industrial development measures many habitats had been destroyed. To compensate habitat destruction, due to legal restrictions new habitats had to be created, and the success of the measures had to be monitored. In 1997 28 odonate species including 21 indigenous species colonised the newly created system of waters. The authors conclude, that "most of the animal species of the former ditch systems have also been found at and in the new waters in the course of the ten years." But compared to the old ditch systems significant differences turned out for the specialists of Water Aloe (*Stratiotes aloides*) habitats like *Aeshna viridis* and *Anaciaeschna isosceles*, which are less frequent than formerly. The paper provides some interesting observations on dispersal of species and on succession of odonate species composition in dependence of the succession status of the waters.] Address: Handke, K., Delmestr. 28, D-27777 Ganderkesee, Germany

**2409.** Hardersen, S. (2001): "Fluctuating Asymmetry" als Instrument für die Bioindikation mit Libellen. *Abh. Ber. Naturkundemus. Görlitz* 73(1): 27-28. (in German with English summary). ["The damselfly *Xanthocnemis zealandica* was used to investigate the practicability of 'fluctuating asymmetry' (FA) as a bioindicator. Exposure of the last larval instar to the insecticide carbaryl (40 ppb) increased the level of FA compared with the control in the laboratory. Attempts to confirm these laboratory results using artificial ponds or field populations were only partly successful. It is concluded that the use of FA as a bioindicator is fraught with difficulties." (Author)] Address: Hardersen, S., Tiergartenstr. 111, D-47533 Kleve, Germany. E-mail: sonke7hard@aol.com

**2410.** Harding, R.W. (2001): *Enallagma aspersum* in Prince Edward Island. *Argia* 13(2): 2-3. (in English). [First record of *E. aspersum* at Isaac's Lake, Prince Edward Island, Canada on 2 Sept. 2000.] Address: Harding, R.W., PR'#3 Montague, Summerville, PE, C0A 1R0, Canada

**2411.** Hartung, M. (2001): Bestimmung von isolierten Flügeln von Gomphiden am Ufer der Oder. *Abh. Ber. Naturkundemus. Görlitz* 73(1): 29-31. (in German with English summary). [The use of 'leftover' wings of *Gomphus vulgatissimus*, *Ophiogomphus cecilia*, and *Stylurus flavipes* preyed upon by birds is discussed as an indicator for the occurrence of dragonfly species.]

Address: Hartung, M., Wehnertstr. 20A, D-12277 Berlin, Germany. E-mail: AEH.Matthias.Hartung@t-online.de

**2412.** Heijligers, H.; Hermans, J. (2001): Dragonflies in northern Limburg. *Natuurhistorisch maandblad* 90: 101-109. (in Dutch with English summary). ["This article reports the findings of a weekend survey by the Venray branch and the Dragonfly Study Group of the Limburg Natural History Society. Twenty-two persons inspected 37 different areas in northern Limburg for dragonflies. Data were collected on a total of 33 different species of dragonfly. The areas visited are briefly characterised. A more detailed description is provided of the species *Lestes virens*, *Ceragrion tenellum*, *Coenagrion pulchellum*, *Cordulia aenea*, *Somatochlora metallica*, *Crocothemis erythraea* and the genus *Leucorrhinia*. New locations were found for *Lestes virens* (Ravenvennen), *Ceragrion tenellum* (Ravenvennen, Grinderij Hamert), *Coenagrion pulchellum* (Gubbelsvijver, Schuitwater Megelsum), *Cordulia aenea* (Elsbeemden, Ravenvennen, Gubbelsvijver, Linksstraat), *Somatochlora metallica* (Gubbelsvijver, Grootte Molenbeek, Broekhuizer Molenbeek), *Crocothemis erythraea* (Bergerheide, Elsbeemden, Hamert), *Leucorrhinia pectoralis* (Ravenvennen, Duivelskuil) *Leucorrhinia dubia*, and *L. rubicunda* (Bergerheide, Grinderij Hamert, Ravenvennen)."] (Authors)] Address: Hermans, J.T.; Hertestraat 21, NL-6067 ER Linne, The Netherlands

**2413.** Heinze, B. (2001): Insekt des Jahres 2001: Die Plattbauch-Segellibelle *Libellula depressa* Linnaeus, 1758. *Untere Havel - Naturkundliche Berichte* 11: 23-24. (in German). [Some general information referring to *L. depressa*] Address: Heinze, B., Lindenstr. 16, D-39539 Havelberg, Germany

**2414.** Heitz, S. (2001): Integration des Libellenschutzes in die Unterhaltung von Wiesenbächen. Maßnahmen zum Schutz der Helm-Azurjungfer (*Coenagrion mercuriale*) im Ortenaukreis (Baden-Württemberg). Diplomarbeit an Institut für Landschaftspflege und Naturschutz der Universität Hannover. 98 pp., Anhang. (in German). [Ditch management in most cases leads to significant impacts on fauna and flora. This thesis provides sound information and practicable measures to combine a ditch management that guarantees minimal (and where necessary, differentiated) economical and ecological standards. The partitioning of ditches into a system of stretches enables *C. mercuriale* (and additional species as *Orthetrum coerulescens* etc.) to complete its life cycle, to disperse, and to recolonize new stretches. This thesis can be considered a handbook for ditch management with special emphasis on Odonata. In addition it provides plenty of information referring to general aspects of ditch management, and it compiles the long lasting experience of conflict management between German conservationists and the responsible authorities for ditch management. The thesis is organized, so it even enables everyone from abroad and non German speaking persons to profit from the study. It is highly recommended to everybody interested in *C. mercuriale* or ditch management. (Martin Schorr)] Address: Heitz, S., Moosweg 15, D-77749 Hohberg, Germany

**2415.** Herren, B.; Herren, K. (2001): Libellule in Sicilia (Autunno 2000). *Lindenia* 34: 144-145. (in Italian).

[Odonate taxa of 12 localities situated in Sicilia, Italy are listed; 15 species could be identified to the species level including a record of *Orthetrum trinacria*.] Address: Herren, B. & K., Oberfelderstr. 46, CH-3550 Langnau, Switzerland. E-mail: schule.rosig@bluewin.ch

**2416.** Hess, M.; Heckes, U. (2001): Beitrag zur Wasserinsektenfauna der Bäche und Quellen im Stadtgebiet München (Ephemeroptera, Plecoptera, Heteroptera, Coleoptera, Trichoptera u.a.). *NachrBl. bayer. Ent.* 50 (4): 113-127. (in German with English summary). ["Based on an actual study in streams and springs in the City of Munich records of aquatic insects from various orders are summarized. They are supplemented by data from recent literature. Some faunistically remarkable species are commented more in detail. By way of a resemblance analysis a faunistic classification is worked out, examining particularly the correspondence with hydrogeological / geomorphological subunits of the Münchener Ebene within the city. The differentiated species communities are characterised and discussed with regard to the assumed near-natural state." (Authors) 8 odonate species including *Coenagrion mercuriale* are listed in tab. 1] Address: Hess, Monika, c/o ÖKOKART, Wasserburger Landstr. 151, D-81827 München, Germany. E-mail: info@oekokart.de

**2417.** Heymer, A. (2001): Gedanken zum "Vier-Beine-Sitzen" bei Libellen. *Notul. odonatol.* 5(8): 99-103. (in German with English summary). ["In odonates, the prothoracic legs serve, among other purposes, for holding prey while eating and, with the help of the specialised tibial combing spikes, they function as a "cleaning apparatus" for the head and the compound eyes. Thus, early in the hexapod evolution they have assumed the functions, which entailed that in some species the clasp reflex is no longer elicited during perching. Among the phylogenetically relatively young Libellulinae, the non-use of fore legs while sitting on substrate seems a general habit in *Libellula* and *Orthetrum*. Apparently, this behavioural peculiarity is to be considered a progressive feature in phylogeny. In the Zygoptera, this phenomenon has been so far recorded only in the euphaeid, *Dysphaea dimidiata*, which displays a perching behaviour convergent to that in *Orthetrum*." (Author)] Address: Heymer, A., Écologie Générale, Muséum National d'Histoire Naturelle, 4, Avenue du Petit Château, F-91800 Brunoy (Essone), France

**2418.** Hiemeyer, F.; Miller, E.; Miller, J. (2001): Winterbeobachtungen an *Sympetma paedisca* (Odonata: Lestidae). *Libellula* 20(3/4): 103-113. (in German with English summary). ["After several sightings in November 1997 and 1998, we systematically studied the behaviour of hibernating individuals at two ponds in the Allgäu, south-eastern Bavaria, Germany, in both following winters 1999/2000 and 2000/2001. They stayed during the winter in the shore vegetation of their breeding waters, sitting vertically on reedblades or horizontally on *Carex elata*. All were completely exposed to sun, wind, rain and snow. They safely survived snowing in, hoarfrost and freezing. If temperature was above 0 °C, the individuals were able to move and to crawl over snow, and if temperature was about 15 °C, they even could fly." (Author)] Address: Hiemeyer, F., Gögginger Str. 120, D-86199 Augsburg, Germany. E-mail: FritzHiemeyer@web.de

**2419.** Holder, M.; Kingsley, A. (2001): Summer 2000 peatland odonate surveys in New Brunswick and Nova Scotia, Canada. *Argia* 13(1): 17-19. (in English). [Examining peatland flora and fauna, 59 odonate species were spotted in 2000 including 30 new county records for the provinces of New Brunswick and Nova Scotia. *Somatochlora kennedyi* was recorded for the first time in Nova Scotia. *Leucorrhinia patricia* is considered a further remarkable record; the habitat of the species is briefly characterised.] Address: Holder, M., Kingsley, Andrea, 4605 Hwy'12, Kentville, Nova Scotia B4N 3V8, Canada. E-mail: kingsley.holder@ns.sympatico.ca

**2420.** Hostettler, K. (2001): Der Kleine Blaupfeil (*Orithetrum coerulescens*) in Vorarlberg. *mercuriale* 1: 2-4. (in German). [39 localities with records of *O. coerulescens* in Vorarlberg, Austria are analyzed according to their altitudinal situation and to co-occurring Odonata.] Address: Hostettler, K., Schulstr. 7, CH-8590 Romanshorn, Schweiz. E-mail: kurt.hostettler@gmx.ch

**2421.** Huang, D.Y.; Lin, Q.B. (2001): The Early Cretaceous Hemeroscopid larva fossils from Beijing, China. *Chin. Sci. Bull.* 46(17): 1477-1481. (in English with Chinese summary). ["More than 100 hemeroscopid larva fossils were discovered from the Lower Cretaceous in southwest Beijing, which effectively ends the discussion of morphology and makes it more complete. It is assigned within the Libelluloidea, and shows close evolutionary correlations with modern Libellulidae. Although the wing characters of adult *Hemeroscopus* from the same formation indicates the close relationship to Aeschnoidea, we suggest that the larvae and the adults were the same species. Therefore, it probably shows the evolutionary ancestors of Libellulidae. Being the fundamental species discriminating Jehol Entomofauna and Lushangfen Entomofauna, *Hemeroscopus* bears great significance in the study of stratigraphy." (Author)] Address: Huang, D.Y., Acad. Sinica, Nanjing Inst. Geol. & Paleontol., Nanjing 210008, Peoples Rep. China

**2422.** Hünken, A.; Schütte, C. (2001): Im Trüben fischen: Predation von Flussbarschen auf *Calopteryx*-Larven. *Abh. Ber. Naturkundemus. Görlitz* 73(1): 33-34. (in German with English summary). ["Fishing in murky waters: Predation of perch on two *Calopteryx* species. - The role of turbidity in predator-prey interactions between *Perca fluviatilis* and *Calopteryx splendens* and *C. virgo* respectively was tested in laboratory experiments. In turbid water mortality induced by the fish was significantly higher in *C. splendens* as in *C. virgo*. *C. virgo* was less affected by predation of the fish than *C. splendens*, no matter if water was turbid or not. The differences between both *Calopteryx* species are discussed in terms of their life style." (Authors)] Address: Schütte C., Zool. Inst., TU Braunschweig, Fasanenstr. 3, D-38092 Braunschweig, Germany

**2423.** Huth, J. (2001): Libellen (Odonata) der Braunkohlen-Bergbaufolgelandschaft Sachsen-Anhalts. *Abh. Ber. Naturkundemus. Görlitz* 73(1): 35-37. (in German with English summary). ["From 1996 to 2000 altogether 47 species of dragonflies (75 % of the recorded species of Sachsen-Anhalt), including 21 endangered species of Sachsen-Anhalt and 22 endangered species of Germany, were found in the open-cast lignite post-mining landscapes of Sachsen-

Anhalt. The importance of dragonflies of different types of post-mining waters are described, the most important of which is the nature reserve 'Schlauch Burgkernitz' near Bitterfeld. 40 species (including 17 endangered species of Sachsen-Anhalt and 19 endangered species of Germany) were found there." (Author)] Address: Huth, J., Oekokart GmbH, G.-Cantor-Str. 31, D-06108 Halle/Saale. E-mail: oekokart-halle@t-online.de

**2424.** Inoue, K. (2001): Non-contact sitting oviposition of *Sympetrum maculatum*. *Sympetrum Hyogo* 7/8: 2. (in Japanese with English summary). [*S. maculatum* females usually oviposit in tandem or single flight (non-contact flying oviposition), but a case of non-contact sitting oviposition was observed on October 20, 1990 at Sara Pond, Aonogahara, Ono City, Hyogo Prefecture, Japan. A few minutes later the female started to fly and oviposited in flight.] Address: Inoue, K., 5-9 Fuminosato 4-chome, Abeno-ku, Osaka 545, Japan

**2425.** Jakab, T.; Müller, Z.; Dévai, G. (2001): Quantitative survey of *Gomphus flavipes* (Charpentier, 1825) exuviae along River Tisza. *Abh. Ber. Naturkundemus. Görlitz* 73(1): 39. (in English with German summary). [In February 2000 accidentally cyanid-pollution penetrated the ecosystem of River Tisza, Hungaria. Along a 17 km stretch of this river *Stylurus flavipes* exuviae were sampled. Co-occurring species are *Ophiogomphus cecilia*, *Gomphus vulgatissimus*, *Platycnemis pennipes*, *Calopteryx splendens*, *Ishnura elegans*, *Sympetrum vulgatum*, "*Cordulia aeneaturfosa*", and "*Crocothemis servilia*" (= *C. erythraea*). The author conclude that there was no negative influence of cyanid pollution resp. no drastic decrease in *S. flavipes* population.] Address: Devai, G., Department of Ecology, Kossuth L. University, H-4010 Debrecen, P.O. Box 71, Hungary

**2426.** Jeffries, M. (2001): The Northumbrian frontier of the Banded Demoiselle *Calopteryx splendens* (Harris). *J. Br. Dragonfly Society* 17( 2): 55-58. (in English). [*C. splendens* is a species with a southern and midland distribution in England and Wales, declining in Yorkshire, and with an isolated northern outpost on the Solway Firth. More recent studies on the distribution of this species "show a stronger presence up through County Durham and one record north of the River Tyne in southern Northumberland. This paper describes the recent distribution of *C. splendens* within Northumberland (north of the River Tyne), from the time of its discovery in 1988. The extent of available habitat appearing suitable for further colonization is also considered." ] Address: Jeffries, M., Division of Geography and Environmental Management, Lipman Building, University of Northumbria, Newcastle upon Tyne, NE1 8ST, UK.

**2427.** Jödicke, R. (2001): Saisonale Einnischung von *Paragomphus genei* in Tunesien (Odonata: Gomphidae). *Libellula* 20(1/2): 13-22. (in German with English summary). ["On the basis of the seasonal pattern of emergence and the flying season the species can be best considered to be bivoltine. This life cycle is supposed to be typical of the West-Mediterranean populations; univoltinism may partly occur. In the southern oases a continuous emergence throughout the year was recorded, indicating a facultative multivoltinism." (Author)] Address: Jödicke, R.,

Großenging 14, D-49699 Lindern, Germany. E-mail: r.joedicke@t-online.de

**2428.** Jones, C.D.; Burke, P.S.; Falls, J.B.; Oldham, M.J.; Sutherland, D.A. (2001): Additions to the Odonata list of Peterborough County, Ontario. In: Catling, P.M., C.D. Jones & P. Pratt (Eds): Ontario Odonata, vol. 2. Toronto Entomologist's Association, Toronto, Ontario: 44-47. (in English). ["Twelve new county records are reported for Peterborough County from the 1999 and 2000 field seasons, bringing the county list to a total of 96 species. Additions reported are: *Lestes eurinus*, *Amphiagrion saucium*, *Aeshna constricta*, *A. eremita*, *A. verticalis*, *Nasiaeschna pentacantha*, *Gomphus borealis*, *G. descriptus*, *Stylurus scudderi*, *Cordulegaster diastatops*, *Helocordulia uhleri*, and *Somatochlora franklini*. In addition, the occurrence of *Lestes forcipatus* has been confirmed and another species, *Sympetrum costiferum*, which was inadvertently excluded from a published 1999 list is "officially" added here. Nine of these species are considered provincially rare. Notes on habitat, behaviour and relative abundance are provided for some species." (Authors)] Address: Jones, C.D., Box 182, Lakefield, Ontario, K0L 2H0, Canada. E-mail: colin.jones@mnr.gov.on.ca

**2429.** Jones, C.D. (2001): Book Review of "Dragonflies through Binoculars: A Field Guide to Dragonflies of North America". In: Catling, P.M., C.D. Jones & P. Pratt (Eds): Ontario Odonata, vol. 2. Toronto Entomologist's Association, Toronto, Ontario: 49-52. (in English). [Colin D. Jones reviews extensively Sid Dunkle's book "Dragonflies through Binoculars: A Field Guide to Dragonflies of North America Oxford University Press, New York. Softcover, 266 pages. US\$ 29.95 (ISBN 0-19-511268-7)". Special emphasize is given to the discussion of common - English - names of the dragonflies, and to the range maps of the species which are commentend and corrected - where necessary - in detail.] Address: Jones, C.D., Box 182, Lakefield, Ontario, K0L 2H0, Canada. E-mail: colin.jones@mnr.gov.on.ca

**2430.** Jones, C.D. (2001): *Somatochlora incurvata* (Incurvate Emerald) New to Algonquin Provincial Park, Ontario. In: Catling, P.M., C.D. Jones & P. Pratt (Eds): Ontario Odonata, vol. 2. Toronto Entomologist's Association, Toronto, Ontario: 47-48. (in English). ["*S. incurvata* [...] is reported from Algonquin Provincial Park, Ontario - representing the fourth location of this rare species in Ontario. With the inclusion of this species, the park's list of Odonata now stands at 99 species. The habitat is described as a sedge bog or poor fen, dominated by *Carex*, with *Sphagnum* and scattered clumps of *Chamaedaphne calyculata*. A female was observed ovipositing by dipping her abdomen into a shallow pool of water (30 x 30 cm) within the sedge-sphagnum mat." (Author)] Address: Jones, C.D., Box 182, Lakefield, Ontario, K0L 2H0, Canada. E-mail: colin.jones@mnr.gov.on.ca

**2431.** Kagimoto, B. (2001): The present state and the protection of the dragonfly, *Orthetrum poecilops miyajimaense* Yuki et Doi. *Nature and Insects* 36(7): 17-19. (in Japanese). [Introduction: *O. poecilops miyajimaense* is a rare species which inhabits only Miyajima in Hiroshima Prefecture in Japan, and is listed as an endangered species in RDB. This dragonfly was

first discovered by Yuki, Jiro at Yamashiraura on Miyajima in 1936, and in 1955 by Dr. Sawano, Juzo it was rediscovered at the same point. After that the discovered spot had disappeared due to development. Also in Hiroshima Prefecture this species has been designated as a special wildlife species, which should be protected by the local governmental by law of Hiroshima. Collection of the species is prohibited and a violator will be sentenced to one year's penalty or fined 500 thousand yen. This species inhabit wetlands on the seashore, where rice grass, *Claudium chinense*, grows, and is rather tolerant of saline water. Development has been prohibited all over in Miyajima as a holy island, and the environment of the dragonfly has been preserved. The conditions of the environment for the species are as follows; (1) The wetland is always filled with spring water or by small streams which flow from the forests of the hinterland. (2) The bed of the wetland is covered by the organic mud. (3) The sea water is quickly drained from the wetland. Only three well conditioned spots are left in the island. 1. Situation of the habitats: Habitat A: the southern limit on the island, which was pooled with sea water by the typhoon 19th of 1991 and the 18th in 1999 and damaged. The population decreased sharply. Habitat B: this habitat is located closely near to Habitat A, and rather well conditioned. Population is maintained in spite of the 19th typhoon. Habitat B: this habitat harbours the strongest population, and its ecological conditions are the best of the three locations 2. Measures for protection: The bylaw of prefectural government and municipal preservation activities for the habitats are helpful for the protection of the dragonfly. Also stock of larvae bred from eggs by members of Hiroshima Mushi no Kai has contributed to the increase of the population. 3. Prospect: The preservation of the habitats is most important. (1) Preservation of the forests of the hinterland. (2) Maintenance of shallow pools of sea water; drainage is important. (3) Precise investigation of the population size. (4) Preservation of the species from the view point all over the Inland Sea. Translation: Ishizawa, Naoya] Address: not stated

**2432.** Kalko, E. (2001): Bats gleaning dragonflies. *Argia* 13(1): 27. (in English). [Infrared filming of bats (*Micronycteris megalotis*) resulted that they prey using echolocation on sitting dragonflies] Address: Elisabeth.Kalko@biologie.uni-ulm.de

**2433.** Kamigaki, K. (2001): Intergeneric tandem of *Sympetrum frequens* male and *Pantala flavescens* female. *Sympetrum Hyogo* 7/8: 9. (in Japanese with English summary). [The intergeneric tandem was observed at Aonogahara, Ono City, Hyogo Prefecture, Japan on November 3, 2000. "They were flying swinging up and down, and perched on a grass on the margin of a pond, but flew away soon. They did not copulate during my observation."] Address: not stated

**2434.** Keil, R. (2001): Die Rolle von Libellen in der historischen Karpfenteichwirtschaft. *Abh. Ber. Naturkundemus. Görlitz* 73(1): 41-43. (in German with English summary). ["Based on literature, considerations on the impact of carp farming on the occurrence and development of Odonata in historic fishery ponds are presented." (Author)] Address: Keil, R., Prof. Wagenfeld-Ring 102, D-02943 Weißwasser. E-mail: rene-keil@gmx.de

**2435.** Kerry, L. (2001): Habitat management for the Southern Damselfly *Coenagrion mercuriale* (Charpentier) on Aylesbeare Common, Devon. J. Br. Dragonfly Soc. 17( 2): (in English). [A colony of *C. mercuriale* has been recorded intermittently at this site in low numbers since 1956. With the exception of 1986, when twelve individuals were recorded, the maximum count was four individuals for each year from 1977 to 1990. Two other colonies are present within 5 km of this site [...] Colaton Raleigh Common, has been recorded since 1963, with a maximum count of over 100 in 1986. [...] Venn Ottery Common, has been recorded since 1979, but only low numbers were recorded prior to the last sighting of a lone male in 1990. [...] The population of *C. mercuriale* at Aylesbeare Common has significantly increased since the advent of cattle grazing up to more than 300 specimens in 2001. "It is probable that the grazing is responsible for the increase in damselflies. Various factors may be important, for example the cattle poach the substrate and create a mosaic of shallow pools; their droppings enrich the water; and their grazing alters the vegetation structure." The crucial parameter is unknown; therefore a PhD study will bring together the management regimes on other sites and establish the specific habitat requirements for *C. mercuriale*. "The future management at Aylesbeare will continue with light summer grazing, followed by brush cutting of small areas of Black Bog-rush (*Schoenus nigricans*) during the winter. The *C. mercuriale* population will continue to be monitored on a standard transect and the vegetation quadrats will be surveyed on a long-term basis." (Author)] Address: Kerry, L. Mount Pleasant, Stonyford, Colaton Raleigh, Sidmouth, Devon EX 10 OHZ, UK

**2436.** Kitching, R.L. (2001): Food web in phytotelmata: "bottom-up" and "top-down" explanations for community structure. Annu. Rev. Ent. 46: 729-760, 1 Pl. excl. (in English). [The field study of food webs and the processes maintaining them is hampered by the sheer complexity and unreplicated nature of natural systems. The animal communities in phytotelmata, plant-held waters, are a convenient exception to this generalization. Tree holes, bamboo internodes, pitcher plants, tank bromeliads, and water-retaining plant axils contain a rich fauna, principally of arthropods, which constitute more or less complex, highly discrete food webs. They are widespread and replicated. The explanations for the community structure observed in these systems may call on "bottom-up" mechanisms such as simple environmental limitations, competition, predation, and facilitation, or they may adduce grander "top-down" theories, which explore biogeographic, energetic, dynamic, or biodiversity-related constraints. The existence of the bottom-up mechanisms is well established in experimental systems, and their consequences may be apparent in naturally occurring food webs. Top-down mechanisms demand a more holistic approach and are more difficult to test either by pattern analysis or experimental manipulation. The synoptic explanation of community composition and structure demands a multidimensional approach best expressed as a heuristic "template". Phytotelmata represent nearly ideal natural instruments for further study of food web dynamics, and exciting opportunities exist for the development and testing of community theories through their manipulation."] Address: Kitching,

R., Aust. School Envir. Stud., Griffith Univ., Brisbane, Qld 4111, Australia

**2437.** Knaus, P.; Vorburger, C. (2001): Neuer Fundort von *Sympetma paedisca* in der Ostschweiz (Odonata: Libellula 20(1/2): 91-96. (in German with English summary). ["The species is threatened of extinction in Switzerland with the only actual breeding localities in the Valais and at Lake Constance (Untersee). We report on a new locality near St. Margrethen where *S. paedisca* was recorded regularly since 1994 in summer and autumn. Records derive from the northern slope of the »Heldsberg« at 420 - 440 m a.s.l., which is mainly covered with deciduous and coniferous forest. It is yet unclarified whether the species is autochthonous at the locality or whether the animals originated from the large population in the Rhine delta (Vorarlberg, Austria), approximately 5 km away." (Authors)] Address: Knaus, P., Schweizerische Vogelwarte, CH-6204 Sempach, Switzerland. E-Mail: peter.knaus@vogelwarte.ch

**2438.** Knijf, G. de (2001): *Leucorrhinia pectoralis* (Charpentier, 1825) in 2000 in Vlaanderen: terug van weggeweest of toch nooit volledig verdwenen? Gomphus 17(1): 9-22. (in Dutch with English and French summaries). ["*L. pectoralis* in 2000 in Flanders: back again or never disappeared? The last observations of *L. pectoralis* in Flanders date back from 1989 and this was the reason to consider this species in the red list as 'extinct in Flanders'. In 2000 however, *L. pectoralis* was observed at 5 different localities and altogether 10 individuals were noted. At one site one tandem and a third individual were observed. All these sites are situated in the Campine (Kempen), 4 in the province of Antwerp (Kalmthout, Herentals and Mol, twice) and one in the province of Limburg (Opplabbeek). From those 5 sites, *L. pectoralis* had only been observed in the past in Opplabbeek. The habitats where *L. pectoralis* was observed in 2000 are an acidified fen (twice), a humic acid fen, a mesotrophic pond and a nutrient poor peatbog with seepage chalk water. All the observations of *L. pectoralis* in 2000 are situated between the 13th of May and the 11th of July. This corresponds completely with the old observations from Flanders. It is impossible to track the origin of the individuals seen in 2000. Considering the great distance (>150 km) to the known populations in Northwestern Europe and the fact that 10 individuals were seen within a time period of two months, we presume that at least the majority, if not all, of the individuals have emerged in Flanders and that there still exist one or more populations in Flanders. Extra arguments for this reasoning are the facts that the optimal habitat of *L. pectoralis* is only accessible with difficulty for men, the usually small number of individuals in a population and the short flying period. We suggest that the Red list status of *L. pectoralis* should now be considered 'Critically endangered' in Flanders." (Author)] Address: Knijf, G. de, Instituut voor Natuurbehoud, Kliniekstraat 25, B-1070 Brussel, Belgium. E-mail: geert.de.knijf@instnat.be

**2439.** Krech, M. (2001): Ein Beitrag zur Libellenfauna nordostdeutscher Regenhochmoore - Das NSG Göldeitzer Moor bei Cammin. (Landkreis Bad Doberan). Archiv Freunde Naturgeschichte in Mecklenburg 40: 161-172. (in German). [The Göldeitzer Moor is one of the classical odonatological

localities in Germany (see W. Rabeler, 1931, who lists 20 species). Additional surveys in the 1980ies increased the species list, and today 39 species are known, 24 to be autochthonous. Bog species are well represented; the rare *Aeshna subarctica elisabethae* continuously is known from the 1920ies. Interesting is the reproduction of *Anax imperator* in an dystrophic water body. The bog is threatened by peat harvesting, melioration and succession of vegetation in the water bodies used for reproduction.] Address: Krech, M., Auf der Großen Mühle 7, D-99198 Erfurt, Germany

