

ODONATOLOGICAL ABSTRACTS

1992

- (18062) DE MARCO, P., Jr, 1992. *Community structure and co-occurrence of larval odonate species: a morphological approach*. Tese Mestre Ciên. Biol., Univ. Campinas. ix+80 pp. (Port., with Engl. s.). – (Lab. Ecol. Teórica, Depto Biol. Geral, Univ. Fed. de Goiás, BR-74001-970 Goiânia, GO).
Studies on odon. larvae have shown the existence of feeding territories, suggesting that competition for foraging patches may be an important factor in community structuring. Field studies however have failed to demonstrate competition, and have suggested that fish predation and cannibalism among larvae are important regulating factors. Here, the co-occurrence patterns among larvae in several aquatic plants are examined in order to evaluate the importance of these interactive processes to the explanation of the observed patterns. Odon. were sampled on aquatic plants in the states of Minas Gerais and São Paulo (Brazil). 14 measures were taken of the body, head and labium of each individual. Cluster analysis showed 2 types of communities associated with macrophytes of distinct architecture. The submerged *Egeria densa*, *Myriophyllum brasiliense* and the emergent *Eleocharis mutata* had *Ischnura fluviatilis*, *Micrathyrina hesperis*, *Erythrodiplax* sp. and *Acanthagrion* sp. as dominants, whereas the floating *Eichhornia crassipes* and *Salvinia* sp. were dominated by *Miathyrina simplex* and *Telebasis filiola*. The morphometry data demonstrated convergence within the sets. The spp. characteristic of floating plants have greater eye width and smaller anterior, medium and posterior femur length, when compared to the spp. living in submerged and emergent macrophytes. In order to test the importance of interactive processes as

determinants of the morphological patterns of co-occurring spp. (limited similarity hypothesis), null models were built representing the expected patterns if the communities were assembled through random selection from the sampled spp. The *Egeria densa* community showed smaller morphometric distances among spp. than that expected by chance, suggesting convergence mechanisms in relation to possible colonizing morphologies. The larvae in *Myriophyllum brasiliense* tended to separate more than expected by chance, suggesting an effect of interspecific competition. The consistency between 2 different null model constructions was an interesting way to evaluate the behaviour of the statistical test, in the identification of non-random patterns. It is suggested as an important methodological approach.

2000

- (18063) PONTA, U., 2000. Makrozoobenthische Bestandsaufnahme an zwei Kärntner Bäche (Wölfnitz und Wimitz) und deren Analyse. *Carinthia* (11) 190/110: 635-640. – (Kärntner Inst. Seenforschung, Flatschacher Str. 70, A-9021 Klagenfurt). Includes a reference to the recorded *Calopteryx splendens* and *Onychogomphus forcipatus*, but without the exact localities (central Carinthia, Austria).
- (18064) PORNIN-SIRIRAK, T.N., S.W. LEE, H. NASSEF, J. GRASSMEYER, Y.C. TAI, C.M. HO & M. KEENNON, 2000. MEMS wing technology for a battery-powered ornithopter. *Proc. 13th IEEE annu. int. Conf. MEMS*, Miyazaki, 6 pp. (not paged). – (First Author: Caltech Micromachining Lab., 136-93, Pasadena, CA 91125, USA).

The "ornithopter" is a technical term for a Micro Aerial Vehicle (MAV), flying by flapping wings (total wingspan less than 15 cm, weight 7-10 g). A novel wing technology, developed using titanium-alloy metal as wingframe and parylene C as wing membrane, is described. A reference is made to the earlier fabricated silicon dragonfly wings. However, silicon wingframes were too fragile, therefore it was now replaced by a new process using titanium-alloy.

2001

- (18065) KAGAN, J. et al., 2001. *Rare, threatened and endangered plants and animals of Oregon*. Oregon Natural Heritage Program, Portland/OR. 94 pp. ISBN none. – (Publishers: 1322 S.E. Morrison St., Portland, OR 97214-2531, USA).

Includes a commented list of 4 odon. spp., of which 3 spp. are considered too common, while for *Gomphus lynnae* the Heritage Rank and Federal Status are stated.

- (18066) MEADS, M.J. & B.M. FITZGERALD, 2001. List of invertebrates on Mokoia Island, Lake Rotorua. *Conserv. advisory Sci. Notes* 341: ii+9 pp. – (Ecol. Res. Associates of New Zealand, P.O. Box 48-147, Silverstream, Upper Hutt, NZ).

Hemicordulia australiae is the only odon. sp. encountered during a 3-day survey in Feb. 2000; – North Island, New Zealand.

- (18067) PERRON, J.-M. & Y. RUEL, 2001. Addition à la faune odonatologique du territoire du marais Léon-Provancher, Neuville, Québec. *Naturaliste can.* 125(1): 37-38. – (First Author: 506-963, rue Gradjean, Sainte Foy, QC, G1X 4P9, CA).

8 spp. are added to the paper listed in *OA* 13309, bringing the number of the spp. known from this locality up to 50.

- (18068) YAGI, T. & K. KITAGAWA, 2001. A survey of the dragonflies in the Klias and Binsulok Forest Reserves, Sabah, Malaysia. *Nature & human Activities* 6: 31-39. – (First Author: Div. Nat. Hist., Mus. Nature & Human Activities, Hyogo, Yayoigaoka 6, Sanda, Hyogo, 669-1546, JA).

A commented list of 28 spp., of which 22 spp. from the Klias Forest Reserve and 21 spp. from that of Binsulok.

2002

- (18069) FELLOWES, J.R. et al., [Eds], 2002. Report of a rapid biodiversity assessment at Huaping National Nature Reserve, Northeast Guangxi, China, 15 to 20 August 1998. *Sth China Forest Biodiv. Surv. Rep. Ser.* 15 (Online Simplified Version): ii+22 pp. – (Kadoorie Farm & Bot. Garden, Lam Kam Rd, Tai Po, N.T., Hongkong, SAR, China).

A commented checklist of 26 recorded odon. spp.

- (18070) PERRON, J.-M. & Y. RUEL, 2002. Saison de vol des odonates du territoire du marais Léon-Provancher, Neuville, division de recensement de Fortneuf (Québec). *Naturaliste can.* 126(2): 13-17. – (First Author: 506-963, rue Gradjean, Sainte Foy, QC, G1X 4P9, CA).

The first and last sighting dates are given for adults of the 50 spp. in the Provancher marsh (cf. *OA* 13309 and 18067) and compared with those hitherto known from Quebec, Canada.

2003

- (18071) CHAN, B.P.L. et al., [Eds], 2003. Summary of findings from some rapid biodiversity assessments in West Guangxi, China, July 1999. *Sth China Forest Biodiv. Surv. Rep. Ser.* 36 (Online Simplified Version): ii+15 pp. – (Kadoorie Farm & Bot. Garden, Lam Kam Rd, Tai Po, N.T., Hongkong, SAR, China).

Includes lists of Odon. recorded from Gulongshan Nature Reserve (9 spp.), Nongxin Nature Reserve (2 spp.), Nonghua Nature Reserve (6 spp.), Bailing Tun (5 spp.), and from Daxin Nature Reserve (12 spp.).

- (18072) DOODY, K. & O. HAMERLYNCK, 2003. Biodiversity of Rufiji district. *Rufiji Envir. Mngmt Project tech. Rep.* 44: 11+101 pp. – (Rufiji Environment Management Project, P.O. Box 13513, Dar es Salaam, Tanzania).

The district is situated S of Dar es Salaam, Tanzania. 69 odon. spp. were hitherto recorded, including *Ceriatrigon mourae* and *Gynacantha immaculifrons* that are here recorded for the first time since their type description (from Mozambique and Democratic Republic of Congo, respectively). 8 spp. are of conservation concern. All spp. are listed in a table, along with the types of habitat where they occur.

(18073) FELLOWES, J.R. et al., [Eds], 2003. Report of rapid biodiversity assessment at Shiwandashan National Nature Reserve and National Forest Park, Southwest Guangxi, China, 2000 and 2001. *Sth China Forest Biodiv. Surv. Rep. Ser. 35* (Online Simplified Version): ii+30 pp. – (Kadoorie Farm & Bot. Garden, Lam Kam Rd, Tai Po, N.T., Hongkong, SAR, China).
During the survey only 4 odon. spp. were recorded, including *Megalestes* sp. n., which is different from another undescribed congener, collected in Damingshan in 2000 and in Xidamingshan in 1998. Many more spp. were recorded in 1997; some of these (forest-associated) are listed.

(18074) SAMSON, N., 2003. *Etude du degre de dispersion et des facteurs favorables à la reproduction de la Cordulie à corps fin, Oxygastra curtisii (Dale, 1834), dans les Mauges (49)*. Centre permanent d'initiatives pour l'environnement, Beaupreau. 73 pp. – (Publishers: Maison de Pays "La Loge", F-49600 Beaupreau).

A study of *O. curtisii* population biology and dispersal in the department of Mauges, France, based on mark-recapture of adults and on exuviae. The life history is described and the distribution of the sp. in France and in the department is mapped.

2004

(18075) CHAN, B.P.L. et al., [Eds], 2004. Report of rapid biodiversity assessment at Dachouding and Sanyue Nature Reserves, Northwest Guangdong, China, April 2001. *Sth China Forest Biodiv. Surv. Rep. Ser. 37* (Online Simplified Version): ii+33 pp. – (Kadoorie Farm & Bot. Garden, Lam Kam Rd, Tai Po, N.T., Hongkong, SAR, China).
A checklist of 9 recorded odon. spp.

