ODONATOLOGICAL ABSTRACTS

1979

(10633) KURILLO, J., 1979. Tudi kačji pastirji so ogroženi. – [Also the dragonflies are threatened]. *Moj mali Svet* 11(5): 48, 1 col. pl. excl. (Slovene). – (Smledniška 12a, SI-4000 Kranj).
General, with reference to Slovenia.

1981

(10634) KOBAYASI, Y., 1981. Revision of the genus Cordyceps and its alies. I. *Bull. natn. Sci. Mus., Tokyo* (B)7(1): 1-13. – (Author's current address unknown).
The ascomycotine fungus, C. odonatae sp.n., is described and illustrated from an unnamed adult dragonfly, taken in W New Guinea, Nov. 1926. Hymenostilbe odonatae Kobayasi (1941, *Sci. Rep. Tokyo Bunrika Daigaku* [B]84: 222-223) is recorded from Planaeschna milnei, from Tochigi and Ibaragi prefectures, Japan, Oct. 1972. – Cf. also *OA* 10606.

1986

(10635) CAVALLO, O., 1986. Libellule dell'Albese. *Alba Pompeia* (N.S.) 5(2) [1984]: 37-58. (With Fr.s.). – (Mus. Civico "F. Eusebio", I-12051 Alba).
This is a comprehensive treatment of the fauna of Alba distr., Piedmont, NW Italy. It is based on 18 yr of research; the specimens (37 spp.) are deposited in Author's institution. The precise locality data are followed by detailed annotations for each sp. A general analysis and the regional phenology tab. are also included.

(10636) SOKOLOVA, N.Yu. & E.I. IZVEKOVA, 1986. Benthos of Lake Glubokoe. *Hydrobiologia* 141: 89-93. – (Biol. Dept, Moscow St. Univ., Leninskie Gory, RUSS-117234 Moscow).
Larval Coenagrion sp., Ischnura pumilio and Epitheca bimaculata are listed from the lake, situated ca 90 km W of Moscow, Russia.

1988

(10637) BELLETTI, A., A. JORIO & A. MAINARDI, [Eds], 1988. *Bestiario ed erbario popolare il medio Ticino*. La Moderna, Novara. 656 pp.
The monograph, prepared by the "Gruppo Dialettale Galliatese", Novara, contains a good number of Italian dragonfly appellations, as used in the central Ticino valley dialect, Piedmont, NW Italy (pp. 239-242).

(10638) BISHT, R.S. & S.M. DAS, 1988. Observations on the population ecology of aquatic insects in two coldwater Kumaon lakes with reference to abiotic factors. *Rec. zool. Surv. India* 85(1): 131-142. – (Dept Zool., Garhwal Univ., Tehri Campus, Tehri, Garhwal-249001, India).
The annual "percentage compositions" of various insect orders are given for 2 lakes (alt. 1220 & 1938 m). For a polluted, eutrophic lake in Nainital the odon. values were 2.7-2.8%, while these were 10.5-11.2 for an oligotrophic lake in Bhimtal. Samples were taken fortnightly, during 2 seasons. Species names are not stated.

(10639) DREWETT, J., 1988. Never mind the whale, save the insects. *New Scientist* 1643: 32-35. – (Author's address not stated).
It is argued, understanding the dragonfly lifestyle would help to preserve the right habitats, and the status of Coenagrion armatum and Anaciaeschna isosceles is briefly discussed with reference to their occur-

rence in the Norfolk Broads, UK.

(10640) GUAN, Y. et al., 1988. *Henan senlin kuncjong zhi.* – [*Forest insects of Henan province*]. Henan Kexue-Jishu Chubanshe. vi+509 pp., 30 col.pls excl. ISBN 7-534-90073-5. (Chin.). – Price in China: US $ 15.-.
The work was compiled by the Henan Forest Dept, the odon. (7 common & widespread anisopt. spp.) are dealt with on pp. 1-3.

(10641) ROY, S.P., H.S. PATHAK & V. KUMAR, 1988. Faunistic composition of aquatic insects of eastern Bihar with notes on some aspects of their ecology. *Rec. zool. Surv. India* 85(1): 49-57. – (Post-Grad. Dept Zool., Bhagalpur Univ., Bhagalpur-812007, India).
Lists 6 identified odon. spp. from Barauni and Farakka, but the exact localities are not stated.

1990

(10642) SARDIN, J.-P. & M. ARCOS, 1990. Contribution à l'inventaire des odonates de l'étang Grohlier (communes de Busserolle, Piégut-Pluviers & Champniers-Reilhac – Dordogne). *Pica* [*Revue écol. charentaise*] 12: 39-41. – (c/o Charente nature, Impasse Lautrette, F-16000 Angoulème).
A list of 17 spp., evidenced on 16-VI-1990; France.

1992

(10643) KEMP, B., 1992. Dragonfly update. *Shropshire Naturalist* 1(1): 48-49. – (33 Bridge Rd., Alveley, Bridgnorth, Shrops., WV15 6JN, UK).
A checklist is presented of the 28 spp. so far recorded from Shropshire, UK, and their status in the county is stated. Useful annotations on some of the more notable spp. are added.

(10644) PRITYKINA, L.N., 1992. K faune strekoz (Odonata) V'etnama. – [On the dragonfly (Odonata) fauna of Vietnam]. *In*: Sistematika i ekologiya nasekomyh V'etnama, pp. 20-28, Nauka, Moscow. (Russ.). – (Inst. Palaeontol., Russ. Akad. Nauk, Profsoyuznaya 123, RUS-117868 Moscow).
An annotated checklist of 44 spp., gathered in 1975, 1976 and 1978 at various localities in North Vietnam. 10 of these were not previously recorded from Vietnam.

(10645) RIVOLA, A., 1992. Una palude alla porte di Firenze. *Panda* 5 (Suppl. Notiz. reg. WWF Toscana): 4-5. – (Author's address not stated).
The wetlands between Firenze and Pistoia (Tuscany, Italy) are briefly described and 3 odon. spp. are listed.

(10646) SARDIN, J.-P., 1992. Les libellules de la vallée de la Moulde (Charente). *Pica* [*Revue écol. charentaise*] 14/15: 91-94. – (c/o Charente nature, Impasse Lautrette, F-16000 Angoulème).
A commented checklist of 14 spp., evidenced at the Moulde and its tributaries between Massignac and Lésignac; France.

(10647) STAROSTIN, I.V., 1992. *Fauna vnutrennih vodoemov Turkmenistana.* – [*The freshwater fauna of Turkmenistan*]. Ashgabat. 225 pp. (Russ.).
A thoroughly species-annotated list of 41 odon. spp. appears on pp. 178-184.

(10648) VIZSLÁN, T., 1992. Adatok Borsod-Abaúj-Zemplén megye Odonata faunájához. – Data to the Odonata of Borsod-Abaúj-Zemplén county. *Fol. hist. nat. Mus. matraensis* 17: 151-154. (Hung., with Engl.s.). – (Kun B. u. 5 II/6, HU-3792 Sajóbábony).
This is the first paper in the series listed in *OA* 10517 and 10652. It presents records of 28 spp.

(10649) WANY, B., W. YUAN & C. WANG, F. HUANG, Z. TANG & D. LIN, 1992. *The Xizang [= Tibetan] insect fauna and its evolution.* Henan Sci. & Technol. Publ. House, Henan. 366 pp., (col. & monochr.) pls & fold. maps excl. ISBN 7-5349-1034-X/S-273. (Chin., with Engl.s.). – Price: US $ 40.- net.
The book represents a summary of the recent Chinese entomol. investigations in Tibet. The odon. checklist (35 spp.) appears on pp. 17-18. The annotations are in Chin.

1993

(10650) KEMP, B., 1993. Identification darter dragonflies. *British Wildlife* 4(5): 305-310. – (33 Bridge Rd, Alveley, Bridgnorth, Shrops., WV15 6JN, UK).
An excellent, illustrated key-cum-descriptions of the 7 "British" Sympetrum spp., with notes on habitats and behaviour.

(10651) PAYNE, R.G. & G.A. SCHUSTER, 1993. The dragonflies and damselflies (Odonata) of Buck Creek,

Pulaski County, Kentucky. *Ent. News* 104(4): 165--170. – (First Author: 711 Underwood Ave., 505 D, Pensacola, FL 32504, USA).
32 spp. are recorded from this fifth-order tributary of the upper Cumberland R. The stream is relatively undisturbed and of high water quality. – Cf. also *OA* 10719.

(10652) VIZSLÁN, T. & P. SZENTGYÖRGYI, 1993. Adatok Borsod-Abaúj-Zemplén megye Odonata faunájához, 2. – Data to the Odonata fauna of Borsod--Abaúj-Zemplén county, 2. *Fol. hist. nat. Mus. matraensis* 18: 43-47. (Hung., with Engl.s.). – (First Author: Kun B u. 5 II/6, HU-3792 Sajóbábony).
Records of 30 spp. – For the other parts in this series cf. *OA* 10648.

1994

(10653) ARILLO, A., 1994. Nota sobre una larva de odonato del Oligoceno de Izarra (Alava, España) en la colección del Museo Geominero (Odonata, Anisoptera, Libellulidae). *Boln geol. min.* 105(4): 325-328. – (Depto Biol. Anim. [Ent.], Fac. Biol., Univ. Complutense, ES-28040 Madrid).
[Not available for abstracting].

(10654) D'ANTONIO, C., 1994. Gli odonati della Riserva Naturale dello Stato "Crateri degli Astroni". *Stud. Ric. Aree prot. WWF Ital.* 2: 51-56. (With Engl.s.). – (Via A. Falcone 386/b, I-80127 Napoli).
For an abridged Engl. version see *Notul. odonatol.* 4(1996): 116-118.

(10655) JARZEMBOWSKI, E.A., 1994. Fossil dragonflies in Horsham Museum. *Proc. Geologists' Assoc.* 105(1): 71-75. – (Author's current address unknown).
[Not available for abstracting]. – It contains the descriptions of Libellulium standingae sp.n. and L. zdrzaleki sp.n., both from the Lower Weald Clay, Cretaceous of Rudgwick Brickworks, England.

(10656) LABATE, P. & D'ANTONIO, 1994. Gli odonati dell'Oasi WWF di Vulci. *Stud. Ric. Aree prot. WWF Ital.* 2: 57-60. (With Engl.s.). – (First Author: Oasi di Vulci, C.P. 1, I-01014 Montalto di Castro/VT).
For an abridged Engl. version see *Notul. odonatol.* 4(1994): 66-67.

(10657) LADET, A., 1994. *Inventaire des richesses naturelles du bassin du Doux.* Syndicat Intercommunal Doux Clair, Boucieu-le-Roi & FRAPNA 0), St Etienne de Fontbellon. 130 pp. – (Author: Les Mariolles, F-07110 Chassiers).
The odon. are dealt with on pp. 62-77. Species assemblages of various localities/habitats are stated and briefly discussed. In all, 37 spp. were recorded and the information on their local status is provided.

(10658) LADET, A., 1994. *Inventaire des zones humides du Plateau ardéchois et des Hautes Cévennes.* Conseil Régional Rhône-Alpes, Charbonnières-les--Bains; Commission Européenne, Bruxelles & FRAPNA 07, St Etienne de Fontbellon. 230 pp. (Append. incl.). – (Author: Les Mariolles, F-07110 Chassiers).
The odon. are dealt with on pp. 82-99. From 64 localities, 36 spp. are recorded and their local status stated. Annotations on some of them are provided. Local species assemblages are listed for some major marshes and lakes.

(10659) LEMPERT, J., 1994. Libellen. *In*: S. Wolf, J. Lempert & N. Lindner, Abschlussbericht Mellum 1994, pp. 102-103, Mellumrat, Oldenburg. – (Vereinsstr. 41, D-20357 Hamburg).
This is a sequel in the series as listed in *OA* 8761 and 9192. It contains annotations on 8 spp.

(10660) LUBINI, V., 1994. Hydrobiologische Untersuchungen am Unterlauf der Thur (Kanton Zürich, Schweiz). 1. Libellen, Eintags-, Stein-, Köcher- und Schlammfliegen (Insecta: Odonata, Ephemeroptera, Plecoptera, Trichoptera, Megaloptera). *Vjschr. naturf. Ges. Zürich* 139(1): 23-31. (With Engl.s.). – (Eichhalde 14, CH-8053 Zürich).
Lists 3 odon. spp. from the lower section of the Thur R., canton Zürich, Switzerland. The record of larval Onychogomphus forcipatus is of national interest.