**2440.** Kreuz, P.; Arnold, W.; Kesel, A.B. (2001): Acoustic microscopic analysis of the biological structure of insect wing membranes with emphasis on their waxy surface. *Annals Biomedical Engineering* 29(12): 1054-1058. (in English). ["The mechanical performance of natural materials depends on the type, and especially the composition of the molecular constituents. They are almost without exception composite materials, whose characteristics are determined by the characteristics of the individual constituents, their shape, their interaction, and in particular their orientation within the natural material. One of the most impressive natural composites is the insect cuticle. This lightweight building material impresses one with its ability to withstand extremely heavy loading. Even the ultrathin (3-10 µm) membranes of insect wings add greatly to the structural stability of the wings. By means of acoustic microscopy, the present study also shows that the thin covering of wax on the membrane is not an accidental material arrangement. Contrary to that of locust wings, dragonfly (*Aeshna cyanea*) wing membranes were found to have a criss-cross fiber-like density gradient within the waxy layer. This density gradient proved to be mechanically relevant in stabilizing the wings." (Authors)] Address: Kesel, Antonia, Department of Zoology, Technical Biology and Bionics; University of Saarland; D - 66041 Saarbrücken. E-mail: a.kesel@rz.uni-sb.de

**2441.** Krüner, U. (2001): *Orthetrum brunneum* (Fonscolombe, 1837), ein fester Bestandteil der Libellenfauna in NRW?. *Abh. Ber. Naturkundemus. Görlitz* 73(1): 45-46. (in German with English summary). [A large breeding population of *O. brunneum* with more than a hundred individuals is reported from a location in Northrhine-Westfalia, Germany. The regional dispersion of the species, development of habitat parameters in the open drain of a hard coal dump since 1992, and conservation measure are briefly outlined.] Address: Krüner, Ulrike, Gelderner Str. 39, D-41189 Mönchengladbach, Germany. E-mail: kruener@t-online.de

**2442.** Kuhn, J. (2001): Prozeßschutz versus Nutzung und Pflege: Probleme des Libellenschutzes in Mooren des süddeutschen Alpenvorlandes. *Abh. Ber. Naturkundemus. Görlitz* 73(1): 47-49. (in German with English summary). ["Process conservation versus use and maintenance: Problems of dragonfly conservation in bogs of the southern German prealpine district. - Several dragonfly species of prealpine mires (fens and bogs) in southern Germany largely depend on recent and/or historical land use by man (e.g. litter meadows, bog clearing, peat cutting by hand). Due to irreversible hydrological and trophic changes as well as for lack of exogenous dynamics, conservation of these species by means of 'process conservation' probably will not be

successful. Problems of abandonment and management of 'semi-natural' man-made dragonfly habitats in mires are discussed." (Author)] Address: Kuhn, J., Max-Planck-Institut für Verhaltensphysiologie, Abt. Winckler, D-82319 Seewiesen. E-mail: kuhn@mpi-seewiesen.mpg.de

**2443.** Kunz, B.; Kunz, D. (2001): *Lindenia tetrphylla*: Wiederfund für Nordafrika (Odonata: Gomphidae). *Libellula* 20(1/2): 79-85. (in German with English summary). ["After a period of more than 150 years the species has been recorded in the Maghreb again. The finding place is a reservoir in central Tunisia. The individuals observed were conspicuously dark. This fact is discussed to conform with the age colouration. We interpret our record as the result of an actual migration rather than a permanent occurrence. The possible origin and migration path of the individuals are discussed. The Tunisian checklist of dragonflies is thus enlarged to 53 spp." (Authors)] Address: Kunz, B., Hauptstr. 111, D-74595 Langenburg, Germany. E-mail: kunzFOTOGRAFIE@t-online.de

**2444.** Kunz, B. (2001): Suchstrategien für in Baden-Württemberg (vermutlich) unterrepräsentierte Libellenarten. *mercuriale* 1: 4-8. (in German). [The following species are assessed as underrepresented in field records of odonatologists: *Sympecma fusca*, *Coenagrion hastulatum*, *C. ornatum*, *Ischnura pumilio*, *Lestes virens*, *L. barbarus*, *Gomphus vulgatissimus*, *Ophiogomphus cecilia*, *Onychogomphus forcipatus*. Information on tracing strategies are outlined with the aim to get a more realistic view of the current situation of the species in the Federal State Baden-Württemberg.] Address: Kunz, B., Hauptstr. 111, D-74595 Langenburg, Germany. E-mail: kunzFOTOGRAFIE@t-online.de

**2445.** Kunz, B. (2001): Zum Kenntnisstand des aktuellen Fundortes der Vogelazurjungfer (*Coenagrion ornatum*). *mercuriale* 1: 24. (in German). [Status quo report of the small population of *C. ornatum* in the Federal State Baden-Württemberg, Germany.] Address: Kunz, B., Hauptstr. 111, D-74595 Langenburg, Germany. E-mail: kunzFOTOGRAFIE@t-online.de

**2446.** Kurstjens, G. (2001): Lesser Emperor (*Anax parthenope*) found in Limburg. *Natuurhistorisch maandblad* 90: 94-95. (in Dutch with English summary). ["On 7 June 2000, *Anax parthenope* was observed in a brook valley near the Belgian-Dutch border at Kessenich-Thorn. This was the sixth observation of this rare dragonfly species recorded in the Netherlands. The occurrence of the specimen may have been due to the period of unusually hot weather from the end of April to mid-May. This observation fits into a pattern of increasing numbers in western Europe during the 1990s, when the species was also found in England and Belgium. In view of the current climate changes, the species might be expected to start breeding in the Netherlands in the near future, as has also been found for other southern insect and spider species." (Author)] Address: Kurstjens, G., Ecologisch adviesbureau, Col. Ekmanstr. 15, NL-6573 BM Beek-Ubbergen, The Netherlands

**2447.** Lafontaine, R.-M.; Goffart, P. (2001): *Comptendu de l'excursion en Gaume de juillet 2000: le record n'est pas battu, mai il le sera bientôt .... Gomphus* 17 (1): 51-53. (in French). [Belgium; 32 species were

recorded on 22 July 2000 including *Sympecma fusca*, *Coenagrion scitulum*, *C. mercuriale*, *Ischnura pumilio*, *Somatochlora flavomaculata*, *Orthetrum brunneum*, and *O. coerulescens*] Address: Goffart, P., Unité d'Écologie et de Biogéographie, 5, Place Croix-du-Sud, B-1348 Louvain-la-Neuve, Belgium. E-mail: goffart@ecol.ucl.ac.be

**2448.** Lafontaine, R.-M.; Knijf, G. de (2001): Libellules observées lors de l'excursion Gomphus en Lorraine française du 25 juin 2000. *Gomphus* 17(1): 54-55. (in French). [Documentation of records of 21 species including *Lestes virens*, *Erythronema najas*, *Coenagrion pulchellum*, and *C. scitulum*. Records from 20-06-1999 (e.g. *Anaciaeschna isosceles*, *Leucorrhinia caudalis*!) and 10-06-2000 (e.g. *Brachytron pratense*, *Coenagrion mercuriale*) are added.] Address: Knijf, G. de, Instituut voor Natuurbehoud, Kliniekstraat 25, B-1070 Brussel, Belgium. E-mail: geert.de.knijf@instnat.be

**2449.** Landesumweltamt Nordrhein-Westfalen (Hrsg.) (2001): Referenzgewässer der Fließgewässertypen Nordrhein-Westfalens. Teil 2: Mittelgroße bis große Fließgewässer - Gewässerabschnitte und Referenzstrukturen. Merkblätter des Landesumweltamt Nordrhein-Westfalen 29. 247 pp. (in German). [42 stretches of running waters in the Federal State Nordrhein-Westfalen, Germany are characterised and documented in detail; such stretches with reference character can serve to develop so called "Leitbilder" (strategic models, ecological goal functions) for revitalisation measures along additional stretches of the same water or comparable waters in the catchment area. Macrozoobenthos of the stretches is also compiled including odonate taxa, in most cases Calopteryx virgo, C. splendens, Platycnemis pennipes, and Gomphus vulgatissimus. Onychogomphus forcipatus is documented for the river Eder. Ischnura elegans, Coenagrion puella, Pyrrhosoma nymphula, and Chalcolestes viridis are documented for a few rivers with slow current.] Address: Landesumweltamt NRW, PF 102363, D-45023 Essen, Germany

**2450.** Legrand, J. (2001): *Malgassophlebia mayanga* (Ris, 1909) et une nouvelle espèce du genre à Madagascar (Odonata, Anisoptera, Libellulidae). *Revue Française d'Entomologie (Nouvelle Série)* 23(4): 225-236. (in French with English summary). [Male, female, and last instar larvae of *Malgassophlebia mayanga* (Ris 1909) are redescribed. Male, female, and last instar larvae of *Malgassophlebia mediodentata* n.sp. (holotype male, allotype female, 7/XI/1998, Bassin du Rianila, 15 km east of Morarano, Madagascar) are described. Both species are illustrated and compared in detail. Larval characters, allied species, biology, and distribution are briefly discussed.] Address: Legrand, J., 10, rue du Chemin de fer, F-94110 Arcueil, France

**2451.** Leipelt, K.G.; Schütte, C.; Suhling, F. (2001): Neue Daten zur Larvalökologie von *Macromia splendens* (Odonata: Macromiidae). *Libellula* 20(1/2): 1-11. (in German with English and French summaries). ["At the end of July, 1998, in mid July, 1999, and in mid June, 2000, a total of 67 larvae was recorded at a section of about 100 m in length at the Garden de Mialet in the mountain range of the Cevennes, southern France. Only one larval generation, comprising up to four different stadia was found during June and July.

Another generation was on the wing, the third was in the egg stage. Therefore the duration of larval development is considered to last two years in that region. All larvae were found in reaches where the water current was hardly noticeable: We recorded 53 larvae at sandy patches in shallow water near the river margin, five in deposits of a mixture of twig, leaf and fine detritus, and nine on bedrock in about 1 m water depth. In other microhabitats like alder roots, gravel and boulder no larvae were found." (Authors)] Address: Leipelt, K.G., Zoologisches Institut -Ökologie-, Technische Universität Braunschweig, Fasanenstr. 3, D-38092 Braunschweig, Germany. E-Mail: k.leipelt@tu-bs.de

**2452.** Leipelt, K.G.; Sommer, R.; Martens, A. (2001): Territorialität bei *Oxygastra curtisii* (Odonata: Corduliidae). *Libellula* 20 (3/4): 155-170. (in German with English summary). ["In the Cevennes mountains, southern France, males patrolled continuously at 6-15 m long stretches at the river margin. They defended their territories against conspecific males. In the territories patrol flights of individual marked males lasted between less than one and up to 28 minutes. Within one hour males patrolled in up to four different territories." (Authors) In addition information on habitat preference and activity patterns in relation to temperature and rain of *Boyeria irene* are given.] Address: Leipelt, K.G., Zool. Inst. -Ökologie-, Technische Universität Braunschweig, Fasanenstr. 3, D-38092 Braunschweig, Germany. E-Mail: k.leipelt@tu-bs.de

**2453.** Lenk, P. (2001): Libellenbeobachtungen in der Kähler Seenlandschaft. Unser Kahlgrund. Heimatjahrbuch für den ehemaligen Landkreis Alzenau. 2002: 68-76. (in German). [Germany, Bavaria; 26 odonate species could be observed between 1999 and 2001. Habitats are in most cases brown coal mining waters and sand pits. Records of *Anaciaeschna isosceles*, *Anax parthenope*, *Brachytron pratense*, and *Crocthemis erythraea* are of some interest. The negative impact of carp and swans on vegetation and Odonata is briefly discussed.] Address: Lenk, P., Hess. Landesmus., Zool. Abt., Friedensplatz 1, D-64283 Darmstadt, Germany. E-mail: p-lenkr@hlmd.de

**2454.** Lett, J.-M.; Cloupeau, R.; Pratz, J.-L.; Male-Malherbe, E. (2001): Liste commentée des odonates de la région Centre (Département du Cher, de l'Eure-et-Loir, de l'Indre, de l'Indre-et-Loire, de loir-et-Cher et du Loiret). *Martinia* 17(4): 123-168. (in French with English summary). [Published data, data from the French mapping programme of Odonata and observations of the authors are compiled. 34 of the 68 species known to be represented in the region (62 species between 1990 and 2001) are commented in detail and the distribution 28 species is mapped: *Lestes dryas*, *Platycnemis acutipennis*, *Coenagrion mercuriale*, *C. ornatum*, *C. pulchellum*, *C. scitulum*, *Ischnura pumilio*, *Aeshna grandis*, *Anaciaeschna isosceles*, *Anax parthenope*, *Boyeria irene*, *Brachytron pratense*, *Stylurus flavipes*, *Gomphus grasilinii*, *Onychogomphus uncatus*, *Ophiogomphus cecilia*, *Cordulegaster boltonii*, *Epitheca bimaculata*, *Oxygastra curtisii*, *Somatochlora flavomaculata*, *S. metallica*, *Leucorrhinia caudalis*, *L. pectoralis*, *Libellula fulva*, *Sympetrum danae*, *S. fonscolombii*, *S. meridionale*, and *S. vulgatum*.]

Address: Lett, J.-M., 1, les Cosses, F-41320 Saint-Loup-sur-Cher, France

**2455.** Lett, J.-M. (2001): Première donnée de *Coenagrion ornatum* (Sélys, 1850) dans la région Centre, département du Cher (Odonata, Zygoptera, Coenagrionidae). *Martinia* 17(3): 94. (in French). [29 June 2001 the rare *C. ornatum* was recorded at Neuville-Barrois situated near Sancoins, France (catchment of river Allier). The habitat is described, and the regional distribution of the species is outlined. *C. mercuriale* is also well represented in the habitat.] Address: Lett, J.-M., 1, les Cosses, F-41320 Saint-Loup-sur-Cher, France

**2456.** Lévassieur, M.; Dommanget, J.-L. (2001): *Martinia*. Index 1985-2000. *Martinia* 17 (Suppl. 1): 44 pp. (in French). [The issues of the odonatological journal *Martinia* issued between 1985 and 2000 are indexed in detail: dates of release, bibliography, geographic index (Départements), index of species, (a few) key words.] Address: Dommanget, J.-L., 7, rue Lamartine, F-78390 Bois-d'Arcy, France

**2457.** Lohr, M.; Mitzka, H.-D. (2001): Die Libellenfauna der Weserrandsenke "Taubenborn" bei Höxter (Insecta: Odonata). Eine Dokumentation von Bestandsentwicklungen am Beispiel der Libellen zwischen 1989 und 2001. *Egge-Weser* 14: 31-50. (in German). [29 odonate species are documented from several water bodies in the floodplain of river Weser, Nordrhein-Westfalen, Germany. Habitat parameters (vegetation) and species composition of the waters are documented in tables and discussed in detail. Regional development of species composition over a period of 12 years is outlined as well as range extensions are discussed. Of some interest are notes on the occurrence of some Mediterranean species and *Brachytron pratense*, and dynamic of population fluctuation of *Sympetrum flaveolum*. The habitat is assessed as one of the most important regional habitats.] Address: Lohr, M., An der Kirche 22, D-37671 Höxter, Germany. E-mail: mlohr@fh-hoexter.de

**2458.** Male-Malherbe, E.; Caupenne, M. (2001): Le point sur six odonates remarquable de Brenne (département de l'Indre). *Martinia* 17(3): 111-114. (in French with English summary). [France; records of *Coenagrion mercuriale*, *Anax parthenope*, *Epithea bimaculata*, *Leucorrhinia caudalis*, *L. pectoralis*, and *Sympetrum danae* are discussed.] Address: Male-Malherbe, E., 38, La Gabrière, F-36220 Lingé, France

**2459.** Manach, A. (2001): Atlas préliminaire des Odonates de Bretagne (Région administrative: départements des Côtes-d'Armor, du Finistère, de l'Ille-et-Vilaine et du Morbihan). *Martinia* 17 (Suppl. 2): 3-60. (in French with English summary). [Distribution maps for each of the 54 Odonata taxa recorded in the Brittany region (France) are presented. The paper also includes eight colour plates with some regionally remarkable or rare species.] Address: Manach, A., 11, rue d'Ouessant, F-29200 Brest, France

**2460.** Marden, J.H.; Fitzhugh, G.H.; Girgenrath, M.; Wolf, M.R.; Girgenrath, S. (2001): Alternative splicing, muscle contraction and intraspecific variation: associations between troponin T transcripts,  $Ca_{2+}$  sensitivity and the force and power output of dragonfly flight muscles during oscillatory contraction. *J. Exp.*

*Biol.* 204(20): 3457-3470. (in English). ["The flight muscles of *Libellula pulchella* dragonflies contain a mixture of six alternatively spliced transcripts of a single troponin T (TnT) gene. Here, we examine how intraspecific variation in the relative abundance of different TnT transcripts affects the  $Ca_{2+}$  sensitivity of skinned muscle fibers and the performance of intact muscles during work-loop contraction regimes that approximate in vivo conditions during flight. The relative abundance of one TnT transcript, or the pooled relative abundance of two TnT transcripts, showed a positive correlation with a 10-fold range of variation in  $Ca_{2+}$  sensitivity of skinned fibers ( $r(2)=0.77$ ,  $P < 0.0001$ ) and a threefold range in peak specific force ( $r(2)=0.74$ ,  $P < 0.0001$ ), specific work per cycle ( $r(2)=0.54$ ;  $P < 0.0001$ ) and maximum specific power output ( $r(2)=0.48$ ,  $P=0.0005$ ) of intact muscle. Using these results to reanalyze previously published data for wing kinematics during free flight, we show that the relative abundances of these particular transcripts are also positively correlated with wingbeat frequency and amplitude. TnT variation alone may be responsible for these effects, or TnT variation may be a marker for changes in a suite of co-regulated molecules. Dragonflies from two ponds separated by 16 km differed significantly in both TnT transcript composition and muscle contractile performance, and within each population there are two distinct morphs that showed different maturational trajectories of TnT transcript composition and muscle contractility. Thus, there is broad intraspecific variability and a high degree of population structure for contractile performance phenotypes, TnT ribotypes and ontogenetic patterns involving these traits that affect locomotor performance." (Authors)] Address: Marden, J.H., Dept Biol., Pennsylvania St. University, 208 Mueller Laboratory, University Park, PA 16802, USA

**2461.** Marinov, M. (2001): Review of *Hemianax ephippiger* (Burm.) records from Bulgaria (Anisoptera: Aeshnidae). *Notul. odonatol.* 5(8): 105-106. (in English). [Compilation of Bulgarian records of *A. ephippiger*; the author tentatively postulates that one of the East Mediterranean migration routes of the species leads along the Black Sea coast.] Address: Marinov, M., P.O. Box 134, BG-1000 Sofia, Bulgaria. E-mail: mgmarinov@yahoo.com

**2462.** Martens, A. (2001): Buchbesprechung: Sternberg, K. & R. Buchwald (Eds.): *Die Libellen Baden-Württembergs*. Band 2. Ulmer. Stuttgart. ISBN 3-8001-3514-0. *Lauterbornia* 41: 184-185. (in German). [Review of this outstanding book on central and west European Anisoptera.] Address: Martens, A., Zool. Inst. TU Braunschweig, Fasanenstr. 3, D-38092 Braunschweig, Germany. E-mail: andreas.martens@tu-bs.de

**2463.** Martens, A. (2001): Experimente zur Sitzplatzwahl von *Onychogomphus forcipatus forcipatus* (L., 1758). *Abh. Ber. Naturkundemus. Görlitz* 73(1): 51. (in German with English summary). ["At the rendezvous males prefer stones as perches. Discrimination experiments with pairs of substrates showed that males land preferentially on perches that correspond in height to the flight level of females appearing at the water. When they first landed males preferred perches in the middle of the stream, but afterwards they used perches near the stream margin. The results are interpreted in terms of early recognition of females and rapid



formation of tandem linkage." (Author)] Address: Martens, A., Zool. Inst. TU Braunschweig, Fasanenstr. 3, D-38092 Braunschweig, Germany. E-mail: andreas.martens@tu-bs.de

**2464.** Mauersberger, H.; Mauersberger, R. (2001): Hornisse *Vespa crabro* als Prädator von *Aeshna cyanea* (Hymenoptera: Vespidae; Odonata: Aeshnidae). *Libellula* 20(1/2): 87-89. (in German with English summary). [Germany, Brandenburg. "A worker of *Vespa crabro* caught a fully active male of *A. cyanea* at a sunny day. During the fight the dragonfly was often stung and then decapitated. The large wasp removed the whole dragonfly body piece by piece." (Authors)] Address: Mauersberger, R., Waldstr. 4, D-16278 Steinhöfel, Germany

**2465.** Mauersberger, R.; Petzold, F. (2001): Seen als Habitate für *Onychogomphus forcipatus forcipatus* (L.) im Jungpleistozängebiet Nordost-Deutschlands. *Abh. Ber. Naturkundemus. Görlitz* 73(1): 53-55. (in German with English summary). ["The occurrence, distribution, phenology and abundance of *O. forcipatus* are described, along with a brief characterisation of the northeast German lake district as a habitat for *O. forcipatus*." (Authors)] Address: Mauersberger, R., Waldstr. 4, D-16278 Steinhöfel, Germany. E-mail: FoerdervereinUeckermark.Seen@t-online.de

**2466.** Mikolajewski, D.-J. (2001): Dornenausbildung bei Larven der Gattung *Sympetrum* (Odonata: Anisoptera): Induzierbarer Schutz gegen Fischprädation. *Abh. Ber. Naturkundemus. Görlitz* 73(1): 59-61. (in German with English summary). ["Effects of chemical cues by fish on the shape of abdominal spines of *S. sanguineum* and *S. vulgatum*: Inducible defence against predation. - The question whether the presence of fish has an influence on the shape of the abdominal spines was tested in non-lethal laboratory experiments and field studies. It was shown that the presence of fish induced an increase of spine length and the distance between the dorsal spines on the abdomen in both species. The results are interpreted as an inducible morphological defence against fish predation." (Author)] Address: Mikolajewski, D.-J., Zool. Inst., TU Braunschweig, Fasanenstr. 3, D-38092 Braunschweig, Germany. E-mail: d.mikolajewski@tu-bs.de

**2467.** Moroz, M.; Czachorowski, S.; Lewandowski, K. (2001): Aquatic insects (Insecta: Ephemeroptera, Odonata, Heteroptera, Trichoptera) of the Bierieziński Biosphere Reserve. *Park i Narodowe i Rezerwaty Przyrody* 20(4): 75-81. (in Russian with Polish and English summaries). [Belorussia; between 1997 and 2000 the valley of river Berezyna was surveyed. 44 species are traced, among them *Calopteryx splendens*, *Platycnemis pennipes*, *Erythromma najas*, *Stylurus flavipes*, *Gomphus vulgatissimus*, *Aeshna grandis*, *Sympetrum flaveolum*, and *S. sanguineum*.] Address: Moraz, M., Inst. Zool., Belarussian Academy of Sciences, Akademicheskaja 27, Minsk 220072, Belarus

**2468.** Moskowitz, D.; Moskowitz, J.; Moskowitz, S.; Moskowitz, H. (2001): Notes on a large dragonfly and butterfly migration in New Jersey. *Northeastern Naturalist* 8(4): 483-490. (in English). [ "We report our observations of a large migratory flight of monarch butterflies (*Danaus plexippus* L.) and dragonflies (*Anax*

*junius* Drury, *Tramea lacerata* Hagen) in central New Jersey and review what is currently known about these migratory movements in eastern North America. The migration followed the passage of Hurricane Floyd, one of the strongest coastal storms to cross New Jersey during the twentieth century. Our observations suggest that weather conditions associated with this storm may have signaled the onset of the migration we recorded." (Authors)] Address: Moskowitz, D., EcolSci Inc, 75 Fleetwood Dr, Rockaway, NJ 07866 USA

**2469.** Müller, J.; Steglich, R. (2001): Zum aktuellen Vorkommen der Flußjungfern (*Gomphus* et *Ophiogomphus* - Odonata) in der Elbe Sachsen-Anhalts. *Entomol. Nachr. Berichte* 45(3/4): 145-150. (in German with English summary). [*Ophiogomphus cecilia*, *Stylurus flavipes*, and *Gomphus vulgatissimus* are assessed to be well suitable bioindicators to monitor habitat development in the special protected site according the European Fauna-Flora-Habitat-Directive. The distribution of the species along the River Elbe is documented on the basis of a grid map.] Address: Müller, J., Frankefelde 3, 39116 Magdeburg, Germany. E-mail: FaunOek.Jmueller@t-online.de

**2470.** Müller, J.; Steglich, R. (2001): Zur Indikation der "FFH-Tauglichkeit" der Elbe durch die Flussjungfern (Gomphidae). *Abh. Ber. Naturkundemus. Görlitz* 73(1): 59-61. (in German with English summary). ["Gomphids as indicators for FFH classification of the Elbe River. - The occurrences of *Ophiogomphus cecilia*, *G. (Stylurus) flavipes*, and *G. vulgatissimus* in the Elbe River are of superregional importance and allow areas along the Elbe to be placed in proposed Sites of Community Interest (pSCI of FFH-GL)." (Authors)] Address: Müller, J., Frankefelde 3, 39116 Magdeburg, Germany. E-mail: FaunOek.JMueller@t-online.de

**2471.** Müller, J.H. (2001): Neue Erkenntnisse zu Ökologie und Verbreitung der Sibirischen Azurjungfer *Coenagrion hylas. mercuriale* 1: 9-12. (in German). [This is a compilation of the significant results of an extensive study (see OAS 2171) of the most rare damselfly of central Europe. Reproduction habitat, hunting habitat (up to 500 m away from reproduction habitat), diurnal activity rhythms, emergence curve, and phenology of the species are outlined. The significant increase of knowledge on ecology of the extremely rare species enlarges the chance to preserve it in central Europe. Conservation measures are developed in the framework of a LIFE-project financed by the EU and realised by WWF-Austria.] Address: Müller, J.M., Goethestr. 25, D-89601 Schelklingen, Germany. E-mail: Libellen@Jochen.de

**2472.** Müller, O.; Müller, B. (2001): Armluchteralgen als Substrat für Larven von *Onychogomphus forcipatus forcipatus* (Odonata: Gomphidae). *Libellula* 20(1/2): 69-78. (in German with English summary). ["In an oligotrophic mining lake in Brandenburg, Germany, larvae of *O. f. forcipatus* were found in pads of the Common Stonewort *Chara contraria* (Charophyceae: Characeae). Under laboratory conditions, given the choice between stoneworts and bare sand the larvae preferred stoneworts significantly, but they showed no significant preference when the sand was covered by detritus. The pads provide different microhabitats for larvae of gomphid dragonflies. Under artificial conditions in the laboratory, *O. forcipatus* larvae were

usually found buried in the basal layered which consist of rotting material and Chara rhizoids. Some larvae were also recorded sitting in the Chara thalli and waiting for prey. The use of different microhabitats is interpreted as an anti-predator behaviour and adaptive behaviour to improve the efficiency of hunting as well." (Authors)] Address: Müller, O., Birkenweg 6d, D-13206 Libbenichen, Germany. E-mail: olemueller@freenet.de

**2473.** Müller, O.; Müller, B. (2001): Sand oder Algen? Habitatwahlverhalten der Larven von *Onychogomphus f. forcipatus* (L., 1758). *Abh. Ber. Naturkundemus. Görlitz* 73(1): 63. (in German with English summary). ["In an oligotrophic mining lake in Brandenburg, larvae of *Onychogomphus f. forcipatus* were found in pads of the stonewort *Chara contraria* (Charophyceae: Characeae). Habitat selection experiments showed that *O. forcipatus* prefers algal pads to bare sand. The use of different microhabitats in the pads is interpreted as an anti-predator behaviour and as an adaptive behaviour to improve the efficiency of hunting." (Authors)] Address: Müller, O., Birkenweg 6d, D-13206 Libbenichen, Germany. E-mail: olemueller@freenet.de