(18076) CHAN, B.P.L. et al., [Eds], 2004. Report of a rapid biodiversity assessment at Dawuling Nature Reserve, Southwest Guangdong, China, June/July 2002. *Sth China Forest Biodiv. Surv. Rep. Ser. 38* (Online Simplified Version): ii+19 pp. – (Kadoorie Farm & Bot. Garden, Lam Kam Rd, Tai Po, N.T., Hongkong, SAR, China).
A checklist of 13 recorded odon. spp.

(18077) CHAN, B.P.L. et al., [Eds], 2004. Report of a rapid biodiversity assessment at Heishiding Nature Reserve, West Guangdong, China, July 2002.

Sth China Forest Biodiv. Surv. Rep. Ser. 39 (Online Simplified Version): ii+19 pp. – (Kadoorie Farm & Bot. Garden, Lam Kam Rd, Tai Po, N.T., Hongkong, SAR, China).

A habitat annotated list of 37 recorded odon. spp.

(18078) CHAN, B.P.L. et al., [Eds], 2004. Report of a rapid biodiversity assessment at Luokeng Nature Reserve, North Guangdong, China, September 2002. *Sth China Forest Biodiv. Surv. Rep. Ser. 40* (Online Simplified Version): ii+19 pp. – (Kadoorie Farm & Bot. Garden, Lam Kam Rd, Tai Po, N.T., Hongkong, SAR, China).

A checklist of 23 recorded odon. spp.

(18079) RAMANUJAM, M.E. & B. VERZHUT-SKII, 2004. On the prey of spotted owlet *Athene brama* (Temminck), in a forested ravine in Auroville, Pondicherry. *Zoos' Print J.* 19(10): 1654-1655. – (First Author: Pitchandikulam Bio-Resour. Cent., Auroville, Pondicherry-605101, India).

In the 197 pellets of a nesting pair, collected during 2 breeding seasons at its habitual nesting site, 2122 food items (pertaining mostly to insects of 11 orders and mice), including the remains of a single odon. individual, were identified.

(18080) RAMANUJAM, M.E. & B. VERZHUT-SKII, 2004. The prey of the greater false vampire bat, *Megaderma lyra* E. geoffroy, at Kaliveli, Tamil Nadu. *Zoos' Print J.* 19(10): 1655-1656. – (First Author: Pitchandikulam Bio-Resour. Cent., Auroville, Pondicherry-605101, India).

Kaliveli is dominated by a lake that is said to be one of the 2 most important wetlands along the Coromandel Coast of S India. In a random sample of faeces, 3936 prey items were identified, including the remains of 15 odon. individuals.

(18081) RAMANUJAM, M.E. & B. VERZHUT-SKII, 2004. Prey of the Indian pipistrelle bat, *Pipistrellus coromandra* (Gray), at Auroville, southern India. *Zoos' Print J.* 19(12): 1720. – (First Author: Pitchandikulam Bio-Resour. Cent., Auroville, Pondicherry-605101, India).

Among 267 araneid and insect prey items, 2 odon. specimens were identified in the faeces.

2005

(18082) *KAWARTHA HIGHLANDS SIGNATURE*

- SITE [PARK]: Management plan background information**, 2005. Ontario Parks. 104 pp. ISBN 0-7794-9039-8. — (Kawartha Highlands Signature Site Park, P.O. Box 500, 106 Monck St., Bancroft, ON, K0L 1C0, CA).
Based on the Atlas of Ontario Odonata database (2001), 74 odon. spp. are known to have been recorded from Kawartha Highlands or from within 3 km of the boundary (a checklist is not provided here). The Park is located 50 km N of Peterborough, Ontario, Canada.
- (18083) PERRON, J.-M., L.-J. JOBIN & A. MÖCHON, 2005. Odonatofaune de la Yamaska, division de recensement de Shefford, Québec. *Naturalist can.* 129(2): 17-25. — (First Author: 506-963, rue Gradjean, Sainte Foy, QC, G1X 4P9, CA).
A commented list of the 68 spp. known from the Yamaska National Park. The fauna is compared with species lists from 3 other regions in southern Quebec, Canada.
- (18084) TOTH, S., 2005. Monitoring dragonflies on the section of the Dráva between Ortilos and Vizvár (Insecta: Odonata). *Natura somogyensis* 7: 35-48. (With Hung. s.). — (Széchenyi u. 2, HU-8420 Zirc).
The operation of a power plant projected on the Croatian section of the Drava (at Novo Virje) could trigger unfavourable changes in the odon. fauna on the Hungarian side, where the shallow wetlands are particularly vulnerable. Here, the results are presented of a 5-yr monitoring (2000-2004), with particular reference to the current status of the 14 in Hungary red-listed spp. and to 5 spp. listed in the Berne Convention.
- (18085) TOURENQ, C., I. BARCELO, A. KUMARI & C. DREW, 2005. *The terrestrial mammals, reptiles and invertebrates of Al Wathba wetland reserve: species list and status report*. Terrestrial Envir. Res. Cent., Abu Dhabi. 11+26 pp. — (Publishers: Environmental Research & Wildlife Development Agency, P.O. Box 45553, Abu Dhabi).
Presents a checklist of 9 odon. spp. recorded from the Reserve; — Abu Dhabi.
- (18086) VANAPPELGHEM, C., 2005. Statut de *Sympetrum flaveolum* (L., 1758) dans la région Nord — Pas-de-Calais. *Héron* 38(1/2): 107-113. — (15 rue Brulé Maison, F-59000 Lille).
- The status of *S. flaveolum* in the region Nord — Pas-de-Calais (France) is reviewed, and the known localities are mapped.
- (18087) VENTURELLI, P.A. & W.M. TONN, 2005. Invertivory by northern pike (*Esox lucius*) structures communities of littoral macroinvertebrates in small boreal lakes. *J.N. Am. benthol. Soc.* 24(4): 904-918. — (Second Author: Dept Biol. Sci., Univ. Alberta, Edmonton, AB, T6G 2E9, CA).
Although the pike is normally piscivorous, its occurrence triggers a shift in the macroinvertebrate community from large conspicuous taxa (e.g. odon.) toward less conspicuous taxa such as dipterans and trichoptera, as it is shown here experimentally on a small boreal lake in N-central Alberta, Canada.

2006

- (18088) KARSCH, A., 2006. *Naturschutzfachliches Rahmenkonzept für das Westliche Dachauer Moos. Grundlagenplanung für ein Projekt im BayernNetz Natur*. Diplomarbeit. Hochschule Anhalt. 204 pp. 31 odon. spp. are listed from the area, including the locally important *Calopteryx splendens*, *C. virgo*, *Sympetma fusca* and *Orthetrum coerulescens*.
- (18089) PFEIFFER, B.M., 2006. *The dragonflies and damselflies of Teal Farm, Huntington, Vermont*. Wings Environmental, Plainfield/VT. iv+10 pp. — (113 Bartlett Rd, Plainfield, VT 05667, USA).
The fauna is described (36 spp. + 2 on genus level only) and annotations are provided on some notable taxa.
- (18090) SKILSKY, I.V., L.N. KHLUS & L.I. MELESHCHUK, 2006. Trophic relations of Stonechat of the Prut-Dniester interfluvium of Ukraine and Bukovinian Carpathians. *Ekologiya*, Berkut 15(1/2): 132-137. (Russ., with Engl. s.). — (First Author: P.O. Box 532, UKR-58001 Chernivtsi).
In the stomachs of the birds (*Saxicola torquata*) from the Chernivtsi region (W Ukraine), *Coenagrion hastulatum*, *Gomphus vulgatissimus* and *Aeshna cyanea* were found among the remnants of 164 animal food components.
- (18091) TOSH, C.R. & G.D. RUXTON, 2006. Artificial neural network properties associated with wiring patterns in the visual projections of vertebrates and arthropods. *Am. Nat.* 168(2): E38-E52.

– (Div. Envir. & Evol. Biol., Inst. Biomed. & Life Sci., Univ. Glasgow, Glasgow, G12 8QQ, UK).

The functioning is modelled of different wiring schemes in visual projections, using artificial neural networks and it is speculated on selective factors underlying taxonomic variation in neural architecture. Generally, arthropod networks are as efficient or more efficient in functioning compared to vertebrate networks. They do not show the confusion effect (decreasing targeting accuracy with increasing input group size). Unfortunately, little is known on the detailed neuroanatomy of the insect spp. in which the confusion effect is best established (*Aeshna cyanea*) and, generally, the peripheral visual and optic lobe neuroanatomy of Odon. is less well characterized than that of Diptera and Crustacea.

- (18092) TOLONEN, T., M. PIHLSTROM, L. ARVOLA & M. RASK, 2006. Concentrations of heavy metals in food web components of small boreal lakes. *Boreal Environ Res.* 11: 185-194. – (First Author: Lammi Biol. Stn, Univ. Helsinki, Pääjärvent 320, FI-16900 Lammi).

The Cd, Cr and Pb concentrations in Odon. from the Tavilampi and Horkkajärvi lakes (S Finland) are stated.

- (18093) VAN SWAAY, C., D. GROENENDIJK & C. PLATE, 2006. *Monitoring butterflies and dragonflies in the Netherlands in 2005*. Rapp. VS2006.020, De Vlinderstichting, Wageningen. 29 pp. (Dutch, with Engl. s.). – (De Vlinderstichting, P.O. Box 506, NL-6700 AM Wageningen).

The odon. were counted every fortnight (May-Sept) at 328 sites. *Enallagma cyathigerum* was the most common sp. (over 70.000 individuals) and *Ischnura elegans* was the most widespread sp. (almost 20.000 individuals). An alarming decrease in *Aeshna viridis* and *Coenagrion hastulatum* was noticed, whereas another Red List sp., *Calopteryx virgo*, shows a positive trend.

2007

- (18094) BESSE-LOTOTSKAYA, A., R.C.M. VERDONSCHOT, P.F.M. VERDONSCHOT & J. KLOSTERMANN, 2007. Doorwerking klimaatverandering in KRM-keuzen: casus beken en beekdalen (literatuurtudie). – [Effect of climate change on the Netherlands government policies: the case of brooks and brook valleys (a study of literature)].