(10661) STRAKA, V., 1994. Vážki (Odonata) Kremnických vrchov, zistené počas. 28. Top-u-Turček 1992. – [Dragonflies (Odonata) of Kremnicke vrchy]. *Zborn. Turiec* 1994: 60-61. (Slovak). – (Turčianske múzeum, ul. A. Kmeta 20, SK-03635 Martin).
A commented list of 6 spp., evidenced at this locality in central Slovakia in July 1992.

(10662) STRAKA, V., 1994. Vážky (Odonata) rieky Turiec. – [Dragonflies (Odonata) of the Turiec river]. *Zborn. Turiec* 1994: 55-59. (Slovak). – (Turčianske

múzeum, ul. A. Kmeta 20, SK-03635 Martin).
An annotated and briefly commented list of 22 spp.; – central Slovakia.

(10663) WATSON, J.A.L. & A.F. O'FARRELL, 1994. Odonata (dragonflies and damselflies). *In*: I.D. Naumann, [Ed.], Systematic and applied entomology: an introduction, pp. 254-261, Melbourne Univ. Press, Calton, Vic., ISBN 0-522-84518-5. – (Both authors deceased).
A posthumously published book chapter. The title should be added to the bibliography in *Odonatologica* 24: 7-9; 1994).

1995

(10664) AAGAARD, K., 1995. [Bokanmeldese]. O.F. Nielsen: Danmarks guldsmede [...]. *Fauna norv.* (B) 42(2): 142. (Norw.). – (Appl. Ecol. Res. Progr., Mus., Univ. Trondheim, Erling Skakkes gt. 47, N-7004 Trondheim).
Book review of the publication listed in *OA* 10303.

(10665) *AESCHNA*. Published by the Odonatological Society of Osaka. No. 31 (Dec. 26, 1995). (Mostly Jap., with Engl. titles & s's). – (c/o K. Inoue, 5-9, Fuminosato 4-chome, Abeno-ku, Osaka, 545, JA).
Kitagawa, K. & N. Katatani: Records of the Odonata of Hong Kong. 2. (pp. 1-6); – *Kondoh, S.*: Additional records for durations of egg and larval stages in some dragonflies. 1. (pp. 7-10); – *Yoshida, M.*: Collecting and breeding reports of some odonate larvae (pp. 11-17); – *Tabata, O.*: An observation on oviposition of Stylogomphus ryukyuanus asatoi Asahina (p. 18); – *Karube, H.*: The true taxonomic status of Chlorogomphus okinawensis Ishida (Odonata, Chlorogomphidae) (pp. 19-25); – *Kobayashi, F.*: Notes on two species of dragonflies in Taiwan (pp. 26-27).

(10666) AGUILAR, P.G., K.G. RAVEN, G. LAMAS & I. REDOLFI, 1995. Sinopsis de los hexápodos conocidos del Perú. *Revta peru. Ent.* 37 [1994]: 1-9. (With Engl.s.). – (First Author: Soc. Ent. Perú, Apdo postal 14-413, Lima-1, Peru).
Family-wise are stated the numbers of insect spp. known from Peru. The odon. are represented by 119 zygopt. and by 138 anisopt. spp., viz. Platystictidae 4, Protoneuridae 11, Coenagrionidae 40, Pseudostigmatidae 9, Megapodagrionidae 15, Lestidae 12, Heliocharitidae 1, Polythoridae 18, Calopterygidae 9, Gomphidae 10, Aeshnidae 40, Corduliidae 3, and Libellulidae by 85 spp.

(10667) AISTLEITNER, E. & U. AISTLEITNER, 1995. Einige Libellennachweise von der Iberischen Halbinsel (Insecta: Odonata). *Mitt. int. ent. Ver.* 20(3/4): 135-139. (With Engl.s.). – (First Author: Pädagog. Akad., Postfach 42, A-6807 Feldkirch).
Annotated list of 19 spp. from Albaceta, SE Spain.

(10668) ALDERWEIRELDT, M., 1995. Libellen in de Scheldevallei. – [Dragonflies in the Schelde R. valley]. *Ommekeer* 1995(3): 16-19. (Dutch). – (c/o Prof. Dr H.J. Dumont, Inst. Anim. Ecol., Univ. Gent, Ledeganckstraat 35, B-9000 Gent).
Directed at the general reader, in a provincial environment magazine, the article provides information on some recent records of Crocothemis erythraea, etc.; – East Flandres, Belgium.

(10669) ANHOLT, B.R. & E.E. WERNER, 1995. Interaction between food availability and predation mortality mediated by adaptive behavior. *Ecology* 76(7): 2230-2234. – (First Author: Dept Zool., Erindale Coll., Univ. Toronto, Mississauga, ON, L5L 1C6, CA).
Increased activity rates in larval anurans are associated with both higher growth rates and higher predation mortality. Models of adaptive foraging behaviour in the face of predation risk predict that at higher resource levels, foraging activity should be reduced. Thus, at higher resource levels predation mortality should also be reduced. The resources available to Rana catesbeiana tadpoles were manipulated and then the activity of tadpoles in the presence of caged odon. larvae and the mortality rate of the tadpoles when the dragonflies were free to forage were measured. At low food levels the tadpoles moved more often and more quickly. Similarly, at low food levels the tadpoles suffered higher predation mortality. The dependence of predation mortality on resources available to prey underlines the futility of characterizing population regulation as being due to predation or resources. Adaptive variation in behaviour responds to both pressures simultaneously. These results also suggest the possiblity that adaptive variation in behaviour may lead to density-dependent population regulation. Density-dependent depletion of resources by prey should lead to increased activity levels, which will result in higher per capita predation rates. The generality of the trade-off between growth rate and

mortality rate argues that this mechanism may be widespread. If adaptive variation in behaviour is as widespread as it appears, incorporating this variation into population dynamic modelling may improve our ability to predict the outcome of interactions within ecological communities.

(10670) ANSELIN, A., 1995. Groupe de travail libellules "Gomphus": dix ans d'activités, résultats et perspectives. *Notes faunist. Gembloux* 30: 57. – (E. Poetoustraat 13, B-9030 Mariakerke).
A brief review of the achievements, operation and the forthcoming projects of the Belgian odonatol. society, "Gomphus", at its 10th anniversary.

(10671) ARAI, Y., 1995. *A proposal for conservation of dragonflies in Saitama prefecture*. Gallery of Odonata, Yorii-machi. 19 pp. (Available in Jap. & Engl. versions). – 1233-2, Yorii-machi, Oosato-gun, Saitama, 369-12, JA).
Following a description of the odon. habitats in Saitama, the prefectural fauna (90 spp.) is compared with those of the neighbouring Tokyo (92), Kanagawa (79), Chiba (78), Ibaraki (90), Tochigi (93) and Gunma (89 spp.). The status of the habitats is assessed, the principal habitat features required for dragonfly life are outlined, and the specific habitat requirements for numerous spp. are enumerated.

(10672) *ARGIA. The news journal of the Dragonfly Society of the Americas*, Vol. 7, No. 4 (Dec. 31, 1995). – (c/o Dr & Mrs T.W. Donnelly, 2091 Partridge Lane, Binghamton, NY 13903, USA).
Signed articles: *Jaramillo, A.*: Swainson's hawks and dragonflies (p. 3); – *Daigle, J.J.*: Third time's a charm of Hawaii 5-0, episode No. 4! (pp. 3-5); – *Barlow, A.E.*: On the status of Cordulegaster erronea Hagen in Selys, 1878 in the state of New Jersey (pp. 6-9); – *Donnelly, N.*: Orthemis ferruginea – an adventure in Caribbean biogeography (pp. 9-12); – *Mauffray, B./ Morse, T./Cashatt, E.D./Donnelly, N.*: Acetone and colors of collected dragonflies (pp. 12-13); – *Dunkle, S.*: Odonata needing special conservation attention (pp. 13-14); – New records for New Mexico (p. 14); – *Garrison, R.*: New World Odonata list (NWOL) available on discette (p. 14); – Optical character recognition programs (pp. 15-16); – *Beckemeyer, R.*: "Net" a Megalagrion! (p. 16); – Dragonfly art & artifacts (p. 16); – Reading about the good old days (pp. 16-18); – Regional data index to Argia articles (p. 18). – The issue also contains 3 meeting announcements, viz. 3rd Annual Southeastern Regional DSA Meeting (McComb, MS; Apr. 5-7, 1996; *S. & M.J. Krotzer*), New Brunswick Meeting (Halifax, NS; June 29-30, 1996; *M. Brunelle*), 14th Int. Symp. Odonatol. (Maribor, Slovenia; July 13-18, 1997; *M. Kotarac*).

(10673) ARNOLD, A., 1995. Libellen. *In*: G.K. Müller, [Ed.], Die Leipziger Auen, pp. 60-61, Sächs. Staatsmin. Umwelt, Dresden. – Copies of the book available at DEM 10.- from the Publishers: Sächsisches Landesministerium f. Umwelt, Ostra-Allee 23, D--01067 Dresden. – (Author: Nordstr. 39/551, D--04105 Leipzig).
In the region, 32 spp. were recorded during 1981--1993. The status of 16 of these is stated here.

(10674) ASAHINA, S., 1995. Records of the Northern Vietnamese Odonata taken by the expedition members from the National Science Museum, Tokyo. 1. Cordulegasteridae. *Bull. natn. Sci. Mus., Tokyo* (A) 21(4): 219-229. – (Takadanobaba 4-4-24, Shinjuku--ku, Tokyo, 169, JA).
7 spp. are treated. As new are described and illustrated: Chlorogomphus uenoi sp.n. (holotype ♂: Ban Khoang, Sa Pa, Lao Cai prov., alt. 1450 m, 14-V--1995), C. owadai sp.n. holotype ♂: same locality, but 12-V-1995) and C. nasutus satoi ssp.n. (holotype ♂: Mt Tam Dao, Vinh Phu prov., alt. 960 m, 21-V--1995). The place of type deposition is not stated.

(10675) BENDELL, B.E. & D.K. McNICOL, 1995. The diet of insectivorous ducklings and the acidification of small Ontario lakes. *Can. J. Zool.* 73(11): 2044-2051. (With Fr.s.). – (Second Author: Can. Wildlife Serv., Ontario Reg., 49 Camelot Dr., Nepean, ON, K1A, 0H3, CA).
In NE Ontario, the odon. were represented by the following percentages of insect volume in the duckling esophageal and proventricular contents of Common Goldeneye (Bucephala clangula) 32.7%, Ring--necked Duck (Aythya collaris) 50.8%, Hooded Merganser (Lophodytes cunculatus) 36.1% and American Black Duck (Anas rubripes) 43.3%. The numbers of odon. larvae, aquatic Hemiptera, aquatic Coleoptera and Trichoptera larvae were estimated from combined esophageal and gizzard contents and analysed with respect to differences in lake acidity and fish presence. Ducklings of all spp., especially Common Goldeneye and Hooded Merganser, ate significantly more nektonic prey, especially Notonectidae (Hem.) and Dytiscidae (Col.), from lakes

without fish than from lakes with fish. Ducklings of spp. other than American Black Duck ate more Anisoptera larvae on acidic lakes. American Black Duck ducklings ate more teneral Odon. on acidic lakes. There was a tendency for more Trich. larvae to be eaten on non-acidic lakes than on acidic lakes. All 4 spp. adjusted, to some extent, for the absence of acid-sensitive prey in acidified lakes by feeding on prey that are most abundant under acidic, fishless conditions. Differences in diet among spp. were related to differences in diving and foraging behaviour, and to hatch date.

(10676) BRÄNDLI, O., 1995. Der Aabach – Lebensraum für Tiere. *In*: E. Krättli et al., Der Aabach, pp. 55-64, Gemeinden Eschenbach-Goldingen--Schmerikon-St. Gallenkappel-Uznach, ISBN 3905472-09-0. (Author: Binzenstr. 10, CH-8733 Eschenbach).
In a "monograph" on the Aabach, canton St. Gallen, Switzerland, p. 56 is devoted to dragonflies, but only Lestes sp. and Aeshna sp. are mentioned.