**2474.** Müller, Z.; Jakab, T.; Szállassy, N. (2001): Faunistical data on dragonflies (Odonata) from the inundation area of River Tisza between Tiszabercel and Balsa. *Studia odonatol. hung.* 7: 39-58. (in Hungarian with English summary). [Hungaria; in 1998 and 1999, 22 localities were surveyed for their Odonata. A total of 34 species were recorded. The species list include *Brachytron pratense*, *Epitheca bimaculata*, and *Stylurus flavipes*.] Address: Müller, Z., Dept of Ecology, Kossuth L. University, H-4010 Debrecen, P.O. Box 71, Hungary

**2475.** Müller, Z.; Jakab, T.; Devai, G.; Szállassy, N. (2001): The effect of habitat degradation on dragonfly assemblages on the floodplain of the River Tisza. *Abh. Ber. Naturkundemus. Görlitz* 73(1): 65-66. (in English with German summary). [The floodplain of River Tisza including many backwaters plays an important role as a core area in the conservation of biodiversity in Hungaria. In spite of this these water bodies are effected by numerous unfavourable human impacts (intense agricultural, forestry and angling utilisation). The aims of the study (conducted 1998 and 1999) were to answer the questions: (i) how biotope and habitat differences caused by the different intensity of angling are related and (ii) what kind of connection exists between the intensity of angling and some variables of dragonfly assemblages: "(i) the presence-absence data of dragonfly species show that habitat-level differences caused by the different intensity of angling within a specific water body can exceed biotope-level differences among water bodies of different types, (ii) the species number of dragonfly assemblages and the summarised data number relative abundance of the 5 rarest species of the floodplain section decrease parallel with the increase in the intensity of angling utilisation according to linear relation, at the same time the summarised data number relative abundance of the 5 most frequent species increases."] Address: Müller, Z., Dept of Ecol., Kossuth L. University, H-4010 Debrecen, P.O. Box 71, Hungary

**2476.** Nawroth, J. (2001): Libellen an der lykischen Küste (Türkei). *Naturkundliche Beiträge des Deutschen Jugendbund für Naturbeobachtung* 34: 3-4. (in German). [Some notes from a travel along the lykian

coast (Turkey). Some odonate species are referred, but no localities are given. None of the specimens was collected, and all identifications are doubtful due to insufficient identification literature used.] Address: Nawroth, Janna, Johann-Fischer-Str. 21, D-69121 Heidelberg, Germany

**2477.** Nel, A.; Bethoux, O.; Bechly, G.; Martinez-Delclos, X.; Papier, F. (2001): The Permo-Triassic odonoptera of the "protodonate" grade (Insecta: Odonoptera). *Ann. Soc. Entomol. Fr.* 37(4): 501-525. (in English with French summary). ["We describe a new fossil dragonfly *Permophlebia uralica*, gen. n., sp. n. that we attribute to a new family *Permophlebiidae*. Several Permo-Triassic odonate taxa are redescribed, viz. the taxa of the family *Triadotypidae*, and the genera *Kargalotypus* Rohdendorf, 1962, and *Liadotypus* Martynov, 1937. Their phylogenetic positions are discussed, and some earlier taxonomic decisions re-evaluated. The *Piroutetiidae* Nel, 1989 is transferred in the *Triadophlebiomorpha*, superfamily undetermined sit. nov. The *Kargalotypidae* Zessin, 1983 is transferred in the *Triadophlebiomorpha*: *Zygophlebiida* sit. nov. The *Liadotypidae* Grauvogel & Laurentiaux, 1952 (non Martynov, 1937) is transferred in the *Isophlebiida* sit. nov. family incertae sedis stat. nov. The cladistic analysis of the *Zygophlebiida* (new clade) is proposed." (Authors)] Address: Nel, A., Lab. Ent., Mus. Natn. Hist. Nat., 45 rue Buffon, F-75005 Paris, France. E-mail: anel@cimrs1.mnhn.fr

**2478.** Nielsen, O. F. (2001): *Anax imperator* - records in Denmark in the period 1994 - 2000. *Nord. Odonat. Soc. Newsl.* 7(1): 12-13. (in Danish with English summary). ["*A. imperator* was first recorded in Denmark in 1994, in SW-Jylland (Jutland). Later the species has been found at several new localities, also at the islands Fyn and Sjaelland. It is now known from seven localities, both lakes poor on nutrients and richer ponds and lakes." (Author)] Address: Nielsen, O.F., Tulstrupvej 112, DK-8680 Ry, Denmark

**2479.** Nielsen, O. F. (2001): *Ischnura pumilio* - a description of the larva and a comparison with the larva of *Ischnura elegans*. *Nord. Odonat. Soc. Newsl.* 7(1): 14. (in Danish with English summary). ["8 larvae of *I. pumilio* from the Ry area were hatched under controlled conditions in 1999, 10-13 days after they were collected 8 April. Nordic larvae of *I. pumilio* have not been described before, so a short description is given here. Most of these exuviae and also a number of larvae were pale (reddish yellow, pale brown), some darker brown or almost black. Femura without dark ring. Gills pale with pale or reddish brown trachea. Weak contrast between trachea and the rest of the gill, few and sparsely branched side-trachea. Gills with long pointed tips, the white tip clearly visible in 10x magnification." (Author)] Address: Nielsen, O.F., Tulstrupvej 112, DK-8680 Ry, Denmark

**2480.** Nielsen, O. F. (2001): Surveillance of 6 of the red-listed dragonflies in Denmark. *Nord. Odonat. Soc. Newsl.* 7(1): 6-10. (in Danish with English summary). ["The situation for six of the red-listed dragonfly species in Denmark the last ten years is surveyed and discussed. *Coenagrion armatum* (E) has disappeared at the old localities that have been investigated, and is only known from three localities in the last decade. *Aeshna viridis* (V) still seems to be present at a few

localities in two areas, and is also recorded more accidentally (?) in other placees. *Ophiogomphus cecilia* (R) still occurs in fairly good numbers in three of the four river systems where it has been recorded. *Libellula fulva* (E) is still living in good numbers at four clean lakes and one stream. Only one female of *Orthetrum coerulescens* (E) has been seen in Denmark since 1935, in 1991, but a possible occurrence could not be confirmed in the investigations of the last years. *Leucorrhinia pectoralis* (E) has only been found present at four of the about twenty previous known localities. ] Address: Nielsen, O.F., Tulstrupvej 112, DK-8680 Ry, Denmark

**2481.** Nikula, B.J.; Sones, J.L.; Trimble, J.R. (2001): New and notable records of Odonata from Massachusetts. *Northeastern Naturalist* 8(3): 337-342. (in English). [The occurrence of six species of Odonata previously unknown from Massachusetts, USA is documented: *Ischnura prognata*, *Aeshna subarctica*, *Somatochlora incurvata*, *Gomphaeschna antilope*, *Libellula axilena*, and *Tramea calverti*. Four of these species were unknown from New England prior to 1995. Additionally, recent records of *Somatochlora georgiana* and *Sympetrum corruptum*, two species rarely recorded from New England, are discussed.] Address: Nikula, B., 2 Gilbert Lane, Harwich Port, MA 02646, USA. E-mail: odenews@capecod.net

**2482.** Nishu, S. (2001): *Aeshna mixta soneharai* caught in Toyano-gata Pond, Niigata Prefecture. *Sympetrum Hyogo* 7/8: 23. (in Japanese with English summary). [Japan; the first regional records of *Aeshna mixta soneharai* are documented.] Address: Nishu, S., 247 Gunge Shonomoto, Mikage-cho, Higashinda-ku, Kobe, Hyogo, 658-0057, Japan. E-mail: Snishu@mx2.nisiq.net

**2483.** Nishu, S.; Azuma, T. (2001): Northern record of *Ictinogomphus pertinax* in the southern part of Hyogo Prefecture. *Sympetrum Hyogo* 7/8: 22-23. (in Japanese with English summary). [Eleven new habitats of this southern species were discovered in 2000. The habitats include two in Ono City which are the northernmost record in Hyogo Prefecture, Japan.] Address: Nishu, S., 247 Gunge Shonomoto, Mikage-cho, Higashinda-ku, Kobe, Hyogo, 658-0057, Japan. E-mail: Snishu@mx2.nisiq.net

**2484.** Nishu, S. (2001): Record of the odonate fauna of Dragonfly Pond in Kyoto Gyo-en, Kyoto Prefecture. *Sympetrum Hyogo* 7/8: 74-75. (in Japanese with English summary). ["The so-called Dragonfly Pond in Kyoto Gyo-en was built in 1994 or 1995, and a survey on the odonate fauna was made on March 6, 1997 by four members including the author. Larvae of four species including *Libellula quadrimaculata asahinai*" which is an addition to the twenty recorded by Tsukamoto et al. (1995). Deep shading by *Nelumbo nucifera* is responsible for the poor odonate fauna at the pond.] Address: Nishu, S., 247 Gunge Shonomoto, Mikage-cho, Higashinda-ku, Kobe, Hyogo, 658-0057, Japan. E-mail: Snishu@mx2.nisiq.net

**2485.** Nishu, S. (2001): Report of the survey trips of the Hyogo Society of Odonatology in 1999. Part 1 focused to *Libellula angelina*. *Sympetrum Hyogo* 7/8: 53-56. (in Japanese with English summary). ["Survey trips [...] were held on April 29, May 2 and May 15, 1999 at Sara Pond in Ono City, Japan, but no *angelina*

was found. On the contrary, about one hundred *angelina* were found at a pond in Kasai City on May 15, 1999. This pond had been inhabited by a good number of *angelina* before 1996, but the population was destroyed by the civil works which destroyed the bank and the water was removed for a few years." The origin of the immigrating specimens is not known.] Address: Nishu, S., 247 Gunge Shonomoto, Mikage-cho, Higashinda-ku, Kobe, Hyogo, 658-0057, Japan. E-mail: Snishu@mx2.nisiq.net

**2486.** Nishu, S. (2001): Report of the survey trips of the Hyogo Society of Odonatology in 1999. Part 2 focused to *Mortonagrion Hirosei* and *Stylurus ngoyanus*. *Sympetrum Hyogo* 7/8: 57-61. (in Japanese with English summary). [Both species were surveyed during June 26-27 visiting Momoshima Pond and its vicinities, Funa-machi, Toyo-oka City along Maruyama River and Izushi-cho along Izushi River, Japan. Abundance of adult *M. Hirosei* was quite low, but the larval population was high, presumably due to the visit in the early season of the species. 19 exuviae of *S. nagoyanus* were found at the bank of Maruyama River some 7 km downstream of the oviposition sites. This is the first discovery of the emerging site of this species in Hyogo Prefecture. Tables with localities and accompanying species are included in this paper.] Address: Nishu, S., 247 Gunge Shonomoto, Mikage-cho, Higashinda-ku, Kobe, Hyogo, 658-0057, Japan. E-mail: Snishu@mx2.nisiq.net

**2487.** Nishu, S. (2001): Report of the survey trips of the Hyogo Society of Odonatology in 2000. Part 1 focused to *Libellula angelica*. *Sympetrum Hyogo* 7/8: 62-66. (in Japanese with English summary). [*L. angelina* was surveyed on April 30, May 14 and 21, 2000 at some localities including the Pond A, B and C in Kasai City, with a strong population of the species. The author takes it for very likely "that females judge whether a pond is suitable for larval growth or not, and they will not be attracted by males in their territory if females judge negatively." Sara Pond was also surveyed, but no *angelina* was found in 2000.] Address: Nishu, S., 247 Gunge Shonomoto, Mikage-cho, Higashinda-ku, Kobe, Hyogo, 658-0057, Japan. E-mail: Snishu@mx2.nisiq.net

**2488.** Nishu, S. (2001): Report of the survey trips of the Hyogo Society of Odonatology in 2000. Part 2 focused to *Chlorogomphus brunneus costalis*. *Sympetrum Hyogo* 7/8: 67-69. (in Japanese with English summary). ["Four localities in Tokushima Prefecture were visited by members of the Hyogo Society of Odonatology during June 24-25, 2000. Larvae, exuviae and imagoes of *C. brunneus costalis* were found at two localities, and those of *Rhipidolestes hiraui* were found at three localities." To trace *Chlorogomphus* in the southern part of Awaji Island failed.] Address: Nishu, S., 247 Gunge Shonomoto, Mikage-cho, Higashinda-ku, Kobe, Hyogo, 658-0057, Japan. E-mail: Snishu@mx2.nisiq.net

**2489.** Nishu, S. (2001): Report of the survey trips of the Hyogo Society of Odonatology in 2000. Part 3 focused to *Mortonagrion Hirosei* and *Stylurus nagoyanus*. *Sympetrum Hyogo* 7/8: 71-73. (in Japanese with English summary). ["Many imagoes and larvae of *M. Hirosei* were found at Momoshima Pond on July 15 and 16, 2000. The pond was partly filled up by the

construction civil works of a sewage treatment plant, but it is proved that the habitat of this coenagrionid damselfly was not influenced. Exuviae and emergence of *S. nagoyanus* were observed at the bank of Maruyama River and exuviae of this species were found also at Izushi River." (Author)] Address: Nishu, S., 247 Gunge Shonomoto, Mikage-cho, Higashinda-ku, Kobe, Hyogo, 658-0057, Japan. E-mail: Snishu@mx2.nisiq.net

**2490.** Nishu, S. (2001): *Tamea virginia* observed at the Expo Site of Japan Flora 2000. *Sympetrum Hyogo* 7/8: 21. (in Japanese with English summary). [*T. virginia* was found at a newly constructed pond at the Expo Site of Japan Flora 2000 on August 25, 2000. This southern species is considered not established in Hyogo Prefecture.] Address: Nishu, S., 247 Gunge Shonomoto, Mikage-cho, Higashinda-ku, Kobe, Hyogo, 658-0057, Japan. E-mail: Snishu@mx2.nisiq.net

**2491.** Norma-Rashid, Y.; Mohd-Sofian, A.; Zakaria-Ismail, M. (2001): Diversity and distribution of Odonata (dragonflies and damselflies) in the fresh water swamp lake Tasek Bera, Malaysia. *Hydrobiologia* 459: 135-146. (in English). ["Fifty-nine species of Odonata were collected in a recent study in the freshwater swamp lake of Tasek Bera, Peninsular Malaysia, in contrast to 33 species that were recorded previously from the Ramsar site. This study added 35 species to the odonate records and together with the museum records, the number of species for the site now stands at 78 from 12 families. The causal factors for the absence of 19 species and other biological aspects such as habitat clustering and temporal activity profile were discussed." (Authors)] Address: Norma-Rashid, Y., Univ. Malaysia, Fac. Sci., Inst. Biol. Sci., Kuala Lumpur 50603, Malaysia

**2492.** Ochsner, E. (2001): Libellen - Kleinodien unserer Gewässer. *Insektenkurier* 70: 28-33. (in German). [This popular, but well written introduction into dragonflies is published in a journal of stamp collectors with interest in insects. The paper is illustrated with stamps from different countries showing dragonflies. A checklist of German dragonflies is appended.] Address: Ochsner, E., Schulstr. 4, CH-8640 Rapperswil, Switzerland

**2493.** Ochsner, E. (2001): Plattbauch-Segellibelle - Insekt des Jahres 2001. *Insektenkurier* 70: 27. (in German). [*Libellula depressa* was elected the "Insect of the year 2001"; the author introduces into several aspects of this dragonfly with special emphasize to the name, habitat, and habits. Because the 'Insektenkurier' is a journal for stamp collectors with interest in insects, the species is illustrated by a stamp issued by the German Bundespost in 1991.] Address: Ochsner, E., Schulstr. 4, CH-8640 Rapperswil, Switzerland

**2494.** Oda, I. (2001): Some observations on the behaviour of *Sympetrum frequens*. *Sympetrum Hyogo* 7/8: 50-53. (in Japanese with English summary). [During a stay at a hospital in Yonago City, Tottori Prefecture, Japan during October 17-31, 1999, the behaviour of *S. frequens* was observed. The Yone River was degraded to a concrete channel, but after flooding it with water ("First stage"), tandems of this species passed over the river, but without taking any attention. When the water table diminished to 3 to 4 cm depth and current velocity receded to zero ("Second

stage"), "some pairs came down, but flew away, while the other pairs passed by without attention". When the water table diminished more strong, leaving only plashes ("Third stage"), 100% of tandems used it for oviposition. [...] "Two modes of oviposition were recognized based on 11 cases in which tandem pairs visited Yone River. One is called "tentative oviposition" and another "substantial oviposition". In tentative oviposition pairs oviposit slowly for a short while, then they copulate and oviposit again. In substantial oviposition pairs oviposit rapidly for a longer while, and they separate after oviposition, siting separated without paying any attention to the former partner.] Address: not stated

**2495.** Olsvik, H. (2001): From the meeting in Skane in August 2000. *Nord. Odonat. Soc. Newsl.* 7(1): 15-16. (in Norwegian). [The 6th nordic Odonata meeting was held in Scania, Sweden from 4 to 6th August 2000. Some photos of give an impression of the meeting. Odonate species recorded at three localities in the framework of the meeting are listed. The list includes species as *Coenagrion lunulatum*, *Aeshna viridis*, *Somatochlora flavomaculata*, *Orthetrum cancellatum*, and *Leucorrhinia albifrons*.] Address: Olsvik, H., N-6694 Foldfjorden, Norway. E-mail: haolsvik@frisurf.no

**2496.** Olsvik, H. (2001): Late dragonflies and new autumn extremes in More and Romsdal 2000. *Nord. Odonat. Soc. Newsl.* 7(1): 17. (in Norwegian with English summary). ["New national late extremes were recorded for *Pyrrhosoma nymphula* (6.9), *Ischnura elegans* (20.9), *Aeshna caerulea* (1.10), *A. grandis* (7.10), *Somatochlora metallica* (20.9), *S. arctica* (1.10), *Libellula quadrimaculata* (20.9), and the second overall late Odonata-record in Norway, from Nov. 6th, and as the first, the species was *Sympetrum nigrescens*." (Author)] Address: Olsvik, H., N-6694 Foldfjorden, Norway. E-mail: haolsvik@frisurf.no

**2497.** Orr, R. (2001): Preliminary list of the dragonflies and damselflies of Washington D.C.. *Argia* 13(1): 20-22. (in English). [This primarily and discussion list compiles available information - published and unpublished - on the Odonata of Washington D.C., USA.] Address: Orr, R.L., 5215 Durham Road East, Columbia, MD 21044-4444, USA. E-mail: richard.l.orr@usad.gov

**2498.** Ott, J. (2001): Erfahrungen aus der Planungspraxis bei Monitoringstudien mit Libellen. *Abh. Ber. Naturkundemus. Görlitz* 73(1): 67-68. (in German with English summary). ["Four monitoring studies, which all took place in different parts of the German federal state Rhineland-Palatinate, are presented. The studies covered the long-term impact of fish stocking on the dragonfly fauna of a gravel pit, the constant changing of the fauna of some shallow waters, control of the success of a restoration measure, and finally the monitoring of a possible future impact on wetlands as a consequence of groundwater extraction." (Author)] Address: Ott, J., Friedhofstr. 28, D-67705 Trippstadt, Germany. E-mail: L.U.P.O.GmbH@t-online.de

**2499.** Ott, J. (2001): Expansion of Mediterranean Odonata in Germany and Europe - consequences of climatic changes. In: Walther, G.-R., C.A. Burga & P.J. Edwards (Eds.): "Fingerprints" of Climate Change. Kluwer Academic/Plenum Publishers. New York, Boston, Dordrecht, London, Moscow: 89-111. (in

English). ["Whereas a few years ago a clear northward expansion was shown only for the dragonfly *Crocothemis erythraea*, a Mediterranean element of the German dragonfly fauna, now for a lot of dragonflies a comparable situation is very obvious. In this paper an overview of recent expansion of many dragonfly species in Germany and Europe is given, as well as some information on the biological and ecological consequences. Beside this clear trend of expansion towards the north, the increase of population sizes and the colonisation of biotopes in higher altitudes, also several biological and behavioural adaptations could be registered, which are shown in detail. Consequences and scenaria for the future of several dragonfly species and for the aquatic systems as a whole are pointed out." (Author).] Address: Ott, J., L.U.P.O. GmbH, Friedhofstrasse 28, D-67705 Trippstadt, Germany

**2500.** Ott, J. (2001): Zum Einsatz von Libellen als Bio-indikatoren und Monitoringorganismen in Feuchtgebieten - das Beispiel einer geplanten Wassereinnahme im Naturschutzgebiet «Täler und Verlandungszone am Gelterswoog» (Biosphärenreservat Pfälzerwald). Ann. Sci. Rés. Bios. Trans. Vosges du Nord-Pfälzerwald 9: 151-177. (in German with French and English summaries). ["In a system of valleys measuring approximately 50 hectares, to the south west of Kaiserslautern, the extraction of approximately one million m<sup>3</sup> of ground water is planned from the year 2001 onwards in the «Valleys and alluvial zones in the Gelterswoog». To ensure that this water extraction does not create any significant damage to the area's important flora and fauna, ecological monitoring with intensive studies of flora and fauna has been carried out since 1998. As part of this, individual aspects of dragonfly species have been presented, and related back to previous examinations of the same area. In total in the most varied wet, habitat rich areas (streams, low-lying marshland, dystrophic ponds, alluvial zones, fallow lands, etc.) 33 species of dragonflies have been recorded thus far, [...] including 23 species on the Rheinland-Pfalz Red List and 17 species on the German National Red List. It has so far, except for individual fish stocking measures and local water management operations, as well as natural succession, established only few massive damaging factors for the dragonfly population. In addition to the high degree of diversity and mosaic type of habitats it is above all remarkable for its almost barrier free composition. The number of indigenous species is relatively constant and the annual turnover of species throughout the whole area is low. One indigenous species that has now disappeared is *Calopteryx splendens*, but on the other hand the following species have re-established themselves and are breeding successfully: *Gomphus pulchellus*, *Brachytron pratense*, *Anax imperator*, *Sympetma fusca*, and *Erythromma viridulum*. As regards species protection, the most significant species in the area in addition to *Coenagrion hastulatum*, *Orthetrum coerulescens* and *Leucorrhinia dubia* is *Somatochlora arctica*. The possibilities for using dragonflies as bio-indicators and monitoring organisms are explained in detail as an example of possible reactions to changes in water level." (Author)] Address: OTT, J., L.U.P.O., Friedhofstrasse 28, D-67705 Trippstadt, Germany

**2501.** Parr, A. (2001): Migrant and dispersive dragonflies in Britain during 2000. J. Br. Dragonfly Society 17 (2): 49-54. (in English). ["The year 2000 was perhaps not as dramatic for migrant Odonata in Britain as, for example, 1995 or 1998, but there were a number of highlights. Most notably, high numbers of *Sympetrum fonscolombii* arrived for the third time in the last five years and several other unusual migrant species were recorded. Two main periods of immigration took place. A brief hot spell in mid-June saw a significant arrival of migrant insects, including dragonflies such as *S. fonscolombii*, *Anax parthenope* and a single *Crocothemis erythraea*. During late-July, further arrivals of *Anax parthenope* and *S. fonscolombii* were observed. The first wave of immigration pushed quite far north; the record of *A. parthenope* from Orkney represents the most northerly record for this species in Europe. Complementing the events in Britain, three species new to Ireland (*Aeshna mixta*, *A. imperator*, *A. parthenope*, were recorded during the year." (Author). Additional species treated are: *Calopteryx splendens*, *Ceragrion tenellum*, *Erythromma viridulum*, *Aeshna grandis*, *Cordulia aenea*, *Libellula quadrimaculata*, *L. depressa*, *Orthetrum cancellatum*, *Sympetrum striolatum*, *S. sanguineum*, and *S. flaveolum*. Some observations referring *A. grandis*, *A. imperator*, and *S. striolatum* attracted by UV light resp. moth traps are of general interest.] Address: Parr, A.J., 10 Orchard Way, Barrow, Bury St. Edmunds, Suffolk IP29 5BX, UK

**2502.** Paulson, D. (2001): A Venezuelan odonate vacation. Argia 13(1): 7-9. (in English). [The trip in the dry season to Venezuela turned out - from the odonatological view - to be quite "disappointing". 500+ specimens in 102 species could be collected among them *Phyllogomphoides major* Belle 1984, *Erythemis credula* (Hagen 1861), *Neoneura cristina* Rácenis, 1955, *Neoneura luzmarina* De Marmels 1989, *Neoneura sylvatica* Hagen in Selys 1886, and *Oligoclada sylvia* (Kirby 1889). New species for Venezuela are *Phyllocycla bartica* Calvert 1948, *Idiataphe cubensis* (Scudder 1866), *Micrathyrta dunklei* Westfall 1992, and *Micrathyrta occipita* Westfall 1992.] Address: Paulson, D.R., Slater Museum, Univ. of Puget Sound, Tacoma, WA 98416, USA. E-mail: dpaulson@ups.edu

**2503.** Paulson, D. (2001): Review: Dragonflies through binoculars - A field guide to dragonflies of North America. Science 293(5537): 2005. (in English). [Review of Sid Dunkle's book on North America Anisoptera.] Address: Paulson, D.R., Slater Museum, Univ. of Puget Sound, Tacoma, WA 98416, USA. E-mail: dpaulson@ups.edu

**2504.** Paulson, D. (2001): *Sympetrum madidum* in Minnesota. Argia 13(1): 19-20. (in English). [*S. madidum* caught 11 July 1966 near Karlstad has to be added to the list of Minnesotan Odonata.] Address: Paulson, D.R., Slater Museum, Univ. of Puget Sound, Tacoma, WA 98416, USA. E-mail: dpaulson@ups.edu

**2505.** Pavey, C.R.; Burwell, C.J.; Grunwald, J.E.; Marshall, C.J.; Neuweiler, G. (2001): Dietary benefits of twilight foraging by the insectivorous bat *Hipposideros speoris*. Biotropica 33(4): 670-681. (in English). ["Although bats are nocturnal, many species emerge from roosts to forage during twilight, despite a presumed high risk of predation at this time. Here, we

describe twilight foraging by a maternity colony of Schneider's leafnosed bat (*Hipposideros speoris*) in the dry zone of Sri Lanka and determine the dietary benefits of such behavior. Bats usually began foraging during dusk, sometimes before sunset, and also foraged during twilight in the morning. Mean use of available twilight by four radio-tagged bats was 75 percent. Twilight foraging made up, on average, 47 percent of the total foraging time of these bats (range = 25-96%), although twilight consisted of only 12 percent of the available time between sunset and sunrise the next morning. Eight species of potential predators (7 birds and 1 mammal) were observed within a 1 km radius of the colony, of which 5 species are predicted to regularly capture bats. Bats took a wide diversity of prey (11 insect orders, including at least 27 families, and spiders) that ranged in wing length from 2.0 to 54.0 mm. Major orders in the diet were Coleoptera, Lepidoptera, and Diptera. Prey of secondary importance included Hemiptera, Hymenoptera, Isoptera, and Neuroptera. Bats captured large numbers of insects that were only available or had marked peaks of abundance during twilight. These groups included small, swarming insects (especially flies) that have peaks in flight activity at dusk and dawn, large diurnal species (especially dragonflies) that have crepuscular activity, and winged termites that emerge in swarms at dusk. Access to these insects was a clear benefit of twilight foraging." (Authors)] Address: Pavey, C.R., Pk & Wildlife Commission Northern Territory, Arid Zone Research Institute, POB 1046, Alice Springs, NT 0871, Australia

**2506.** Perepelov, E.; Bugrov, A.G.; Warchalowska-Sliwa, E. (2001): C-banded karyotypes of some dragonfly species from Russia. II. The families Cordulegasteridae, Corduliidae and Gomphidae. *Folia Biologica, Krakow* 49(3-4): 175-178. (in English with Polish summary). ["The C-stained karyotypes of five species of three dragonfly families from Western Siberia and Kunashir Island have been analysed. *Gomphus epoptalmus*, *G. vulgatissimus*, *Nihonogomphus ruptus*, and *Anotogaster sieboldii* showed usual character of C-heterochromatin distribution, all chromosomes have terminal C-bands. *Somatochlora graeseri* has unique for dragonflies type of terminal C-blocks on autosomes. Three pairs of autosomes have the very large heterochromatic blocks, other chromosomes, including the X, have no C-band." (Authors)] Address: Perepelov, E. & A. Bugrov, Siberian Branch, Institute of Animal Systematics and Ecology, Russian Academy of Sciences, 11 Frunze St., 630091, Novosibirsk, Russia. E-mail: bugrov@fen.nsu.ru

**2507.** Phoenix, J.; Kneis, P.; Zinke, J. (2001): *Ophiogomphus cecilia* im sächsischen Abschnitt der Elbe (Odonata: Gomphidae). *Libellula* 20(1/2): 23-32. (in German with English summary). ["Along the River Elbe in the Free State of Saxony about one hundred individuals (larvae, exuviae, adults) of *O. cecilia* were recorded at 26 localities in the year 2000. The species settles along the whole Saxon section of the River Elbe with a length of about 180 km. The species is the most frequently recorded gomphid in this section of the River Elbe. [...]" (Authors)] Address: Phoenix, J., Goethestr. 22, D-01824 Königstein, Germany. E-mail: Juergen.Phoenix@t-online.de

**2508.** Piper, W.; Schrimpf, I. (2001): Libellennachrichten. *Libellennachrichten* 6: 1-16. (in German). [Volume 6 of the newsletter of the Society of German Speaking Odonatologists contains information on the 20th meeting held in Görlitz, the minutes of this meeting, announcements, reviews, calls for cooperation, reports of the 2001 odonatological symposia in Novosibirsk and Gällivare, "Dragonflies and new media", "Dragonflies and Literature", and "Dragonflies and Art".] Address: Schrimpf, Ilona, Heimbühlerstr. 32, D-72768 Reutlingen, Germany

**2509.** Plotnikova, S.I.; Sinakevich-Pean, I.E. (2001): Descending neurons of the epipharyngeal ganglion in the dragonfly *Aeshna* larva. *J. Evol. Biochem. Physiol.* 37(4): 441-443. (in English). [Using staining with methylene blue, several descending neurons were revealed in the epipharyngeal ganglion of an *Aeshna* larva. "Among them there is a neuron that has extensive arborization and unites a significant part of the epipharyngeal ganglion. The contacts of this neuron with the bundle of optic fibers from the lobule are found, which allows suggesting its participation in the descending visual pathway. A neuron of the central complex of the descending tract is revealed." (Authors)] Address: Plotnikova, S.I., Russian Acad. Sci., Sechenov Inst. Evolutionary Biochem. & Physiol., St Petersburg, Russia

**2510.** Radford, A.P. (2001): Repeated interception of wind blown flowers of Common Cottongrass by the Emperor Dragonfly *Anax imperator* Leach. *J. Br. Dragonfly Society* 17( 2): 59. (in English). [28 June 2001, at the Waldegrave Pool, near Priddy, Somerset, UK; a strong, gusting, south-west wind carried the flowers of Common Cottongrass *Eriophorum angustifolium* "towards the pool where a male *A. imperator* was routinely patrolling over the water. As the flowers approached, the dragonfly flew towards them, into the wind. The dragonfly usually made contact with the flowers that were intercepted, although no attempt was made to seize any flowers, either by using the legs or the mouthparts. This behaviour continued, intermittently, for about five minutes, during which five or six flowers were intercepted. The individual dragonfly then resumed normal patrol activity, quite ignoring any further flowers that drifted over. There were other individuals of *A. imperator* patrolling over the pond, but none of these flew towards the airborne flowers. It was clear that only one individual was involved. Corbet (1999) mentions that Anisoptera may make investigatory flights towards large objects and then reject them when a few feet away. He states that in Florida, *Anax junius* (Drury) and *Coryphaea estma ingens* (Rambur) have been observed chasing badminton shuttlecocks. It is not clear whether these activities represent territorial defence or mistaken prey identification." (Author)] Address: Radford, A.P., Crossways Cottage, West Bagborough, Taunton, Somerset TA4 3EG, UK.