Alterra-Rapp. 1536: 1-134. (Dutch). – (Alterra, P.O. Box 47, NL-6700 AA Wageningen).

Includes a review of ecological preferences and tolerances of selected odon. spp.

- (18095) BOTELHO, M.L.L.A., L.M. GOMIERO & F.M.S. BRAGA, 2007. Feeding of *Oligosarcus hepsetus* (Cuvier, 1829) (Characiformes) in the Serra do Mar State Park, Santa Virginia Unit, São Paulo, Brazil. *Braz. J. Biol.* 67(4): 741-748. (With Port. s.). – (Depto Zool., Inst. Biociênc., Univ. Estad. Paulista, Av. 24 A, No. 1515, C.P. 199, BR-13506-900 Rio Claro, SP).

The *O. hepsetus* diet is described. The Alimentary Preference Degree and the frequency of occurrence indices were used in analysis of the food items. The fish is carnivorous: the smaller individuals are principally insectivorous (incl. odon.), while the larger ones are ichthyophagous. The importance of the streamside forests is emphasized.

- (18096) SETHY, P.G.S. & S.Z. SIDDIQI, 2007. Observations on odonates in Similipal Biosphere Reserve, Mayurbhanj, North Orissa. *Zoos' Print J.* 22(11): 2893-2894. – (At-Kadei, Po-Uchapada, Via-Kotsahi, Cuttack distr., Orissa-754022, India).

A checklist of 16 spp., recorded (2003-2004) from the Reserve (Orissa, India).

- (18097) TONG, J., Y. ZHAO, J. SUN & D. CHEN, 2007. Nanomechanical properties of the stigma of dragonfly *Anax parthenope julius* Brauer. *J. Mater. Sci.* 42: 2894-2898. – (First Author: Coll. Biol. & Agric. Eng., Jilin Univ., Nanling Campus, Changchun-130025, China).

The mass of the wings of a dragonfly is only 1-2% of its whole body mass, but the wings can stabilize its body and have a high load-bearing ability during flight. A wing is composed of veins, membranes, nodus and pterostigma. The veins are mainly made up of chitin material, which is a kind of crystalline polymer with similar characteristics as cellulose or teflon. There is some resilin, a rubberlike protein, in the vein joints, which is used for controlling torsion. The nodus lies in the centre of the leading edge, whereas the pterostigma is situated near the wing tip. The nodus and the pterostigma may not only improve the flexibility but also prevent fatigue fracture of the wings. The pterostigma plays such roles as balance of the mass centre, stabilization

of high-speed flight and elimination of the airflow vibration. If it is cut off the wings, the dragonfly can still fly, but the flight becomes unstable. Here, the pterostigma nanomechanical properties were investigated using a nanoindenter.

- (18098) WALDHAUSER, M. & I. WALDHAUSEROVÁ, 2007. Interesting findings of dragonflies (Odonata) in the Liberec region. *Sb. severočesk. Muz. (Přir. Vědy)* 25: 39-48. (Czech, with Engl. s.). – (Petrovice 136, CZ-471 25 Jablonné v Podještědí). The 1999-2006 records of 15 Anisoptera spp. are presented and discussed (Czech Republic). Among these, *Aeshna caerulea*, *Cordulegaster bidentata*, *Somatochlora arctica*, *Sympetrum depressiusculum* and *S. meridionale* are considered most remarkable spp.

2008

- (18099) COLLEN, B., M. RAM, N. DEWHURST, V. CLAUSNITZER, V. KALKMAN, N. CUMBERLIDGE & J.E.M. BAILLIE, 2008. Broadening the coverage of biodiversity assessments. [A chapter of 9 pp.] in: J.-C. Vie et al., [Eds], *The 2008 review of the IUCN Red List of threatened species*. IUCN, Gland. ISBN 978-2-8317-1063-1. – (Publishers: Rue Mauverney 28, CH-1196 Gland).

Contains information on 3 restricted-range spp. (*Platycnemis pembipes*, *Amanipodagrion gilliesi*, *Oreocnemis phoenix*), on climate change impact on *Hemiphysalis mirabilis*, and a reference to *Viridithemis viridula* (known from a single ♀, Madagascar).

- (18100) CONTRERAS-GARDUNO, J., B.A. BUZZATTO, M.S. SERRANO-MENESES, K. NÁJERA-CORDERO & A. CÓRDOBA-AGUILAR, 2008. The size of the red wing spot of the American rubyspot as a heightened condition-dependent ornament. *Behav. Ecol.* 2008: 9 pp.; – DOI: 10.1093/beheco/arn026. – (Last Author: Depto Ecol. Evolutiva, Inst. Ecol., UNAM, Apdo Postal 70-275, MX-04510 Ciudad Universitaria, Goyoacán, DF).

An ornamental trait known to reflect δ -fighting ability is investigated and it is tested whether it shows heightened condition dependence compared with non-ornamental traits in *Hetaerina americana*. Adult δ bear red wing spots, the size of which is sexually selected: large-spotted and fatter δ

are more successful in territorial competition and obtain more matings than are non-territorial δ . First, to see whether spot area may signal fighting ability at a particular age (to discriminate animals that are unlikely to compete), the age was investigated at which δ engaged more in fighting and compared their fat reserves and muscle mass at 3 ages (young, middle aged, and old) and territorial status. Middle-aged δ showed the highest fat and muscle values, engaged more in fighting, and were predominantly territorial. Second, it was looked for traits not shaped by sexual selection: comparing red chroma and brightness of spot and thorax, spot area, muscle mass, and fat reserves in winner and loser δ after a territorial contest. The only difference was that winners had larger spot areas and higher fat reserves. Finally, an immune challenge-based experiment was performed during the development of spot area and its colour properties (chroma and brightness). Compared with a control (unchallenged) group, the results revealed that area decreased, brightness increased, and there was no change in red chroma, muscle mass, and fat reserves in challenged animals. Thus, spot area is a stress-sensitive, energy-reflecting trait that is likely to be used for communication during territorial competition in this zygopteran.

- (18101) MOOG, O. et al., [Eds], 2008. Proceedings of the scientific conference “*Rivers in the Hindu Kush-Himalaya: ecology and environmental assessment*”. ASSESS-HKH project, Univ. Natur. Resour. & Applied Life Sci., Vienna. vi+202 pp. ISBN 978-3-00-024806-1. – (Ed.: Abt. Hydrobiol., Inst. Wasserversorge, Univ. Bodenkultur, Feistmantelstr. 4, A-1180 Wien).

The vol. contains papers presented at the Conference held in Kathmandu and Dhulikhel (Nepal), 3-7 March 2008. Those including references to the Odon. are: *Hartmann, A. & O. Moog*: Development of a field screening methodology to evaluate the ecological status of the streams in the HKH region (pp. 17-24); – *Ofenböck, T., O. Moog & S. Sharma*: Development and application of the HKH Biotic Score to assess the river quality in the Hindu Kush-Himalaya (pp. 25-32); – *Sharma, S., O. Moog, A. Schmidt-Kloiber & K. Brabec*: Contribution to the knowledge of aquatic macroinvertebrates from Hindu Kush-Himalaya (pp. 41-48); – *Sharma, S., R. M. Bajracharya, H. Neseemann, R.D. Tachamo, D.N. Shah & S. Timsina*: Results and consequences of