(10677) CORDERO, A., 1995. Hembras que imitan a machos. *Quercus* 118: 35-37. (With Engl.s.). – (Area Ecol., Univ. Vigo, Avda Buenos Aires s/n, ES-36002 Pontevedra, Galicia).
The main hypotheses on the maintenance of sexual polychromatism in the odon. are briefly summarised. It is suggested that in Ischnura, female polychromatism is maintained due to the contrasting reproductive success of the different morphs, when the density of population changes.

(10678) CRUCITTI, P. & S. FATTORINI, 1995. Aspetti della predazione intraspecifica: popolazioni e società. *Sci. nat. Scuola* 4(6): 21-35. – (First Author: Soc. romana Sci. natur., Via Fratelli Maristi 43, I-00137 Roma).
A general treatment of the phenomenon of cannibalism in animals. In an annotated and bibliographically crossreferenced appendix, all to the Authors known spp. in which intraspecific predation was recorded, are listed, though only 3 odon. spp. are included. – For an earlier technical review of the subject cf. G.A. Polis, 1981, *Annu. Rev. Ecol. Syst.* 12: 225-251.

(10679) D'ANTONIO, C., 1995. Gli odonati della Campania (Odonata). *Boll. Soc. ent. ital.* 127(2): 103--116. (With Engl.s.). – (Via A. Falcone 386/b, I-80127 Napoli).
A commented checklist of 53 spp., containing all previously published and numerous new records for this S Italian province. A comprehensive bibliography is also provided.

(10680) D'ANTONIO C. & A.L. LAVADERA, 1995. Nuovi dati sugli odonati della Valle d'Aosta (Odonata). *Boll. Soc. ent. ital.* 127(2): 99-102. (With Engl.s.). – (First Author: Via A. Falcone 386/b, I--80127 Napoli).
T. BENTIVOGLIO (1925, *Atti Soc. Nat. Matem. Modena* 56: 19-21) recorded Aeshna cyanea from Miage glacier, on the S slopes of Mt Blanc. Subsequently, ca 10 spp. were reported by various authors from a number of localities in Valle d'Aosta. – This is a checklist (20 spp.), containing also numerous previously unpublished records.

(10681) DELGADO, C., F. ALCANTARA & G. COUTURIER, 1995. Densidad de larvas de odonatos (Insecta) en un estanque de piscicultura en Iquitos. *Revta peru. Ent.* 37[1994]: 101-102. (With Engl.s.). – (First 2 Authors: Inst. Invest. Amazonia Peruana, Direcc. Hidrobiol., Apdo 784, Iquitos, Peru).
13 spp. were identified in a 2790 m² pond, used for commercial breeding of Colossoma macropomum and Piaractus brachypomus. Larval densities were the highest in July (416 ind./m²) and the lowest in December (52 ind./m²).

(10682) DELL'ANNA, L., C. UTZERI, A. SABATINI & M. COLUZZI, 1995. Forcipomyia (Pterobosca) paludis (Macfie, 1936) (Diptera, Ceratopogonidae) on adult dragonflies (Odonata) in Sardinia, Italy. *Parassitologia* 37: 79-82. – (Second Author: Dipto Biol. Anim. & Uomo, Univ. Roma "La Sapienza", Viale dell'Università 32, I-00185 Roma).
The midges are recorded from Ischnura genei, Ceriagrion tenellum, Anaciaeschna isosceles, Crocothemis erythraea and Orthetrum cancellatum. Since no evidence was obtained as to the midge biting activity, the possibility of a phoretic association, facilitating the long range dispersal of the gravid midge ♀♀, is tentatively suggested.

(10683) DIEHL, S., 1995. Direct and indirect effects of omnivory in a littoral lake community. *Ecology* 76(6): 1727-1740. – (Dept Anim. Ecol., Univ. Umeå, S-901 87 Umeå).
In spite of the ubiquity of omnivory in nature, its consequences for population dynamics have received

little attention from theoretical and experimental ecologists. Having 3 direct consumer-resource links, 3 indirect numerical links, and a potential for indirect effects mediated by size structure and/or behavioral flexibility, a 3 spp. omnivory system may exhibit complex population dynamics. In 2 × 3 m field enclosures in the littoral zone of a lake, the dominating native benthivorous fish (≥ 2-yr-old perch, Perca fluviatilis, omnivorous top consumer) and the dominating native benthic invertebrate predators (Sialis lutaria, Megaloptera, and odon. [mainly Aeshna grandis and Somatochlora metallica], intermediate consumers) were manipulated in 3 gradients: increasing densities of perch in the near absence of Sialis and odon., and increasing densities of Sialis and odon. in either the presence or absence of perch. The densities of their common prey (mainly chironomids) were left unmanipulated. Macroinvertebrate abundance, biomass, and size structure, as well as gut contents of perch and Sialis were sampled monthly over a 3-mo summer period. – In the absence of perch, the experimental gradient of Sialis densities remained unchanged over time. In the presence of perch, Sialis decreased by about half at high initial densities, but remained unchanged at low initial densities. Perch also had a negative effect on odon. In the near absence of Sialis and odon., perch had a strong, negative effect on chironomids. Compared to enclosures without perch, chironomid abundance was strongly reduced at the lowest perch density, but leveled off with further increases in perch density. Sialis and odon. did not affect chironomid abundance when perch were absent. In contrast, chironomid abundance was positively affected by Sialis and odon. when perch were present. The overall effect of perch on chironomid abundance in the presence of Sialis and odon. was negative. – The combined predatory and competitive effects of perch on Sialis and odon. raise the issue how Sialis and odon. coexist with perch. The lack of effect of perch on Sialis and chironomids at low densities of these prey suggests that prey refuges contribute significantly to their persistence in natural systems. The indirect positive effect of Sialis and odon. on chironomids indicates density dependence in per capita interaction coefficients and is most likely to be explained by a behavioral response of perch or chironomids to Sialis and odon. It is suggested that the theoretical and empirical investigation of model systems (such as 3-component omnivory systems), which are sufficiently simple to be analytically and experimentally tractable, but still display a richness of common indirect effects, will contribute to our understanding of the dynamics of more complex food webs. Their study will benefit from experimental manipulations of more than 1 population at more than 2 densities.

(10684) EYO, J. & U. EKWONYE, 1995. The macroinvertebrate fauna of pools in the floodplain (fadama) of the Anambra River, Nigeria. *Freshw. Forum* 5(3): 160-162. – (Fish. & Hydrobiol. Res. Unit, Dept Zool., Univ. Nigeria, Nsukka, Nigeria).
A rather worthless paper, based on identification of the Nigerian taxa with North American and Asiatic general keys. Consequently, all odon. are referred to "Coenagrion" and "Libellula"!

(10685) FRYE, M.A. & R.M. OLBERG, 1995. Visual receptive field properties of feature detecting neurons in the dragonfly. *J. comp. Physiol.* (A) 177(5): 569-576. – (Second Author: Dept Biol. Sci., Union Coll., Union St., Schenectady, NY 12308, USA).
Aeshna canadensis, A. umbrosa and Anax junius were studied. These require a visual system capable of signaling the movements of airborne prey. A group of 8 descending feature detectors are tuned exclusively to moving contrasting objects. These "target-selective" descending neurons project from the brain to the thoracic ganglia. Their activity drives steering movements of the wings. – In this study, target-selective descending neuron activity was recorded intracellularly. To define their receptive fields, responses to the movement of black square targets, projected onto a screen in front of the insect were recorded. Each neuron was identified by dye injection. – Target-selective descending neurons exhibit several receptive field properties. The results show that they are strongly directionally selective. 2 TSDNs, exclusively tuned to small targets, have receptive fields restricted to visual midline. Others, which are not selective for target size, have asymmetric receptive fields centered laterally. It is suggested that the behavioural function of these specialized feature detectors is to steer the dragonfly during prey-tracking so as to fix the position of the prey image on the retina. If the dragonfly maintains a constant visual bearing to its prey over time, it will intercept its prey.

(10686) GEISTER, I., 1995. *Seznam slovenskih imen kačjih pastirjev (Odonata).* – *[Checklist of the Slovene vernacular names for dragonflies (Odonata)].*

Geister, Naklo. 4 pp. (Slovene). – Pokopališka pot 13, SI-4202 Naklo).
A privately circulated revised edn of the work listed in *OA* 8831.

(10687) *GOMPHUS. Mededelingsblad van de belgische libellenonderzoekers – Bulletin de liaison des odonatologues belges*, Vol. 10, No. 4 (May 1995). (Dutch & Fr.). – (c/o G. De Knijf, Hofstraat 58, B-9000 Gent).
Goffart, P./A. Anselin: Editorial (pp. 101-102); – *Goffart, P.*: Observations de Lestes barbarus (Fabricius, 1798) en Wallonie en 1994 et note sur reproduction de Aeshna juncea (Linné, 1758) en Pays de Hervé (pp. 103-106); – *Lock, K.*: [Gomphus simillimus in Belgium] (pp. 107-108); – *Gysels, J.*: [Stream dragonflies in the Antwerpse and Limburgse Kempen] (pp. 109-112); – *Recensions* (by *P. Goffart & G. De Knijf* (pp. 113-118); – *Excursions* (pp. 119-121); – *Annonces* (pp. 122-124).

(10688) *GOMPHUS. Mededelingsblad van de belgische libellenonderzoekers – Bulletin de liaison des odonatologues belges*, Vol. 11, No. 1 (Sept. 1995). (Dutch & Fr.). – (c/o G. De Knijf, Hofstraat 58, B-9000 Gent).
Anselin, A./P. Goffart: Editorial (pp. 1-2); – *Van De Meutter, F.*: [Aeshna affinis population in the Blaasveldbroek at Willebroek] (pp. 3-6); – *Van Uytvanck, J.*: [A forgotten Cordulegaster boltonii population in the Flemish Ardennes] (pp. 7-10); – *De Knijf, G.*: [More on the Flemish Ardennes and their Cordulegaster boltonii population] (pp. 10-13); – [A population of Libellula fulva in the Mechelse] (p. 14); – *Stoks, R., G. De Knijf & T. Adriaens*: Status de Lestes barbarus en Belgique? (pp. 15-16); – *De Knijf, G.*: Liste bibliographique des odonates de Belgique – corrections et suppléments (pp. 17-18); – *Stoks, R.*: [The 13th International Symposium of Odonatology] (pp. 19-20); – *Compte-rendu d'excursions* (by G. De Knijf; pp. 21-23); – *Annonces* (p. 24).

(10689) GOTTSCHALK, H.-J., 1995. Ökologische Bewertung von Fliessgewässern mittels Odonaten. *Nachr. ent. Ver. Apollo* (Suppl.) 201-214. – (Asternweg 8, D-18057 Rostock).
During 1992-1993, 47 spp. were evidenced in the Nebel R. lowlands. 19 of these were used in the calculation of a "Standorttypie" index. As it appears, only 3 rheophilic spp. possess the ecological properties required for a reliable determination of the primary-like condition of running waters in NE Germany.

(10690) *GRACILE*. [Newsletter of Odonatology]. Published by the Kansai Research Group of Odonatology, Osaka, No. 54 (date Dec. 3, 1995; issued Feb. 4, 1996). (Jap., with Engl. titles). – (c/o K. Inoue, 5-9, Fuminosato 4-chome, Abeno-ku, Osaka, 545, JA).
Matsuda, I.: Crepuscular flight of Anax nigrofasciatus nigrofasciatus at Hachigamine, Sakai city, Osaka prefecture (p. 1); – *Matsuda, I. & S. Tsuda*: Anaciaeschna martini collected at Oizumi-Ryokochi-Koen, Sakai city, Osaka prefecture (p. 2); – *Tani, T.*: Dragonflies recorded at Yawata city, Kyoto prefecture (pp. 3-11); – *Inoue, K.*: Report of the survey trip on the odonate fauna of South Kyoto prefecture. 1. Uji city and Ujitawara-cho (pp. 12-15); – *Yagi, T. & K. Inoue*: Report of the survey trip on the odonate fauna of South Kyoto prefecture. 2. Dosembo and Kizu-cho (pp. 16-19); – *Miyatake, Y.*: Report of the field survey on the odonate fauna of Yodo River (10), at Shirokita Park and "Shirokita-Wando-Group", Osaka city (pp. 20-21); – *Matsuda, J.*: "Tombo-turi" (catching dragonflies by threads and stones) meeting held in Osaka prefecture (5), 1995 (pp. 22-25); – *Inoue, K.*: Record of the odonate fauna of Tsurumi-ryokuchi Park, Osaka city (pp. 26-27).