**2511.** Rantala, M.J.; Hovi, M.; Korkeamaki, E.; Suhonen, J. (2001): No trade-off between the size and timing of emergence in the damselfly, *Calopteryx virgo* L.. *Ann. Zool. Fenn.* 38(2): 117-122. (in English). ["Many species of insects have been reported to show seasonally declining size at emergence. This has been explained as an adaptive response to time constraint between size and age at maturity (emergence). We

studied seasonal variation in the size of damselfly *Calopteryx virgo* L. in six different creeks in central Finland. The length of hind wings was measured for 942 males and 285 females covering the flying period from mid June to mid August. The length of the hind wings of damselflies did not decrease towards the end of flying period in any river or either sex. In light of this study, seasonal reduction of body size is not a general phenomenon among odonates contrary to common understanding." (Authors)] Address: Rantala, M.J., Univ. Jyväskylä, Dept Biol. & Environm. Sci., POB 35, FIN-40351 Jyväskylä, Finland

**2512.** Reder, G. (2001): Späte Flugzeit von *Gomphus flavipes* am nördlichen Oberrhein (Odonata: Gomphidae). *Libellula* 20 (3/4): 175-178. (in German with English summary). [16-X-2000 and 21-X-200, river Rhine near Nordheim, Hessen, Germany (49°42'N, 08°23'E).] Address: Reder, Gerd, Am Pfortengarten 37, D-67592 Flörsheim-Dalsheim, Germany. E-mail: PG.Reder@t-online.de

**2513.** Reinhardt, K.; Naumann, J. (2001): Ergänzungen zur Libellenfauna des Mittleren Saaletales (Insecta: Odonata). *Thüringer faunistische Abhandlungen* 8: 59-61. (in German with English summary). [Twenty-seven species of dragonflies are recorded from 17 localities. *Brachytron pratense* is recorded for the first time. *Cordulia aenea* has been discovered for the first time since the 1960ies. Two new localities for *Leucorrhinia rubicunda* are mentioned. *Erythromma viridulum*, *Sympetrum pedemontanum*, *S. vulgatum*, and *Anax imperator* were shown to be able to complete their development in one year." (Authors)] Address: Naumann, J., S.-Jacob-Str. 18, D-07743 Jena, Germany

**2514.** Rettig, K. (2001): Glänzende Smaragdlibelle (*Somatochlora metallica*). *Beitr. Vogel-Insektenwelt Ostfrieslands* 166: 19. (in German). [Germany, Lower-Saxony, LSG "Restmoor Ochtelbur", Mow; a copula of *S. metallica* was observed at 10-VII-2001.] Address: Rettig, K., Danziger Str. 11, D-26725 Emden, Germany

**2515.** Röhn, C. (2001): Libellen des Hepbacher-Leimbacher Rieds. *mercuriale* 1: 12-14. (in German). [This fen situated near the Lake Constance, Baden-Württemberg, Germany inhabits 40 odonate species including *Coenagrion mercuriale*, *Brachytron pratense*, *Somatochlora flavomaculata*, and *Sympetrum depressiusculum*. For more than 20 years, it harbours one of the most important populations of *S. flaveolum* in the Federal State Baden-Württemberg, Germany, [the location may be therefore considered as a core habitat of the *S. flaveolum*-population in Europe (comment of M.S.)].] Address: Röhn, C., Bernried 15, D-88099 Neukirch, Germany.

**2516.** Rolff, J.; Vogel, C.; Poethke, H.J. (2001): Co-evolution between ectoparasites and their insect hosts: a simulation study of a damselfly-water mite interaction. *Ecol. Entomol.* 26(6): 638-645. (in English). [1. A simulation model investigating the co-evolution of water mites infesting their aquatic insect hosts during emergence is presented. The model is based on field and experimental studies of the ectoparasitic water mite *Arrenurus cuspidator* and the damselfly *Coenagrion puella*. 2. Three scenarios were studied: (1) Only the host was allowed to evolve timing of emergence, while the timing of the parasites' infestation opportunity was

held constant. (2) Both host and parasite were allowed to evolve. (3) Only the parasite's timing was allowed to evolve, while the host was constrained completely. 3. In the first two scenarios, parasite abundances decreased in the course of evolution and reached values well below, those found in the field, whereas in the third scenario parasite abundances were maintained at a level close to that found in the field. In the second scenario (co-evolution), the host seemed to be the leader in the evolutionary race. 4. It is concluded that water mite parasitism is capable of shaping emergence patterns in aquatic insects and, despite the same life-cycle length for host and parasite, the parasite evolves fast enough to shape its hatching pattern to match the emergence pattern of its host." (Authors)] Address: Rolff, J., Department of Animal and Plant Sciences, University of Sheffield, S10 2TN Sheffield, UK. E-mail: JOR@sheffield.ac.uk

**2517.** Rolff, J.; Braune, P.; Siva-Jothy, M.T. (2001): Ectoparasites do not affect ejaculate volume in the dragonfly *Coenagrion puella*. *Physiol. Entomol.* 26(4): 315-319. (in English). [Imagoes of the dragonfly *C. puella* are parasitized frequently by ectoparasitic water mites. In an experimental study of the parasite load we examined the influence of parasite burden on host sperm volume. Infection with ectoparasitic water mites did not affect sperm volume in the seminal vesicle (ejaculate volume). It is concluded that water mite parasitism does not affect male fitness in *C. puella* by reducing sperm production." (Authors)] Address: Rolff, J., Department of Animal and Plant Sciences, University of Sheffield, S10 2TN Sheffield, UK. E-mail: JOR@sheffield.ac.uk

**2518.** Rolff, J. (2001): Effects of age and gender on immune function of dragonflies (Odonata, Lestidae) from a wild population. *Can. J. Zool.* 79(12): 2176-2180. (in English). [Immunity is a crucial determinant of fitness. Despite this, very few studies have addressed the expression of immune function in insect populations in the wild. I present data on two immune parameters, hemocyte load and expression of phenoloxidase, in adult damselflies (*Lestes viridis*) from a wild population. In a comparison of newly emerged with sexually mature adults, it was found that the latter had higher hemocyte loads but lower phenoloxidase expression. Mature females showed significantly higher phenoloxidase expression than mature males. The sexual differences might be explained by gender differences in life history." (Author)] Address: Rolff, J., Department of Animal and Plant Sciences, University of Sheffield, S10 2TN Sheffield, UK. E-mail: JOR@sheffield.ac.uk

**2519.** Rolff, J. (2001): Evolutionary Ecology of water mite-insect interactions: a critical appraisal. *Archiv für Hydrobiologie* 152(3): 353-368. (in English). [Water mites are ubiquitous parasites in freshwater ecosystems. The interaction between water mites and aquatic insects has been scarcely studied from an evolutionary ecology viewpoint. Host finding is an important feature of the water mite's life cycle. The host finding success is suggested to depend upon host behaviour and quality. Water mite parasitism lowers host fitness via different routes: by draining nutrients hosts can suffer from decreased fecundity, increased mortality etc. Host sexes and closely related species are affected differently. Recent studies on host fitness, whilst taking the parasite behaviour into account,

revealed results contrasting older studies where knowledge of the parasites' life cycle was absent. The potential for coevolution is discussed. For exploring evolutionary trends a water mite phylogeny is needed. Water mite-aquatic insect interactions can be assumed to provide excellent conditions to conduct experimental studies on direct and indirect effects of multiple natural enemies in freshwater ecosystems." (Author)] Address: Rolff, J., Department of Animal and Plant Sciences, University of Sheffield, S10 2TN Sheffield, UK. E-mail: JOR@sheffield.ac.uk

**2520.** Samways, M. (2001): Testing the new Categories of Threat on dragonflies in Africa. *Species* 35: 23. (in English). ["Verbatim: In a recent assessment of dragonflies across Africa and neighboring islands, it was important to distinguish between those species that are simply rare, those that are 'Data Deficient', and those that are actually threatened. The Extinct category needs very careful consideration, as premature inclusion of a species or ESU (Evolutionarily Significant Unit) could thwart further searches. In short, the IUCN 2000 Categories of Threat were found to be very workable for African dragonflies. Problems encountered were more in terms of difficulties of field assessments than with the categorization process. However, while the Red List is of great value when considering one species at a time, it should not be considered as a general database for analyzing comparative figures on assemblages. Such an analysis is likely to reveal more on assessment efforts than on the organisms themselves."] 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

**2521.** Sasahara, S. (2001): On the status quo and conservation of *Rhyothemis severini* Ris. *Nature and Insects* 36(7): 26-28. (in Japanese). [*R. severini* was first found by me at Naze on the Amami Islands in July, 1993 and was designated as Near Threatened species in 2000. This dragonfly inhabits about ten bogs (20 to 30 cm deep) of about 50 to 500 square meters in the fallow fields, where wild millets grow. 19 sympatric species of Odonata inhabit there. The species has a weak territoriality. Males watch their mates ovipositing at the height of 1 meter from the surface of the water. They were often interfered by sympatric *R. variegata* imperatrix. The maximum population was 30 in 1993 and in 2000 none was sighted. The main factor of decreasing is widening of a road, which caused scanty of filling water into the bogs, and pollution of water, and increasing of crayfish. This dragonfly is a newcomer to the island and preservation of it is an difficult problem. Translation; Ishizawa, Naoya] Address: not stated

**2522.** Saugestad, T. (2001): New observations of *Leucorrhinia pectoralis* (Charpentier, 1825) in Hordaland, western Norway. *Nord. Odonat. Soc. Newsl.* 7(1): 11. (in Norwegian with English summary). ["A second and probable third locality in Hordaland for *L. pectoralis* was discovered 14.vii. 2000, at two small nameless bog lakes in Os municipality, near Bergen. The localities are briefly described. The probable origin of what seems to be an isolated occurrence at the west coast of Norway is also discussed." (Author)] Address: Saugestad, T., Gml. Kalvedalsv.12B, N- 5019 Bergen, Norway

**2523.** Schaijk, V.A. van; Geraeds, R.P.G. (2001): First findings of exuviae of the dragonfly *Ophiogomphus cecilia* (Fourcroy 1785) in the Netherlands. *Natuurhistorisch maandblad* 90: 166-167. (in Dutch with English summary). ["In the period of the 25th of June until the 29th of July 2001, four exuviae of *O. cecilia* were found along the river Roer. These are the first exuviae of this species found in the Netherlands. During the same inventory, two freshly emerged female adults were also spotted in the same area. These observations are the result of an intensive survey undertaken after the first sighting of this species along the river Roer last year (GERAEDS & HERMANS, 2000). The findings confirm the existence of a population of *O. cecilia* in this particular river. Further investigations in the next few years will have to show whether this species can establish itself in this area." (Author)] Address: Geraeds, R.P.G., Julianalaan 46, NL-6042 JH Roermond, The Netherlands

**2524.** Schiel, F.-J. (2001): Aktuelle Daten zum Vorkommen der Asiatischen Keiljungfer (*Gomphus flavipes*) in Baden-Württemberg. *mercuriale* 1: 23-24. (in German). [Additional four localities in the Federal State Baden-Württemberg, Germany with records (exuviae) of *Stylurus flavipes* along river Rhine are dealt with.] Address: Schiel, F.-J., Inst. Naturschutz und Landschaftsanalyse, Turenenweg 9, D-77880 Sasbach, Germany. E-mail: Franz-Josef.Schiel@INULA.de

**2525.** Schiel, F.-J.; Buchwald, R. (2001): Die Große Moosjungfer in Südwest-Deutschland. Konzeption, Durchführung und Ergebnisse des LIFE-Natur-Projekts für gefährdete Libellenarten am Beispiel von *Leucorrhinia pectoralis*. *Naturschutz und Landschaftsplanung* 33(9): 274-280. (in German with English summary). ["The LIFE-Nature project, running from 1997 to 2000, included population counts, various management measures, and extensive public information aiming to support the long-term survival of *L. pectoralis*. The survey of a total of 37 mires identified 15 populations. All of them are situated in the region "Oberschwäbisches Hügelland" (County of Ravensburg). For 11 of these populations, successful reproduction of the species has either been proven or can be considered likely. The present habitats are negatively affected by nutrient inputs and internal mineralisation. These processes lead to an accelerated growth of shore plants, and the colonised peat pools become more and more shaded by woody plants. Practical implementation of the LIFE-Nature project focused on 24 management measures undertaken in 12 different mires respectively mire areas. In four cases the removal of the dense vegetation led to a clear rise in number of observed adult dragonflies. In at least one case an increase in number of emerging individuals was shown three years after the management measures. In order to guarantee the long-term survival of *L. pectoralis* in Baden-Württemberg, management activities will remain absolutely necessary. We recommend the employment of Wildermuth's rotation model which has been successfully tested over many years in Switzerland. Re-establishment respectively improvement of several metapopulations in the "Oberschwäbisches Hügelland" has to be the main purpose of future management plans. In this way, a stable situation for *L. pectoralis* can be achieved, possibly also allowing recolonisation of adjacent regions." (Authors)] Address: Schiel, F.-J., Inst.



Naturschutz und Landschaftsanalyse, Turenenweg 9, D-77880 Sasbach, Germany. E-mail: Franz-Josef.Schiel@INULA.de

**2526.** Schlüpmann, M. (2001): Beobachtungen zur Phänologie der Libellen-Imagines im nördlichen Sauerland (Odonata). Entomol. Nachr. Berichte 45(3/4): 171-179. (in German with English summary). [Nordrhein-Westfalen, Germany; phenological data of several Odonata including seasonal dependend abundances are documented. Special emphasize is given to *Aeshna cyanea* and its long lasting maturation resp. pre-reproductive period.] Address: Schlüpmann, M., Hierseier Weg 18, D-58119 Hagen, Germany. E-mail: martin.schluepmann@t-online.de

**2527.** Schlüpmann, M. (2001): Die Libellenfauna urbaner Lebensräume am Beispiel der Stadt Hagen. Dortmunder Beitr. Landeskunde, Naturwiss. Mitt. 35: 191-216. (in German with English summary). [The study discusses parameters responsible for suitability of water bodies in urban environments. Frequency and indiginity of species are compiled in a table. Relationships between Odonata and the degree of areas developed for buildings are discussed. The importance of garden ponds, and measures to improve their habitat quality for dragonflies is outlined. It is concluded that a urbanophilous odonate coenoses is not existing.] Address: Schlüpmann, M., Hierseier Weg 18, D-58119 Hagen, German. E-mail: martin-schluepmann@t-online.de

**2528.** Schmidt, B.; Osterried, J.; Stottele, T. (2001): Gewässerbericht 2000 der Stadt Friedrichshafen; Zustände, Entwicklungsziele und Maßnahmen. Schriftenreihe Umwelt der Stadt Friedrichshafen 1. 116 pp. (in German). [This is an exhaustive report on the current situation of the running waters and water management on the territory of the city of Friedrichshafen, Lake Constance, Germany. Each of the running waters is described in detail with special emphasize on restoration measures to be realised. Fauna and flora, and bordering vegetation and biotyps in the catchment area are characterised stressing indicator species and measures according environmental quality aims. Many tabs and colour pictures help to get a deep insight into the situation of the running waters of the region. Some of the material and (didactical) graphs are sound and very original. B. Schmidt is one of the leading German odonatologists, thus Odonata are well represented in this report.] Address: Stadt Friedrichshafen Amt für Umwelt und Naturschutz und Eigenbetrieb Stadtentwässerung, Postfach 2440, D-88014 Friedrichshafen, Germany

**2529.** Schmidt, B. (2001): Habitate, Fortpflanzungsverhalten und Eiablagestrategien der Südlichen Mosaikjungfer (*Aeshna affinis*) im Eriskircher Ried (Bodensee). mercuriale 1: 14-18. (in German). [Probably since more than 10 years, an autochonus population of the Mediterranean species *A. affinis*, which currently extends its range to the north, exists in the Eriskirchener Ried (fen situated near Lake Constance, Baden-Württemberg, Germany). The author documents all records of the species in this locality, supposing that the initial establishment of the species may be the result of influxes in 1987 (or 1992 and 1995). In 1999 *A. affinis* was the most common member of Aeshnidae in the Eriskircher Ried! The

climatic preferred situation of the locality is in addition documented by a strong population of *Lestes barbarus*. The author describes the habitat, hunting and searching flights for females, and oviposition sites in detail. He discusses the possibility of different oviposition strategies of the two colour morphs of females (brown/light blue and brown/yellow green): the light blue colour morph seems to oviposit without male in more densely grown habitats, while the yellow green morph seems to oviposit in tandem position with male in more open, shallow waters. Advantage and disadvantage of the strategies on the population level are discussed.] Address: Schmidt, B., Sandöschstr. 28; D-88048 Friedrichshafen, Germany. E-mail: Schmidt-empire@gmx.de

**2530.** Schmidt, Eb. (2001): Strittige systematische Fragen auf Gattungsniveau bei mitteleuropäischen Libellen (Odonata). Abh. Ber. Naturkundemus. Görlitz 73 (1): (in German with English summary). ["The following genera (including European species) can be separated by autapomorphies: *Chalcolestes* Kennedy, 1920, from *Lestes* Leach, 1815, with *C. viridis* (Vander Linden, 1825); *Stylurus* Needham, 1897, from *Gomphus* Leach, 1815, with *S. flavipes* (Charpentier, 1825); *Platetrum* Newman, 1833, from *Libellula* L., 1758, with *P. depressum* (L., 1758); *Ladona* Needham, 1897, from *Libellula* too, with *L. fulva* (Müller, 1764). *Aeshna isocetes* (Müller, 1767) should not yet be transferred into the (palaeotropical) genus *Anaciaeschna* Selys, 1878. *Tarnetrum* Needham & Fisher, 1936 is now accepted on subgenus level only for *Sympetrum* (*Tarnetrum*) *fonscolombii* (Selys, 1840). The genera *Cercion* and *Erythromma*, *Anax* and *Hemianax* should still remain separated for the European species." (Author)] Address: Schmidt, E., Biologie und ihre Didaktik, FB9 / S05, Universität GH Essen, D-45117 Essen, Germany

**2531.** Schnabel, H. (2001): Untersuchungen zum Vorkommen larval überwinternder Libellenlarven in Karpfenteichen des Oberlausitzer Heide- und Teichgebietes. Abh. Ber. Naturkundemus. Görlitz 73(1): 79-83. (in German with English summary). ["In 1999 and 2000, 69 commercial fishery ponds in the Upper Lusatian heath and lake district were investigated as to the occurrence of dragonfly larvae. A total of 12668 individuals belonging to 19 species was recorded. The results are compared with existing literature and the relationship between occurrence and fish stocking density are discussed on the representative basis of the 'Großer Streichteich'-Pond in Bernsdorf, Germany". (Author)] Address: Schnabel, H., Keula 16, D-02997 Wittichenau, Germany

**2532.** Schultz, J.K.; Switzer, P.V. (2001): Pursuit of heterospecific targets by territorial Amberwing Dragonflies (*Perithemis tenera* Say): A case of mistaken identity. Journal of Insect Behavior 14(5): 607-620. (in English). ["Although they are defending mating territories, territory residents of a wide variety of insect species have been observed to pursue heterospecifics in addition to the conspecifics that intrude on their territories. One species that has such heterospecific pursuits is" *Perithemis tenera* "In this study, we tested five alternative hypotheses for the function of heterospecific pursuits in amberwings: competition for resources, prevention of interference while mating, predator deterrence, foraging, and mistaken identity.

Resident males pursued both male and female conspecifics, as well as a species of horse fly (*Tabanus* spp.) and butterfly (*Ancyloxypha numitor*). Other intruding odonates, including *Epithea princeps*, *Erythemis simplicicollis*, *Libellula luctuosa*, *Pachydiplax longipennis*, and *Plathemis lydia*, were relatively ignored. Because the horse fly and butterfly were similar to amberwings in body size, color, and flight height, and because they are not predators or prey of amberwings, we concluded that the pursuit of these heterospecifics was due to mistaken identity. The characteristics of the horsefly and butterfly likely correspond to the cues that the male amberwings use to identify conspecifics, and the relative rarity of intrusions by these two species (as well as by female amberwings) probably made it more costly to discriminate and pursue only conspecifics than to make some mistaken pursuits." (Authors)] Address: Switzer, P.V., Eastern Illinois Univ., Dept Biol. Sci., Charleston IL 61920; USA. E-mail: cfpvs@eiu.edu

**2533.** Schutzgemeinschaft Libellen in Baden-Württemberg (2001): Kurzbeiträge / Termie 2002 / SGL. mercuriale 1: 25-36. (in German). [Documentation of some mailings circulated to members of the SGL with notes on records of *Coenagrion scitulum* in Vorarlberg, Austria, a new record of *Ophiogomphus cecilia*, some sneering comments on the myth of sticking dragonflies (the myth is assessed as unthreatened in the Red list of myths), notes on the coming meeting of SGL and GdO, and the minutes of the founding meeting of SGL and the constitution of this organisation.] Address: SGL c/o Röske, W., Kandelstr. 26, D-79106 Freiburg, Germany

**2534.** Sherratt, T.N.; Forbes, M.R. (2001): Sexual differences in coloration of *Coenagrionid* damselflies (Odonata): a case of intraspecific aposematism? *Anim. Behav.* 62(4): 653-660. (in English). ["Sexual dimorphism is commonly explained as a consequence of selection on traits that increase male attractiveness to females, or simply allow males greater access to females. Here, we consider another explanation for sexual differences in coloration within species of the damselfly family *Coenagrionidae* (Odonata: Zygoptera). In many of these species, males are more brightly coloured than females and have different patterns. Yet they are nonterritorial and do not engage in displays: indeed, male competition for mates often resembles a scramble. We therefore argue that even if females show a degree of mate choice, then it is unlikely to be based on colour or pattern. Instead, we suggest that sexual dimorphism has evolved in this group primarily as a form of sex-related warning coloration. First, we argue that it is almost inevitable that male-male interactions will incur a small cost to both participants. We then provide some evidence that males are capable of using colour as a clue to sexual identity. Using a simple model, we show that if these conditions hold, then sexual dimorphism will readily evolve. Furthermore, the model shows that if females are selected to avoid excessive harassment by males as is often suggested, then males should evolve much brighter coloration than females. If the assumptions underlying our 'unprofitable mate' model are broadly correct, then not only does it offer a novel explanation for sexual dimorphism, but it also provides the first case example of the evolution of aposematism as a result of intraspecific interactions." (Authors)] Address: Sherratt

T.N., Univ Durham, Dept Biol Sci., South Rd, Durham DH1 3LE, UK

**2535.** Showers, J.; Horsnail, P. (2001): Damselfly exuviae found in a UV light moth trap. *J. Br. Dragonfly Society* 17( 2): 33-34. (in English). ["Damselflies were first noted in the trap on 31 May 2000, and were then found on each day until 12 June 2000. A total of 187 exuviae were collected during this period, with a maximum total of 56 collected on 1 June. After 12 June, only occasional exuviae were found and these were not identified. In addition to the exuviae found inside the light trap, many exuviae were present on the supports, but these were not collected. The emerged damselflies either found their own way out of the trap or were released when the trap was checked for moths." A total of 105 exuviae of *Enallagma cyathigerum* and three *Erythromma najas* exuviae were identified. "It was not possible to identify all specimens, as many were badly damaged." [...] "The discovery of large numbers of damselfly exuviae in the moth trap suggests that damselfly larvae may be attracted to UV light at emergence. This observation supports previous work indicating a response to UV light by emerging larvae of the family *Coenagrionidae* (Lavoie-Dornik & Pilon, 1987). It also poses several areas for further investigations, including the variation in response between species, the most effective wavelengths for eliciting a response, and the relationship between the intensity of the light source and the distances over which damselfly larvae will be attracted." (Authors)] Address: Showers, J., B., Desborough Road, Rothwell, Kettering, Northants NN14 6JQ, UK

**2536.** Sibl, J.; Seginkova, A.; Bulánková, E. (2001): Contribution to the knowledge of dragonfly fauna (Odonata) of the Danubian Plain (southwestern Slovakia). *Entomofauna carpathica* 13: 68-71. (in Slovakian with English summary). [The regional Odonata fauna totals in 45 species including literature records. In 1999 and 2000, 34 species could be recorded at 9 localities. Some rare Slovakian species as *Coenagrion scitulum*, *Brachytriton pratense*, *Anaciaeschna isoceles*, *Anax parthenope*, *Orthetrum albistylum*, *O. coerulescens*, *Sympetrum meridionale*, *S. pedemontanum*, *S. depressiusculum*, and *Leucorrhinia pectoralis* could be confirmed.] Address: Sibl, J., J. Stanislava 15, SK 84105 Bratislava, Slovakia. E-mail: sibl@changenet.sk

**2537.** Silsby, J. (2001): WDA: present status report. *Argia* 13(1): 22-23. (in English). [Report of activities and services of Worldwide Dragonfly Association.] Address: Silsby, Jill, 37 Astoria House, 116 Hight Street, Purley, Surrey CR8 2XT, UK

**2538.** Silsby, J. (Ed.) (2001): Newsletter of the worldwide Dragonfly Association 5(1). W.D.A.'s *AGRION* 5(1): 16 pp. (in English). [[Scientific notes:] Dunkle, S.: *Apache Spiketail, Cordulegaster diadema* Selys, 1868 (pp. 3-4); - Paulson, D.: *Zenithoptera americana* Linnaeus, 1758 (p. 4); - Wasscher, M.: *A Mecistogaster smarter than me* (p. 4); - Alien, P.: *Scapania frontalis* Burmeister, 1890 (p. 4); - Garrison, R.: Two beautiful odonates from Brazil (pp. 4-5); - Endersby, I.: *Cordulephya pygmaea* Selys, 1871 (p. 5); - Taylor, J.: The reed "butterfly", *Rhyothemis graphiptera* Rambur, 1842 (pp. 5-6); - Moore, N.: *Archipetalia auriculata* Tillyard, 1917 (p. 6); - Silsby, J.: *Cyrano unicolor* Selys,