- the ASSESS-HKH research project in Nepal (pp. 55-63); – Bari, M.F., A.B.M. Badruzzaman, M.S. Alam, M.M. Hoque, M. Saha, T. Huber, B. Fliedl & M.A. Rahman: Results and consequences of the ASSESS-HKH research project in Bangladesh (pp. 65-76); – Shrestha, M., B. Pradhan, D.N. Shah, R.D. Tachamo, S. Sharma & O. Moog: Water quality mapping of the Bagmati river basin, Kathmandu valley (pp. 189-197).
- (18102) NUCKOWSKA, K., L. AGAPOW & J. NADOBNIK, 2008. Preliminary evaluation of the quality of water in the Mierzecka Struga river by a biological method. In: R. Goldyn et al., [Eds], *The functioning and protection of water systems*, pp. 11-16, Dept Water Prot., Fac. Biol., A. Mickiewicz Univ., Poznan. – (First Author: Owocowa 28a, PO-66-400 Gorców Wlkp.).
Calopteryx splendens is recorded from the river, i.e. the right tributary of the lower Drawa river, Poland.
- (18103) OTT, J., 2008. Libellen als Indikatoren der Klimaänderung: Ergebnisse aus Deutschland und Konsequenzen für den Naturschutz. *Insecta* 11: 75-89. – (LUPO, Friedhofstr. 28, D-67705 Trippstadt).
A review of Author's recent (1988-2008) research on dragonflies as indicators of climatic change in Germany and on implications of the latter for nature conservation.
- (18104) PETERS, G., 2008. Abnahme der Grosslibelle Aeshna subarctica auf den Rheinsberger Hochmooren und mögliche Ursachen. *Sber. Ges. Naturf. Freunde Berl.* (N.F.) 47: 119-125. (With Engl. s.). – (Dürerstr. 17, D-16341 Panketal).
The A. subarctica populations have been monitored at 4 Sphagnum lakes in the N of Brandenburg (Germany) since 1966 (a 5th lake was added in 1988). During the 1990s they declined drastically: in recent years only single specimens could be observed. This is ascribed to the recent long-lasting periods of summer heat ("climate warming"), which severely affect A. subarctica younger larvae. No decline was observed in populations of the accompanying A. cyanea, A. grandis, A. juncea and A. mixta.
- (18105) POPOVA, O.N. & A.Yu. KHARITONOV, 2008. Interannual changes in the fauna of dragonflies and damselflies (Insecta, Odonata) in the southern Urals. *Russ. J. Ecol.* 39(6): 405-413. [Originally published in Russian in *Ekologiya* 2008(6): 427-435]. – (Inst. Anim. Syst. & Ecol., Russ. Acad. Sci., Frunze 11, Novosibirsk-630091, Russia).
Data on the occurrence and abundance of 64 spp. are considered. A comparative analysis of the odon. fauna in the early 20th century, in the 1960s and 1970s, and in the early 21st century is performed. On this basis, it is concluded that its structure has been markedly changing with time, the magnitude of the changes is comparable to that of regional faunistic differences. The causes of these changes are discussed. The apparent enrichment of the odon. fauna is attributed primarily to the appearance of new anthropogenic habitats.
- (18106) ROBINSON, H., C. McALLISTER, C. CARLTON & G. TUCKER, 2008. The Arkansas endemic biota: an update with additions and deletions. *J. Ark. Acad. Sci.* 62: 84-96. – (First Author: Dept Biol. Sci., Southern Arkansas Univ., Magnolia, AR 71754-9354, USA).
Cordulegaster talaria is added to the list as published (1995) by H.W. Robinson & R.T. Allen (*Only in Arkansas: a study of the endemic plants and animals of the state*, Univ. Ark. Press, Fayetteville, 121 pp.). It was described in 2004 (see OA 15721) and is considered to be endemic to the Ouachita Mts of W Arkansas.
- (18107) ROCHA, V.J., L.M. AGUIAR, J.E. SILVA-PEREIRA, R.F. MORO-RIOS & F.C. PASSOS, 2008. Feeding habits of the crab-eating fox, Cerdocyon thous (Carnivora: Canidae), in southern Brazil. *Revta brasil. Zool.* 25(4): 594-600. (With Port. s.). – (First Author: Bioecologia, Pesquisa Florestal, Klabin S.A. Avenida Araucária, BR-48279-000 Lagoa, Paraná).
The stomach contents of 30 foxes were examined. In a single specimen coenagrionid wings were found.
- (18108) SADEGHI, S., 2008. *Aspects of infraspecific phylogeography of Calopteryx splendens*. PhD Thesis, Univ. Ghent. iv+166 pp., 1 pl. excl. (With Persian s.). – (Biol. Dept, Fac. Sci., Shiraz Univ., Shiraz, Iran).
C. splendens is a widespread damselfly, found in most of Europe, large parts of Siberia and much of W and central Asia. There is great variation among ♂♂ in wing coloration. Traditionally subspecific taxa have been distinguished by the size and posi-

tion of the pigmented wing spot, and by (mating) behaviour. About a dozen of *sspp.* have been recognized. Many of these refer to putative *sspp.*, all of which are more or less geographically confined, but often with overlapping ranges and strong variation in wing spot size. For more than a century wing and wing spot characters have been used as criteria for *Calopteryx spp.* and *sspp.* identification. Most results suggest that wing pigmentation is a reliable signal of quality and plays a role in mate recognition by ♀♀. Size and density of wing pigmentation is also correlated with immunological condition and animal resistance against disease. In spite of these indications, the question arises whether variation in wing spot is really a taxonomically valid discriminator. Here, 2 morphological (traditional and geometric morphometrics) and one molecular (AFLP) method are used to quantify and analyze morphological and molecular data. Comparing the results of these methods helped to show some unclear and ambiguous relations between the populations and lighted some aspects of phylogeography of the (s) *spp.* In morphological study, the question was how well populations (*sspp.*) are recognizable based on wing and wing spot sizes and wing shape (irrespective of wing spot). In both morphological methods, left forewing of the ♂ specimens were evaluated because generally only ♂♂ bear wing spot. For traditional morphometry, 10 different wing characters were measured using a semi-automatic image analysis program. Geometric morphometric study was implemented based on collected superimposed data from 19 digitized landmarks following the procrustes method. AFLP was used as molecular method because of its low start-up time and cost effective generation of data from a large number of distributed loci in the whole genome. In this part, the first aim was to investigate patterns of *C. splendens* population structure and the spatial distribution of genetic diversity, and the second aim was to determine whether there is a consistent spatial distribution pattern of *C. splendens* based on genetic and morphological diversity of wings, in other words whether the genetic differences are compatible with morphological differences of wings. The results in traditional and geometric morphometrics (regardless of wing spot) confirmed differentiation of *C. s. waterstoni* from other populations. Likewise, a relationship between 2 populations from the NE border of Turkey (*C. s. tschaldirica*) and Ireland, both with a small wing spot, was supported. Populations of

C. s. orientalis from N Iran and S Turkmenistan (I6 and Tm254, respectively) also showed close relationships, which differentiate them from other groups in both morphometric techniques. The relationship between *C. s. xanthostoma* and *C. s. amasina* (from Turkey) was more remarkable than European populations in both morphometric methods. However, the results of these 2 morphometric methods were not consistent in many cases, while geometric morphometric analysis showed wing shape differences between entire populations; traditional morphometry did not reveal such differences based on linear measurements of wing characters between most populations. In general, geometric morphometric analysis of Eurasian populations showed that 2 almost separate European and Asian groups of *C. splendens* are recognizable except some relations of *C. s. waterstoni* (from Turkey) to E European populations, and *C. s. xanthostoma* (from Spain) to Asian populations. These conclusions were partly confirmed by AFLP results, but were not consistent with the results of traditional morphometry which is mainly affected by linear size and area of wing and wing spot. Hence, use of wing spot patterns must be studied critically before those are used up as systematic characters at any taxonomic level. The AFLP results of the samples studied showed low levels of gene flow between populations except one case in central Asia between Russian and Kazakhstani populations which is partly due to lack of effective obstacles and the presence of the Irtysh river. Many populations showed double or more geographical origin, a circumstance that can reflect rapid diversification and introgression. The reasons of this situation and likely relations between 3 main *sspp.*, *C. s. waterstoni*, *C. s. intermedia* and *C. s. xanthostoma* are discussed. The deepest split in the phylogeography of *C. splendens* populations was found within the unglaciated areas at the E border of Turkey and Azerbaijan. The isolation of *C. s. waterstoni* is discussed. The unexpected relation between Azerbaijani and French populations is interpreted as an intrusion of *intermedia*-genes in both. The conclusion drawn from comparison of the data in all 3 analyses is that the result of shape analysis between populations was more akin to molecular data and more reliable than linear measurements of wing characteristics, although some populations showed the same result in both methods. These observations suggest that wing spot similarity necessarily cannot capture the full

genetic grouping of populations and therefore is not an infallible character in *Calopteryx splendens* spp.

- (18109) SOLOMON, C.T., S.R. CARPENTER, J.J. COLE & M.L. PACE, 2008. Support of benthic invertebrates by detrital resources and current autochthonous primary production results from a whole-lake ¹³C addition. *Freshw. Biol.* 53: 42-54. – (First Author: Cent. Limnol., Univ. Wisconsin, Madison, WI 53706, USA).
Secondary production of benthic invertebrates in lakes is supported by current autochthonous primary production and by detritus derived from a combination of terrestrial inputs and old autochthonous production from prior seasons. Here, the importance of these 2 resources for the dominant benthic insects in Crampton Lake, a 26 ha clear-water system on the Wisconsin-Michigan border (USA), is quantified. The libellid and cordulid larvae, collected at 1.5 m depth, derived 75% of their C from current autochthonous primary production.
- (18110) STEWART, T.W. & J.A. DOWNING, 2008. Macroinvertebrate communities and environmental conditions in recently constructed wetlands. *Wetlands* 28(1): 141-150. – (First Author: Dept Nat. Resour. Ecol & Mngmt, Iowa St. Univ., Ames, IA 50011, USA).
The macroinvertebrate community characteristics in 9 temporary or permanent wetlands in the Ada Hayden Lake area (N Ames, Iowa, USA) are quantified and related to environmental conditions. The mean density of Coenagrionidae and Libellulidae is family-wise presented, but a list of spp. is not provided.
- (18111) SURUGIU, V. & A.E. CRISTEA, 2008. Spatial and temporal analysis of aquatic invertebrate fauna from the Ozana river. *Anal. stiint. Univ. Al. I. Cuza* (Biol. anim.) 54: 169-176. (With Roman. s.). – (Fac. Biol., "Al. I. Cuza" Univ., Bd. Carol I 20A, RO-700505 Iasi).
2 *Gomphus flavipes* larvae are recorded (July 2004) from Blebea on the Ozana river, one of the main tributaries of the Moldova (Romania). The habitat are pebbles mixed with coarse sand.
- (18112) TRAPERO-QUINTANA, A.D. & B. REYES-TUR, 2008. Description of the last instar larva of *Erythrodiplax fervida* (Erichson, 1848) (Anisoptera: Libellulidae), with notes on the biology of the species. *Zootaxa* 1688: 66-68. – (Depto Biol., Univ. Oriente, ave. Patricio Lumumba, Santiago de Cuba-90500, Cuba).
The larva is described and illustrated. It can be distinguished from those of the other 4 Cuban congeners by the reduced number of palpal and premental setae (6 and 10, respectively).
- (18113) UBONI, C., 2008. *Contributo alla conoscenza degli odonati nella provincia di Trieste (Hexapoda, Odonata)*. Diss. Corso di Laurea, Univ. Trieste, Trieste. 91 pp. – (Author: Mus. civ. Stor. nat., Piazza Hortis 4, I-34123 Trieste).
48 spp., collected during 2007-2008 from 22 localities in the province of Trieste (NE Italy).
- (18114) VERBEEK, W.C.E.P., 2008. *Matching species to a changing landscape. Aquatic macroinvertebrates in a heterogeneous landscape*. PhD Diss., Radboud Univ., Nijmegen. 150 pp. ISBN 978-90-9022753-5. (With Dutch s.).
Human activities profoundly influence the landscape. Changes in land use, acidification, desiccation and eutrophication have resulted in a biodiversity crisis. Knowledge on the relationship between a sp. and its environment is needed to understand the impact of degradation and to derive sound possibilities for restoring the original biodiversity. This issue is addressed in a case study on the aquatic macroinvertebrates of the Korenburgerveen, a heterogeneous bog remnant located in the eastern Netherlands. 19(20) odon. spp. are also considered.
- (18115) WHITFIELD, J.B. & K.M. KJER, 2008. Ancient rapid radiation of insects: challenges for phylogenetic analysis. *Annu. Rev. Ent.* 53: 449-472. – (First Author: Dept Ent., Univ. Illinois, Urbna, IL 61821, USA).
Dwells in detail also on Paleozoic and post-Paleozoic diversification of Odon.
- (18116) ZHANG, D. & J. DAI, 2008. Odonata species diversity of Yinchuan. *J. Ningxia Univ.* (Nat. Sci.) 29(4): 343-347. (Chin., with Engl. s.). – (Sch. Life Sci., Ningxia Univ., Yinchuan-750021, China).
The May-Sept 2006 survey, conducted at 5 selected plots, yielded 24 spp. Their abundance and the diversity of the fauna are analysed.