(10691) GRODNITSKY, D.L., 1995. Evolution and classification of insect flight kinematics. *Evolution* 49(6): 1158-1162. – (V.N. Sukachev Inst. Forest Res., Siber. Sect., Russ. Acad. Sci., RUS-660036 Krasnoyarsk).
Classification of the main types of insect in-flight kinematics is proposed, based on comparative data of wing movement during flapping flight. By comparing the kinematic patterns with the results of studies of the vortex-wake structures of flying insects, these patterns can be explained as adaptations for overcoming the negative effects of mutual deceleration of fore- and hind wing starting vortex bubbles, which take place in insects with the most primitive type of wing kinematics. The aerodynamic efficiency of the flying system can be decreased if natural selection favours behavioural patterns that involve suboptimal wing kinematics. – Dragonflies, along with Orthoptera, Mantodea and Blattodea, are in-phase flappers that begin strokes with the hind wings. The anisopterans have a peculiar type of functionally 4-winged kinematics: their fore- and hind wings perform anti-phase strokes (phase shift equals approx.

half cycle). The hind wings begin to move from the lowest point of their trajectory, when the forewings start from the top, and vice versa. This flight mode is related to particular behavioural responses. The anti-phase kinematics seems to be less aerodynamically effective, because the odon. change to in-phase wingbeats every time when the increased power output is needed: during take-off, when flying in copula or transporting prey, when accelerating, when additional mass is placed on their wings during experiments, and in tethered flight. This pattern can be regarded as an adaptation to predatory life. – Cf. also *OA* 8910.

(10692) HORVÁTH, G., 1995. Reflection-polarization patterns at flat water surfaces and their relevance for insect polarization vision. *J. theor. Biol.* 175(1): 27-37. – (Biophysics Gr., Dept Atomic Physics, Loránd Eötvös Univ., Puskin u. 5-7, HU-1088 Budapest).
It has recently been shown that horizontally polarized ultraviolet light reflected from the surface of water is the main optical cue for habitat finding by insects living in, on, or near water. What are the polarization properties that make the skylight reflected by water attractive to flying water insects in nature? In this paper, as an approach to this problem, the patterns of the degree and direction of polarization of skylight visible over a flat water surface are computed for unpolarized light from an overcast sky and for partially polarized skylight as a function of the zenith distance of the sun. These patterns are compared with the corresponding celestial polarization patterns. The effect of depolarizing clouds on these reflection-polarization patterns is demonstrated. Reflectivity patterns of a flat water surface are also calculated for clear and overcast skies. The polarization of the blue sky is described by the semi-empirical Rayleigh model. It is assumed that the reflection polarization of skylight at the water surface is governed by the Frésnel formulae. The effect of some modifying factors on the reflection-polarization field is briefly discussed. The adaptations of the visual system of insects living in, on, or near water to reflection-polarization patterns at water surfaces are briefly reviewed and discussed by means of 3 representative spp.: Gerris lacustris, Notonecta glauca and Hemicordulia tau.

(10693) HOSTETTLER, K., 1995. Libellenfauna am Nussbaumer See und am oberen Seebach. *Mitt. thurgau. naturf. Ges.* 53: 219-241. – (Schulstr. 7, CH-8590 Romanshorn).
Since 1886, 40 spp. were evidenced in this area, canton Thurgau, Switzerland. The presence of 33 of these was confirmed during 1991-1993. Detailed data on local habitats and phenology are stated for all spp., and some habitat conservation and management measures are suggested.

(10694) JOHNSON, D.M., T.H. MARTIN, M. MAHATO, L.B. CROWDER & P.H. CROWLEY, 1995. Predation, density dependence, and life histories of dragonflies: a field experiment in a freshwater community. *Jl N. Am. benthol. Soc.* 14(4): 547-562. – (First Author: Dept Biol. Sci., East Tennessee St Univ., Johnson City, TN 37614-0703, USA).
The fish/dragonfly interactions that influence population dynamics and community structure, were investigated by means of enclosure/exclosure experiments in the littoral zone of Bays Mountain Lake, Johnson City, TN. A nearly natural invertebrate assemblage colonized allochthonous detritus through 1.8 mm mesh screen from April to May when further colonization was restricted by 0.5 mm mesh. Treatments introduced in mid May consisted of all combinations of 2 densities of 2 predators, small sunfish (Lepomis macrochirus) 0 or 4 individuals/m²; senior-year-class Epitheca cynosura larvae, 0 or 15 individuals/m² acting on cohorts of junior-year-class E. cynosura hatching from eggs stocked at two densities, 90 or 900/m². Treatments were assigned randomly in each of six spatiotemporal blocks: 2 in 1987 and 4 in 1988. – Junior-year-class Epitheca hatching from eggs stocked at different densities experienced strong density-dependent survival early; a 10:1 ratio of Egg Density treatments in May declined to 2:1 by mid July and 1:1 by Oct. This result occurred even in treatments without predators, where it is attributed to intra-cohort cannibalism. Sunfish predation reduced numbers of junior-year-class Epitheca surviving to Oct., but predation by senior-year-class Epitheca had little effect. Surviving junior-year-class larvae grew rapidly; at low larval densities (low Egg Density and/or Fish treatments which led to low larval density), more than 90% reached the final instar by Oct., in enclosures with higher densities, less than 80% did so ($p < 0.03$). Fish predation that reduces larval dragonfly densities early in the life cycle has long-term effects by promoting faster density-dependent development and thus shortening larval development times.

(10695) JOHNSON, J.H., 1995. Diel feeding ecology of three species of aquatic insects. *J. Freshw. Ecol.* 10(2): 183-188. – (Tunison Lab. Aquat. Sci., Natn. Biol. Serv., 3075 Gracie Rd, Cortland, NY 13045, USA).
The subject was studied in larval Anax junius and Ischnura verticalis and the ephemeropteran Callibaetis fluctuans, over a 24-h period in a small pond. Detrital material was the primary food of both A. junius and I. verticalis. Aquatic insects (mainly C. fluctuans) were the second ranking prey in the diel diet of A. junius, whereas ostracods were the second most important prey consumed by I. verticalis. Diet overlap between A. junius and I. verticalis was high ($\bar{x}$ = 0.76) when detritus was considered but fell to 0.25 when detrital material was omitted. Food consumption by the odon. was highest at 0800 h and was generally lowest from 2400 h to 0400 h. Conversely, feeding activity by C. fluctuans peaked between 2400 h and 0400 h with the least feeding occurring at 0800 h. Differences in diel feeding patterns between the ephemeropteran and odon. spp. may reflect predator avoidance behavior by C. fluctuans.

(10696) KARUBE, H., 1995. On the genus Chlorogomphus (Anisoptera: Chlorogomphidae) of Indochina, with descriptions of six new species and little known species. *Bull. Kanagawa prefect. Mus.* (Nat. Sci.) 24: 46-62. (With Jap.s.). – (Kanagawa Prefect. Mus. Nat. Hist., 499 Iryuda, Odaeara, 250, JA).
The new spp. described and illustrated are: C. yokoii sp.n. (holotype ♂: Nan, N Thailand, 24-IV-1992; allied to C. arooni), C. albomarginatus sp.n. (holotype ♂, allotype ♀: Mt Tamdao, nr Hanoi, N Vietnam, 31-V-1993 & 19-V/2-VI-1991, resp.); C. nakamurai sp.n. (holotype ♂, allotype ♀: Cuc Phoung nr Hanoi, N Vietnam, 29-V-1993 & 28-V-1991, resp.; this and the latter sp., form along with C. arooni a separate species-group); C. sachiyoae sp.n. (holotype ♂, allotype ♀: Mt Tamdao nr Hanoi, N Vietnam, 2-V--1994 & 8-V-1994, resp.); C. miyashitai sp.n. (holotype ♂, allotype ♀: Xien Kwang, NE Laos, 4--IV-1993 & 22-VI-1993, resp.; allied to the former and to C. kitawakii from S China; and C. takakuwai sp.n. (holotype ♂, allotype ♀: Mt Tamdao nr Hanoi, N Vietnam, 19-V/2-VI-1993 & 31-V-1991, resp.; allied to C. selysi from India). The first ♂ C. auratus is described and the sp. is considered allied to C. arooni. All holotypes are deposited at the Kanagawa Prefect. Mus. Nat. Hist. The Indochinese members of the genus are keyed.

(10697) KEIGHLEY, M., 1995. Beginning at Bennerley. *J. Derbyshire ent. Soc.* 121: 5-7. – (64 Highgate Drive, Ilkeston, Derbys, DE7 9HU, UK).
Records several odon. spp. from the Bennerley area, Derbyshire, UK.

(10698) KHALIQ, A., S. ASLAM & S.A. ANJUM, 1995. Description of the naiads of six species of Odonata form Poonch Valley of Azad Kashmir. *Pakistan J. Zool.* 27(1): 71-76. – Dept Ent., Univ. Coll. Agric., Rawalakot, Azad Kashmir, Pakistan).
Ultimate instar larvae are described and illustrated of Lestes thoracica, L. viridulus, Bayadera indica, Pseudagrion rubriceps, Crocothemis erythraea and C. servilia. Brief notes on their habitats are added.

(10699) KOTARAC, M., 1995. *Preliminarna ocena vpliva izgradnje in obratovanja AC na odseku Cogetinci-madžarska meja (projekt št. 103) na vodno območje. Kačji pastirji (Odonata).* – [*A preliminary assessment of the impact of the superhighway construction and operation in the section, Cogetinci--Hungary border (Project No. 103), on the hydrographic regime. Dragonflies (Odonata)*] VGB, Maribor. 8 pp. (Slovene). – (Author: Antoličičeva 1, SI-2204 Miklavž-na-Dravskem-polju).
At 25 localities, 27 spp. were evidenced, incl. 8 spp. of the projected Red List; – NE Slovenia. Ophiogomphus cecilia is the sole "endangered" sp. encountered.

(10700) KOTARAC, M., 1995. *Preliminarno poročilo o favni kačjih pastirjev (Odonata) v glinokopu Zalog.* – [*A preliminary report on the dragonfly fauna (Odonata) of the Zalog claypits*]. Zavod za varstvo naravne in kulturne dediščine, Novo mesto. 6 pp. (Slovene). – (Author: Antoličičeva 1, SI-2204 Miklavž-na-Dravskem-polju).
During June-July 1995, 23 spp. were recorded at this locality in Lower Carniola, Slovenia, incl. the locally "vulnerable" Lestes dryas and L. virens [vestalis]. Through the suggested management, the valuable species assemblage could be probably further increased.

(10701) KRETSCHMER, W., 1995. Hydrobiologische Untersuchungen am Tagliamento (Friaul, Italien). *Jb. Ver. Schutz Bergwelt* 60: 87-108. – (Bahnhofstr. 17, D-83626 Valley).

Larval Platycnemis pennipes and Libellula depressa are reported from an oxbow on the lower Tagliamento R. at Bolzano, Friuli, NE Italy.

(10702) KUHN, J., 1995. Die Libellen des Schmiechener Sees 1980-1994: eine Übersicht. *Beih. Veröff. NatSchutz LandschPfl. Bad.-Württ.* 78: 411-416. (With Engl.s.). – (Marktstr. 26, D-89143 Blaubeuren). 39 spp. are listed from this lake (alt. 534 m), 20 km WSW from Ulm, Bavaria, Germany. The fauna is briefly discussed and some habitat conservation aspects are outlined.

(10703) KUHN, K., 1995. Beobachtungen zu einigen Tiergruppen am Tagliamento. *Jb. Ver. Schutz Bergwelt* 60: 71-86. – (Ravenspurgerstr. 7, D-86150 Augsburg). A commented list of 13 odon. spp. from various habitat types along the Tagliamento R., Friuli, NE Italy.

(10704) LADET, A., 1995. *Inventaire des odonates du haut bassin de la Loire (Haute-Loire et Ardèche).* Nature Haute-Loire, [publication place not stated]. vi+50 pp., 2 col. maps excl. – (Author: Les Mariolles, F-07110 Chassiers).
With a col. frontispiece and numerous high quality col. text-figs (mostly spp. portraits), this is a very attractive work on the hitherto odonatologically somewhat neglected region. The fauna (47 spp.) is dealt with per geographic area and habitat-wise. 33 spp. are recorded from the Loire and its surroundings, 19 from its tributaries, and 39 from various stagnant water habitats. Various regions show peculiar spp. assemblages, of particular interest is the information on the elevation of the highest breeding populations of some spp. (Sympecma fusca at 1055 m, Boyeria irene at 830 m, Oxygastra curtisi at 695 m; cf. for similar data also the work listed in *OA* 10369). The occurrence of the recorded spp. in various habitats/areas is shown in tabs, which are enhancing the valúe of the work.