1869 (pp. 6-7); - M. Hämäläinen: In search of beautiful wings: *Vestalis melania* Selys, 1873 (pp. 7-8); - Natsume, H.: Globe Skimmer, *Pantala flavescens* (Fab., 1798) & other favourites (p. 8); - Wilson, K.: *Chlorogomphus papilio* Ris, 1927 (p. 9); - Kalkman, V.: The Oriental Rock-dweller, *Bradinopyga geminata* (Rambur, 1842) (pp. 9-10); - Miller, K.: The Twister, *Tholymis tillarga* (Fabricius, 1798) (pp. 10-11); - Dijkstra, K.-D.B.: Sky-blue Skimmer, *Cyanthemis simpsoni* Ris, 1915 (pp. 11-12); - Clausnitzer, V.: Mock Emerald, *Olpogastra lugubris* (Karsch, 1895) (p. 12); - Corbel, P.S.: An abiding magical moment: *Rhythemis fenestrina* Rambur, 1842 (p. 12); - Jödicke, R.: *Sympetrum sinaiticum* Dumont, 1977 (pp. 12-13); - Parr, M.: *Ischnura elegans* (Vander Linden, 1820) (p. 13); - Champion, M.H.: Notes on sighting of *Lindenia tetraphylla* (Vander Linden) by lake Volvi, Greece in July 2000 (p. 13; with a postscript by P.S. Corbet); - Beckemeyer, R.: Favorite dragonflies in Thailand and the USA (p. 14); - Orr, A. G.: *Rhinocypha aurofulgens* Laidlaw, 1931 & others from Australia, New Guinea, Africa & Sulawesi (pp. 14-15); - Corbet, P.S.: [book review] All about dragonflies, by K. Inoue & K. Tani (p. 16); - de Fonseca, N.: [obituary] Terence de Fonseca (p. 16).] Address: Silsby, Jill., 37, Astoria House, 116 Hight Street, Purley, Surrey CR8 2XT, UK. E-mail: jsilsby1@aol.com

**2539.** Sommerhäuser, V. (2001): Insekt des Jahres 2001 - Plattbauchlibelle (*Libellula depressa* Linnaeus). Naturschutz und Landschaftspflege in Brandenburg 10 (4): 126. (in German). [General resp. introductory remarks on the "Insect of the Year" in Germany, *L. depressa* are outlined; special emphasize is given to the adaptations to the primary habitat in floodplains of rivers and to secondary habitats in gravel pits or garden ponds.] Address: not stated

**2540.** Stephan, R.; Xylander, W.E.R. (2001): Die Libellen der Umgebung von Görlitz, gestern und heute. Abh. Ber. Naturkundemus. Görlitz 73(1): 85-89. (in German with English summary). ["The dragonflies of Görlitz and the neighbouring area have been investigated since 1885. Since then, 68 species have been encountered. In recent investigations, 58 species were documented within an area of 30 km around the city of Görlitz. This high number results from an extraordinary diverse landscape structure and thus many different biotopes. The coenoses of dragonflies have obviously changed significantly, resulting in formerly rare species being abundant today (e.g. *A. imperator*, *O. cancellatum*) whereas others have declined in number (*S. flaveolum*, *G. vulgatissimus*, *O. cecilia*, *O. coerulescens*, *O. brunneum*)."] (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

**2541.** Sternberg, K.; Buchwald, R. (2001): 20 Jahre "Schutzgemeinschaft Libellen in Baden-Württemberg" von den ersten Anfängen bis Grundlagenwerk und Vereinsgründung. *mercuriale* 1: 19-23. (in German). [This is a detail history of the most active regional odonatological society in Germany, which "produced" a lot of leading German odonatologist, and the recently published most impressive German book on Odonata "Die Libellen Baden-Württembergs Vol. 1 & 2". Of some interest are reflections about the work of amateur odonatologists using political economy cost

calculations: More than 20000 hours were necessary to produce the book; but this was only possible on a basis of amateur or student research activities calculated with nearly 90000 hours.] Address: Sternberg, K., Schillerstr. 15, D-76297 Stutensee, Germany

**2542.** Stevani, C.V.; Liria, C.W.; Miranda, M.T.M.; Bechara, E.J.H. (2001): Cysteic acid is the chemical mediator of automotive clearcoat damage promoted by dragonfly eggs. *J. Appl. Polym. Sci.* 81(6): 1549-1554. (in English). ["The damage caused by dragonfly eggs on automotive clearcoats exposed to sunlight occurs by a chemical mechanism similar to that caused by acid rain. Cysteine and cystine residues present in dragonfly eggs are oxidized during the egg hardening process, which releases hydrogen peroxide, to a cysteic acid derivative, a strong acid capable to catalyze the hydrolysis of acrylo/melamine clearcoat polymer. Cysteic acid was indeed identified and quantified by ion-exchange HPLC in dragonfly egg extracts submitted to oxidation by H<sub>2</sub>O<sub>2</sub> followed by acid digestion. Moreover, H<sub>2</sub>O<sub>2</sub> concentration, temperature, and exposure time profiles of cysteic acid formation as well as an apparent activation energy for cysteine (in dragonfly eggs) oxidation to cysteic acid by H<sub>2</sub>O<sub>2</sub> (32 +/- 2 kJ/mol) were determined."] (Authors)] Address: Bechara, E.J.H., Univ. São Paulo, Inst. Quim., CP 26077, BR-05513970 São Paulo, Brazil

**2543.** Stevens, M.; Riedel, H.-W. (2001): Die Wiederbesiedlung des Gebietes der Stadt Bergisch Gladbach durch die Blauflügel-Prachtlibelle *Calopteryx virgo* (L. 1758) (Odonata, Calopterygidae) in den Jahren 1989-2000. *Verh. Westd. Entomol. Tag 2000*: 51-64. (in German with English summary). [In the Rhine-Ruhr agglomeration, Germany, *C. virgo* survived in the near-natural forests of the "Königsforst" in small populations. Between 1990 and 1994, the species seems to have been extirpated in the region. But, it was able to spread into urban areas of Bergisch Gladbach. "From 1995 to 2000 both the number of sites and the number of larvae increased continuously. The "Königsforst" is a refugial habitat, necessary both for survival of nucleus populations and centres of dispersal. A prerequisite for successful recolonisation is a high quality of water and a diverse structure of stream-morphology. Recolonisation by larvae takes place in the upwards direction. [...]"] Address: Riedel, H.-W., Stadt Bergisch Gladbach, Fachbereich Umwelt und Technik, Wilhelm-Wagner Platz, D-51429 Bergisch Gladbach, Germany

**2544.** Struktur- und Genehmigungsdirektion Süd (Hrsg.) (2001): NSG Täler und Verlandungszonen am Gelterswoog. Leaflet: 6 pp. (in German). [The leaflet shortly characterizes a Nature Conservation Area situated near the town of Kaiserslautern, Rheinland-Pfalz, Germany. Pictures of *Erythronia najas* and *Somatochlora arctica* illustrate the odonatological importance of the area. For more odonatological details see: Ott, J. (1990): Die Libellenfauna des geplanten Naturschutzgebietes "Gelterswoog - Kolbenwoog" - mit einem Wiederfund von *Somatochlora arctica* Zetterstedt für Rheinland-Pfalz. *Fauna Flora Rheinland-Pfalz* 6: 227-246.] Address: Struktur- und Genehmigungsdirektion Süd, Neustadt an der Weinstraße

- 2545.** Swaay, C. van; Ketelaar, R.; Groenendijk, D. (2001): Dagvlinders en libellen onder de meentlat: jaaverslag 2000. Rapport VS2001.07. De Vlinderstichting Wageningen: 29 pp. (in Dutch with English summary). [This is a report on the monitoring scheme of butterflies and dragonflies in The Netherlands in 2000. The butterfly scheme started in 1990, the dragonfly scheme in 1997. Butterflies and dragonflies are counted using a line-transect method. Dragonfly transects are visited once every two weeks. "The length of the transects is variable and dependent on habitat quality and availability. In addition, single species transects are exclusively counted for a specific threatened butterfly or dragonfly. Thus, more information is obtained on trends of our Red List species. Indices were calculated using the computer program TRIM (Trends and Indices for Monitoring Schemes). This program was developed by CBS ("Statistics Netherlands") for the analysis of time series of counts with missing observations." 185 Odonata-transects were visited every fortnight and 133 single species plots were counted. "Although the number of transects is still growing, in the southern provinces more plots are needed for reliable indices. Enallagma cyathigerum was again by far the most numerous dragonfly species in 2000. At the most species-rich plots 25 species were recorded. Special results from the monitoring scheme include for example: (1) Calopteryx virgo was counted at 8 transects in 2000. A total of more than 1600 individuals was recorded. At one wooded lowland river densities were much higher than in any other river system in The Netherlands. C. virgo is now satisfactorily covered within the monitoring scheme. (2) Aeshna viridis is one of the best followed species within the dragonfly monitoring scheme. At a total of 14 transects 185 dragonflies were counted. (3) In the city of Gouda much more dragonflies (both diversity and the number of individuals) were counted at transects alongside ecologically restored banks in the city than in non-restored localities."] Address: De Vlinderstichting, Postbus 506, NL-6700 AM Wageningen, The Netherlands. E-mail: info@vlinderstichting.nl
- 2546.** Szállassy, N.; Bárdosi, E.; Szabó, Z.; Dévai, G. (2001): Fluctuating asymmetry and mating success in males of *Libellula fulva* Müller, 1764. Abh. Ber. Naturkundemus. Görlitz 73(1): 91-92. (in English with German summary). [In this study, individually marked *Libellula fulva* males were used to compare short-term and medium-term methods on the basis of correlating wing asymmetry with mating success.] Address: Devai, G., Department of Ecology, Kossuth L. University, H-4010 Debrecen, P.O. Box 71, Hungary
- 2547.** Tabata, O. (2001): Odonae fauna of Hongo, Sasayama City, Hyogo Prefecture. Sympetrum Hyogo 7/8: 10-12. (in Japanese with English summary). [I spent my boyhood catching insects and fish at Kongo, Sasayama City, which was a cosy country surrounded by hills of 300-400 m altitude. Rice fields were fed by upper and middle reaches of two rivers joining there, and many animals including dragonflies were living. A list of 41 odonate species and short account of the habitats are given based on the records in the 1960s and 1990s. Artificial construction works have damaged the habitats, and 16 species are recorded only in the 1960s." (Author)] Address: not stated
- 2548.** Tailly, M. (2001): De libellen van het Kraaibos te Moen-Zwevegem (West-Vlaanderen). Gomphus 17(1): 37-45. (in Dutch with English and French summaries). [The dragonflies of the Kraaibos at Moen-Zwevegem (West-Flanders). The Kraaibos at Moen-Zwevegem is a new site, made by the heaping up of clay when modernising the adjacent canal. The terrain has been planted with trees but a central part with a number of smaller ponds is grazed by ponys. Since 1992 a total of 21 dragonfly species were observed, with *Sympetma fusca* and *Ischnura pumilio*. For 14 of them reproduction was at least probable. Also interesting is the presence since some years of a nice population of *Lestes barbarus*. The text closes with some remarks on the management of the site." (Author)] Address: Tailly, M., Hoonakkerdreef 35, 8791 Waregem marc.tailly@pandora.be
- 2549.** Tailly, M. (2001): Een vondst van *Ischnura pumilio* (Charpentier, 1825) te Moen-Zwevegem (West-Vlaanderen). Gomphus 17(1): 46-50. (in Dutch with English and French summaries). [An observation of *Ischnura pumilio* in Moen-Zwevegem (West-Flanders). One male of this in Flanders threatened species was found on 19/08/2000 on a site with a typical habitat for the species. This fact is discussed with the rareness in the western part of Belgium and its ecology in mind." (Author)] Address: Tailly, M., Hoonakkerdreef 35, 8791 Waregem marc.tailly@pandora.be
- 2550.** Tennessen, K. (2001): Color pattern in immature *Coryphaeschna adnexa*. Argia 13(2): 10-11. (in English). [Preparing a description of a new *Coryphaeschna*, the author checked *C. guyanensis* Machet (1991) which was synonymized with *C. adnexa* for colour patterns. The synonymization is correct, but it was possible to show the problems which lead to the description of *C. guyanensis*: obviously the specimen was an teneral with colour patterns which disappear in a few days in immature stage.] Address: Tennessen, K., 1949 Hickory Ave. Florence, AL 35630, USA. E-mail: ktennessen@aol.com
- 2551.** Trapero Quintana, A.; Naranjo Lopez, C. (2001): New locality reports for *Crocothemis servilia* (Drury, 1773) (Odonata: Libellulidae) in Cuba. Argia 13(2): 3. (in English). [Compilation of present records of *C. servilia* in Cuba.] Address: not stated
- 2552.** Trockur, B.; Didion, A. (2001): Libellenatlas Saar. Sektion Libellen der Arbeitsgemeinschaft für Tier- und Pflanzengeographische Heimatforschung im Saarland - Delattinia. 83 pp. (in German). [This atlas of the Odonata of the German Federal State Saarland compiles all available data on Odonata. Few data are available from the period prior 1980. An significant increase resulted in the period between 1980 and 1990. The majority of data was obtained after 1990 - 1998 when several odonatologists surveyed with increased intensity the water bodies in Saarland. Data of 55 species are provided. For each species two distribution maps are presented (one with all records of the very species, and one with records of indiginity) and a table which demonstrates the status of the species in the regional ecoregions ("Naturräumliche Einheiten"). Additional information is given to the regional odonate biodiversity, and an "appendix" with remarkable records including some records from Luxembourg from 1998 - 2001 is added. The booklet contains also an updated

Red List and a bibliography. The study is available from the senior author at 10,- EURO (plus P+P).] Address: Trockur, B., Schulstr. 4, D-66636 Tholey-Scheuern

**2553.** Upson, S.: (2001): A further *Argia lacrimans* population in southeast Arizona. *Argia* 13(1): 19. (in English). [In 1999 and 2000, the species was observed in Leslie Canyon National Wildlife refuge, 16 miles N Douglas, Arizona, USA. Co-occurring species are listed, and useful morphological features to separate it from its nearest congener *Argia pima* are outlined.] Address: Upson, Sandy, P.O. Box 1453, Bisbee, Arizona, 85603, USA. E-mail: sandyupson@excite.com

**2554.** Utzeri, C. (2001): Winter oviposition of *Sympetrum striolatum* (Charp.) in central Italy (Anisoptera: Libellulidae). *Notul. odonatol.* 5(8): 106-107. (in English). [In January 2000 and 2001 *Sympetrum* sp. were observed in Italy. "The present record suggests, therefore, that at least at the central Italian latitudes, the yearly extinction of the *S. striolatum* adult population in late autumn is probably caused by long periods of bad weather, including drop of temperature, which preclude dragonfly activity and feeding. If ambient conditions keep relatively good and stable, dragonflies can probably go on with feeding and egg maturation, and perform normal reproductive behaviour, including mating and oviposition." (Author)] 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

**2555.** Van Gossum, H.; Stoks, R.; De Bruyn, L. (2001): Frequency-dependent male mate harassment and intra-specific variation in its avoidance by females of the damselfly *Ischnura elegans*. *Behav. Ecol. Sociobiol.* 51: 69-75. (in English). [ "We focused on male harassment on different female color morphs of the damselfly *Ischnura elegans* and on variation in morph-specific mating avoidance tactics by females. In *I. elegans*, one of the female morphs is colored like the conspecific male (andromorphs) while the other morphs are not (gynomorphs). Our first goal was to quantify morph-specific male mating attempts, hence male harassment, in populations with manipulated population parameters (densities, sex ratios, and proportion of andromorphs). Second, we examined the female's perspective by looking for potential differences in morph-specific mating avoidance tactics and success of those tactics in a natural population. Differences in population conditions did influence the number of male mating attempts per morph. The less frequent female morph was always subject to fewer mating attempts, which contradicts earlier hypotheses on mimicry, but supports those that assume that males learn to recognize female morphs. Gynomorphs occupy less open habitat and often fly away when a male approaches, while andromorphs use more open habitat, do not fly large distances and directly face approaching males. Female morphs did not differ in the proportion of successful mating-avoidance attempts. Our results suggest that the maintenance of the color polymorphism is most probably the result of interactive selective forces depending on variation in all population conditions, instead of solely density- or frequency-dependent selection within populations." (Authors)] Address: Stoks, R., Laboratorium voor Aquatische Ecologie, K.U.Leuven, De Beriotstraat 32, B-3000

Leuven, Belgium. E-mail: robby.stoks@bio.kuleuven.ac.be

**2556.** Vanappelghem, C.; Veille, F. (2001): Observations de *Leucorrhinia rubicunda* (L., 1758) dans le Nord-Pas-de-Calais en 2000 (Odonata, Anisoptera, Libellulidae). *Martinia* 17(3): 91-94. (in French with English summary). [Two male adults of *L. rubicunda* were captured 15 May 2000. The habitat is described, and the existence of local populations is discussed, but it may be likely that the species has (dis)migrated from Belgium.] Address: Veille, F., Office National des Forêts, 19 avenue du General de Gaulle, F-62600 Berck, France

**2557.** Vizslán, T.; Huber, A. (2001): Odonate records from sub-Carpathia, southwestern Ukraine. *Notul. odonatol.* 5(8): 103-105. (in English). [Records of 24 odonate species from 21 localities in the area of the rivers Latorcyca and Uz are presented. The list includes *Coenagrion pulchellum*, *Erythromma viridulum*, and *Somatochlora metallica*] Address: Vizslán, T., Szent Mihály út 9., H-9400 Sopron, Hungary

**2558.** Wallaschek, M. (2001): Zur Insekten- und Herpetofauna (Odonata, Dermaptera, Blattoptera, Saltatoria: Ensifera et Caelifera, Amphibia, Reptilia) von Trocken- und Feuchtgebieten im Landkreis Eichsfeld (Thüringen). *Thüringer faunistische Abhandlungen* 8: 7-36. (in German with English summary). [22 odonate species from 7 sampling localities are documented and briefly discussed. *Lestes dryas*, *L. virens*, *Sympetma fusca*, *Ischnura pumilio*, *Sympetrum flaveolum*, and *Leucorrhinia rubicunda* are of some regional interest.] Address: Wallaschek, M., Agnes-Gosche-Str. 43, D-06120 Halle (Saale), Germany

**2559.** Weatherhead, M.A.; James, M.R. (2001): Distribution of macroinvertebrates in relation to physical and biological variables in the littoral zone of nine New Zealand lakes. *Hydrobiologia* 462: 115-129. (in English). ["[...] there have been few attempts to relate macroinvertebrates to habitat factors in lakes. In this study, nine mainly oligotrophic lakes from throughout New Zealand were surveyed for macroinvertebrates. The lakes were selected to represent a range of suspended sediment loading and lake level regimes. Within each lake, several sites were selected to provide a range of exposure to wave action. A multiple regression approach was taken to relate macroinvertebrate community composition and habitat characteristics. The results of the analysis suggest that the littoral zone of the lakes we studied could be divided into four general habitats. The first is the wave wash zone characterised by coarse substrates and macroinvertebrate taxa usually associated with lotic environments, such as Ephemeroptera and Plecoptera. The second habitat is associated with macrophytes and is limited at the top by wave action and at depth by light attenuation. In this zone, the snail *Potamopyrgus antipodarum* is dominant, along with Trichoptera and Odonata. At the base of the macrophytes is the detrital habitat characterised by fine, organic rich sediments and dominated by chironomids, oligochaetes and Trichoptera. At depths below the macrophyte zone, fine sediments are found, and bivalves such as the freshwater mussel *Hyridella menziesi* are common. While macroinvertebrate abundance can be highly variable, some general predictions of community

structure can be made based on a few key environmental factors. Abundance of snails, Odonata and Trichoptera was positively related to macrophyte biomass. Some macroinvertebrate groups such as oligochaetes, chironomids, snails and bivalves were more common in line substrates, while Ephemeroptera were characteristic of coarse substrates. Detrital biomass was important for most of the macroinvertebrate groups studied showing a positive relationship for oligochaetes and Trichoptera and a negative relationship for Ephemeroptera and Plecoptera." (Authors)] Address: Weatherhead, M.A., Natl Inst Water & Atmospher Res Ltd, POB 8602, Christchurch, New Zealand

**2560.** Weihrach, F. (2001): Entwicklung von *Onychogomphus f. forcipatus* in einem Kleingewässer (Odonata: Gomphidae). *Libellula* 20 (3/4): 149-154. (in German with English summary). ["From May 21 to June 02 2001, 175 exuviae of *O. f. forcipatus* were collected at a shallow gravel pond with a size of almost 300 m<sup>2</sup> in Munich, Bavaria, Germany. This is the first record of the successful development of the species in waters of that kind. Besides, this is the hitherto earliest seasonal record of *O. f. forcipatus* from Bavaria." (Author)] Address: Weihrach, F., Hengelerstr. 9, D-80637 München, Germany. E-mail: Florian.Weihrach@t-online.de

**2561.** Weipert, J.; Bößneck, U. (2001): Die Schutzgebiete der Landeshauptstadt Erfurt (Thüringen) Teil IV: Flora und Fauna des GLB "Dorfstattwiese". Veröff. Naturkundemus. Erfurt 20: 57-80. (in German with English summary). [Thuringia, Germany; in 1995, five common odonate species were recorded.] Address: Bößneck, U., Stadtverwaltung Erfurt, Umwelt- und Naturschutzamt, Staffenbergallee 18, D-99085 Erfurt, Germany

**2562.** Werzinger, S.; Werzinger, J. (2001): Ganz schön flexibel! Zur Entwicklung von *Anax parthenope* in Bayern (Odonata: Aeshnidae). *Libellula* 20(3/4): 131-148. (in German with English summary). ["A Bavarian larval generation of *A. parthenope* developed bivoltin as well as univoltin. At an unused fish-free pond we recorded 244 exuviae - 226 (92,6 %) during the autumn in 1998 and 18 (7,4 %) during the following spring in 1999. The pond was located in an area of about 400 km<sup>2</sup>, the so-called Frankisches Weihergebiet, about 40 km northwest of Nuremberg. *A. parthenope* is well known here for several decades, but there have been no breeding records so far. Since 1998 we observed increasing occurrences of imagines, especially in springtime. In spite of the successful development in 1998 and 1999 it is still unknown where the breeding generations normally origin. Larval development and emergence of *A. parthenope* are discussed." (Authors)] Address: Werzinger, S., Düsseldorfer Str. 15, D-90425 Nürnberg, Germany. E-mail: Werzinger-Nbg@t-online.de

**2563.** Wildermuth, H.; Bauer, S. (2001): Das Wurzelgeflecht schwimmender Seggenstöcke als Mikrohabitat von Libellenlarven (Odonata). *Libellula* 20(1/2): 33-45. (in German with English summary). ["Larvae of 4 Zygoptera and 4 Anisoptera species were found among roots and in cavities of floating sedge (*Carex elata*, *C. paniculata*) tussocks of two small moorland lakes in southern Germany. *Cordulia aenea*

was the most numerous species, followed by *Platycnemis pennipes*, *Erythromma najas*, *Somatochlora metallica*, *Aeshna grandis* and *Epithecina bimaculata*. Prior to the emergence period of the «spring species», a single tussock harboured at least 1 and 46 larvae at most (43 *C. aenea*) on a probing day. Final stage larvae of *C. aenea* amounted up to 77% of a day total. The root system of sedge tussocks at steep lake and pond shores otherwise poor in structure turned out to be an important microhabitat for dragonfly larvae, especially during the final stage, as well as for many other benthic animal species. Measures for conservation and promotion of the structural diversity at the shores of stagnant waters are discussed." (Authors)] Address: Wildermuth, H., Haltbergstr. 43, CH-8630 Rüti, Switzerland. E-mail: hansruedi@wildermuth.ch

**2564.** Wildermuth, H. (2001): Moostierchen und Zuckmücken als Epizoen von *Macromia amphigena* (Bryozoa: Plumatellidae; Diptera: Chironomidae; Odonata: Macromiidae). *Libellula* 20(1/2): 97-102. (in German with English summary). ["A small colony of *Fredericella* sp. was found on the left hind leg of an exuvia of *M. amphigena* originating from the Bevd River of the Novosibirsk District, Siberia, Russia. The same exuvia bore four cases of chironomid larvae, two attached to the mesothorax, one to the femur of the right hind leg and one to the 6th abdominal tergite." (Author)] Address: Wildermuth, H., Haltbergstr. 43, CH-8630 Rüti, Switzerland. E-mail: hansruedi@wildermuth.ch

**2565.** Wildermuth, H. (2001): Zuckmückenlarven als Epizoen von *Somatochlora metallica* (Diptera: Chironomidae; Odonata: Corduliidae). *Libellula* 20 (3/4): 171-174. (in German with English summary). ["In a pond SE of Zürich, Switzerland a living red chironomid larva within its tube consisting of mud particles was found firmly attached to the dorsal side of the abdomen of a F-0-larva of *S. metallica*. The role of Odonata larvae for epizoic chironomids is discussed." (Author)] Address: Wildermuth, H., Haltbergstr. 43, CH-8630 Rüti, Switzerland. E-mail: hansruedi@wildermuth.ch

**2566.** Williams, C.E. (2001): Avian dragonfly collectors (Anisoptera). *Notul. odonatol.* 5(8): 107. (in English). [In July 1998 Purple martins [...] were observed feeding large dragonflies to their almost fully-grown fledglings. The species turned out to be *Anax junius*, *Macromia annulata*, and the very rare *Anax amazili*.] Address: Williams, C.E., 704 Foster Street, Marlin, Texas 76661-2428, US

**2567.** Williamson, T.; Meurgey, F. (2001): Microhabitats refuges pour d'*Ischnura elegans* (Vander Linden, 1820) et *Platycnemis pennipes* (Pallas, 1771) (Odonata, Zygoptera, Platycnemididae et Coenagrionidae). *Martinia* 17(3): 110. (in French). [A case of drought resistance resp. the use of terrestrial habitats of larvae and the co-occurring macrobenthic species are outlined.] Address: Williamson, T., 13, impasse du Moulin, F-49270 Champtoceaux, France

**2568.** Willigalla, C.; Artmeyer, C. (2001): Zur Verbreitung von *Sympecma fusca* (Vander Linden) und *Gomphus vulgatissimus* (Linnaeus) (Odonata: Lestidae & Gomphidae) in Nordrhein-Westfalen. *Verh. Westd. Entomol. Tag* 2000: 287-290. (in German). [The development of knowledge of the distribution of *S.*

fusca and *G. vulgatissimus* in the Federal State Nordrhein-Westfalen, Germany is briefly outlined. *S. fusca* could be observed in 12.8% of all grid squares. In most cases records refer to single specimens, only few strong populations are existing. Records of *G. vulgatissimus* increased in the past years significantly.] Address: Willigalla, C., Brock 45, D-48346 Ostbevern, Germany. E-mail: christoph@willigalla.de

**2569.** Wong, A.; Forbes, M.R.; Smith, M.L. (2001): Characterization of AFLP markers in damselflies: prevalence of codominant markers and implications for population genetic applications. *Genome* 44(4): 677-684. (in English). ["Amplified fragment length polymorphism (AFLP) analysis is becoming increasingly popular as a method for generating molecular markers for population genetic applications. For practical considerations, it is generally assumed in population studies that AFLPs segregate as dominant markers, i.e., that present and absent are the only possible states of a given locus. We tested the assumption of dominance in natural populations of the damselfly *Nehalennia irene* [...]. Electro-blotted AFLP products from 21 samples were probed with individual markers. Eleven markers were analyzed, of which two were monomorphic and nine were polymorphic. Only two of the polymorphic markers behaved in a strictly dominant manner. The remaining seven polymorphic markers displayed various degrees of codominance, with 2-10 visible alleles in the sample. Of the three markers displaying the highest degree of variability, two contained microsatellite repeat tracts. Our results suggest that the assumption of dominance is unfounded. As a result, AFLP analysis may be unsuitable for estimating several important population genetic parameters, including genetic diversity." (Authors)] Address: Wong, A., Carleton Univ, Dept Biol, Ottawa, ON K1S 5B6, Canada

**2570.** Xylander, W.E.R.; Stephan, R. (2001): Libellenzönosen in Braunkohle-Tagebaufolgelandschaften als Reflexion von Rekultivierung und Sukzession. *Abh. Ber. Naturkundemus. Görlitz* 73(1): 93-95. (in German with English summary). ["Since 1996 dragonflies are documented in ca. 50 ponds of a lignite-mining site close to Görlitz where mining took place until December 1997. 49 species were found, 28 of which are listed in the red data list for dragonflies in Saxony, Germany. This high number is the result of a complex biotope mosaic. Since the beginning of the investigation, a decline of some species could be documented (mostly due to reclamation activities) whereas other species, which prefer later stages of succession, increased in number (mostly owing to the enhanced development of vegetation as a result of amelioration)." (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

**2571.** Xylander, W.E.R. (Hrsg.) (2001): Kurzfassungen der Vorträge der 20. Jahrestagung der Gesellschaft deutschsprachiger Odonatologen [GdO], Görlitz, 16.-18. März 2001. *Abh. Ber. NaturkMus. Görlitz* 73(1): VIII + 100 pp. (in German). [Behrends, T.: Libellen-Monitoring im Rahmen des E & E-Projektes "Halboffene Weidelandschaft Hölzigbaum" von 2000-2004 (pp. 1-2); - Bender, J., W.E.R. Xylander & R.