- (18117) ŽIVIĆ, N., V. VUKANIĆ, T. BABOVIĆ-JAKŠIĆ & B. MILJANOVIĆ, 2008. Distribution of macrozoobenthos in the tributaries of the river Ibar in the northern part of Kosovo and Metohija. *Natura montenegrina* 7(2): 401-411. (With Serb. s.). – (First Author: Fac. Sci. & Math., Univ. Pristina, Kosovska Mitrovica, Kosovo). 5 odon. sp. are recorded from the Sočanska, Jošanička and Ibar rivers.
- 2009**
- (18118) AL-HOUTY, W., 2009. Insect biodiversity in Kuwait. *Int. J. Biodiv. Conserv.* 1(8): 251-257. – (Dept Biol. Sci., Fac. Sci., Univ. Kuwait, Kuwait). A comparison is made of the numbers of insect spp. collected from Kuwait in the decade prior to the Gulf War (1980-1990) and thereafter (1992-2008). During both periods the odon. stand at 11 spp. Their names are not stated. Temporary rain pools are the only freshwater bodies in the desert ecosystem of Kuwait.
- (18119) BABU, R. & S.B. MONDAL, 2009. First record of *Rhinocypha trifasciata* Selys from Maharashtra, India (Odonata: Zygoptera: Chlorocyphidae). *Rec. zool. Surv. India* 109(3): 115-116. – (Zool. Surv. India, M-Block, New Alipore, Kolkata-700053, India). 2♂, 1♀ from Burgaon, Nagpur, 26-III-2004. Their detailed description is included.
- (18120) BABU, R. & S. NANDY, 2009. A comparative review of three closely related Calicnemia species: *C. pulverulans* Selys, *C. imitans* Liefstinck and *C. sudhane* Mitra (Odonata: Zygoptera: Platycnemididae). *Rec. zool. Surv. India* 109(3): 79-84. – (Zool. Surv. India, M-Block, New Alipore, Kolkata-700053, India). A detailed comparison of structural features of the 3 spp. Figs of their terminalia are also included.
- (18121) BAFU [Publishers], 2009. *List of the species of Switzerland: Dragonflies (Odonata), 1997-2008*. Bundesamt für Umwelt BAFU, Berne. 4 pp. (Trilingual: Germ./Fr./Engl.). Issued by the Swiss Federal Office for the Environment, the spp. that were occurring in Switzerland permanently during the said period are listed and their occurrence in the 6 regions of the country is specified (Jura, Central Plateau, Northern Alps, Western Central Alps, Eastern Central Alps, Southern Central Alps).
- (18122) BEREZINA, N.A., S.M. GOLUBKOV & Yu.I. GUBELIT, 2009. Structure of littoral zoocenoses in the macroalgae zones of the Neva river estuary. *Inland Water Biol.* 2(4): 340-347. – (Zool. Inst., Russ. Acad. Sci., Universitetskaya nab. 1, St Petersburg-199034, Russia). The biodiversity and spatial distribution of macrofauna biomass were studied for 12 sites in the Neva Estuary (Russia). The odon. were represented in samples, but they are not further considered in the text.
- (18123) BERMÚDEZ, D. et al., 2009. *Preferencias alimenticias de Rhionaeschna sp. (Odonata: Aeshnidae) en el Parque Zoológico Santa Fe y su capacidad depredadora sobre mosquitos Culex sp. (Diptera: Culicidae)*. Feria Explora & Parque Zoológico Santa Fe, Medellín/Colombia. 12 pp. The predatory efficiency of *Rhionaeschna* larvae was examined in the laboratory, where they were kept along with the potential prey, co-inhabiting a pond in the Parque Zoológico Santa Fe (Medellín, Colombia). *Culex* sp. was their preferential prey: 90% of larvae were consumed within 24 h. – See also e.g. OA 7421.
- (18124) COLDING, J., J. LUNDBERG, S. LUNDBERG & E. ANDERSSON, 2009. Golf courses and wetland fauna. *Ecol. Applications* 19(6): 1481-1491. – (First Author: Beijer Inst. Ecol. Economics, Roy. Swed. Acad. Sci., Box 50005, SE-104 05 Stockholm). The field study was conducted in the area of Stockholm (Sweden), where the fauna of 12 golf course ponds and of 12 off-course ponds was examined. A total of 11 odon. spp. were identified: 6 of these recorded in golf course ponds and 8 in the off-course ponds. *Enallagma cyathigerum* and *Leucorrhinia pectoralis* were only recorded in golf course ponds. It is asserted that golf courses have the potential to contribute to the wetland fauna support, particularly in urban settings.
- (18125) CSORDÁS, L., A. FERINCZ, A. LÖKKÖS & G. ROZNER, 2009. New data on the distribution of *Cordulegaster heros* Theischinger, 1979 (Odonata) in Zselic hills. *Natura somogyiensis* 15: 53-56. – (First Author: Inst. Forest Prot. & Forest Cultiv.,

- Western Hungary Univ., Bajcsy-Zsilinszky Endre 4, H-9400 Sopron).
Based on the 2008-2009 survey, a detailed list of records (mainly larvae and exuviae) is provided. The ecology of the sp. is briefly outlined. The Zselic (Hungary) populations are strong and the required habitat conservation measures are enumerated.
- (18126) DA SILVA DIAS, A., J. MOLOZZI & A. PINHEIRO, 2009. Distribution and occurrence of benthic macroinvertebrates in rivers with rice culture in Itajal valley, SC. *HOLOS Environment* 9(1): 45-64. (Port., with Engl.s.). – (First Author: Univ. Reg. Blumenau, FURB, rua Antônio da Veiga 140, Bairro Victor Konder, BR-89012-900 Blumenau, SC). Calopterygidae and Libellulidae are family-wise mentioned; – Santa Catarina, Brazil.
- (18127) DE ARAUJO, N.A. & C.U.B. PINHEIRO, 2009. Ecological relations between the ichthyologic fauna and the ciliary vegetation of the lacustrine area of Low Pindaré river in the Beixada Maranhense region and their implications on the sustainability of regional fishing. *Bohm Lab. Hidrobiol.* 22: 55-68. (Port., with Engl. s.). – (Second Author: Depto Oceanogr. & Limnol., Av. dos Portugueses s/n, Campus do Bacanga, BR-65080-040 São Luis, MA).
In the stomach contents of various fish spp., notably in representatives of the genera *Apterodonus*, *Hoplerythrimus*, *Leporinus*, *Platydoras*, *Sternopygus* and *Triportheus* etc., from the Cajari and Capivari lakes (Penalva, Brazil), odon. were identified among the food items.
- (18128) FONTANAPROSA, M.S., M.B. COL-LANTES & A.O. BACHMANN, 2009. Seasonal patterns of the insect community structure in urban rain pools of temperate Argentina. *J. Insect Sci.* 9(1): 17 pp. – Available online: Insectscience.org/o.10. – (First Author: Depto Ecol., Genet. Evol., Fac. Cien. Exactas, Univ. Buenos Aires, CONICET, Argentina).
4 temporary pools in Buenos Aires city were studied during a 1-yr period. Monthly and total relative abundance (numbers of individuals per litre) is tabulated (family-wise) for the coenagrionid, aeshnid and libellulid larvae. *Lestes* sp. is the only gen. mentioned. The total relative abundance of odon. in the community structure amounted to 3%. See also OA 15821.
- (18129) GEISTER, I., 2009. *Naravoslovni sprehodi na Brdu pri Kranju*. – [Natural history walks at Brdo-pri-Kranju]. Zavod za favnistiko, Koper. 96 pp., map excl. ISBN 978-961-91043-7-8. (Slovene). – (Author: Kocjančiči 18. SI-6276 Fobegi).
Includes concise descriptions (and definitions) of wetland habitat types on the country-seat of Brdo-pri-Kranju (Slovenia), and presents short and very well styled portraits of 21 local odon. spp. – (For the complete list of the odon. fauna of this locality, see OA 16029).
- (18130) *IDF-REPORT*. Newsletter of the International Dragonfly Fund (ISSN 1435-3393), Vols 16 (2009), 17 (2009). – (c/o M. Schorr, Schulstr. 7/B, D-54314 Zerf).
[Vol. 16]: Hoffmann, J.: Summary catalogue of the Odonata of Peru. Kommentiertes Faksimile des Manuskriptes von J. Cowley, Cambridge, 20.05.1933 und aktuelle Liste der Odonaten Perus mit Fundortangaben sowie Historie zu Sammlern und Odonatologen in Peru (pp. 1-115); – [Vol. 17]: Villanueva, R.J.T.: Dragonflies of Babuyan and Batanes group of islands, Philippines (pp. 1-16).
- (18131) JANZEKOVIC, B., 2009. The bibliography of the journal *Acta biologica slovenica* (1997-), formerly *Biološki Vestnik* (1952-1995). *Acta biol. slovenica* 52(2): 115-176. (Slovene, with Engl. s.). – (Library Univ. Maribor, Gospejna 10, SI-2000 Maribor).
A complete bibliography of 918 papers, published by 642 authors from 29 countries during 1952-2008. It includes some odonatol. publications, but the titles are not cross-referenced to a list of treated subjects.
- (18132) MARCONI, A. & F. TERZANI, 2009. Odonati del Kenya depositati nel Museo di Storia Naturale dell'Università di Firenze, Sezione di Zoologia "La Specola" (Odonata). *Onychium* 8: 36-43. (With Engl. s.). – (Mus. Stor. Nat. "La Specola", Univ. Firenze, Via Romana 17, I-50125 Firenze).
A collection of 134 specimens of 28 spp. from 14 localities in Kenya is brought on record. The annotations on and figs of structural characters of some spp. are provided.
- (18133) MÜLLER, Z., B. KISS & P. JUHÁSZ, 2009. Faunistical data to complete the nationwide occurrence of *Coenagrion ornatum* (Selys-Longchamps,