(10705) *LIBELLENNIEUWSBRIEF.* Hilversum, Vol. 3, No. 6 (Dec. 1995). (Dutch). – (c/o V. Kalkman, Rijsterborgerweg 8, NL-4712 VA Deventer).
Bos, F.: A proposal of Dutch common names for North European and Mediterranean species (p. 4); – *Ketelaar, R.*: [Book review of the work listed in *OA* 7554] (p. 5); – *Wasscher, M.*: The Netherlands dragonfly world in 1995 (pp. 6-9); – *Van der Velden, D.*: Orthetrum brunneum and other peculiarities in the Winterswijk region (pp. 10-11); – *Dijkstra, K.D.*: Dragonflies in the Noordoostpolder (pp. 11-12). – The issue also contains the updated Netherlands distribution maps for Lestes barbarus (p. 9) and Sympetrum flaveolum (p. 13). – (*Abstracter's Note*: Wasscher's traditional, concise annual reviews are indispensable for gaining a quick insight in the annual fluctuations of the regional status of biogeographically or otherwise interesting taxa).

(10706) LUQMAN, M., 1995. *Taxonomic studies of Odonata of district Muzaffarabad (Azad Kashmir).* M.Sc. thesis, Univ. Agric., Faisalabad. 99 pp. – (c/o Dr A. Khaliq, Dept Ent., Univ. Coll. Agric., Rawalakot, Azad Kashmir, Pakistan).
35 spp. and sspp., collected 1993-1995 at 16 localities in the district, are described, incl. ♀ allotypes of Bayadera longicauda Fraser and Lestes patricia Fraser. 10 spp. are for the first time recorded from Azad Kashmir.

(10707) *MARTINIA. Bulletin des odonatologues de France*, Vol. 11, No. 4 (Dec. 1995). – (c/o J.-L. Dommanget, 7 rue Lamartine, F-78390 Bois-d'Arcy).
Lecocq, S.: Contribution à l'inventaire des odonates du département de l'Orne (pp. 79-88); – *Coppa, G.*: Contribution à la connaissance de la faune du marais de Saint-Gond: les odonates (département de la Marne) (pp. 89-94); – *Monnerat, C.*: Compte-rendu 7ème Symposium des odonatologues de Suisse (Berne, 19 november 1994) (pp. 94-97); – *Dommanget, J.-L.*: Rubrique bibliographique (pp. 97-98); – Analyse d'ouvrage (pp. 98-100; of the work listed in *OA* 9273).

(10708) McPEEK, M.A., 1995. Morphological evolution mediated by behavior in the damselflies of two communities. *Evolution* 49(4): 749-769. – (Dept Biol. Sci., Dortmouth Coll. Hanover, NH 03755, USA).
Behaviour can play a mediating role in determining the selective pressures that influence the evolution of morphological structures. To examine this, patterns were quantified of morphological variation among larvae of 9 N American Enallagma spp. that use different behaviours to avoid the major predators found in each of 2 communities, viz. lakes with and without fish. Specifically, quantified were the sizes and shapes of the abdomens and caudal lamellae (used for swimming) and legs for 3 spp. from fishless lakes and 6 spp. from lakes with fish. A preliminary cladistic analysis indicates that spp. within each lake type are not members of a single clade.

Previous studies have shown that spp. in fishless lakes are very active, running and swimming frequently and at high rates of speed in the absence of predators, and they avoid their primary predators (i.e. large dragonflies) by swimming. These spp. have the widest abdomens, the largest caudal lamellae relative to overall body size, and the longest legs of the spp. studied, which should make them powerful swimmers and runners. Also, spp. in fishless lakes are morphologically very similar to one another and differ greatly from fish-lake spp., although each is more closely related to spp. in fish lakes. In contrast, spp. from lakes with fish move very slowly and infrequently in the absence of predators and do not attempt to evade attacking predators. However, despite their behavioural similarity, large interspecific variation in morphology exists among the fish-lake spp., and the only morphological patterns were differences associated with membership in the 2 primary clades identified in the cladistic analysis. A modification of J. Felsensten's method (1985, *Am. Nat.* 125: 1-15) of evolutionary contrasts, which allows character change to be isolated along single branches, is introduced and it is used to reconstruct the evolutionary histories of these characters. The analysis suggests that large increases in caudal lamella size, abdominal segment lengths and widths and leg length accompany speciation events associated with habitat shifts from fish-lakes to fishless lakes. Following habitat shifts, selection pressures exerted by dragonfly predation apparently favoured swimming as an escape tactic, which mediated selection pressures onto morphologies used in swimming to increase swimming performance; morphological patterns in extant spp. reflect this adaptation to a new environment. Mechanisms, by which behaviourally mediated selection could have accelerated evolutionary dynamics following founder effects, are discussed.

(10709) MERRITT, R., 1995. Sympetrum flaveolum Linn. (Odonata: Libellulidae) at Sawley, Derbyshire, in August 1995. *J. Derbyshire ent. Soc.* 121: 2. – (321 Walton Back Lane, Chesterfield, Derbys., S42 7AB, UK).
Aug. 1995 witnessed an extraordinary movement of migrant odon. into S Britain from the Continent. S. flaveolum was foremost among them. Circumstantial evidence of its sightings in Derbyshire is presented.

(10710) MIAH, M.I., B.A. BHUIYA & K.C. SAHA, 1995. Toxic effects of five organophosphorus insecticides on damselfly (Odonata: Zygoptera) larvae. *Bangladesh J. Zool.* 23(1): 55-60. – (Dept Zool., Univ. Chittagong, Chittagong, Bangladesh).
The toxic effects of Diazinon, Malathion, Nogos, Azodrin and Dimecron on the Ceriagrion, Agriocnemis and Copera larvae were bioassayed in the laboratory. The percentage of mortality of the larvae varied with the type of insecticides and dosages. The respective LD_{50} and LD_{90} values of these insecticides were determined from the test mortality after 24 h of exposure. The relative potency of the 5 insecticides on Ceriagrion was: Diazinon > Malathion > Nogos > Azodrin > Dimecron; on Agriocnemis: Diazinon > Malathion > Azodrin > Dimecron > Nogos and on Copera: Malathion > Diazinon > Nogos > Azodrin > Dimecron.

(10711) *MIZUBE NO TOMODACHI*, Saga, No. 5 (Dec. 1, 1995). (Jap.). – (c/o Prof. Dr K. Higashi) (Dept Biol., Coll. Liberal Arts, Saga Univ., 1 Honjo, Saga, 840, JA).
Contains 18 notes and small papers. – Cf. *OA* 10370.

(10712) MORIMOTO, N. & K. KIRITANI, 1995. Fauna of exotic insects in Japan. *Bull. natn. Inst. agro--environ. Sci.* 12: 87-120. (With Jap.s.). – (First Author: Div. Ent., Dept Environ. Biol., Natn. Inst. Agro--Environ. Sci., Konnondai, Tsukuba, Ibaraki, 305, JA).
29.292 insect spp. were recorded in Japan, 239 of these are considered "exotic", and 86 "possible exotic". In the latter category are listed Tramea transmarina and T. virginia.

(10713) NEL, A., A. ARILLO & V.M. ORTUNO, 1995. Découverte du premier Libellulidae Trameinae de l'Oligocène d'Espagne (Odonata, Anisoptera). *Bull. Soc. ent. Fr.* 100(5): 481-487. – (First Author: 8 av. Gassion, F-13600 La Ciotat).
A trameine sp. of uncertain generic affiliation (but close to Paleotramea) is described and illustrated from the Oligocene of Izarra (Alava, Spain).

(10714) NIELSEN, O.F., 1995. Anax imperator Leach, 1815 fundet igen i den sydvestlige del af Danmark (Odonata, Aeshnidae). – Anax imperator found again in the south-western part of Denmark (Odonata, Aeshnidae). *Ent. Meddr* 63(4): 97-98. (Danish, with Engl.s.). – (Søkildevej 87, DK-8680 Ry).
At the same locality as stated in *OA* 10119, the sp.

was sighted also in July and Aug. 1995.

(10715) NUNES, J., 1995. Libélulas, relíquias do passado. *Revta Forum Ambiente* 1995(19): 19-25. – (Author's address not stated).
An attractive representation of the order, in a Portugese illustrated monthly.

(10716) OTT, J., 1995. Zum Einfluss intensiver Freizeit- und Angelnutzung auf die Fauna von Sekundärgewässern und Konsequenzen für die Landschaftsplanung – dargestellt am Beispiel der Libellen (Odonata). *Fauna Flora Rheinland-Pfalz* 8: 147-184. (With Engl.s.). – (L.A.U.B., Hölzengraben 2, D-67657 Kaiserslautern).
The impact of recreation and angling on odon. communities was studied in 18 secondary habitats (mostly gravel pits, 24 spp.) in the area of Ludwigshafen, Rhineland-Palatinate, Germany. Due to its site fidelity, Anaciaeschna isosceles is threatened by the inbreeding effects. The general spp. and population decline is triggered in most eurytopic and stenotopic spp. by the stocking with grass carp (which destroys aquatic vegetation), or with large numbers of predatory fish (increasing predation pressure on larvae), and by destruction of riparian vegetation, caused by recreation.

(10717) PAPAZIAN, M., 1995. Etude systématique et biogéographique de Calopteryx splendens (Harris, 1782) en Provence (Odonata: Zygoptera). *Bull. Soc. ent. Fr.* 100(4): 361-376. (With Engl.s.). – (Le Constellation, Bât. A, 72 av. des Caillols, F-13012 Marseille).
The Provencal populations of C. splendens are analysed; they are all referable to the nominate ssp. C.s. xanthostoma is geographically isolated from the former, therefore the 2 sspp. do not hybridise. C. s. caprai does not occur in SE France.

(10718) PARISH, T., J. BASS & T. SPARKS, 1995. The contrasting invertebrate fauna of freshwater habitats in the Swavesey fens in East Anglia. *Freshw. Forum* 5(3): 163-177. – (Third Author: NERC Inst. Terrest. Ecol., Monks Wood, Abbots Ripton, Huntingdon, Cambridges., PE17 2LS, UK).
The freshwater invertebrate survey, within a landscape typical of many arable areas in lowland Britain, has shown that, even in the absence of habitats with a particularly low nutrient status, communities of contrasting richness do occur, particularly in ditches and ponds in the unflooded areas. It also re-emphasises the potential for promoting biodiversity in areas where water quality can be controlled and manipulated. The odon. are referred to suborder-wise.

(10719) PAYNE, R.G. & G.A. SCHUSTER, 1995. Aspects of the dragonfly and damselfly (Odonata) community of Buck Creek, Pulaski County, Kentucky. *Trans. Ky Acad. Sci.* 56(1/2): 41-46. – (Second Author: Dept Biol. Sci., Eastern Kentucky Univ., Richmond, KY 40475, USA).
The paper is based on the same species list as listed in *OA* 10651, but it mainly deals with adult phenology. The Kentucky published flight seasons are here extended for 10 spp. It is emphasised, seasonal life histories are potentially important in understanding the dynamics involved in niche segregation of a diverse community of general predators. – (*Abstracter's Note*: There are a few minor printing errors in the abstract and in Tab. I as printed in the journal. Apply to the Authors for a corrected reprint).

(10720) PEGLOW, H.-G., 1995. Vogelkundliche Beobachtungen in Schleswig-Holstein. Nahrung und Nahrungsbeschaffung. Rohrammer und Libelle. *Ornithol. Mitt.* 47(9): 238. – (Author's address unknown).
An incidental observation of a ♂ Reed Bunting (Emberiza schoeniclus) consuming a ♀ [?] Orthetrum cancellatum, at 05 a.m., 16-VII-1995; Lebrader Teichen.

(10721) [PIPER, W.] Anonymous, 1995. [German biologist worked at Dragonfly Park]. *Kochi Shimbun*, issue of 26 Nov., p. 28. (Jap.). – (Unnastr. 6, D-20253 Hamburg).
A prefectural daily's article on the occasion of Dr W. Piper's visit to the Dragonfly Park & Museum at Nakamura, Japan. – Similar articles have appeared also in *Asahi Shimbun* (issue of 22 Nov.; with portrait) and in *Kochi Shimbun* (issue of 22 Nov.).