Stephan: Lösungsansätze im Zielkonflikt zwischen Rekultivierung und Naturschutz in der Bergbausanierung: Wiederherstellung eines Libellengewässers auf Halden des Braunkohletagebaus Berzdorf (pp. 3-8); - Brockhaus, T. & U. Fischer: Die Verbreitung von *Cordulegaster boltonii* und *Somatochlora arctica* in Sachsen: Ergebnisse aus dem Projekt "Entomofauna Saxonica" (p. 9); - Clausnitzer, H.-J.: Die Zwerglibelle (*Nehalennia speciosa*) in Niedersachsen (pp. 11-12); - Conze, K.-J. & C. Göcking: "FFH-Libellenarten" in Nordrhein-Westfalen (NRW) (pp. 13-15); - Donath, H.: Sukzessionsverlauf und Libellenzönosen an Tagebauen im Naturpark Niederlausitzer Landrücken (pp. 17-18); - Ellwanger, G.: Verbreitungskarten der Libellenarten der Anhänge II und IV der FFH-Richtlinie in Deutschland auf der Basis des Messtischblatttrasters (pp. 19-21); - Glatzle, B.: Die Rolle der Libellen im Nahrungsspektrum der Gebirgsstelze *Motacilla cinerea* Tunstall, 1771 an einem Tieflandfluss (pp. 23-24); - Günther, A.: Differenzierung von Drohflügen und Balzverhalten verschiedener *Rhinocypha*-Formen Sulawesi (Indonesien) (pp. 25-26); - Hardersen, S.: "Fluctuating Asymmetry" als Instrument für die Bioindikation mit Libellen (pp. 27-28); - Hartung, M.: Bestimmung von isolierten Flügeln von Gomphiden am Ufer der Oder (pp. 29-31); - Hünken, A. & C. Schütte: Im Trüben fischen: Pradation von Flussbarschen auf *Calopteryx*-Larven (pp. 33-34); - Huth, J.: Libellen (Odonata) der Braunkohlen-Bergbaufolgelandschaft Sachsen-Anhalts (pp. 35-37); - Jakab, T., Z. Mutter & G. Devai: Quantitative survey of *Gomphus flavipes* (Charpentier, 1825) exuviae along river Tisza (p. 39); - Keil, R.: Die Rolle von Libellen in der historischen Karpfenteichwirtschaft (pp. 41-43); - Krüner, U.: *Orthetrum brunneum* (Fonscolombe, 1837), ein fester Bestandteil der Libellenfauna in NRW? (pp. 45-46); - Kuhn, J.: Prozessschutz versus Nutzung und Pflege: Probleme des Libellenschutzes in Mooren des süddeutschen Alpenvorlandes (pp. 47-49); - Martens, A.: Experimente zur Sitzplatzwahl von *Onychogomphus f. forcipatus* (L., 1758) (p. 51); - Mauersberger, R. & F. Petzold: Seen als Habitate für *Onychogomphus f. forcipatus* (L.) im Jungpleistozängebiet Nordost-Deutschlands (pp. 53-55); - Mikolajewski, D.-J.: Dornenausbildung bei Larven der Gattung *Sympetrum* (Odonata: Anisoptera): Induzierbarer Schutz gegen Fischpradation (pp. 57-58); - Müller, J. & R. Steglich: Zur Indikation der "FFH-Tauglichkeit" der Elbe durch die Flussjungfern (Gomphidae) (pp. 59-61); - Müller, O. & B. Müller: Sand oder Algen? Habitatwahlverhalten der Larven von *Onychogomphus f. forcipatus* (L., 1758) (p. 63); - Müller, Z., T. Jakab, G. Devai & N. Szdllassy: The effect of habitat degradation on dragonfly assemblages on the floodplain of the river Tisza (pp. 65-66); Ott, J.: Erfahrungen aus der Planungspraxis bei Monitoringstudien mit Libellen (pp. 67-68); - Schmidt, E.G.: Strittige systematische Fragen auf Gattungsniveau bei mitteleuropäischen Libellen (Odonata) (pp. 69-77); - Schnabel, H.: Untersuchungen zum Vorkommen larval überwinterner Libellenlarven in Karpfenteichen des Oberlausitzer Heide- und Teichgebietes (pp. 79-83); - Stephan, R. & W.E.R. Xylander: Die Libellen der Umgebung von Görlitz, gestern und heute (pp. 85-89); - Szdllassy, N., E. Bdrdosi, Z. Szabo, Z. Müller & G. Devai: Fluctuating asymmetry and mating success in males of *Libellula fulva* Müller, 1764 (pp. 91-92); - Xylander, W.E.R. & R. Stephan: Libellenzönosen in Braunkohle-Tagebaufolge-

landschaften als Reflexion von Rekultivierung und Sukzession (pp. 93-95); - Teilnehmerliste (pp. 97-99).] Address: Xylander, Dr. W., Staatliches Museum für Naturkunde Görlitz, PF 300154, D-02806 Görlitz, Germany. E-mail: Naturmuseum.GR.Dr.Xylander@t-online.de

**2572.** Zhang, J.F.; Zhang, H.C. (2001): New findings of larval and adult aeschnidiids (Insecta: Odonata) in the Yixian Formation, Liaoning Province, China. Cretac. Res. 22(4): 443-450. (in English). ["Two new species referable to two new genera of the family Aeschnidiidae are described. *Stylaeschnidium rarum* gen. et sp. nov. is based on a pair of near-ultimate instar female larvae, and *Dracontaeschnidium orientale* gen. et sp. nov. on a single adult hindwing. The age of the dragonfly-bearing beds of the Yixian Formation in Liaoning, China, may be as old as latest Jurassic and as young as mid-Early Cretaceous, A larval mask described previously from Transbaikal, Russia, is unrelated to aeschnidiids, it belongs instead to the larvae of *Hemeroscopus baissicus* Pritykina, 1977 within the Hemeroscopidae, whereas the adult *Hemeroscopus baissicus* is probably related to the larva *Hemeroscopus baissicus* according to new material recently recovered in China." (Authors)] Address: Zhang, J.F., Chinese Acad. Sci., Nanjing Inst. Geol. & Palaeontol., Nanjing 210008, Peoples Rep. China

**2573.** Zimmermann, W. (2001): Rote Liste der Libellen (Odonata) Thüringens. 3. Fassung, Stand 10/2001. Naturschutzreport 18: 76-79. (in German). [Red list of endangered Odonata from Thuringia, Germany. 52 of the 61 Thuringian Odonata are autochthonous, 32 species are redlisted. Compared with the second version of the list (Zimmermann & Mey, 1993) *Calopteryx splendens*, *Coenagrion hastulatum*, and *Aeshna grandis* could be deleted from the list due to improvement of knowledge or increasing populations. *Leucorrhinia dubia* and *Erythromma najas* had to be added due to decline of populations, and *Coenagrion ornatum*, *Gomphus vulgatissimus*, *Thecagaster bidentata*, and *Leucorrhinia albifrons* have been (re-)discovered in recent years.] Address: Zimmermann, W., Thomas-Müntzer-Str. 5, D-99423 Weimar, Germany

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**2574.** Andrew, R.J. (2002): Egg chorionic ultrastructure of the dragonfly *Tramea virginia* (Rambur) (Anisoptera: Libellulidae). Odonatologica 31(2): 171-175. (in English). ["SEM studies reveal that the egg chorion of *T. virginia* is divided into an outer soft exochorion and an inner tough endochorion. The exochorion expands into a jelly-like, sticky coat in water, while the endochorion is smooth, thin and unsculptured. The apically situated micropylar apparatus is formed of a large, dome-shaped, sperm-storage chamber and a small, flat, micropylar stalk which contains a pair of circular micropylar orifices. The micropylar apparatus is encircled by an exochorionic collar. The chorion is modified in accordance with the aquatic (still-water) mode of oviposition exhibited by this species while the micropylar apparatus is shaped to fit in the fertilization pore of the vagina." (Author)] Address: Andrew, R.J., Department of Zoology, Shri

Shivaji ESA's Science College, Congress Nagar, Nagpur - 440012 (MS), India

**2575.** Bede, L.C.; Machado, A.B.M.; Piper, W. (2002): *Erythrodiplax venusta* (Kirby), an Amazonian species introduced into Minas Gerais, SE Brazil (Anisoptera: Libellulidae). Notul. odonatol. 5(9): 113-114. (in English). [The distribution of *E. venusta* encompasses the Amazonian parts of Venezuela, Surinam, Guiana, Bolivia, Peru and northern to western Brazil. The compilation of Borrer (1942) and the examination of the Machado-collection with material from all Brazilian states showed *E. venusta* to be restricted to the Amazonian region, thus not belonging to the fauna of Minas Gerais, a state that has been intensively collected for about 50 years. It was surprising therefore, that on February 26 and April 9, 1994, 5 male *E. venusta* were collected at the Sumidouro lake (municipalities of Pedro Leopoldo & Lagoa Santa, Minas Gerais, southeast Brazil, 19°32'05"S; 43°56'28"W), a locality situated as far as 1300 km from the hitherto known southernmost range of this species, in Mato Grosso. The locality was surveyed formerly by Machado in March 1975. At that time, no *E. venusta* was sighted. The authors conclude, that these circumstances indicate that this species has been introduced into the area not too long ago, and the question raised as to how it was transported there. The possibility that *E. venusta* was brought to the Lagoa Santa region by some atmospheric phenomenon, involving wind transportation, cannot be ruled out. However, in 1984 a modern airport was built in the area (Confins International Airport, ca 20 km from the Sumidouro lake) and started receiving regular cargo from the northern cities, like Manaus and Belem, where *E. venusta* occurs. Therefore it is probable that the species may have been incidentally introduced into the area by aircraft. The Confins Airport frequently receives ornamental and game fish from the Amazon region, bringing the possibility of eventual introduction of dragonfly eggs or larvae into the Lagoa Santa karst system.] Address: Bede, L.C., Laboratório de Ecologia e Comportamento de Insetos, Departamento de Biologia Geral, ICB/UFMG, C.P. 486, BR-31270-901 Belo Horizonte, MG, Brazil

**2576.** Belle, J (2002): Commented checklist of the Odonata of Surinam. Odonatologica 31(1): 1-8. (in English). ["A list is given of 283 spp. and sspp., referable to 87 genera of 15 families. Some additional taxa are evidenced but remain unidentified. Notes are supplied on some spp. *Hetaerina cruentata*, *Argia extranea*, *Phyllocycla signata*, *Phyllogomphoides audax*, *Dythemis sterilis*, *D. velox*, *Erythrodiplax attenuata*, *E. ochracea*, *E. aequatorialis*, and *Perithemis waltheri* are deleted from the national list." (Author)] Address: Belle, J., Onder Beumkes 35, NL-6883 HC Velp, The Netherlands

**2577.** Bernard, R. (2002): First records of *Aeshna crenata* Hagen, 1856 in Lithuania with selected aspects of its biology (Odonata: Aeshnidae). Opusc. zool. flumin. 202: 1-21. (in English). [The six Lithuanian records of *A. crenata* have significantly broadened the known range of the species to the southwest. Its habitat - wind sheltered, mostly Shagnum-rich lakes - is characterized in detail. The size of individuals and the thoracic pattern are briefly described. Some aspects of the emergence are presented. The behaviour of



territorial males and ovipositing females is described in great detail. The coexistence with other aeshnids is briefly analysed, with reference to spatial segregation between *A. crenata* and *A. juncea* / *A. subarctica elisabethae*. The 6 localities are described in detail and the co-occurring odonate species are listed, among them *Nehalennia speciosa*, *Epitheca bimaculata*, *Leucorrhinia albifrons*, and *L. caudalis*.] Address: Bernard, R., Dept of General Zoology, Adam Mickiewicz University, Fredry 10, PL-61-702 Poznan, Poland; E-mail: rbernard@main.amu.edu.pl

**2578.** Beukema, J.J. (2002): Changing distribution patterns along a stream in adults of *Calopteryx haemorrhoidalis* (Odonata: Calopterygidae): a case of larval-drift compensation? *International Journal of Odonatology* 5(1): 1-14. (in English). ["The distribution of an isolated population of adult *C. haemorrhoidalis* was studied along a small stream in NE Spain, during two-week or three-week summer periods over five years. Distribution patterns differed consistently between age groups. Reproductive activities took place along the entire stream, whereas the presence of teneral and older immature individuals was restricted to the lower reaches of the stream. It is concluded that emergence took place only in the lower reaches and that this can be explained by larval drift due to strong currents regularly depleting the upper half of the stream. Recovery of individually marked teneral specimens indicated that immature individuals remained in the area around the lower reaches, during roughly the first week of their adult life. During the following week, when they had attained mature wing coloration but did not yet show reproductive activities, they moved for long distances. This was particularly true for newly matured males, where the distance between two successive encounters could amount to hundreds of meters. By far the greatest proportion of these moves was upstream. Movement in later life stages, i.e. during the reproductive part of their life, was infrequent, much shorter and less consistently directed, though generally more often upstream than downstream. Once the males defended a territory, they hardly moved anymore. Territories were spread more evenly along the stream at high rather than at low overall densities. It is concluded that territorial behaviour contributed to a more even distribution of mature males and that an inborn tendency to fly upstream is not a prerequisite for the observed upstream-biased dispersal during adult life." (Author)] Address: Beukema, J.J., Netherlands Institute for Sea Research, P.O. Box 59, NL-1790 AB Den Burg, Texel, The Netherlands. E-mail: janb@nioz.nl

**2579.** Beukema, J.J. (2002): Survival rates, site fidelity and homing ability in territorial *Calopteryx haemorrhoidalis* (Vander Linden) (Zygoptera : Calopterygidae). *Odonatologica* 31(1): 9-22. (in English). ["In a small isolated population along a small stream in NE Spain, a high proportion of the adults present were individually marked. During subsequent days, their locations were assessed by twice-daily surveys along the entire length of the stream. Mean daily survival rates in mature males and females and pre-reproductive males were similar, 94%. Only during the first day after marking were survival rates significantly lower (viz. 77 to 84% in the various groups). High proportions (around 90%) of mature males were found to return to the same (territory) site

every morning once they had occupied that site for 2 or more days. Site fidelity was low in pre-reproductive males and intermediate in mature females. In a displacement experiment, 67 territorial males were transferred one by one to distant locations (80 to 240 m along the stream). Half of them returned to their original territory, usually on the same day." (Author)] Address: Beukema, J.J., Netherlands Inst Sea Research, POB 59, NL-1790 AB Den Burg, The Netherlands. e-mail: janb@nioz.nl

**2580.** Bowles, B. (2002): Results of the 2001 Garden Odonate Count. *Ontario Insects* 7(2): 39. (in English). [Canada, Ontario; the 5th annual Garden Odonate count was held on Saturday, July 14, 2001. Five observers tallied a total of 26 species and 1581 individuals. A male Midland Clubtail (*Gomphus fraternus*) represents a new species for Victoria County.] Address: not stated

**2581.** Bowles, B. (2002): Results of the 2001 Pelee Island Butterfly and Odonate Counts. *Ontario Insects* 7 (2): 34-35. (in English). ["The 2nd annual Pelee Island Odonate count was held on Sunday, August 5, 2001. Twelve observers reported only 12 species and 82 individuals. Hot dry weather in late July probably contributed to the low numbers of Odonata on the island. No new species were reported for the Pelee Island list." (Author)] Address: not stated

**2582.** Bowman, N. (2002): Reports from Coastal Stations - 2001: Eccles-on-Sea, Norfolk. *Atropos* 15: 64. (in English). [United Kingdom; *Erythromma viridulum*, *Sympetrum sanguineum*, *Aeshna juncea*] Address: not stated

**2583.** Brockhaus, T.; Fischer, U.; Günther, A.; Phoenix, J. (2002): Das Projekt "Libellenfauna Sachsen 2004". *Mitt. Sächs. Entomol.* 56: 18-20. (in German). [It is planned to enlarge and to compile information on the Saxonian Odonata to be published in 2004. Odonatologists are asked to make available old and current data referring Saxonia, Germany.] Address: Brockhaus, T., An der Morgensonne 5, D-09387 Jahnsdorf, Germany. E-mail: T.Brockhaus@t-online.de

**2584.** Broek, J. van den (2002): Libellen en juffers in waterverf. *Natuur & Techniek* 70(6): 52-53. (in Dutch). [This is a quite unusual review of a new book on Odonata: *De Nederlandse Vereniging voor Libellenstudie. De Nederlandse fauna Deel 4. De Nederlandse libellen*. Utrecht. 496 pp. ISBN 90-5011-154-8. On two pages illustrations (watercolour pictures) are presented, and some information on the artists, the publishing politics of the Nationaal Natuurhistorisch Museum Naturalis, Leiden, and the content of the book are given. The species illustrated are: *Anax imperator*, *Cordulegaster boltonii*, *Libellula depressa*, *Lestes barbarus*, *Chalcolestes viridis*, *Enallagma cyathigerum*, and *Calopteryx virgo*.] Address: not stated

**2585.** Buczynski, P.; Theuerkauf, J.; Rouys, S. (2002): New records of *Cordulegaster bidentata* Sélys, 1843 (Odonata: Cordulegastridae) from the Bieszczady Mountains. *Wiad entomol.* 20(2/4): 183-184. (in Polish). [Two new records are added to the previously known app. 40 records of this species rare in Poland.] Address: Buczynski, P., Dept of Zool., Marie Curie-Skłodowska University, Akademicka 19, PL-20-033 Lublin, Poland. E-mail: pbuczynski@biotop.umcs.lublin.pl

**2586.** Buskirk, J., van (2002): Phenotypic lability and the evolution of predator-induced plasticity in tadpoles. *Evolution* 56(2): 361-370. (in English). ["The hypothesis that predator-induced defenses in anuran larvae are maintained by divergent selection across multiple predation environments has not been fully supported by empirical results. One reason may be that traits that respond slowly to environmental variation experience a fitness cost not incorporated in the standard adaptive model, due to a time lag between detecting the state of the environment and expressing the phenotypic response. I measured the rate at which behavior and morphology of *Rana temporaria* tadpoles change when confronted with a switch in the predation environment at two points in development. Hatchling tadpoles that had been exposed during the egg stage to *Aeshna* dragonfly larvae were not phenotypically different from those exposed as eggs to predator-free conditions, and both responded similarly to post-hatching predator treatments. When 25-day-old tadpoles from treatments with and without dragonflies were subjected to a switch in the environment, their activity budgets reversed completely within 24-36 h, and their body and tail shape began changing significantly within 4 days. The behavioral response was conservative: Tadpoles switched from high-risk to predator-free treatments were slower to adjust their activity. The study confirmed that behavioral traits are relatively labile and exhibit strong plasticity, but it did not reveal such a pattern at the level of individual traits: Morphological traits that developed slowly did not show the least plasticity. Thus, I found that differences in lability of traits here useful for predicting the magnitude of plasticity only for fundamentally different kinds of characters." (Author)] Address: Buskirk, J. van, Institute of Zoology, University of Zürich, CH-8057 Zürich, Switzerland. E-mail: jvb@zool.unizh.ch

**2587.** Carvalho, A.L.; Werneck-de-Carvalho, P.C.; Calil, E.R. (2002): Description of the larvae of two species of *Dasythemis* Karsch, with a key to the genera of Libellulidae occurring in the states of Rio de Janeiro and São Paulo, Brazil (Anisoptera). *Odonatologica* 31(1): 23-33. (in English). ["The ultimate instar larvae of *D. mincki* and *D. venosa* are described and illustrated, based on material from SE Brazil, and general notes on the breeding habitats are provided. A preliminary key to the genera of Libellulidae larvae occurring in the region is appended." (Authors)] Address: Carvalho, A.L., Departamento de Entomologia, Museu Nacional, Universidade Federal do Rio de Janeiro, Caixa Postal 68044, BR 21944-970, Cidade Universitária, Rio de Janeiro, RJ, Brazil. E-mail: alagoc@acd.ufrj.br

**2588.** Cham, S. (2002): The range expansion of small Red-eyed Damselfly *Erythromma viridulum* (Charp.) in the British Isles. *Atropos* 15: 3-9. (in English). [This is an detailed up date of the current state of colonisation of the British Isles by *E. viridulum*. Known records are documented and the recent distribution of the species is mapped.] Address: Cham, S., 24 Bedford Avenue, Silsoe, Bedford, MK45 4ER UK. E-mail: SteveCham1@compuserve.com

**2589.** Cheverton, J. (2002): Emperor Anax imperator predated Brimstone *Gonepteryx rhamni*. *Atropos* 15: 75. (in English). [Parkhurst Forest, Isle of Wight, UK, 30 May 2001. A female *A. imperator* spent at least five

minutes consuming its prey.] Address: Cheverton, J., 6 Westhill Drive, Shanklin, Isle of Wight, PO37 6PX, UK

**2590.** Chovanec, A.; Schindler, M.; Waringer, J. (2002): Bewertung des ökologischen Zustandes eines Donaualtarmes ("Alte Donau") in Wien aus libellenkundlicher Sicht (Insecta: Odonata). *Lauterbornia* 44: 83-97. (in German with English summary). ["The ecological status of a Danubian backwater (Old Danube) situated in Vienna (Austria) was assessed by a dragonfly survey. 8 field trips were conducted at 9 sites (shore length = 100 m). A total of 20 species was recorded, 17 of them autochthonous. In this study a new assessment procedure based on the Odonate Habitat Index ("OHI") was applied. The range of site-specific index values was very close (2.49-3.05) with the mean OHI being 2.81. These numbers indicate a low level of habitat diversity. The comparison of the status quo with a reference condition is the basis of the assessment of the ecological status according to the EU Water Framework Directive. According to this the ecological status of the Old Danube was ranked as class III ("moderate ecological status") in the 5-tiered classification scheme. Missing littoral habitat structures and the lack of hydrological dynamics are the main reasons for this result." (Authors)] Address: Chovanec, A., c/o Umweltbundesamt, Spittelauer Lände 5, A-1090 Wien, Austria

**2591.** Chovanec, A.; Raab, R. (2002): Die Libellenfauna (Insecta: Odonata) des Tritonwassers auf der Donauinsel Wien - Ergebnisse einer Langzeitstudie, Aspekte der Gewässerbewertung und der Bioindikation. *Densia* 03: 63-79. (in German with English summary). [The paper presents a long-term study dealing with the colonisation of a man-made pond by dragonflies. Between 1990-1998 a total of 36 species had been observed. A steady increase of number of species over this period could be observed. Finally, in 1998, 29 species were recorded, 23 of them have been classified as autochthonous or probably autochthonous. The species inventory comprises species typical of open water areas with floating macrophytes, for dense reed stands and for littoral zones poor in vegetation. The dragonfly fauna of a potentially natural dragonfly fauna (reference fauna) is compared with the current fauna.] Address: Raab, R., Anton Bruckner-Gasse 2/2, A-2232 Deutsch-Wagram, Austria. E-mail: rainer.raab@gmx.at

**2592.** Clancy, S. (2002): Reports from Coastal Stations - 2001: Dungeness area, Kent. *Atropos* 15: 59-60. (in English). [United Kingdom; *Erythromma viridulum*, *Anax parthenope*, *Sympetrum fonscolombii*] Address: not stated

**2593.** Clausnitzer, V.; Lindeboom, M. (2002): Natural history and description of the dendrolimnetic larva of *Coryphagrion grandis* (Odonata). *International Journal of Odonatology* 5(1): 29-44. (in English). ["The morphology of the last stadium larvae of the African *C. grandis* is described for the first time, based on one exuvia and three last instar larvae from Kenya. Taxonomically important morphological characters are illustrated and discussed. [...] Notes on habitat conditions are given and compared with results for other odonate species, which are known to breed in phytotelmata. The systematic position of *Coryphagrion* is briefly discussed. *Coryphagrion* is hypothesised to be phylogenetically closely related with the neotropical

family Pseudostigmatidae based on larval morphology, adult morphology, behaviour and ecology." (Authors)] Address: Clausnitzer, Viola, Liebenauer Str. 180, D-06110 Halle/Saale, Germany. E-mail: wesche@mail.uni-marburg.de

**2594.** Clausnitzer, V. (2002): Reproductive behaviour and ecology of the dendrolimnetic *Hadrothemis scabrifrons* (Odonata: Libellulidae). *International Journal of Odonatology* 5(1): 15-28. (in English). ["Oviposition in water-filled tree holes and mating behaviour of *H. scabrifrons* was observed in a lowland coastal forest in Kenya. Conforming with the predominant mode of oviposition in the Libellulidae, females of *H. scabrifrons* touch the water with their ovipositor while hovering above tree holes. Male behaviour is opportunistic: usually males perch and patrol in clearings away from tree holes but at exceptionally large tree holes males are territorial and guard mates. Larvae and adults were found in different seasons; the species seems to be non-seasonal." (Author)] Address: Clausnitzer, Viola, Liebenauer Str. 180, D-06110 Halle/Saale, Germany. E-mail: wesche@mail.uni-marburg.de

**2595.** Corbet, P.S. (2002): Stadia and growth ratios of Odonata: a review. *International Journal of Odonatology* 5(1): 45-73. (in English). ["A terminology is presented for structures and events in larval development of Odonata with the aim of bringing terms into conformity with those used for other insect orders in the light of accepted views of homology. The terms 'exuvia', 'larva', 'prolarva' and 'stadium' receive special mention. Records of the number of stadia required to complete larval development for 118 species are listed and analysed, showing that the range for Odonata is 8 through 18 stadia (8 through 18 for 8 species of Anisoptera; 8 through 17 for 38 species of Zygoptera) averaging 12.4 stadia for the order (Anisoptera 12.5 and Zygoptera 12.2), in which >90% of records range from 10 through 16 stadia (both Anisoptera and Zygoptera >90%). The number of stadia varies between and within species, sometimes within members arising from a single egg batch. No unifying hypothesis exists to rationalize variation in the number of stadia. Duration of successive stadia within a species can be a smooth, increasing progression but can also show wide departures from such a pattern. Duration of a single stadium can range from 1 day (or <1 day in the prolarva) through >1 year. Uniformity of size of the final-stadium larva can be achieved by the growth ratio (between successive ecdyses) compensating for the number of stadia. Aeshnidae typically have more stadia than do Libellulidae and also have a smaller average growth ratio. Ontogenetic profiles of growth ratios for different dimensions tend to have a characteristic form for each dimension, regardless of the eventual number of stadia. For some dimensions (e.g. headwidth) and some species the profile forms a smooth declining progression but for others (e.g. length of caudal appendage) it fluctuates irregularly. Headwidth therefore represents the dimension of choice for specifying stages of larval development. Rewarding avenues for research include the documentation of prospective links between larval life style on the one hand and stadal numbers and growth-ratio profiles on the other, and discovery of morphological characters that make it possible to determine to species larvae of early stadia." (Author)] Address: Corbet, P.S., Crean

Mill, Crean, St Buryan, Cornwall, TR19 6HA, UK. E-mail: pscorbet@creanmill.u-net.com