- 1850). *Folia hist. nat. Mus. matraensis* 33: 97-101. – (BioAqua Pro Kft., Soó R. 21, H-4032 Debrecen).
- Based on the evidence derived from the larvae and exuviae, *C. ornatum* is documented from the additional 42 watercourses. So far the sp. is known to occur in 105 watercourses in Hungary.
- (18134) MURÁNYI, D., N. TARJÁNYI & K. SCHÖLL, 2009. First record of the genus *Atrichops* Verrall, 1909 in Hungary (Diptera: Athericidae). *Opusc. zool. Bpest* 40(2): 103-105. – (First Author: Dept Zool., Hungarian Nat. Hist. Mus., Baross u. 13, H-1088 Budapest). *Calopteryx virgo* and *Onychogomphus forcipatus* are recorded from the Morgó stream, Pest co., Hungary; 28-X-2008.
- (18135) NANDY, S. & R. BABU, 2009. On a collection of dragonflies (Odonata: Anisoptera) from Andaman and Nicobar islands. *Rec. zool. Surv. India* 109(4): 35-51. – (Zool. Surv. India, M-Block, New Alipore, Kolkata-700053, India). The history of odonatol. exploration of the archipelago is reviewed and the 44 known Anisoptera spp. are listed with reference to the islands where they occur (North Andaman, Middle Andaman, South Andaman, Little Andaman, Nicobar). *Neurothemis intermedia atlanta* and *Tramea basilaris burmeisteri* are new for the archipelago. *Orthetrum pruinosum neglectum* was known from Nicobar but it is new for N & S Andaman, whereas *Trithemis aurora* was known from all Andaman isls and it is for the first time recorded from Nicobar.
- (18136) SONG, H. & S.R. BUCHELI, 2009. Comparison of phylogenetic signal between male genitalia and non-genital characters in insect systematics. *Cladistics* 25: 1-13. – (First Author: Dept Biol., Brigham Young Univ., Provo, UT 84602, USA). It is generally accepted that ♂ genitalia evolve more rapidly and divergently relative to non-genital traits due to sexual selection, but there is little quantitative comparison of the pattern of evolution between these character sets. Moreover, despite the fact that genitalia are still among the most widely used characters in insect systematics, there is an idea that the rate of evolution is too rapid for genital characters to be useful in forming clades. Based on standard measures of fit used in cladistic analyses, here levels of homoplasy and synapomorphy between genital and non-genital characters of published data sets are compared and it is demonstrated that phylogenetic signal between these 2 character sets is statistically similar. This pattern is found consistently across different insect orders at different taxonomic hierarchical levels. The odon. are represented by *Enallagma* spp., based on the paper listed in *OA* 14630. It is argued that the fact that ♂ genitalia are under sexual selection and thus diverge rapidly does not necessarily equate with the lack of phylogenetic signal, because characters that evolve by descent with modification make appropriate characters for a phylogenetic analysis, regardless of the rate of evolution. It is concluded that ♂ genitalia are a composite character consisting of different components diverging separately, which make them ideal characters for phylogenetic analyses, providing information for resolving varying levels of hierarchy.
- (18137) SUUTARI, E., J. SALMELA, L. PAASIVIRTA, M.J. RANTALA, K. TYNKKYNNEN, M. LUOJUMÄKI & J. SUHONEN, 2009. Macroarthropod species richness and conservation priorities in *Stratiotes aloides* (L.) lakes. *J. Insect Conserv.* 13: 413-419. – (First Author: Dept Biol. & Envir. Sci., Univ. Jyväskylä, P.O. Box 35, FI-40014 Jyväskylä). The study was conducted in S Finland, where 14 lakes were sampled, 8 of them supporting *S. aloides*. 17 odon. spp. were recorded from *S. aloides* lakes and 14 from those without it. *Aeshna viridis*, *Leucorrhinia caudalis* and *L. pectoralis* occurred in the *Stratiotes* lakes only.
- (18138) TERZANI, F., 2009. Monitoraggio dell'entomofauna di una pozza astatica in provincia di Firenze, 2: odonati (Odonata: Lestidae, Coenagrionidae, Aeshnidae, Libellulidae). *Onychium* 7: 17-19. (With Engl. s.). – (Mus. Stor. Nat. "La Specola", Univ. Firenze, Via Roma 17, I-50125 Firenze). 8 spp. are listed from an astatic pool (Il Ferrone, Impruneta) in the province of Firenze, Italy. A figure of an unusual abdominal pattern in ♂ *Coenagrion puella* is included.
- (18139) TERZANI, F., 2009. Odonati raccolti nell'Alto Appennino reggiano, parmense e massese (Emilia-Romagna, Toscana) (Odonata). *Onychium* 7: 29-35. (With Engl. s.). – (Mus. Stor. Nat. "La

Specola", Univ. Firenze, Via Romana 17, I-50125 Firenze).

The records are presented of 21 spp., collected from 18 localities in the High Apennines of the provinces of Parma, Reggio Emilia and Massa-Carrara (Emilia-Romagna, Tuscany); – Italy.

- (18140) VON ELLENRIEDER, N., 2009. Los tipos de Insecta depositados en el Museo de Ciencias Naturales de Salta, Argentina. *Revta Soc. ent. argent.* 68(3/4): 253-262. (With Engl. s.). – (IbiGeo, Mus. Cien. Nat., Univ. Nac. Salta, Mendoza 2, AR-4400 Salta).

A catalogue of the type specimens deposited in the Museum, with the respective bibliography. The odon. are represented solely by 2 ♂ *Oligoclada rubribasalis* von Ellenrieder & Garrison, 2008 paratypes.

- (18141) XU, Q.-H., Z. CHEN & Z.-P. QIU, 2009. A new species of the genus *Planaeschna* McLachlan from Fujian, China (Odonata, Aeshnidae). *Acta zootaxon. sin.* 34(3): 439-442. (With Chin. s.). – (First Author: Zhangzhou City Univ., Zhangzhou, Fujian-263000, China).

P. liui sp. n. is described and illustrated from a single ♂: China, Fujian prov., Wuyi Mtn, 16-VII-2008; deposited at Inst. Biol. Control Res., Fujian Agric. & Forestry Univ., Fuzhou, Fujian, China. Although it is similar in body colour pattern to *P. suchangensis*, the new sp. can be separated from all known congeners by the shape of caudal appendages and penile organ.

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- (18142) *AGRION, WDA*. Newsletter of the World-wide Dragonfly Association (ISSN 1476-2552), Vol. 14, No. 2 (July 2010). – (c/o Dr N. von Ellenrieder, California State Collection of Arthropods, CDFCA, 3294 Meadowview Rd, Sacramento, CA 05832, USA).

[Selected articles]: *Reels, G.*: The curious case of the cannibal coenagrionid (p. 27); – *Dow, R. & G. Reels*: Finding the Holy Grail: the rediscovery of *Rhinoneura caerulea* in the Hose Mountains, Sarawak, Borneo (pp. 28-29); – *Roland, H.-J. & U. Roland*: new records of Odonata on a birding trip to Cambodia (pp. 30-33); – *Reels, G.*: Dragonfly survey in Hainan, China, 2007-2008 (pp. 34-38); – *Taylor, J.*: Dragonflies caught in flight (pp. 40-41).

- (18143) ANDERSON, C.N. & G.F. GREYER, 2010. Interspecific aggression and character displacement of competitor recognition in *Hetaerina damselflies*. *Proc. R. Soc. (B)* 277: 549-555. – (Second Author: Dept Ecol. & Evol. Biol., Univ. California, 621 Charles E. Young Dr. South, Los Angeles, CA-90095-1606, USA).

In zones of sympatry between closely related spp., species recognition errors in a competitive context can cause character displacement in agonistic signals and competitor recognition functions, just as species recognition errors in a mating context can cause character displacement in mating signals and mate recognition. These 2 processes are difficult to distinguish because the same traits can serve as both agonistic and mating signals. One solution is to test for sympatric shifts in recognition functions. Here, competitor recognition in *Hetaerina* was studied by challenging territory holders with live tethered conspecific and heterospecific intruders. Heterospecific intruders elicited less aggression than conspecific intruders in spp. pairs with dissimilar wing coloration (*H. occisa* / *H. titia*, *H. americana* / *H. titia*) but not in spp. pairs with similar wing coloration (*H. occisa* / *H. cruentata*, *H. americana* / *H. cruentata*). Natural variation in the area of black wing pigmentation on *H. titia* intruders correlated negatively with heterospecific aggression. To directly examine the role of wing coloration, the wings of *H. occisa* or *H. americana* intruders were blackened and the responses of conspecific territory holders measured. This treatment reduced territorial aggression at multiple sites where *H. titia* is present, but not at allopatric sites. These results provide strong evidence for agonistic character displacement.