(10722) RAINERI, V. & L. FERRANDO, 1995. La collezione odonatologica di Felice Capra (Insecta, Odonata). *Doriana* 6(290): 1-6. (With Engl.s.). – (First Author: Mus. civ. Stor. nat., Via Brigata Liguria 9, I-16121 Genova).
The inventory of 76 spp., deposited in MSNG, Genova. Most of the material is of Italian provenience, but included are also some specimens from Albania, Croatia, England, France, Germany, Japan,

Malta, Slovenia, Spain and Turkey. The exact locality data are not stated.

(10723) SAMWAYS, M.J., 1995. Southern Hemisphere insects: their variety and the environmental pressures upon them. *In*: R. Harrington & N.E. Stork, [Eds], Insects in a changing environment, pp. 297-320, Acad. Press, London. – (Dept Zool. & Ent., Fac. Sci., Univ. Natal, Privata Bag X01, Scottsville, Pietermaritzburg-3209, SA).
In Africa S of the Limpopo, 18% of the odon. spp. are endemic. – The paper contains several references to the order. Chlorolestes apricans, confined to a few localities on a few streams in the E Cape is threatened, among other things, by cattle breaking the bushy bank vegetation which is used for perching and oviposition. Ecchlorolestes peringueyi and E. nylephtha, formerly thought to be extinct, were rediscovered in 1993, and are now considered to be relatively safe in wildlife sanctuaries. The former survives in small streams above the waterfalls, beyond reach of the trout.

(10724) SANDHU, R. & G.K. WALIA, 1995. A note on the karyotype of Potamarcha congener (Anisoptera: Libellulidae). *Chrom. Inf. Serv.* 58: 24-25. – (Dept Zool., Panjabi Univ., Patiala-147002, India). [Not available for abstracting].

(10725) SANTOS-QUIRÓS, R., 1995. Algunos odonatos de la provincia de Huelva (Andalucia, sur de España). Erratas. *Boln Soc. ent. aragon.* 12: 20. – (c/Pacheco y Núñez de Prado 38-1°C, ES-41002 Sevilla).
Corrections and supplementary notes on the paper listed in *OA* 10599.

(10726) SANTOS-QUIRÓS, R., 1995. Notas sobre Brachythemis leucosticta (Burmeister, 1839) en la provincia de Sevilla (Andalucia, sur de España) (Odonata: Anisoptera: Libellulidae). *Boln Soc. ent. aragon.* 12: 19-20. – (c/Pacheco y Núñez de Prado 38-1°C, ES-41002 Sevilla).
Brief observations from 3 localities are stated, and the occurrence of the sp. in Sevilla is mapped.

(10727) SCHMID, R., 1995. *Die Libellenfauna Ostfrieslands*. Ostfriesische Landschaft, Aurich. 66 pp. ISBN 3-925365-88-5. (14.5 × 21.0 cm). – Price: DEM 23 net.
This is an attractive, posthumously published commercial "monograph" on dragonflies of the Ostfriesland prov. (incl. the related Northsea islands), N. Germany. The history of the regional odon. exploration is traced since 1881, the occurrence of each of the 48 spp. is outlined and critically discussed, and a fairly complete regional bibliography is provided. The pleasant style and the balanced selection of species and habitat photographs enhance the value of the book, which will be certainly of interest also to the readers outside the treated region. Most particularly so because of the wealth of information it contains on the ecology and habitats of the spp. concerned.

(10728) SCHRÖDER, H., 1995. Aus den wissenschaftlichen Abteilungen. Entomologie II. *Natur & Museum* 125(11): 346. – (Senckenberg, Senckenberganlage 25, D-60325 Frankfurt/Main).
A reference is made to Dr M. Hämäläinen's work on the Philippine Odon. The SMF collection contains ca 135 spp. and has an option to acquire the famous Roland Müller Philippine collection (St Gallen, Switzerland).

(10729) SILFVERBERG, H., 1995. Immigration and range expansion in Finnish insects. *Ent. fenn.* 6 (2/3): 163-167. – (Ent. Dept, Nat. Hist. Mus., Box 17, FIN-00014 Helsingfors Universitet).
Libellula depressa is the sole odon. sp. listed. It has arrived to Finland in 1919. – For details on its expansion cf. *OA* 10326.

(10730) [SPIES, W.] EvS, 1995. Libellen aus Bali. Walter Spies im Rautenstrauch-Joest-Museum. *Kölner Stadt-Anz.* 1995(215): 34, issue of 15 Sept.
A local daily's article on the occasion of the exhibit of Balinese paintings of W. Spies (1896-1947), in some of which the dragonflies of Bali, Indonesia are shown.

(10731) *SYMNET. The newsletter of Aka-tombo Network*, Ishikawa, No. 4 (Nov. 30, 1995). (Jap. & Engl. edns). – (c/o N. Ishizawa, 1644-15, Yamaguchi, Tokorozawa, Saitama, 359, JA).
[Titles and pagination from the unabridged Engl. edn]: *Ishizawa, N.*: Aka-tombo painted by Utamaro (p. 1; col. reproduction of the painting in the Jap. edn); – *Ueda, T.*: Sympetrum frequens Selys: run after seasons of Aka-tombo (p. 2; continuation from No. 3, cf. *OA* 10319); – *Takagawa, M.*: It's my dragonfly, mine! (p. 3); – *Fukui, J.*: Behaviour of hybrid

males between Sympetrum eroticum eroticum and S. baccha matutinum (p. 4); – *Tsubuki, T.*: Body color change in Sympetrum frequens according to the ambient temperature. Be careful in scoring body color (p. 4); – *Watanabe, Y.*: An observation of oviposition at highland bogs in Sympetrum frequens (p. 4); – Sympetrum frequens in Nishinomiya after the earthquake (p. 4); – *Ishizawa, N.*: Aka-tombo at Kaikoen Park at Komoro (p. 5); – Staying places of Sympetrum frequens after emergence (p. 5); – *Higashi, K.*: Sympetrum eroticum eroticum of the lowlands in Saga (pp. 5-6); – *Ueda, T.*: Water jet behaviour by larvae of Sympetrum: is it a threat behaviour against predator? (pp. 6-7); – *Editor's communications* (p. 8).

(10732) TAYLOR, P.D. & G. MERRIAM, 1995. Wing morphology of a forest damselfly is related to landscape structure. *Oikos* 73(1): 43-48. – (First Author: Dept Biol., Acadia Univ., Wolfville, NS, P0B 1X0, CA).

Based on surveys conducted N of Ottawa, Ontario, Canada, it is demonstrated that, after correcting for the effects of size, the wing lengths, wing widths and thoracic weights of Calopteryx maculata differ between populations along forested streams, and those along streams through pasture. Pasture landscapes can be considered as fragmented forest landscapes; forest landscapes are continuous. In the fragmented landscapes some C. maculata fly across intervening pasture to reach foraging sites in forest. It seems, there is morphological plasticity within the sp. that is revealed through the landscape process of habitat fragmentation and that there is micro-scale selection within the fragmented landscapes for individuals that are better suited to make these flights.

(10733) *TOMBO. ACTA ODONATOLOGICA*. Published by the Society of Odonatology, Tokyo, Vol. 38, Nos 1/4 (Dec. 25, 1995). – (c/o Dr S. Asahina, Takadanobaba 4-4-24, Shinjuku-ku, Tokyo, 169, JA). *Eda, S.*: A pair of Sympetrum infuscatum in the air just dropped an egg onto the grassy marsh (frontispiece col. phot., p. 1); – *Asahina, S.*: Records of the gomphid dragonflies recently collected by Japanese entomologists from Nepal and Darjeeling district, pt 2 (pp. 2-18; for pt 1 cf. *OA* 10028); – *Matsuki, K. & Y. Saito*: A new Zygonyx from Hong Kong (Odonata, Libellulidae) (pp. 19-23; Z. asahinai sp.n.); – *Yeh, W.-C. & J.-C. Lien*: Proven distribution of Nannophyopsis clara in Taiwan and morphological description of the ultimate instar larva (Odonata: Libellulidae) (pp. 24-26); – *Suzuki, K.*: Discovery of two new homoeochromatic male forms of Mnais nawai Yamamoto (Calopterygidae) from Toyama prefecture, central Honshu, Japan (pp. 27-32; M. nawai ♂-f. yamamoto f. nov., M. nawai ♂-f. negoroi f. nov.); – *Rüppell, G. & D. Hilfert*: Oviposition of triple-connection of Sympetrum frequens (Sélys) (pp. 33-35); – *Asahina, S.*: A criticism on the old papers regarding dragonflies by T. Kobayashi (pp. 36-40); – *Arai, Y.*: Some observations on the behaviour of the adult insect of Sympetrum darwinianum around rice field (pp. 41-47); – *Asahina, S.*: Additional notes to the report of Sympetrum ruptum (p. 47); – *Taketo, A.*: Emergence pattern and sex ratio of 4 aeshnid dragonflies in newly formed ponds (pp. 48-50); – *Ishizawa, N.*: Observations on Sympetrum frequens in and nearby Metropolis in 1995 (p. 50); – *Fukui, M.*: Record of the dragonflies taken in Mongolia (pp. 51-53); – *Watanabe, Y.*: A list of the "oviposition plants" of Epiophlebia superstes (Preliminary report) (pp. 54-55); – Observations of the eggs and the newly hatched-out larvae of Stylurus oculatus and Stylurus nagoyanus (pp. 56-57); – *Taketo, A.*: Occurrence of dragonflies in newly-formed ponds in Kanazawa (p. 57); – *Eda, S.*: A re-discovery of Cordulia aenea amurensis from Kamikochi after 67 years' blank (pp. 58-60); – Unusual "non-contact sitting-ovipo-sition" of Ceriagrion melanurum Selys (p. 60); – *Suzuki, K. & R. Futahashi*: The first collecting records of Tramea virginia from Toyama pref. (p. 61); – *Suzuki, K., R. Futahashi & H. Nehoro*: Successive invasion and colonization of odonate species into reclaimed land Koshino-kata, Shinminato city, Toyama pref. (Supplement) (p. 62); – *Ugai, S.*: Records and seasonal analysis of Sympetrum fonscolombei in Japan (pp. 63-65); – *Taketo, A.*: Color change in caged imago of Anaciaeschna martini Selys (p. 65); – *Nakajima, K.*: Aeschnophlebia anisoptera from central Tokyo (p. 65); – *Inoue, K. & M. Aiura*: Distribution records of the dragonflies of Iki island, pt 1 (p. 66); – *Eda, S.*: "Non-contact sitting-ovipo-sition" of Sympetrum infuscatum (p. 66); – *Inoue, K.*: Information on S.I.O. – next Symposium will be held in Slovenia (p. 67); – *Eda, S.*: Annual meeting of the Society of Odonatology in 1995 (p. 69).

(10734) TUCKER, J.K. & J.B. CAMERER, 1995. *Colonization of the dragonfly, Gomphus vastus Walsh, by the Zebra Mussel, Dreissena polymorpha (Pallas) (Anisoptera: Gomphidae; Bivalvia, Eulamellibranchia: Dreissenidae)*. Natn. Biol. Serv.,

Environ. Manag. Techn. Cent., Onalaska/WI. 10 pp. – (Publishers: 575 Lester Ave., Onalaska, WI 54650, USA).
A beautiful, licenced reprint edn (size 21 × 27.5 cm) of the paper, published originally in *Odonatologica* 23 (1994): 179-181, with cover, and an extra Preface and Appendix.

(10735) UTZERI, C., 1995 [1994]. Odonata, *In*: A. Minelli, S. Ruffo & S. La Posta, [Eds], Checklist delle specie della fauna italiana, pt 35, pp. 1-7, Calderini, Bologna, ISBN 88-7019-889-8. – Price: LIT 15.000.- net. – (Publishers: Edizioni Calderini, Via Emilia Levante 31, I-40000 Bologna).
Standard national catalogue; 88 spp.

(10736) VAN BALKEN, A.C., 1995. *Libelleninventarisatie 1995 Natuurgebied De Lieskampen. – [Dragonfly inventarisation of Nature Reserve "De Lieskampen"*, 1995]. Natuurwacht Bommelerwaard. 2 pp. (Dutch). – (Nonnenstraat 73, NL-5301 BH Zaltbommel).
A commented list of 16 spp.; – nr Gameren, W Bommelerwaard, Gelderland prov., the Netherlands.