**2596.** Cordero Rivera, A.; Egido Perez, F.J.; Andres, A. (2002): The effect of handling damage, mobility, body size, and fluctuating asymmetry on lifetime mating success of *Ischnura graellsii* (Rambur) (Zygoptera: Coenagrionidae). *Odonatologica* 31(2): 117-128. (in English). ["Several species of odonates have been the subject of sexual selection studies. In non-territorial species most variance in lifetime mating success (LMS) is accounted for by lifespan and specially by the number of visits, and random factors (like rainy weather) can have strong effect on reproductive success. Here we present the study of 2 natural populations of *I. graellsii* by marking-recapture methods. Our results show that male mating success is related to body size, mobility and handling damage, but not to fluctuating asymmetry. Larger males had greater success in both populations, a result in agreement with previous findings on the same sp. Nevertheless, multivariate analyses indicate that body length was a significant correlate of LMS in just one of the studied populations. We estimated a mobility index for males averaging the distance between consecutive resightings. For long-lived males, we found a positive relationship between mobility and LMS. There was a clear effect of leg loss during marking on survivorship, and a marginally significant negative effect on LMS. Finally, we studied the effect of wing fluctuating asymmetry (FA) on LMS by capturing a sample of marked individuals at the end of field work. Results suggest that FA is not an important correlate of LMS in this sp." (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

**2597.** Covanec, A.; Schiemer, F.; Waidbacher, H.; Spolwind, R. (2002): Rehabilitation of a heavily modified river section of the Danube in Vienna (Austria): Biological assessment of landscape linkages on different scales. *Internat. Rev. Hydrobiol.* 87: 183-195. (in German with English summary). ["The ecological condition of the Danube section in Vienna (Austria) has been greatly impaired by urban development, regulation, channel straightening and the construction of a hydroelectric power plant. In 1997, the shoreline of the Danube in this area was restructured by artificial side channels, coves, gravel banks, pools and temporary waters. A monitoring programme has been established focusing on the investigation of the functional integrity of these inshore structures: first results show that the sites isolated from the Danube serve as stepping stone biotopes for dragonflies and amphibians. Particularly amphibians are suitable indicators of the ecological functioning of riparian migration linkages on a (macro-) habitat scale. Rheophilic fish species (e.g. *Chondrostoma nasus*) colonise side channels connected with the Danube and indicate a longitudinal connectivity on a landscape scale. The role of these structures within an urban greenway is discussed." (Authors) Fig. 2 demonstrates succession of odonate fauna at different newly created inshore zone each for the successive years 1998 and 1999.] Address: Covanec, A., c/o Umweltbundesamt, Spittelauer Lände 5, A-1090 Wien, Austria. E-mail: chovanec@ubavie.gv.at

**2598.** Daigle, J.J. (2002): *Telebasis bickorum* spec. nov. from Bolivia (Zygoptera: Coenagrionidae). *Odonatologica* 31(2): 177-180. (in English). ["The new species is described from Bolivia (holotype male: Santa Cruz Dept, Ichilo Province, Buena Vista, February 2001; allotype female: same data as holotype). Holotype deposited in Universidad Autonoma "Gabriel Rene Moreno" (U.A.G.R.M.) in Santa Cruz, Bolivia; allotype deposited in the Florida State Collection of Arthropods in Gainesville, Florida, USA. Both sexes differ by the long and narrow black mesopleural suture on the thorax and acuminate male cerci which are longer than the paraprocts." (Author)] Address: Daigle, J., 2166 Kimberley Lane, Tallahassee, FL 32311, USA. E-mail: jdaigle@nettally.com

**2599.** Daigle, J.J. (2002): *Telebasis gigantea* spec. nov. from Bolivia (Zygoptera: Coenagrionidae). *Odonatologica* 31(1): 73-76. (in English). ["The new species is described and illustrated (holotype male: Santa Cruz dept., Ichilo prov., Buena Vista, Feb. 2000; allotype female: same data as holotype). Holotype deposited in Universidad Autonoma "Gabriel Rene Moreno" (U.A.G.R.M.) in Santa Cruz, Bolivia; allotype deposited in Gainesville, Florida, USA. Male and female can be distinguished by their very large size, dull gold thorax, and facial color which is sky-blue in male but yellowish-blue in female." (Author)] Address: Daigle, J., 2166 Kimberley Lane, Tallahassee, FL 32311, USA. E-mail: jdaigle@nettally.com

**2600.** De Marco, P.; Resende, D.C. (2002): Activity patterns and thermoregulation in a tropical dragonfly assemblage. *Odonatologica* 31(2): 129-138. (in English). ["Solar exposure is a key factor determining odonate activity, particularly in tropical areas. Small sized perchers, classified as thermal conformers, can begin their activity when air temperature is sufficiently high, and larger species become active when direct exposure to the sun is possible. In this study, the activity patterns in a neotropical dragonfly assemblage present on the Federal University of Viçosa, SE Brazil, have been described and following predictions about their thermoregulatory behaviour tested: (a) a decrease in activity of the percher dragonflies in the warmest periods is expected due to high thoracic temperatures; (b) conformers species will be controlled by temperature, not luminosity, whereas in heliothermic species, the initiation and termination of their activity is only constrained by luminosity. In the dry season, low air temperatures represent a limiting factor to the beginning and the end of activity, resulting in a shorter total activity time. *Orthemis discolor* and *Micrathyria hesperis* showed a decrease in activity in the middle of the day in the rainy season. *Perithemis mooma* was the only species that had a higher abundance near midday. As this species had a light-coloured thorax compared to the others, it is suggested that it could minimize the effect of the high temperatures. There is a clear effect of season on activity time, and also large differences in the intensity of this effect among species. When clouds precluded direct exposure to sun, variations only in the temperature did not affect the activity of *Erythrodiplax fusca*, *M. hesperis*, and *O. discolor*, but the activity of the small sized *P. mooma* remained dependent on temperature. These results highlighted that the minimum body size to be a heliotherm could be a complex function of behavioural and morphological characteristics, including body colour, preferred

substrate and perch posture." (Authors)] Address: De Marco, P., Laboratory of Quantitative Ecology, Department of General Biology, Federal University of Viçosa, BR-36571-000 Viçosa, MG, Brazil

**2601.** De Marmels, J. (2002): A study of *Chromagrion* Needham, 1903, *Hesperagrion* Calvert, 1902, and *Zoniagrion* Kennedy, 1917: Three monotypic North American damselfly genera without uncertain generic relationships (Zygoptera: Coenagrionidae). *Odonatologica* 31 (2): 139-150. (in English). ["Comparative morphology identifies *Chromagrion* as the sister genus of *Pyrrhosoma* Charp. The genera *Hesperagrion*, *Anisagrion* Selys, *Apanisagrion* Kennedy and *Calvertagrion* St. Quentin probably form a monophyletic group as they share a bifid apical penis segment armed with a pair of sclerotized spine-like processes. A new interpretation of certain penis structures, and biogeographic considerations, suggest that *Zoniagrion* is probably a primitive genus, which occupies a basal position on the stem of the *Acanthagrion*-series, within the *ischurine* Coenagrionidae." (Author)] Address: De Marmels, J., Inst. Zool. Agricola, Fac. Agronomia, Univers. Central de Venezuela, Apdo. 4579, Maracay 2101, Edo. Aragua, Venezuela. E-mail: demarmjc@hotmail.com

**2602.** Dewick, S. (2002): Reports from Coastal Stations - 2001: Bradwell-on-Sea, Essex. *Atropos* 15: 61-62. (in English). [United Kingdom; a list of 17 odonate species is communicated including *Erythromma viridulum* and *Brachytron pratense*] Address: not stated

**2603.** Donnelly, T.W. (2002): Odonata in and around Murchison Falls national Park, Uganda. *Notul. odonatol.* 5(9): 114-115. (in English). [A list of 42 odonate taxa collected from 21 to 25 January 2001 around the Murchison Falls (e.g. Nile River, Lake Albert, Sambiya River, river at the Rabongo Forest) is compiled. "The placement of F.C. FRASER's (1928, *Trans. ent. Soc. Lond.* 70: 123-138) *Copera subaequistyla* (= *sikassoensis* [Martin] in *Platycnemis* is mysterious. I can find few differences between this species and the SE Asian *Copera vittata* (Sel.), and I regard Fraser's generic placement as correct.")] Address: Donnelly, T., 2091 Partridge Lane, Binghamton, NY 13903, USA. E-mail: tdonnel@binghamton.edu

**2604.** Fleck, G.; Nel, A.; Bechly, G.; Escuillite, F. (2002): The larvae of the mesozoic family *aeschnidiidae* and their phylogenetic implications (Insecta, Odonata, Anisoptera). *Paleontology* 45(1): 165-184. (in English). ["Four giant dragonfly larvae are described from the Lower Cretaceous of China. Owing to the preservation of wing tracheal venation on the larval wing sheaths, they can be identified as the first undoubted larvae of the extinct Mesozoic family *Aeschnidiidae*. They are ultimate or penultimate male and female specimens, and a younger larva. The female larva has a very long ovipositor sheath. These larvae have an anisopteran anal pyramid and a very particular spoon-shaped labial mask, with a very narrow prementum and large palps with numerous teeth, suggesting possible affinities of the *Aeschnidiidae* with the Anisoptera *Cavilabiata*. The positions of other larvae formally attributed to the *Aeschnidiidae* are discussed, i.e. *Nothomacromia sensibilis* (Carle and Wighton, 1990), *Sona nectes Pritykina*, 1986, and the alleged larvae of

*Hemeroscopus baissicus* Pritykina, 1977. They differ greatly from the true Chinese larval Aeschniidae, in the labial mask and female ovipositor, even if they show some similarities in the anal pyramid." (Authors)] Address: Fleck, G., Lab. Ent. Mus. Natn. Hist. Nat., 45 rue Buffon, F-75005 Paris, France

**2605.** Geissen, H.-P. (2002): Faunistische Mitteilungen 1999 und 2000 aus dem Bereich des ehemaligen Regierungsbezirks Koblenz. Fauna und Flora in Rheinland-Pfalz, Beih. 27: 155-213. (in German). [Rheinland-Pfalz, Germany; records of 32 odonate species are documented including *Lestes barbarus* and *Orthetrum brunneum* which are annotated with some detail.] Address: Geissen, H.-P., Brunnenstr. 34, D-56075 Koblenz, Germany

**2606.** González-Soriano, E. (2002): *Leptobasis melinogaster* spec. nov., a new species from Mexico (Zygoptera: Coenagrionidae). *Odonatologica* 31(2): 181-185. (in English). ["The new species is described, illustrated and compared with *Leptobasis vacillans* Hag. in Sel. and L. candelaria Alayo. A key to separate males of Mexican and Central American species of *Leptobasis* is provided." (Authors)] Address: González-Soriano, E., Depto Zoología, Inst. Biol., Universidad Autónoma, Apartado Postal 70-153, 04510 Mexico, D.F., Mexico. E-mail: esoriano@mail.ibiologia.unam.mx

**2607.** Gwynne, D.T. (2002): A secondary copulatory structure in a female insect: a clasp for a nuptial meal? *Naturwissenschaften* 89(3): 125-127. (in English). ["Secondary copulatory structures are well-known in male dragonflies and spiders. Here I report a secondary copulatory organ in female ground wets, *Hemianthus pallitarsis* (Ensifera, Orthoptera - crickets and allies). The organ, located on the underside of the abdomen, appears to secure the male's genitalia during the transfer of a spermatophylax nuptial meal to this location, an area quite separate from the female's primary copulatory structures, where the sperm ampulla is attached." (Author)] Address: Gwynne, D.T., Univ Toronto, Dept Zool, Mississauga, ON L5L 1C6, Canada

**2608.** Harrison, P. (2002): 'Blue' Southern Hawker *Aeshna cyanea* in Worcestershire. *Atropos* 15: 74-75. (in English). [Verbatim: I am prompted by Steve Freddy's comprehensive treatment of the identification of the common *Aeshna* hawkers (*Atropos* 13 : 44-48) to relate our experience with the blue colour morph of the Southern Hawker *Aeshna cyanea* in Monkwood nature reserve, near Worcester. They are said to be very rare in Britain. If that is the case then we can count ourselves rather lucky we have recorded a 'blue' specimen in each of the years 1998, 1999 and 2000. What has surprised us is that all three records occurred within the same 150 m stretch of woodland path. We have thus seen three individuals, three years running, and in virtually the same spot. It could be pure chance, but might there be genetic factors at play here? Perhaps a local strain of Southern Hawker with an inherited tendency to throw up a blue male every now and then? It may be worthy of note that the photograph we took of the 2000 specimen reveals that though the dorsal abdominal spots are all blue, the triangular marking on segment 2 remains green.] Address: Harrison, P., Moorcroft Barn, Sinton Green, Hallow, Worcester, WR2 6NW, UK

**2609.** Hartung, M. (2002): *Heteragrion palmichae* spec. nov., a new damselfly from the Cordillera de la Costa, Venezuela (Zygoptera: Megapodagrionidae). *Odonatologica* 31(2): 187-191. (in English). ["The new species is described from the Cordillera de la Costa in Venezuela. Holotype male: Venezuela, Edo. Carabobo, Bejuma, Cerro de Paja mountain, alt. ca 1200 m, 13-VI-1992; paratype female, same data; the holotype is to be deposited in MIZA, Maracay, Venezuela. No other specimens are known to date. This is one of the largest species within *Heteragrion*. The appendices are strongly arched in contrast to other members of the genus. Some similarities of appendices or size exist with *H. tricellulare* Calv., *simulation* Wllmsn, *peregrinum* Wllmsn, and *icterops* Sel. The new species was found in an inhabited region of the Cordillera de la Costa, near Bejuma, Carabobo." (Author)] Address: Hartung, M., Wehnertstr. 20a, D-12277 Berlin, Germany. E-mail: AEH.Matthias.Hartung@t-online.de

**2610.** Hecker, K.R.; Forbes, M.R.; Leonard, N.J. (2002): Parasitism of damselflies (*Enallagma boreale*) by gregarines: sex biases and relations to adult survivorship. *Can. J. Zool.* 80(1): 162-168. (in English with French summary). ["We studied host damselflies *E. boreale* [...] and their gregarine parasites (Apicomplexa: Eugregarinidae) to elucidate the causes and consequences of any sex biases in parasitism of adult hosts. Larvae of both sexes were highly infected, but there was no difference between male and female larvae in either prevalence or intensity of gregarine infections. Newly emerged adults had few or no parasites, thereby setting the stage for investigating accumulation of parasites by adults. Adult females had a higher prevalence and intensity of infection by gregarines than did males, but only on 1 (of 2) days when the potential confounding factor of host age was controlled for. Both adult males and females showed a positive correlation between longevity under conditions of food stress and the number of gregarines they initially carried. This finding may be explained if the food ingested with the infective cysts is more beneficial than the parasites are harmful, and it also has implications for investigating sex biases in numbers of trophically transmitted parasites of such insects." (Author)] Address: Forbes, M.R., Dept of Biology, Carleton University, 587 Tory Building, 1125 Colonel By Drive, Ottawa, ON K1S 5B6, Canada. E-mail: mforbes@ccs.carleton.ca

**2611.** Heino, J. (2002): Concordance of species richness patterns among multiple freshwater taxa: a regional perspective. *Biodivers. Conserv.* 11(1): 137-147. (in English). ["Geographical gradients in species richness and the degree to which different taxa show congruent patterns remain unknown for many taxonomic groups. Here, I examined broad-scale species richness patterns in five groups of freshwater organisms; macrophytes, dragonflies, stoneflies, aquatic beetles and fishes. The analyses were based on provincial distribution records in Denmark, Norway, Sweden and Finland. In general, variation in species richness across provinces was concordant among the groups, but stoneflies showed weaker negative relationships with the other taxonomic groups. Species richness in most groups decreased with increasing latitude and altitude, and a considerable part of the variation was explained by mean July temperature. However, stoneflies showed a reversed pattern, with

species richness correlating positively, albeit more weakly, with mean provincial altitude. Nevertheless, combined species richness of all five taxa showed a strong relationship with mean July temperature, accounting for 74% of variation in provincial species richness alone. Such temperature-controlled patterns suggest that regional freshwater biodiversity will strongly respond to climate change, with repercussions for local community organization in freshwater ecosystems in Fennoscandia." (Author)] Address: Heino, J., Dept of Biology, University of Oulu, 90401, Oulu, Finland. E-mail: jani.heino@oulu.fi

**2612.** Hoshide, K.; Janovy, J. (2002): The structure of the nucleus of *Odonaticola polyhamatus* (Gregarinea: Actinocephalidae), a parasite of *Mnais strigata* (Hagen) (Odonata: Calopterygidae). *Acta Protozool.* 41(1): 17-22. (in English). ["The nucleus of *Odonaticola polyhamatus* was isolated from the body and observed with light, scanning electron and transmission electron microscopy, The nucleus had a thick thread-like structure with which it was tied to the septum. This thread-like structure has not been reported or described previously. The gregarine nuclear surface was covered with a fine fibrous net. This is the first report of the surface structure of a gregarine nucleus as revealed by SEM. Inside the nuclear membrane was a thin honeycomb layer similar to that reported for some other gregarines. Several spherical nucleoli and numerous electron dense small structures were observed inside the nucleus." (Author)] Address: Hoshide, K., Yamaguchi Univ., Inst. Biol., Fac. Educ., Yamaguchi 7538513, Japan

**2613.** Hunter, I. (2002): Reports from Coastal Stations - 2001: Elms Farm, Icklesham, East Sussex. *Atropes* 15: 58-59. (in English). [United Kingdom; *Calopteryx splendens*, *C. virgo*, *Brachytron pratense*, *Aeshna mixta*, *Sympetrum striolatum*] Address: not stated

**2614.** Ivanov, P.Yu. (2002): To the fauna of dragonflies (Odonata) of Sakhalin Island. *The North Pacific Islands Biological Researches* 7: 1-9. (in Russian with English summary). [21 odonate species from 19 localities are annotated in a checklist. *Aeshna caerulea* and *Leucorrhinia intermedia* are new to Sakhalin. This totals the known species to 31.] Address: Ivanov, P., Inst. of Biology and Soil Sciences, Far East Branch of the Russian Academy of Sciences, RUS 690022 Vladivostok-22, Russia. E-mail: entomol@ibss.dvo.ru (Pavel Ivanov)

**2615.** Jenkins, R.K.B; Ormerod, S.J. (2002): Habitat preferences of breeding water rail *Rallus aquaticus*. *Bird Study* 49(1): 2-10. (in English). ["[...] To test a survey method for estimating the abundance of breeding Water Rail and to provide an assessment of coarse-scale habitat selection, Water Rails were surveyed in 1996-97 at 77 wetland sites across Wales using broadcast vocalizations from a handheld cassette player. [...] Basic habitat characteristics were recorded for all sites and more detailed information, including freshwater invertebrate samples, were taken from a subset of 22 sites. A minimum of 43 to 49 breeding pairs of Water Rail were counted. Numbers of individuals differed significantly between the two survey years, but estimates of the number of pairs were consistent. Water Rail occurrence at a site was significantly related to the presence of wet reed

*Phragmites* sp. Dry sites with low vegetation cover were the least occupied. Water Rail abundance was positively correlated with the abundance of Odonata, Plecoptera and Diptera larvae, but lack of data on actual dietary composition prohibits concluding a causal relationship. We hypothesize that increased Water Rail abundance associated with expanses of wet reed reflects a combination of nest safety, reduced risk of predation, and increased food availability. Current reed-bed management to maintain wetland conditions, often standard procedures for such systems, are probably beneficial to Water Rail." (Authors)] Address: Ormerod, S.J., Cardiff Univ, Sch Biosci, POB 915, Cardiff CF10 3TL, S Glam, Wales

**2616.** Johansson, F.; Wahlström, E. (2002): Induced morphological defence: evidence from whole-lake manipulation experiments. *Can. J. Zool.* 80(2): 199-206. (in English). ["Predator-induced defences are activated by cues associated with predators and confer some degree of resistance to subsequent attacks. Laboratory studies of many taxa have revealed such induced defences, and these data often conform to large-scale surveys of defence levels in habitats with and without predators. However, there have been no studies that make the direct connection between these laboratory studies and field surveys. We conducted a large-scale field manipulation of predators to provide this connection. Previous laboratory experiments on dragonfly (*Leucorrhinia dubia*) larvae have demonstrated that the presence of fish predators induces the development of elongated abdominal spines that serve to reduce mortality risk. In this study we determine the effect of whole-lake predator manipulation on this induced morphological defence of *L. dubia*. We monitored the spine lengths of final-instar larvae in two experimental lakes for 7 consecutive years. Fish were present during the first 2 years and then removed for the remaining 5 years. Results demonstrate that the spine lengths of *L. dubia* larvae decreased significantly in both lakes after the removal of fish. In contrast, there was no corresponding change in the spine lengths of larvae in reference lakes, and we found little change in food supply for larvae. Our results suggest that the plastic response in spine length is strong and attributable to the presence of predators." (Authors)] Address: Johansson, F., Dept of Ecology and Environmental Science, Animal Ecology Group, Umea University, 90187 Umeå, Sweden. E-mail: frank.johansson@eg.umu.se

**2617.** Karjalainen, S. (2002): Suomen sudenkorennot (The Dragonflies of Finland). Tammi. ISBN 951-31-2212-3. 222 pp. (in Finnish with brief instructions in English) [This book covers the 52 odonate species recorded in Finland. 51 were observed in the field and photographed by the author over a period of more than ten years. Only *Somatochlora sahlbergi* was netted and posed for photographing. A total of 228 colour photographs, some of outstanding quality, and almost 80 of full page size, will enable non-Finnish readers to enjoy the dragonflies of northern Europe. Of special value are the distribution maps which will close a gap in our knowledge on the distribution of the dragonflies in western palaearctis. This book should not



be missing in your odonatological library.] Address: Karjalainen, S., <http://dragonflies.korento.net>. E-mail: [sk@korento.net](mailto:sk@korento.net). Orders of the book (hardcover, 21 x 26 cm) should be directed to Academic bookstore (<http://iki.fi/sudenkorenot/book.html>). The price of the book is 42,- EURO plus 20,- EURO for postage and handling charges.

**2618.** Knill-Jones, S. (2002): Reports from Coastal Stations - 2001: Isle of Wight. *Atropos* 15: 54-55. (in English). [United Kingdom; *Erythronia najas*, *E. viridulum*, *Brachytron pratense* and *Sympetrum danae* are communicated.] Address: not stated

**2619.** Kotiaho, J.S.; Hovi, M. (2002): Correcting species richness hotspots for latitudinal gradients: a new method. *Ann. Zool. Fenn.* 39(1): 3-6. (in English). ["Species richness hotspots are of critical importance in conserving biodiversity, but by using simple species richness in an area, there is an inevitable bias in favour of lower latitudes. We propose a simple method for estimating regionally representative species richness hotspots where the effect of latitudinal gradients is accounted for. By using this method, the same number of species are conserved but instead of being concentrated on lower latitudes the selected areas fall into much larger geographical regions resulting in a broader range of habitat types conserved. This method suits any scale and is also applicable to other kinds of environmental gradients. These regions are illustrated with data on birds and dragonflies of Finland." (Author)] Address: Kotiaho, J.S., Univ. Jyväskylä, Dept Biol. & Environm. Sci., POB 35, FIN-40351 Jyväskylä, Finland

**2620.** Legrand, J. (2002): Un nouveau *Tragomphus* d'Afrique équatoriale: *T. ellioti* spec. nov. (Anisoptera: Gomphidae). *Odonatologica* 31(2): 193-197. (in French with English summary). ["The new species is described and illustrated from a single male, collected in Gabon. Holotype male: Eastern Gabon, Makokou area, 1-XI-1976; deposited in MNHN, Paris. It lives in the upper sections of forest streams. The new sp. seems to be close to *T. aurivillii* Sjöstedt, 1899, but it is very different from the sympatric *T. tenaculatus* (Fraser, 1926), known from this region." (Author)] Address: Legrand, J., 10, rue du Chemin de fer, F-94110 Arcueil, France

**2621.** Long, R. (2002): Southern Skimmer *Orthetrum brunneum* (Fonsc.) on Guernsey. *Atropos* 15: 10. (in English). [Supposed to be a representative of the Guernseyian fauna since 1999, 10 July 2001 it was possible to net a specimen of *O. brunneum*.] Address: Long, R., Ozarda, Les Hammonnets, St. John, Jersey, Channel Islands, JE3 4FP, UK

**2622.** Lopau, W.; Adena, J. (2002): Die Libellen von Cypern. *Naturkundliche Reiseberichte* 19. 72 pp. (in German). [This paper is divided into two major parts: in Part 1 odonate data from different workers including historical data and material from museums are documented in detail. Part 2 gives information on the 33 species of Cyprus. For every species a black and white photo, a map, a detailed documentation of records, and a discussion of the taxonomic status and the habitats are presented. This paper is a further example of the sophisticated work of W. Lopau to increase our knowledge on the eastern-Mediterranean Odonata, and a cornerstone for ongoing odonatological work in the region.] Address: Lopau, W., Kuhstedtermoor 26, D-27442 Gnarrenburg, Germany. E-mail: [lopi-@t-online](mailto:lopi-@t-online)

**2623.** Lorenz, J.; Voigt, H.; Walter, S.; Zinke, J. (2002): Erste Ergebnisse entomofaunistischer Untersuchungen im Bahretal südlich von Pirna. *Mitt. Sächs. Entomol.* 58: 4-9. (in German). [6 species including *Lestes barbarus* and *Ischnura pumilio* are listed. Only a few water bodies are existing in the study area; thus, its odonate fauna has to be expected as being poor.] Address: Lorenz, J., Talmühlenstr. 4, D.01737 Tharandt, Germany

**2624.** Machado, A.B.M. (2002): *Neoneura lucas* spec. nov. from Brazilian Pantanal (Zygoptera: Protoneuridae). *Odonatologica* 31(2): 199-204. (in English). ["The new sp. is described and illustrated from 15 males and 2 females, collected in the Pantanal Region of Brazil. Holotype male, allotype female: Poconé, Rio Cuiabá, Mato Grosso, Feb. 1986; deposited in the author's collection, Belo Horizonte. In view of the arrangement of the decumbent process of the dorsal branch of the superior appendage, the new sp. belongs to the *fulvicollis*-group R.W. GARRISON (1999, *Odonatologica* 28: 343-375), differing from the other species of this group mainly by the presence of a small ventral hook on the apex of the upper branch of the superior appendage." (Author)] 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

**2625.** Machado, A.B.M. (2002): Studies on neotropical Protoneuridae, 13: The types of *Neoneura rufithorax* Selys (Zygoptera). *Notul. odonatol.* 5(9): 115-116. (in English). [(1) It was possible to trace the believed lost specimens described by Selys as *N. rufithorax* in a cabinet (Box 27) of the Selysian collection in Bruxelles. Two specimens were labeled as *N. parvula*. The author logical arguments the conspecificity of *N. rufithorax* with the two specimens labeled "*N. parvula*" in the cabinet. He declared the undamaged specimen as lectotype, the damaged specimen became paralectotype of *N. rufithorax*. (2) It is confirmed that the description of a specimen by Garrison (1999) believed to be *N. rufithorax* now unequivocal belongs to this species. (3) In addition some records of *N. rufithorax* stored in the Machado-collection are documented.] 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

**2626.** Martens, A. (2002): Group oviposition in three platycnemidid species (Odonata: Platycnemididae). *International Journal of Odonatology* 5(1): 75-80. (in English). ["The European *Platycnemis acutipennis* and *P. latipes* and the African *Mesocnemis singularis* aggregate during oviposition. Choice experiments show that, in all three species, groups develop because tandems preferentially land where conspecifics already show oviposition behaviour. Just a single motionless male in the typical vertical position of a tandem male stimulates aggregation and oviposition behaviour in conspecifics." (Author)] Address: Martens, A., Zool. Inst. TU Braunschweig, Fasanenstr. 3, D-38092 Braunschweig, Germany. E-mail: [andreas.martens@tu-bs.de](mailto:andreas.martens@tu-bs.de)

**2627.** Martins, G.F.; Serrão, J.E. (2002): Notes on ovary structure in four species of adult dragonflies (Anisoptera: Gomphidae, Libellulidae). *Notul. odonatol.*

5 (9): 109-113. (in English). [Histological aspects of the panoistic ovarioles of the Brazilian dragonfly species *Aphylla theodorina* (Gomphidae), *Orthemis discolor*, *Pantala flavescens*, and *Perithemis mooma* (all Libellulidae) are described. "Each ovary consists of a great number of pectinated ovarioles. A typical germarium, with undifferentiated germ cells, was not observed in these spp. In the vitellarium, 3 regions can be distinguished, viz. previtellogenic, vitellogenic and postvitellogenic. A single layer of follicular, often binucleated cells lines each follicle."] Address: Serrão, J.E., Departamento de Biologia Geral, Universidade Federal de Viçosa, BR-36571-000 Viçosa, MG, Brasil. E-mail: jeserrao@mail.ufv.br