- (18144) BOGUT, I., D. CERBA, J. VIDAKOVIC & V. GVOZDIĆ, 2010. Interactions of weed-bed invertebrates and *Ceratophyllum demorsum* stands in a floodplain lake. *Biologia, Bratislava* 65(1): 113-121. – (Second Author: Dept Biol., Strossmayer Univ., Trg Ljudevita Gaja 6, Osijek, Croatia).

The abundance of weed-bed invertebrates associated with the submerged *C. demorsum* in Lake Sakadaš (Kopački rit Nature Park, Croatia) is reported. The chironomids were dominant (79%), followed by nematodes and large *Zygoptera* larvae (6%); July-Sept. 2004. Weed-bed invertebrates were more abundant on *C. demorsum* than on *Myriophyllum spicatum*, due to different morphology of the host plants.

- (18145) BROŽIČ, A., 2010. *Inventarizacija kačjih pastirjev (Insecta: Odonata) na območju bajerja Pristava z okolico (Mengeš, osrednja Slovenija)*. – [*Dragonfly (Insecta: Odonata) survey of the Pristava pond and its environs (Mengeš, central Slovenia)*]. Individualna naloga Anim. Ecol., Biol. Dept, Univ. Ljubljana. ii+17 pp. (Slovene). 30 spp. are recorded and their seasonal abundance is analysed. – See also OA 18041.
- (18146) COBBAERT, D., S.E. BAYLEY & J.-L. GRETER, 2010. Effects of a top invertebrate predator (*Dytiscus alaskanus*; Coleoptera: Dytiscidae) on fishless pond ecosystems. *Hydrobiologia* 644: 103-114. – (Dept Biol. Sci., Univ. Alberta, Edmonton, AB, T6G 2E9, CA). The predatory effects of *D. alaskanus* on the biomass, species composition and diversity of fishless pond communities were investigated using presence and absence treatments in 24 mesocosms distributed among 5 ponds in N-central Alberta, Canada. Its preferred prey were large mobile predaceous macroinvertebrates, including Corixidae, Zygoptera and Chaoborus, the consumption of which causes a cascade effect, reducing grazing pressure on zooplankton.
- (18147) COMBES, S.A., J.D. CRALL & S. MUKHERJEE, 2010. Dynamics of animal movement in an ecological context: dragonfly wing damage reduces flight performance and predation success. *Biol. Lett.* 6: 426-429. – (Dept Organismic & Evol. Biol., Concord Fld Stn, Harvard Univ., 100 Old Causeway Rd, Bedford, MA 01730, USA). The effects of wing damage on dragonfly flight performance were examined in both a laboratory drop-escape response (*Sympetrum rubicundulum*) and in a more natural context of aerial predation in a greenhouse (S. vicinum). The laboratory experiment shows that hindwing area loss reduces vertical acceleration and average flight velocity, and the predation experiment in greenhouse demonstrates that this type of wing damage results in a significant decline in capture success. Taken together, these results suggest that wing damage may take a serious toll on dragonflies, potentially reducing both reproductive success and survival.
- (18148) CRANSHAW, W., C. THOMAS, B. KONDRATIEFF & G. WALKER, 2010. *Life in Colorado water garden: insects and other invertebrates associated with water features*. Colorado St. Univ. Extension Ent. Program, Fort Collins. iv+28 pp. – (Available from the first Author: Dept Bioagric. Sci. & Pest Mngmt, Colorado St. Univ., Fort Collins, CO 80523, USA). Presents various odon. spp. Each of these is briefly described, its life history and habits are outlined, and water garden features it requires are stated.
- (18149) DE JONG-STEENLAND, C., 2010. *Een dagje Siebengewald en Kasteeltuinen Arcen, 11 augustus 2010*. – [*A day in Siebengewald and in the Castle Gardens of Arcen*]. Albelli, The Hague, 24 pp. 21.5×21.5 cm. ISBN none. (Dutch). – (Author: Souburghlaan 22, NL-2741 EL Waddinxveen). A photographic record of Author's visit at the Kiautas horse farm in Siebengewald and the Arcen Castle gardens (Limburg, the Netherlands). Includes a photograph of a dragonfly copula statue (braided iron wire, height above water surface ca 3.5 m; artist unknown) in the Arcen gardens.
- (18150) DEMENDOZA, G. & J. CATALAN, 2010. Lake macroinvertebrates and the altitudinal environmental gradient in the Pyrenees. *Hydrobiologia* 648: 51-72. – (Limnol. Gr., Cent. d'Estudis Avançats de Blanes, c/Acc. Cala St. Francesco 14, ES-17300 Blanes, Girona). The distribution of macroinvertebrate genera inhabiting the littoral zone of 82 mountain lakes was investigated in relation to the altitudinal environmental gradient. *Enallagma* and *Aeshna* are considered.
- (18151) [DIJKSTRA, K.-D.B.] VANCALMTHOUT, M., 2010. *Libellen vangen langs de Congo*. – [*Dragonfly catching along the Congo river*]. *De Volkskrant*, issue of 29 June, p. 18 (Dutch). – (c/o Dr K.-D.B. Dijkstra, Naturalis, P.O. Box 9517, NL-2300 RA Leiden). Based on an interview with K.-D.B.D., the article in a Netherlands national newspaper describes some of the objectives and achievements of the international multidisciplinary research expedition along a 350 km stretch of the Congo river, conducted in a celebration of the 50th anniversary of the independence of the former Belgian colony. 162 odon. spp. are collected, incl. 6 or 7 that are still undescribed. – (*Abstractor's note*: Dr K.-D.B. Dijkstra is the greatest odon. taxonomist of the younger Netherlands generation. The volume and excellence of his

- published work are in the best tradition of those of the late Dr M.A. Lieftinck. At the moment he is a freelance researcher, associated with Naturalis in Leiden).
- (18152) ESENKO, I., 2010. *Vrt, učilnica življenja*. – [Garden, the school of life]. Oka otroška knjiga, Ljubljana. 251 pp. ISBN 978-961-7685-29-7. (Slovene). Includes a short text and photographs of 9 dragonfly spp. occurring in garden ponds.
- (18153) *FIRST EUROPEAN CONGRESS ON ODONATOLOGY*: Programme and abstracts. 2-5 July 2010. Vairão – Vila do Conde, Portugal. 77 pp. – (c/o S. Ferreira, CIBIO, Univ. Porto, Campus Agrario de Vairão, PT-4485-661 Vairão). The 82 registered participants came from 26 European and 2 non-European countries. For the 1st European Symposium of Odonatology (Ghent, 1971) see OA 2. – [Abstracts of papers]: Boudot, J.-P.: Outside European borders: the Odonata from palaearctic Africa (p. 8); – Conze, K.-J.: Dragonflies in Germany: the Atlas-project of the GdO (p. 9); – Conze, K.-J., N. Menke & M. Olthoff: Nature conservation response to climate change: some ideas from Northrhine Westphalia, Germany (p. 10); – De Knijff, G., U. Flenker, C. Vanappelghem, C.O. Mancini & V.J. Kalkman: The impact of climatic change on two boreo-alpine dragonfly species, *Somatochlora alpestris* and *S. arctica*, at the edge of their range (p. 11); – Dijkstra, K.-D.B.: The biogeography of European dragonflies, with an emphasis on afrotropical species in the Palaearctic (p. 12); – Dumont, H.J.: Towards an understanding of *Calopteryx splendens* (p. 13); – Dyatlova, E.S. & V.L. Kormyzenko: Dragonflies of Moldova: state of knowledge and personal observations (2005, 2009) (p. 14); – Froufe, E., S. Ferreira, J.-P. Boudot, P.C. Alves & D.J. Harris: Phylogeny of *Cordulegaster* in West Palearctic with phylogeographic insights for some species (p. 15); – Gordon, L.K.: Range-wide genetic diversity of the rare odonate *Coenagrion mercuriale*: influence of latitude and isolation (p. 16); – Groenendijk, P. & T. Termaat: Protection of Red List species in the Netherlands: ecological research, monitoring and conservation (p. 17); – Günther, A.: Construction of a new stream (even) for dragonflies (p. 18); – Gyulavári, H.A., T. Felföldi, T. Benken, L.J. Szabó, M. Miskolczi, C. Cserhádi, V. Horvai, K. Márialigeti & G. Dévai: Preliminary morphometric and molecular investigations on adult specimens of two *Lestes* (Chalcolestes) taxa (p. 19); – Hardersen, S.: The influence of season on wing morphology of *Calopteryx splendens* (Harris, 1782) (p. 20); – Holuša O.: Notes on the ecological demands of *Cordulegaster heros* (Cordulegastridae) in its northern part of area in Slovakia (p. 21); – Jović, M., M. Marinov, B. Gligorović, N. Hacet, D. Kitanova & D. Kulijer: A project named BOB, Balkan OdoBase (p. 22); – Kalkman, V.J.: An atlas of the European dragonflies: will it ever happen? (p. 23); – Kalkman, V.J., J.-P. Boudot, R. Bernard, K.-J. Conze, G. De Knijff, E. Dyatlova, S. Ferreira, M. Jović, J. Ott, E. Riservato & G. Sahlén: European Red List of dragonflies (p. 24); – Kalmár, A.F., G. Dévai & T. Jakab: Preliminary study to monitoring the dragonfly fauna (Odonata) in the ET 56 UTM grid square (South-Nyírség, Hungary) (p. 25); – Karjalainen, S.: New records of *Somatochlora sahlbergi* from Finland (p. 26); – Kitanova, D. & M. Jović: Review of Macedonian Odonata (p. 27); – Kosterin, O.E.: Siberian taxonomical problems concerning European odonate species (p. 28); – Kulijer, D.: Odonata in Bosnia and Herzegovina (p. 29); – Lambret, P.H.: Identifying keys to the conservation of *Lestes macrostigma* (Eversmann, 1836): to a European monitoring? (p. 30); – Leipelt, K.G.: *Cordulegaster insignis* and *C. picta* on Aegean islands: longitudinal distribution patterns and the mechanism behind them (p. 31); – Lorenzo-Carballeda, M.O., H. Hadrys, A. Cordero-Rivera & J.A. Andrés: Geographic parthenogenesis in the damselfly *Ischnura hastata*: a role for metapopulation structure? (p. 32); – Luque, P., E. Soler & M. Lockwood: The atlas of dragonflies and damselflies of Catalonia (p. 33); – Mancini, C.-O.: An overview of dragonfly (Insecta: Odonata) fauna of Romania (p. 34); – Martens, A.: Ecology of the Odonata at the westernmost spot of Africa, the island of Santo Antão, Cape Verde (p. 35); – An overview of exotic dragonflies found in Europe (p. 36); – Mihoković, N. & M. Matejčić: Toward the atlas of Croatian dragonflies (p. 37); – Murányi, D.: The Odonata fauna of Albania (p. 38); – Nelson, B.: Dragonflies on the western fringe: Red List and important dragonfly areas of Ireland (p. 39); – Ott, J.: Climate change and Alien Invasive Species (AIS): a deadly cocktail for dragonflies? (p. 40); – Ott, J., R.A. Sánchez-Guillén & A. Cordero-Rivera: Microevolution through climatic changes? The example of the expansion of *Crocothemis erythraea* in Europe (p. 41); – Outomuro,