(10737) VARGAS-MUSQUIPA, W.F., 1995. Insectos en la iconografia inka. *Revta peru. Ent.* 37[1994]: 23-29. (With Engl.s.). – (Fac. Agron. & Zootecn., Univ. Nac. San Antonio Abad, Cusco, Peru).
The paper presents 18 insect drawings, with very detailed descriptions, reproduced from various Inka objects, such as pottery, cloths, bone ornaments, etc. The collection includes a very naturalistic representation of an adult anisopteran, and a similar one of a zygopteran larva.

(10738) WEBB, D.W., M.J. WETZEL, P.C. REED, L.R. PHILIPPE & M.A. HARRIS, 1995. Acquatic biodiversity in Illinois springs. *J. Kansas ent. Soc.* 68(2/Suppl.): 93-107. – (Illinois Nat. Hist. Surv., 607 East Peabody Dr., Champaign, IL 61820, USA).
7 springs in S Illinois were studied. The odon. are listed order-wise, along with physical and chemical water quality data, from 3 of them.

(10739) WILLIAMS, R.N., M.S. ELLIS & D.S. FICKLE, 1995. Insects in the Killbuck Marsh Wildlife Area: 1993 survey. *Ohio J. Sci.* 95(3): 226-232. – (Ohio Res. & Develop. Cent., Ohio St. Univ., 1680 Madison Ave., Wooster, OH 44691, USA).
Included is a briefly commented checklist of 24 odon. spp. This is the second largest wetland remaining in Ohio, USA.

1996

(10740) ARAI, Y., 1996. Some observations on the select of ovipositing sites of Sympetrum frequens. *Nature & Insects* 31(2): 29-30. (Jap., with Engl. title). – (1233-2 Sueno, Yorii-machi, Oosato-gun, Saitama, 369-12, JA).
[Abstract not available].

(10741) BATZER, D.P. & S.A. WISSINGER, 1996. Ecology of insect communities in nontidal wetlands. *Annu. Rev. Ent.* 41: 75-100. – (First Author: Biol. Dept, Canisius Coll., Buffalo, NY 14208, USA).
The review begins with a summary of insect communities found in diverse wetland types (temporary pools, seasonally flooded marshes, perennially flooded marshes, forested floodplains, peatlands). This is followed by a critical discussion of the research on population and community ecology of wetland insects. Results from many of the experimental studies indicate that some commonly held beliefs about wetland insect ecology require significant reevaluation. The importance of wetland insect ecology for some applied concerns is discussed (e.g. mosquito control), and the paper is concluded by a discussion on conservational aspects. References to the odon. are made at various places.

(10742) *CONTACTBLAD NEDERLANDSE LIBELLENONDERZOEKERS – [BULLETIN OF THE NETHERLANDS DRAGONFLY WORKERS]*, No. 25 (Feb. 1996), ISSN 0926-3578. (Dutch). – Editor: W.J.A. Hoeffnagel (Krekelmeent 72, NL-1218 ED Hilversum); – Subscriptions: G. Abbingh (Muddegoorn 78, NL-9403 NK Assen).
Hoeffnagel, W.-J.: Target biotopes in the Netherlands in the light of their dragonfly fauna (pp. 3-6); – *Hospers, A. & M. Hospers*: Calopteryx distribution in the Twente border area (pp. 7-9); – *Bos, F.*: A proposal of Dutch vernacular names for the North-european and Mediterranean species (pp. 10-11); – *Wasscher, M.*: 1995: a mega dragonfly year (pp. 12-16); – *Ketelaar, R.*: Progress report on the odonate mapping scheme (pp. 16-17); – *Wasscher, M.*: On the 1925-1970 notebooks of the late Dr D.C. Geijskes (pp. 18-20); – New species for the European fauna (p. 21); – *Hoeffnagel, W.-J.*: Dragonflies of the Laegiskamp (pp. 21-22). – The issue also contains

several announcements, a book review and the membership list.

(10743) D'ANTONIO, C., 1996. Appunti odonatologici del dott. Vincenzo Ragazzi (1856-1929). (Odonata). *Opusc. zool. flumin.* 143: 1-10. (With Engl.s.). – (Via A. Falcone 386/b, I-80127 Napoli).
A commented transcript is presented of the odonatological text, contained in a recently discovered field diary of this well known Italian naturalist. The records and field notes from the Italian provinces of Basilicata and Campania are of considerable historical interest, but have remained so far largely unpublished and/or unnoticed.

(10744) [DE GROOT, T.], 1996. *Handleiding libellenmonitoring proefjaar 1996.* – *[Instructions for dragonfly monitoring 1996]*. De Groot, Utrecht. 6 pp. (Dutch). – (Bolivarstraat 89, NL-3573 ZX Utrecht).
A preliminary issue, to facilitate the 1996 work on the Netherlands odon. mapping project. Available free to the participants.

(10745) *The DRAGON-FLIER. Newsletter of the Ohio Dragonfly Survey*, Columbus, Vol. 6, No. 1 (Feb. 1996). – (c/o B. Glotzhober, Ohio Hist. Soc., 1982 Velma Ave., Columbus, OH 43211-2497, USA).
The issue contains no scientific notes, but there are several news items of general interest. Grants from the Div. of Wildlife are available to any survey worker to reimburse travel expenses for survey projects, and part-time contract field work is available for a project collaborator in the NE Ohio. – The Ed. collects orders for odon. collection storage boxes (16 3/8 × 5 3/4 × 3 1/2", price $ 8.75), which contain 5 unit boxes inside that divide the space, and which have to be stored in an air tight cabinet. (3 of them will fit in the space utilized by 2 Cornell insect drawers, and hold many more specimens in this same space). – The ODS Steering Committee is exploring the possibilities of forming an Ohio Chapter of the DSA.

(10746) *GOMPHUS. Mededelingsblad van de belgische libellenonderzoekers – Bulletin de liaison des odonatologues belges*, Vol. 11, No. 2 (Feb. 1996) (Dutch & Fr.). – (c/o G. De Knijf, Hofstraat 58, B-9000 Gent).
Goffart, P./M. Tailly: Editorial (pp. 25-26); – *Goffart, P.*: Situation actuelle de l'Agrion de Mercure (Coenagrion mercuriale) en Wallonie et propositions de mesures visant sa conservation (pp. 27-40); – *De Knijf, G.*: [A documented Red List of dragonflies in Flandres: the background, categories and the proposed species] (pp. 41-48); – *Annonces* (pp. 49-52).

(10747) *HAGENIA. Mitteilungsblatt des Nationalen Büros der SIO in der Bundesrepublik Deutschland und der GdO*, No. 11 (March 1, 1996). Edited by W. Piper (Unnastr. 6, D-20253 Hamburg) & U. Krüner (Gelderner Str. 39, D-41189 Mönchengladbach).
With the appointment of M. Schorr in the position of the SIO Secretary-General, the joined editorship has been taken over by Dr W. Piper, and the lay-out has been changed to the more attractive A5 size. The editorial policy remaines unaltered. – Signed articles: Editorials I/II, by resp. *M. Schorr* (p. 1) and *W. Piper* (pp. 1-2); – *Piper, W.*: Rückblick auf das XIII. Internationale Symposium Odonatologie der SIO in Essen 1995 (pp. 2-3); – *Kotarac, M.*: SIO-Symposium 1997 in Slowenien (p. 3); – *Peters, G.*: GdO-Jahrestagung 1995 in Berlin (pp. 4-5); – *Martens, A.*: Kommentierte Fassung der "Anforderungen an Manuskripte" von Libellula (pp. 5-11); – *Reinhard, K.*: Libellen auf Münzen (p. 16); – *Kretschmer, W.*: Deutsche Libellenbezeichnungen vor einem Menschenalter (pp. 18-20). – In addition to various announcements, book reviews and personal requests/communications, there are several notes under the traditional headings "Libellen und Literatur" (by *J. Lempert, K. Reinhard* and *F. Eislöffel*) and "Libellen und Musik" (by *J. Lempert*).

(10748) HÄMÄLÄINEN, M., Y. NORMA-RASHID & M. ZAKARIA-ISMAIL, 1996. Notes on Odonata collected in Kelantan (Peninsular Malaysia) in April 1995. *Opusc. zool. flumin.* 146: 1-11. – (First Author: Sunankalliontie 13, FIN-02760 Espoo).
51 spp. are listed from Gua Musang in SW Kelantan. Among the noteworthy spp. are Neurobasis longipes, Libellago stigmatizans and Archibasis rebeccae. Annotations on these and some others are provided.

(10749) HAWKING, J.H. & T.R. NEW, 1996. The development of dragonfly larvae (Odonata: Anisoptera) from two streams in north-eastern Victoria, Australia. *Hydrobiologia* 317(1): 13-30. – (First Author: Murray-Darling Freshw. Res. Cent., P.O. Box 921, Albury, NSW 2640, AU).
Developmental stages of 8 spp. from the Kiwa R. and Middle Creek were determined and their phenology investigated. The last 6-9 instars of each sp. were distinguished by size frequency and scatter

plots, using labium width, metafemur and wing-pad measurements, and the early instars were estimated from Dyar's Law. This suggests between 11 to 14 instars. 4 spp. appear to be univoltine, and 4 spp. semivoltine.

(10750) HOPPER, K.R., P.H. CROWLEY & D. KIELMAN, 1996. Density dependence, hatching synchrony, and within-cohort cannibalism in young dragonfly larvae. *Ecology* 77(1): 191-200. – (First 2 Authors: Cent. Ecol., Univ. Kentucky, Lexington, KY 40506, USA).
2 laboratory experiments are presented, designed to show how cannibalism and its effects on population numbers and size structure vary in response to density, size and food manipulations in larval Epitheca cynosura. Because young larvae of this sp. interact at very high densities after hatching asynchronously from clumps of egg masses, our efforts focused on these early stages. In one experiment, the combination of sizes (instars) and the presence of food for 233 pairs of early-instar larvae were varied. Cannibalism was uncommon if larvae were of the same instar (only 2.4% of such pairs exhibited cannibalism), frequent (53%) if larvae differed by 1 instar, and certain (100%) if a 2-instar size difference was present. The rate at which cannibalism increased with size differences between larvae was greater when food was absent than it was when food was provided. In a second experiment, replicate cohorts of newly hatched dragonflies were subjected to manipulations of hatching synchrony, initial density, and food availability. Asynchronous hatching over 25 d produced a broad size distribution apparently conducive to cannibalism, whereas synchronous hatching over 3 d initially precluded cannibalism. As a result, strong density-dependent mortality only appeared following the asynchronous hatch. For high-density, asynchronous treatments, cannibalism significantly reduced size variation and tightened size distributions over the course of development. Survivors from high-density treatments were significantly larger than were low-density survivors. More abundant food allowed larvae to reach larger sizes, but did not improve survival. Survival was affected mainly by the density and size distribution of larvae. These results suggest that cannibalism was more important than exploitative competition for food in determining the size and survival of dragonflies in the laboratory. It is concluded that when juveniles hatch asynchronously in close proximity, cannibalism can: (1) contribute to population regulation by imposing greater per capita mortality at high densities, and (2) increase population synchrony by exerting size-specific mortality on smaller individuals throughout development.

(10751) HORVÁTH, G. & J. ZEIL, 1996. Kuwait oil lakes as insect traps. *Nature, Lond.* 379: 303-304, fig. on p. vii. – (Second Author: Cent. Visual Sci., RSBS, Austral. Natn. Univ., P.O. Box 475, Canberra, ACT 2601, AU).
During the Gulf War in early 1991, Iraqi occupation forces blasted oil wells and pipelines in the desert of Kuwait, forming hundreds of oil ponds. These still exist and continue to trap various animals. Reductions in the oil level, due to evaporation and percolation into the ground, created distinct bands of insect carcasses at their edges. Bands of dead dragonflies may reflect arrivals of migrating insects at autumn and spring. In Oct. 1994 and Feb. 1995, the authors witnessed many aeshnid ♀♀ being trapped while attempting to lay eggs on the oil. – Optic properties are outlined, and it is emphasized the oil lakes function as an upscaled version of Schwind's experiments, offering unique opportunities for insect migration studies.