**2628.** Matushkina, N.; Gorb, S. (2002): Stylus of the odonate endophytic ovipositor: a mechanosensory organ controlling egg positioning. *J. Insect Physiol.* 48(2): 213-219. (in English). ["Using light and scanning electron microscopy, a sensory field consisting of 15-20 campaniform sensillae is described on the base of the stylus of the endophytic ovipositor of Odonata. It is hypothesised that two symmetric styli equipped with this number of sensillae can function as a mechanosensory organ responsible for control of precise egg positioning in plant stems during oviposition. In laboratory experiments with females of damselflies *Lestes sponsa* and *L. barbarus*, it was demonstrated that the distance between laid eggs is not dependent on the presence of styli. Removal of styli from both sides did not influence a shift of oviposition to one side. Females with one removed stylus shifted the clutch line in the opposite direction toward the removed stylus. Additionally, removal of styli influenced positions of single eggs in egg sets, and disturbed the capacity for complex oviposition. Thus, both morphological and experimental data support the hypothesis that styli participate in the control of egg line and egg patterning in the clutch." (Author)] Address: Gorb, S., Max-Planck-Institut für Entwicklungsbiol., Spemannstr. 35, D-72076 Tübingen, Germany. E-mail: stas.gorb@tuebingen.mpg.de

**2629.** Melnychuk, M.C.; Srivastava, D.S. (2002): Abundance and vertical distribution of a bromeliad-dwelling zygopteran larva, *Mecistogaster modesta*, in a Costa Rican rainforest (Odonata: Pseudostigmatidae). *International Journal of Odonatology* 5(1): 81-97. (in English). ["We compared the larval abundance of *M. modesta* between bromeliads at ground level and canopy level in a primary tropical wet forest. Zygopteran abundance correlated strongly with bromeliad diameter at both levels. Although the per-bromeliad zygopteran abundance did not differ between vertical levels, *M. modesta* showed a strong vertical distribution in abundance owing to the variation in bromeliad size and density along a vertical gradient, with more and larger bromeliads closer to ground level than to the canopy. We predict *M. modesta* larval abundance to be  $171 \pm 65$  (s.e.) per hectare, with >80% of larvae below halfway to the lower canopy limit. The total prey abundance or species richness did not differ between ground and canopy bromeliads, further suggesting that apart from bromeliad size, habitat quality for *M. modesta* was similar between vertical levels. Effects of habitat size on larval abundance patterns are addressed by comparing habitat volume and basal resource mass with diameter. Finally, larger-scale spatial patterns in zygopteran abundance are

discussed with reference to bromeliad distributions." (Authors)] Address: Melnychuk, M. & Diane S. Srivastava, Dept of Zoology, University of British Columbia, 6270 University Boulevard, Vancouver, B.C., Canada V6T 1Z4. E-mail: srivast@zoology.ubc.ca

**2630.** Minelli, A. (2002): Homology, limbs, and genitalia. *Evolution & Development* 4(2): 127-132. (in English). ["Similarities in genetic control between the main body axis and its appendages have been generally explained in terms of genetic co-option. In particular, arthropod and vertebrate appendages have been explained to invoke a common ancestor already provided with patterned body outgrowths or independent recruitment in limb patterning of genes or genetic cassettes originally used for purposes other than axis patterning. An alternative explanation is that body appendages, including genitalia, are evolutionarily divergent duplicates (paramorphs) of the main body axis. However, are all metazoan limbs and genitalia homologous? The concept of body appendages as paramorphs of the main body axis eliminates the requirement for the last common ancestor of limb-bearing animals to have been provided with limbs. Moreover, the possibility for an animal to express complex organs ectopically demonstrates that positional and special homology may be ontogenetically and evolutionarily uncoupled. To assess the homology of animal genitalia, we need to take into account three different sets of mechanisms, all contributing to their positional and/or special homology and respectively involved (1) in the patterning of the main body axis, (2) in axis duplication, followed by limb patterning mechanisms diverging away from those still patterning the main body axis (axis paramorphism), and (3) in controlling the specification of sexual/genital features, which often, but not necessarily, come into play by modifying already developed and patterned body appendages. This analysis demonstrates that a combinatorial approach to homology helps disentangling phylogenetic and ontogenetic layers of homology." (Author) *Drosophila* and Odonata are studied.] Address: Minelli, A., Univ Padua, Dept Biol, Via Ugo Bassi 58B, I-35131 Padua, Italy

**2631.** Novelo-Gutiérrez, R. (2002): Larvae of the ophibolus-species group of *Erpetogomphus* Hagen in Selys from Mexico and central America (Anisoptera: Gomphidae). *Odonatologica* 31(1): 35-46. (in English). ["Detailed descriptions and illustrations of *Erpetogomphus agkistrodon* Garrison, *E. erici* Novelo and *E. ophibolus* Calvert are provided and a comparison with other larvae of the subgenus *Erpetocyclops* Carle is also included. Larvae of *E. agkistrodon* and *E. erici* show the closest resemblance, while *E. ophibolus* is more similar to *E. constrictor*." (Author) In addition *Erpetogomphus sabaleticus* Williamson 1918 and *E. tristani* Calvert 1912 are described without figures.] Address: Novelo-Gutiérrez, R., Departamento de Entomología, Instituto de Ecología A.C., Km 2.5. antigua carretera a Coatepec, Apartado Postal 63, 91000 Xalapa, Veracruz, Mexico. E-mail: novelor@ecologia.edu.mx

**2632.** Odin, N. (2002): Reports from Coastal Stations - 2001: Landguard Bird Observatory, Suffolk. *Atropos* 15: 63. (in English). [*Sympetrum striolatum*] Address: not stated



**2633.** Oertli, B.; Auderset Joye, D.; Castella, E.; Juge, R.; Cambin, D.; Lachavanne, J.-B. (2002): Does size matter? The relationship between pond area and biodiversity. *Biological Conservation* 104: 59-70. (in English). ["Larger areas support more species. To test the application of this biogeographic principle to ponds, we consider the relationship between size and diversity for 80 ponds in Switzerland, using richness (number of species) and conservation value (score for all species present, according to their degree of rarity) of aquatic plants, molluscs (Gastropoda, Sphaeriidae), Coleoptera, Odonata (adults) and Amphibia. Pond size was found to be important only for Odonata and explained 31% of the variability of their species richness. Pond size showed only a feeble relationship with the species richness of all other groups, particularly the Coleoptera and Amphibia. The weakness of this relationship was also indicated by the low z-values obtained (< 0.13). The SLOSS analyses showed that a set of ponds of small size has more species and has a higher conservation value than a single large pond of the same total area. But we also show that large ponds harbour species missing in the smaller ponds. Finally, we conclude that in a global conservation policy (protection, restoration, management), all size ranges of ponds should be promoted." (Authors) 0-24 odonate species, in mean 8,4 species, occurred at the ponds.] Address: Oertli, B., Laboratoire d'Ecologie et de Biologie Aquatique, University of Geneva, IS chemin des Clochettes, CH-1206 Geneva, Switzerland. E-mail address: beat.oertli@leba.unige.ch.

**2634.** Parr, A. (2002): Migrant dragonflies in 2001 including recent decisions and comments by The Odonata Record Committee. *Atropos* 15: 31-35. (in English). [The following species are treated: *Calopteryx virgo*, *C. splendens*, *Ischnura pumilio*, *Erythromma najas*, *E. viridulum*, *Aeshna mixta*, *A. parthenope*, *Orthetrum brunneum*, *Sympetrum fonscolombii*, *S. flaveolum*, *S. vulgatum*, and *S. danae*.] Address: Parr, A.J., 10 Orchard Way, Barrow, Bury St. Edmunds, Suffolk IP29 5BX, UK

**2635.** Patton, S. (2002): Reports from Coastal Stations - 2001: Selsey Peninsular, West Sussex. *Atropos* 15: 55-56. (in English). [United Kingdom; *Brachytron pratense*] Address: not stated

**2636.** Peacor, S.D. (2002): Positive effect of predators on prey growth rate through induced modifications of prey behaviour. *Ecology Letters* 5(1): 77-85. (in English). ["Many prey modify behaviour in response to predation risk and this modification frequently leads to a foraging rate reduction. Although this reduction can have a clear direct negative effect on prey growth rate, theory predicts that a net positive effect can occur when the combined reduction in foraging by the entire population leads to a large increase in resource level. Here, I present experimental results that corroborate this counterintuitive prediction: the predation threat of 'nonlethal' caged larval dragonflies (*Anax longipes*) caused a net increase in small bullfrog (*Rana catesbeiana*) growth. *A. longipes* caused a net increase in small bullfrog behavioural response (i.e. a reduction in activity, level and microhabitat usage) was likely to have negatively affected growth, but was offset by a positive effect of growth from a large increase in resource levels (measured using a bioassay). Further, the positive *Anax* effect was dependent on nutrient

level, illustrating the role of the resource response magnitude. Results of this study are discussed in the context of studies in which *Anax* had the opposite (i.e. negative) effect on tadpole growth. Predator-induced modifications in prey behaviour can have large negative or positive effects on prey growth, the sign and magnitude of which are dependent on relative species density, and resource dynamics." (Author)] Address: Peacor, S.D., Michigan State Univ, Dept Fisheries & Wildlife, E Lansing, MI 48824 USA

**2637.** Perepelov, E.; Bugrov, A.G. (2002): Constitutive heterochromatin in chromosomes of some Aeshnidae, with notes on the formation of the neo-XY/neo-XX mode of sex determination in *Aeshna* (Anisoptera). *Odonatologica* 31(1): 77-83. (in English). ["C-stained male karyotypes of *Aeshna crenata* (2n male = 27; X0), *A. grandis* (2n male = 26; neo-XY), *A. juncea* (2n male = 26; neo-XY), *A. nigroflava* (2n male = 27; X0) and *Anax imperator* (2n male = 27 X0) from W Siberia, N Caucasus, Russian Far East and Hokkaido (Japan) are figured and analyzed." (Authors)] Address: Perepelov, E. & A. Bugrov, Siberian Branch, Institute of Animal Systematics and Ecology, Russian Academy of Sciences, 11 Frunze St., 630091, Novosibirsk, Russia. E-mail: bugrov@fen.nsu.ru

**2638.** Purse, B.V.; Thompson, D.J. (2002): Voltinism and larval growth pattern in *Coenagrion mercuriale* (Odonata : Coenagrionidae) at its northern range margin. *Eur. J. Entomol.* 99(1): 11-18. (in English). ["Voltinism and larval growth pattern were investigated in an edge-of-range population of *C. mercuriale*. *C. mercuriale* is semi-voltine in Britain and growth is inhibited in winter. The 2nd year group overwinters in a range of instars between the antepenultimate and final instar consistent with the early, asynchronous emergence pattern of this species. A facultative autumnal diapause in the penultimate instar is the most likely mode of seasonal regulation. The broad size distribution of larvae produced by this growth pattern was wider than that found in co-occurring populations of *Pyrrhosoma nymphula*, a "spring" species with synchronous emergence. The broad size distributions may lead to considerable intraspecific interference between *C. mercuriale* larvae. Sex ratio in the last three larval instars of *C. mercuriale* did not differ significantly from unity. A laboratory investigation of the effect of temperature and photoperiod on growth and diapause in *C. mercuriale* is recommended to determine whether high minimum temperature thresholds for development limit both the width of the temporal niche and microhabitat use by this species at its range margin." (Authors)] Address: Purse, B.V., Univ Liverpool, Populat & Evolutionary Biol Res Grp, Sch Biol Sci, Nicholson Bldg, POB 147, Liverpool L69 3GS, Merseyside, UK

**2639.** Reinhardt, R.; Klausnitzer, B. (2002): Bibliographie über Sachsens Insekten - ein 300jähriger Rückblick. *Mitt. Sächs. Entomol.* 57: 183 pp. (in German). [This bibliography is a real treasure trove for anybody looking for the regional literature on Saxonian entomofauna. The titles are organised alpha-numerical, and according to five regions ("Planungsregionen") and insect orders. The bibliography includes published and unpublished literature, e.g. management plans or expertises. Odonatological literature is easy to trace from this bibliography. It is planned to edit an

electronical version of the bibliography in the beginning of 2003. Orders should be directed to the address below.] Address: Reinhardt, R., Burgstädter Str. 80a, D-09648 Mittweida, Germany. E-mail: Reinhardt-Mittw@t-online.de

**2640.** Relyea, R.A. (2002): Costs of phenotypic plasticity. *American Naturalist* 159(3): 272-282. (in English). ["Phenotypically plastic organisms display alternative phenotypes in different environments. It is widely appreciated that possessing alternative phenotypes can affect fitness. However, some investigators have suggested that simply carrying the ability to be plastic could also affect fitness. Evolutionary models suggest that high costs of plasticity could constrain the evolution of optimal phenotypes. However, costs (and limits) of plasticity are primarily hypothetical. Little empirical evidence exists to show that increased plasticity leads to reduced growth and development, leads to increased developmental instability, or limits the ability of organisms to produce more extreme phenotypes. I used half-sib families of larval wood frogs (*Rana sylvatica*) reared in outdoor mesocosms to examine how tadpoles altered behavioral, morphological, and life-historical traits in response to larval dragonfly predators (*Anax longipes*). The predators induced lower activity and the development of relatively large tails and small bodies in wood frogs. As a result, wood frogs experienced reduced growth and development. I then examined whether tadpole sibships with higher plasticity experienced fitness costs (above and beyond the costs of expressing a particular phenotype) and whether they were limited in producing extreme phenotypes. Fitness effects of plasticity were widespread. Depending on the trait examined and the environment experienced, increased plasticity had either positive effects, negative effects, or no effects on tadpole mass, development, and survivorship. I found no relationship between increased plasticity and greater developmental instability. There was also no evidence that sibships with increased plasticity produced less extreme phenotypes; the most extreme trait states were always produced by the most plastic genotypes. This work suggests that costs of plasticity may be pervasive in nature and may substantially impact the evolution of optimal phenotypes in organisms that live in heterogeneous environments." (Author)] Address: Relyea, R.A., Dept Biol. Sciences, University of Pittsburg, Pittsburg, Pennsylvania 15260, USA. E-mail: rarelyea@pitt.edu

**2641.** rtr (2002): Kunstinsekten für den Mars. die tageszeitung, Freitag, 25. Januar 2002: 14. [Verbatim: "SYDNEY rtr Über die Oberfläche des Mars könnten bald winzige Flugzeuge mit der Gewandtheit von Libellen und dem Sehvermögen von Bienen schwirren. Wissenschaftler in Australien haben eigenen Angaben zufolge die Sinnesorgane verschiedener Insektenarten imitiert und neuartige Navigations- und Fluggeräte entwickelt. Die neuen Sensoren seien so klein, dass sie auf "Microflyers" mit einem Gewicht von 75 Gramm Platz fänden, sagten die Forscher der Australian National University (ANU). Trotz ihrer kleinen Gehirne können Insekten wie Libellen schnelle und präzise Manöver fliegen, die Flugstabilität und Kollisionsvermeidung voraussetzen", sagte Javaan Singh Chahl von der ANU. Die diesem Prinzip nachentwickelte Technologie könnte seinen Angaben

zufolge 2007 bei einer Mission eingesetzt werden, bei der die Felsstruktur des Val-les Marineris auf dem Mars erkundet werden soll. Das Modell der Wissenschaftler ist den Facettenaugen von Insekten nachempfunden. Nach Aussagen der Forscher könnten die Kunstinsekten auch in der äußerst dünnen Atmosphäre des Mars stabil und kontrolliert navigiert werden."]

**2642.** Samways, M. (2002): Red-listed Odonata of Africa. *Odonatologica* 31(2): 151-170. (in English). ["The Red-Listed African Odonata species are re-assessed and are assigned or re-assigned to the IUCN Categories of Threat. It is important to distinguish between those species that are simply rare, those that are 'Data Deficient' and those that are genuinely threatened. It is also important to consider the 'Extinct' category very carefully as premature inclusion of a taxon in this category can preclude further searches for it. The IUCN Categories of Threat were found to be very workable for the African Odonata. Problems are more to do with the practicalities of doing the field assessments, rather than with the categorisation itself. While the Red List is of enormous value when considering one species at a time, it should not be seen as a generalized data base amenable to comparative assemblage statistics, which are likely to reveal more on assessment efforts than on the organisms." (Author)] Address: Samways, M., Invertebrate Conservation Research Centre, School of Botany and Zoology, University of Natal (Pietermaritzburg), Private Bag X01, Scottsville 3209, South Africa. E-mail: samways@nu.ac.za

**2643.** Schütte, C.; Schrimpf, I. (2002): Explaining species distribution in running water systems: larval respiration and growth of two Calopteryx species (Odonata, Zygoptera). *Archiv für Hydrobiologie* 153(2): 217-229. (in German with English summary). ["*C. virgo* is most often encountered at running water rhitron, whereas *C. splendens* predominantly chooses the hyporhithron to metapotamon. Larval growth of both species was studied in two streams in the field and under three different temperatures in the laboratory (12 °C / 18 °C / 24°C). Their respiration was tested at the same three temperatures by measuring the CO<sub>2</sub>-production of the larvae via gas chromatography. At low temperatures, *C. virgo* was growing faster and had a higher standard metabolism than *C. splendens*. While *C. splendens* had similar respiration rates at 12 °C, 18 °C and 24 °C, the respiration of *C. virgo* was significantly higher at lower temperatures, as it is adapted to cold environments. But additionally, *C. virgo* is outspeeding *C. splendens* in growth even at 24 °C, suggesting that besides temperature adaptation there have to be other factors hindering co-occurrence of both species in warm streams." (Authors)] Address: Schütte C., Zool. Inst., TU Braunschweig, Fasanenstr. 3, D-38092 Braunschweig, Germany

**2644.** Sefrin, E. (2002): Libellenvorkommen an zwei Gewässern der Vorderpfalz. *Pflanzen und Tiere in Rheinland-Pfalz - Berichtsjahr 2001 - Heft 12*: 155. (in German). [Rheinland-Pfalz, Germany; 11 species are listed for a water body situated in the NSG Schwarzwald, and 17 species for the NSG Mechtersheimer Tongruben. Of some interest are records of *Brachytron pratense*.] Address: not stated.

- 2645.** Spence, B. (2002): Reports from Coastal Stations - 2001: Spurn NNR, East Yorkshire. *Atropos* 15: 66-67. (in English). [United Kingdom; *Libellula depressa*, *Sympetrum fonscolombii*, *Anax imperator*, *Aeshna mixta*] Address: not stated
- 2646.** Stansfield, S. (2002): Reports from Coastal Stations - 2001: Bardsey Island. *Atropos* 15: 68-69. (in English). [United Kingdom; *Anax imperator*, *Aeshna juncea*, *A. mixta*] Address: not stated
- 2647.** Telfer, M. (2002): Insects at sea. *Atropos* 15: 83-84. (in English). ["[...] Surprisingly, only a single dragonfly was reported: a Brown hawker *Aeshna grandis* seen two miles out off the East Anglian coast in 2000, heading towards the continent."] Address: Telfer, M., 7 Tennyson Avenue, St. Ives, Cambridgeshire, PE27 6TU, UK. E-mail: mgt@ceh.ac.uk
- 2648.** Tembhare, D.B.; Wazalwar, S.M. (2002): Stomodaeal cuticular structures in the dragonfly *Brachythemis contaminata* (Fabricius) (Anisoptera : Libellulidae). *Odonatologica* 31(1): 47-54. (in English). ["Light and scanning electron microscopic studies reveal various stomodaeal cuticular structures. In the larvae and adults, microspines on the surface of the longitudinal folds of the pharynx, and dome-shaped, beaded structures on the inner surface of the oesophagus are evident. In the larvae, the folds of the crop bear long hairs laterally and parallel rows of microspines medially. In the larvae, the proventriculus is provided with 4 longitudinal plates; 2 large plates with teeth on each lateral side and 2 small plates each with 4 fine apical teeth, on either side. Scale-like acanthae are observed near the stomodaeal valve. A whorl of long hairs is evident in the stomodaeal valve. In the adult dragonfly, the acanthae and curved spines occupy the anterior and posterior regions of the proventricular dental plates, respectively. The functional significance of various stomodaeal cuticular structures is discussed." (Author)] Address: Tembhare, D.B., Dept Zool., Nagpur Univ. Campus, Nagpur 440010, Maharashtra, India
- 2649.** Tennessen, K.J. (2002): *Argia rosseri* sp. nov. from central Bolivia (Odonata: Coenagrionidae). *International Journal of Odonatology* 5(1): 99-104. (in English). ["*Argia rosseri* sp. nov. is described from central Bolivia. Holotype male: Santa Cruz Department, Florida Province, seep along Rio Achira, 8.6 km E of Samaipata (18°09'42"S, 63°48'53"W), 1,400 m a.s.l., 25 xi 1999; allotype female: same locality, 05 xi 1998; both leg. K.J. Tennessen. The new species appears to be related to the *A. gerhardi/nigrior* complex, but differs in being mostly pale and having the decumbent ventral tooth of the male cerci apically situated." (Author)] Address: Tennessen, K., 1949 Hickory Ave. Florence, AL 35630, USA. E-mail: ktennessen@aol.com
- 2650.** Tennessen, K.J. (2002): *Telebasis simulata* spec. nov. from South America, previously confused with *T. sanguinalis* Calvert (Zygoptera: Coenagrionidae). *Odonatologica* 31(2): 205-210. (in English). ["The new species (holotype male, allotype female: Brazil, State of Amazonas, Manaus, 20-V1-1922; deposited in FSCA, Gainesville, Fla, USA) is described and illustrated based on 82 males and 15 females from Brazil, Surinam, Trinidad and Venezuela. It most closely resembles *T. sanguinalis* but differs mainly by: (1) translucent dorsal flap of terminal penile segment rectangular in lateral view, gradually tapered to posterior lateral angle (vs flap with a posterolateral lobe-like extension directed posteriorly); (2) cerci 1.6 to 1.8 times as long as paraprocts (vs 2.0 times as long); (3) rear of head half black, black marking extending to occipital foramen (vs pale except for a pair of small, dark circular spots). *T. sanguinalis* is known only from central Bolivia and western Brazil." (Author)] Address: Tennessen, K., 1949 Hickory Ave. Florence, AL 35630, USA. E-mail: ktennessen@aol.com
- 2651.** Trembath, R.; Anholt, B.R. (2002): Predator-induced morphological and behavioral changes in a temporary pool vertebrate. *Israel Jour. Zool.* 47(4): 419-431. (in English). ["Temporary pools vary unpredictably in their complement of predators, which should select for inducible anti-predator defenses. Temporary pools are used by many amphibians during the larval stage. We raised larvae of a hylid frog, *Hyla versicolor*, in the presence and absence of their predator, the larval dragonfly *Anax junius*. Tadpoles raised in the presence of predators were less active, more variable in size, and had larger, more brightly colored tails than those raised in the absence of predators. We found that acceleration from a motionless start was related to tail morphology. Similar to previous studies, our data suggested that tadpoles raised in the presence of predators were less vulnerable than those raised in the absence of predators, although our results were not statistically significant. The stochastic nature of oviposition into temporary pools argues that their biota will be variable in space and time. We expect that temporary pool specialists will often show inducible phenotypes for anti-predator defenses." (Authors)] Address: Anholt, B.R., Dept Biology, University of Victoria, PO Box 3020, Victoria, BC, V8W 3N5, Canada. E-mail: banholt@uvic.ca
- 2652.** Troake, P. (2002): Reports from Coastal Station - 2001: Rye Harbour SSSI, East Sussex. *Atropos* 15: 56-58. (in English). [*Anax parthenope*, *Calopteryx splendens*] Address: not stated
- 2653.** Tunmore, M. (2002): Reports from Coastal Stations - 2001: The Lizard, Cornwall. *Atropos* 15: 50-52. (in English). [United Kingdom; *Sympetrum fonscolombii*. One male was caught in an UV light trap.] Address: Tunmore, M., 36 Tinker Lane, Meltham, Huddersfield, West Yorkshire HD7 3ES, UK
- 2654.** Weihrauch, F.; Borcherdig, J. (2002): The zebra mussel, *Dreissena polymorpha* (Pallas), as an epizoon of anisopteran larvae (Anisoptera: Gomphidae, Corduliidae, Libellulidae). *Odonatologica* 31(1): 85-94. (in English). ["A list of records of anisopteran larvae and final instar exuviae with attached zebra mussels is provided. It contains records of 29 specimens from 10 spp. with zebra mussels including 2 new records. The possibilities how this association between odonate larvae and zebra mussels comes into being are discussed. Considering the biology and the life history of the mussels, from a few of the recorded cases of this interaction it is assumed that the larval development of the Odonata involved is more variable than hitherto known." (Authors)] Address: Weihrauch, F., Hengelerstr. 9, D-80637 München, Germany. E-mail: Florian.Weihrauch@lbp.bayern.de
- 2655.** Williams, P.; Whitfield, M.; Biggs, J.; Fox, G.; Nicolet, P.; Shillabeer, N.; Sherratt, T.; Heneghan, P.; Jepson, P.; Maund, S. (2002): How realistic are outdoor

microcosms? A comparison of the biota of microcosms and natural ponds. *Environ. Toxicol. Chem.* 21(1): 143-150. (in English). ["This study investigated the extent to which aquatic plant and macroinvertebrate assemblages in small outdoor microcosms (cylinders 1.25 m diameter x 1.25 m deep) resembled assemblages found in natural ponds in Britain. Comparisons were made in terms of community structure, species richness, and numbers of uncommon species. Multivariate analysis indicated that, although the microcosms had no exact natural analogues, their plant and animal assemblages were most like those of deep, circumneutral ponds. Unlike natural ponds, the microcosms supported relatively species-poor invertebrate assemblages, lacking uncommon species. Among individual taxa, microcosms supported similar numbers of species of Gastropoda, Isopoda, Amphipoda, and Odonata as natural ponds but significantly fewer Coleoptera, Hemiptera, and Trichoptera species. This was most likely due to the absence of a shallow littoral area in the microcosms. Because of their vertical sides, the microcosms supported no marginal wetland plants, but submerged and floating-leaved plant assemblages were similar in community type and species richness to natural ponds. Refinements to microcosm and mesocosm designs are identified that would enable experimental systems to more closely replicate the assemblages found in natural ponds. In particular, the incorporation of natural margins would be likely to lead to experimental communities that were closer analogues of natural ponds." (Authors)] Address: Biggs, J., Oxford Brookes Univ., Ponds Conservat. Trust Policy & Res., Gipsy Lane, Oxford OX3 0BP, UK

**2656.** Wilson, K. (2002): Reports from Coastal Stations - 2001: Gibraltar Point NNR, Lincolnshire. *Atropos* 15: 66. (in English). [United Kingdom; Lestes sponsa] Address: not stated

**2657.** Wilson, K.D.P. (2002): Notes on Chlorogomphidae from southern China, with descriptions of two new species. *Odonatologica* 31(1): 65-72. (in English). ["Chlorogomphus shanicus sp. n. and Chloropetalia soarer sp. n. are described and illustrated from north Guangdong, China. Chlorogomphus icarus Wilson & Reels is synonymised with C. usudai Ishida and C. papilla Ris is illustrated." (Author)] Address: Wilson, K.D.P., Flat 20, 6 Mansfield Road, The Peak, Hong Kong, China. E-mail: wilsonkd@netvigator.com

**2658.** Yourth, C.P.; Forbes, M.R.; Smith, B.P. (2002): Immune expression in a damselfly is related to time of season, not to fluctuating asymmetry or host size. *Ecol. Entomol.* 27(1): 123-128. (in English). ["Variation in immune responsiveness within and among species is the subject of the emerging field of ecological immunology. The work reported here showed that individuals of *Lestes forcipatus* Rambur differ in their likelihood of mounting immune responses, and in the magnitude of those responses, against a generalist ectoparasite, the water mite *Arrenurus planus* Marshall. 2. Immune responses took the form of melanotic encapsulation of mite feeding tubes, occurred in the few days after host emergence, and resulted in mites dying without engorging. Such immune responses were more probable and stronger for hosts sampled later rather than earlier in the season. Such responses may act as

selection affecting seasonal patterns of egg hatching and larval abundance of mites. 3. Contrary to expectation, metrics of host size (wing length) and wing cell fluctuating asymmetry were not related to the likelihood of immune responses. 4. The importance of season on immune expression of insects has not been explored in detail. These results suggest possible trade-offs in allocation of melanin (or its precursors) to maturation versus immunity and indicate the need for studies on the synergistic effects of weather and parasitism on host species that use melanotic encapsulation to combat parasites and pathogens." (Authors)] Address: Forbes, M.R., Dept of Biology, Carleton University, 587 Tory Building, 1125 Colonel By Drive, Ottawa, ON K1S 5B6, Canada. E-mail: mforbes@ccs.carleton.ca

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