(10752) KALKMAN, V., 1996. Aanvulling op: Overzicht libellenwaarnemingen van Terschelling. *Amoeba, Amst.* 70(1): 23. (Dutch). – (Rijsterborgerweg 8, NL-7412 VA Deventer).
Supplementary notes to the paper listed in *OA* 10538, mainly relative to Lestes viridis and Erythromma viridulum.

(10753) KOTARAC, M., M. BEDJANIČ, A. PIRNAT & A. ŠALAMUN, 1996. Dragonfly records from the Dravograd area, northern Slovenia (Odonata). *Opusc. zool. flumin.* 144: 1-9. – (First Author: Antoličičeva 1, SI-2204 Miklavž-na-Dravskem polju).
An annotated list is given of 33 spp., collected at 41 localities, in July/Aug. 1995. Large feeding swarms of Aeshna mixta are reported from Kozjak Mts. Cordulegaster heros is for the first time recorded from Carinthia, Austria.

(10754) KOTARAC, M. & A. PIRNAT, 1996. Odonata collected in the Upper Soča River Valley, NW Slovenia. *Opusc. zool. flumin.* 144: 11-16. – (Second Author: Vošnjakova 4a, SI-1000 Ljubljana).
Records are presented of 22 spp., collected during 31 July - 8 Aug. 1993, at 20 localities (alt. 180-1260

m). Remarkable is the survival of a strong Ischnura pumilio population in an oxbow of the Soča R., nr Kamno, exposed to severe annual floods. The record of Somatochlora meridionalis from Tolmin indicates its deep penetration into the southern Alpine valleys.

(10755) *LIBELLENNIEUWSBRIEF*, Hilversum, Vol. 4, No. 1 (Feb. 1996). (Dutch). – (c/o V. Kalkman, Rijsterborgerweg 8, NL-7412 VA Deventer).
Signed articles: *de Groot, T.*: Inquire into diurnal rhythm of Aeshna viridis (pp. 7-9); – *Soernik, L. & R. van der Helm*: Observations on the Terschelling island Sympetrum species (pp. 10-14); – *[Anonymous]*: Distribution map of Aeshna affinis in the Netherlands (p. 15).

(10756) *LINDENIA. Notiziario dell'Uffizio nazionale italiano della Società odonatologica internazionale*, Roma, No. 25 (Jan. 1, 1996). – (c/o Prof. Dr C. Utzeri, Dipto Biol. Anim. & Uomo, Univ. Roma "La Sapienza", Viale dell'Università 32, I-00185 Roma).
In addition to various management notes, announcements, etc., the issue contains a brief progress report on the "Archivio Hemianax" (p. 111), and the current Italian odonatol. bibliography (p. 112), both by the Ed.

(10757) LOCKTON, A.J., S. BELLIS, I. CHEESEBOROUGH & S.J. WHILD, 1996. *The dragonflies of Shropshire*. Wildscan Ecol. Consultants, Shrewsbury. ii+46 pp. – ISBN none. – Price: £ 5.- net. – (Publishers: 66 North St., Castlefields, Shrewsbury, SY1 2JL, UK).
Subsequent to the work listed in *OA* 3853, this is the second monographic treatment of the Shropshire dragonfly fauna. 29 spp. were so far sighted there, of which 25 are considered autochthonous, though the status of Brachytron pratense is uncertain. Several of the more southern spp. appear to be expanding their range northwards. There is no evidence to suggest that any of the county's native spp. have become extinct since the industrial revolution, and several of the key sites are now well protected, though, generally, wetland ecosystems are threatened by a wide range of local and long-distance anthropogenic vectors. – Most of the book is devoted to species accounts (pp. 9-37). These present locality lists (with the yr of sighting stated), adult phenology graphs, and distribution maps. In the latter, the prior- and post 1982 records are distinguished. The summary descriptions of some of the key sites, and a species-crossreferenced tab. of sites with 10 or more recorded spp. will be most useful. For the sake of convenience, a model of the Record card is appended. All records should be sent to: The Shropshire Biol. Rec. Cent., Ludlow Mus., Old St., Ludlow, SY8 1NW, UK.

(10758) MOORE, N.W., [Ed.], 1996. Report of the 9th Meeting of the I.U.C.N. Odonata Specialist Group. *Rep. Odon. Specialist Group Int. Un. Conserv. Nat.* 11: 1-12. – (Copies available at NLG 20.- net, from *Odonatologica* Ed. Office: P.O. Box 256, NL-3720 AG Bilthoven).
Contains regional reports by *M. Samways* (South Africa, pp. 2-3), *S. Asahina* (Japan, p. 4), *M. Hämäläinen* (The Philippines, pp. 4-5), *J. van Tol* (Southeast Asia, pp. 5-6), *R. Rowe* (Australia and Pacific, p. 7), *Z. Spuris* (Baltic States and Russia, pp. 7-8), *R. Bernard* (Poland, p. 8), *E. Schmidt* (Western Europe, p. 8), *A. Machado* (Central and South America, pp. 8-9), *D. Paulson* (Central and South America, less Brazil, p. 9), *S. Dunkle* (North America, pp. 9-11). – The Ed. (*N.W. Moore*, pp. 11-12) reports on the IUCN Red List of Threatened Animals (in which 138 odon. spp. are included; cf. *OA* 10350), on the "Dragonfly Action Plan" (listing 19 spp. as chosen for an initial pilot study because of their taxonomic isolation or unusual biology), and on the future operation of the Odonata Specialist Group.

(10759) OERTLI, B. & E. PONGRATZ, 1996. *Les odonates (libellules) du canton de Genève: atlas de répartition et mesures de conservation*. Centre suisse Cartogr. Faune, Neuchâtel. 118 pp., 13 col. pls incl. ISBN 2-88414-009-3. *[Miscnea faunist. Helvet. 5]*. – Price: CHF 45.50 net, postage incl. – (First Author: Lab. Ecol. & Biol. aquat., Univ. Genève, 18 ch. des Clochettes, CH-1206 Genève; – Second Author: 174A rte de Veyrier, CH-1234 Vessy-Genève; – Publishers: Terreaux 14, CH-2000 Neuchâtel).
A nicely produced distribution atlas of the 36 spp. known to occur in canton Genova, Switzerland. Brief annotations on the local status, some localities and on the habitat ecology are provided along with distribution maps and regional bibliography. Considerations on the tentative habitat conservation measures and a list of particularly important habitats are appended.

(10760) OTT, J., 1996. Zeigt die Ausbreitung der Feuerlibelle in Deutschland eine Klimaveränderung? Mediterrane Libellen als Indikatoren für Änderung

in Biozönosen. *NatSchutz LandschPfl.* 28(2): 53-61. – (L.A.U.B., Hölzengraben 2, D-67657 Kaiserslautern).
The post-1980 range expansion of Crocothemis erythraea in Germany is analysed, and tentatively largely contributed to the recent change of climate. This is supported also by the increased occurrence of some other mediterranean odon. (and other) spp., and by the altered phenology of some of them. The high climate-monitoring value of C. erythraea is emphasized.

(10761) PITTMAN, S., 1996. Sympetrum dragonflies (Odonata: Libellulidae) in Great Yarmouth – a migration? *Ent. Rev. J. Var.* 108(1/2): 16. – (101 Old Hale Way, Hitchin, Herfords., SG5 1XR, UK).
From a locality at Great Yarmouth, Norfolk, UK, S. vulgatum and S. flaveolum are recorded in numbers (1/5-VIII-1995). A single S. danae individual was also sighted in an unusual environment. The Aug. 1995 sightings of S. flaveolum are listed, and all 3 spp. are considered migrants at the time and place of their sightings.

(10762) *REPORTS OF THE ODONATA SPECIALIST GROUP*, Species Survival Commission, International Union of Conservation of Nature and Natural Resources (I.U.C.N.), No. 11 (Jan. 31, 1996). Edited by Prof. Dr N.W. Moore (Farm House, 117 Boxworth End, Cambridge, CB4 5RA, UK), published by *Odonatologica*, Bilthoven. – (Orders to: P.O. Box 256, NL-3720 AG Bilthoven).
See *OA* 10758.

(10763) SCHNEIDER, D.W. & T.M. FROST, 1996. Habitat duration and community structure in temporary ponds. *Jl N. Am. benthol. Soc.* 15(1): 64-86. – (Cent. Limnol., Univ. Wisconsin, 680 North Park St., Madison, WI 53706, USA).
The hypothesis is investigated that the duration of a habitat following disturbance mediates the relative importance of physical and biotic control. Detailed information on natural populations in a series of temporary ponds is combined with small-scale experiments on specific processes. 8 odon. genera are considered.

(10764) *SELYSIA. Newsletter of the Societas Internationalis Odonatologica*, Vol. 23, No. 2 (dated Feb. 1, 1995, handcorrected into 1996, received Feb. 20, 1996). Edited by M. Schorr (Waldfrieden 25, D-54314 Zerf) & J. Silsby (1 Haydn Ave., Purley, Surrey, CR8 4AG, UK).
Under the new editorship, the newsletter ceased as a simultaneous newsletter of the SIO US Natn. Office. The present issue contains reproductions of various documents from the Essen (1995) Business and Council meetings, and a few management items. – (*Abstracter's Notes*: [1] According to a recent communication from Bro *A. Pinratana*, and contrary to his earlier statement as published in this issue, the publication of *MALANGPO* is to continue as heretofore; it is financed by *Odonatologica*, and the non-Thai subscription orders are to be sent solely to the *Odonatologica* Ed. Office in Bilthoven; – [2] All SIO members and other subscribers in-good-standing on Dec. 1, 1995 and/or those who have/will have settled the usual subscription with Mrs M. Kiauta of the *Odonatologica* Ed. Office in Bilthoven, are/will be receiving *ODONATOLOGICA & NOTULAE ODONATOLOGICAE* regularly as heretofore. All subscriptions for these 2 periodicals are payable solely to the Editorial Office in Bilthoven, Holland).

(10765) VAN BUGGENUM, H.J.M., 1996. De Bronlibelle in Echt. – Cordulegaster boltonii (Odonata) in Echt. *Natuurh. Maandbl.* 85(1): 18-19. (Dutch, with Engl.s.). – (Rijdtstraat 118, NL-6114 AM Susteren).
A commented list of 10 sightings (1988-1995) in Echt, Zuid Limburg prov., the Netherlands.

(10766) VAN DELFT, J., 1996. *Libellenwaarnemingen in de gemeente Waalre in 1995.* – *[Dragonfly observations in the municipality of Waalre, 1995]*. Van Delft, Waalre. 14 pp., 2 pp. inlay excl. (Dutch). – (Gladioluslaan 22, NL-5582 CD Waalre).
A commented list of 20 spp., from 7 wetland habitats; – Noord Brabant prov., the Netherlands.

(10767) WERNER, E.E. & B.R. ANHOLT, 1996. Predator-induced behavioral indirect effects: consequences to competitive interactions in anuran larvae. *Ecology* 77(1): 157-169. – (First Author: Dept Biol., Univ. Michigan, Ann Arbor, MI 48109, USA).
The non-lethal effects of Anax junius on the competitive interactions among several size classes of anuran larvae are examined. In an outdoor experiment, using cattle watering tanks, the effects were estimated of both large and small bullfrogs (Rana catesbeiana) on themselves, on each other, and on small green frogs (R. clamitans) in the absence and

non-lethal (caged) presence of Anax. The presence of Anax depressed both growth and survivorship of small bullfrogs and green frogs. In contrast, the presence of Anax had positive effects on growth rates and size at metamorphosis of the large bullfrogs. Increasing density of competitors also decreased survivorship of small classes, and growth rates of all classes. The per-unit-biomass competitive effects of the small bullfrogs on target classes were much greater than those of large bullfrogs. The presence of Anax significantly altered the per-unit-biomass competitive effects of small bullfrogs but not large bullfrogs, presumably because individuals in the small class reduced their activity rates in the presence of Anax. Overall production of new tadpole biomass was quite similar across experimental units, with decreases in production of small size classes in the presence of Anax compensated for by increases in production of the large size class. Thus the non-lethal presence of Anax had substantial effects on the nature of competitive interactions in this system, and we discuss the implications of such behavioural indirect effects in the study of ecological communities. The results also illustrate the futility of attempting to partition the effects of competitors and predators, as both competitors and the non-lethal presence of predators significantly affected growth rates and death by starvation of small larvae. Finally, the results illustrate how individual behavioural responses may be translated to community and ecosystem properties.