- D., S. Rodriguez-Martinez & F.J. Ocharan*: Fluctuating asymmetry in wings of *Calopteryx damselfly* at species population and latitudinal levels (p. 42); – *Parr, A.J.*: Migrant dragonflies in the UK: distributions are flexible, especially in times of climate change (p. 43); – *Nielsen, E.R.*: Danish Odonata Atlas an newly arrived species (p. 44); – *Reimer, R.W.*: Recent advances in UAE and Oman (p. 45); – *Riservato, E., J. Bouwman, C. Grieco & R. Ketelaar*: About dragonflies and dragon blood! Odonata on the island of Socotra (Yemen) (p. 46); – *Riservato, E. & S. Hardersen*: Odonatology in Italy: state of the art (p. 47); – *Cordero Rivera, A. & M.O. Lorenzo Carballa*: Reproductive behaviour of *Calopteryx haemorrhoidalis*: a species with a surprising phenotypic variation (p. 48); – *Cordero Rivera, A., P. Luque Pino, M. Azpilicueta Amorin, F. Blanco Garrido, F.J. Cano Villegas, G. da Silva, O. Gavira Romero, A.F. Herrera Grao, A. Nieto, J. Pérez Cordillo, A. Torralba Burrial & F.J. Ocharan Larondo*: *Macromia splendens* in the Iberian peninsula: status and priorities for research (p. 49); – *Šacha, D.*: Project "Popularizácia odonatologie na Slovensku": its outputs and inspiration for the participants of the Congress (p. 50); – Notes to conservation of dragonflies in northern Slovakia (p. 51); – *Sahlen, G. & I. Suhling*: Communities in forest lakes show ecological shifts: indirect effects of climate change (p. 52); – *Šalamun, A., M. Kotarac, M. Podgorelec & M. Govedič*: Research on *Cordulegaster heros* in Slovenia (p. 53); – *Sánchez-Guillén, R.A., M. Wellenreuther, A. Cordero-Rivera, E.I. Svensson & B. Hansson*: Genetic diversity and introgression between *Ischnura elegans* and *I. graellsii* (Odonata: Coenagrionidae) (p. 54); – *Sillero, N.*: How to record and store species locations? The use of Geographical Information Systems, GPS and Free/Open Source software (p. 55); – *Soler, E. & M. Méndez*: The dragonflies of temporary pools in Menorca (p. 56); – *Stoks, R.*: Latitude patterns in life history, physiology and behaviour (p. 57); – *Suhling, F., I. Suhling & O. Richter*: Rising temperatures, altered life cycles and their consequences for dragonflies in Europe (p. 58); – *Termaat, T., D. Groenendijk, A. van Strien*: A European dragonfly monitoring scheme: how to get started? (p. 59); – *Torralba-Burrial, A., F.J. Ocharan, D. Outomuro, M. Azpilicueta Amorin & A. Cordero Rivera*: VOPHI: an index to assess threatened dragonfly populations and habitats (p. 60); – *van der Ploeg, E.*: Photographic guide to the exuviae of European dragonflies (p. 61); – *Vilenica, M., V. Mičetić, M. Franković & M. Kučinić*: Dragonfly composition in wetland area of Turopolje region, Croatia (p. 62); – *Watts, P.C. & D.J. Thompson*: Developmental plasticity as a cohesive evolutionary force between alternate-year odonate cohorts (p. 63); – *Weihrauch, F. & R. Malkmus*: Distribution and ecology of *Sympetrum nigrifemur* in the Macaronesian islands (Odonata: Libellulidae) (p. 64); – [Abstracts of posters]: 13 of these follow on pp. 65-74. – The Second European Congress on Odonatology is scheduled to take place in 2012 in Belgrade (Serbia); the organizer is Dr M. Jović (Nat. Hist. Mus., Njegoševa 5, RS-11000 Belgrade).
- (18154) GARRISON, R.W. & N. VON ELLENRIEDER, 2010. Redefinition of *Leptobasis Selys* with the synonymy of *Chrysobasis Rácenis* and description of *L. mauffrayi* sp. nov. from Peru (Odonata: Coenagrionidae). *Zootaxa* 2438: 1-36. – (First Author: Plant Pest Diagnostics, California Dept Food & Agric., 3294 Meadowview Rd, Sacramento, CA 95832-1448, USA). *Chrysobasis* is synonymised with *Leptobasis*. The latter is diagnosed by the combination of rounded frons, CuP reaching hind margin of wing, CuA relatively short, and supplementary pretarsal claw reduced to vestigial, and by the presence on the distal segment of the genital ligula of a pair of chitinized, flap-like, movable processes directed posteriorly. *L. mauffrayi* sp. n. is described and illustrated. Holotype ♂: Peru, Madre de Dios dept, Manu, Aguajal, ca 5 km S Pakitza, alt. 200 m, 19-IX-1988; deposited in USNM. Maps and keys for all *Leptobasis* spp. are provided.
- (18155) GLIGOROVIĆ, B., V. PEŠIĆ & A. ZEKOVIĆ, 2010. A contribution to the knowledge of the dragonflies (Odonata) of the river Brestica (Montenegro). *Natura montenegrina* 9(2): 151-159. (With Serb. s.). – (Dept Biol., Fac. Sci., Univ. Montenegro, Cetinjski put b.b., ME-81000 Podgorica). Records of 19 spp.
- (18156) HACET, N., 2010. An anomalous connection in the genus *Aeshna* Fabricius, 1775 (Odonata: Aeshnidae) with an additional record of *Aeshna cyanea* (Müller, 1764) from Turkish Thrace. *Acta ent. serb.* 15(1): 1-6. (With Serb. s.). – (Dept Biol., Fac. Arts & Sci., Trakya Univ., TR-22030 Edirne). A heterospecific tandem between *A. affinis* ♂ and

A cyanea ♀ is reported from Igneada, Kirklareli prov., Turkey. This is the second record of the latter sp. from the region.

- (18157) HARRISON, J.F., A. KAISER & J.M. VANDENBROOKS, 2010. Atmospheric oxygen level and the evolution of insect body size. *Proc. R. Soc. (B)* 2010: 10 pp.; – DOI: 10.1098/rspb.2010.0001. – (First Author: Sch. Life Sci., Arizona St. Univ., Tempe, AZ 85287-4501, USA). Insects are small relative to vertebrates, possibly owing to limitations or costs associated with their blind-ended tracheal respiratory system. The giant insects of the late Palaeozoic occurred when atmospheric PO₂ (aPO₂) was hyperoxic, supporting a role for oxygen in the evolution of insect body size. The paucity of the insect fossil record and the complex interactions between atmospheric oxygen level, organisms and their communities makes it impossible to definitively accept or reject the historical oxygen-size link, and multiple alternative hypotheses exist. However, a variety of recent empirical findings support a link between oxygen and insect size, including: (i) most insects develop smaller body sizes in hypoxia, and some develop and evolve larger sizes in hyperoxia; (ii) insects developmentally and evolutionarily reduce their proportional investment in the tracheal system when living in higher aPO₂, suggesting that there are significant costs associated with tracheal system structure and function; and (iii) larger insects invest more of their body in the tracheal system, potentially leading to greater effects of aPO₂ on larger insects. Together, these provide a wealth of plausible mechanisms by which tracheal oxygen delivery may be centrally involved in setting the relatively small size of insects and for hyperoxia-enabled Palaeozoic gigantism.
- (18158) [HORVÁTH, G.] MOELIKER, K., 2010. Graffibellen. – [Churchyard dragonflies]. *NRC Weekblad*, Rotterdam 2010 (22-28 May): 4. (Dutch).
A weekly's summary of the results presented in the paper listed in OA 16823.
- (18159) JONIAK, T., [Ed.], 2010. *Bezkręgowce denne wód parków narodowych Polski*. – [Aquatic invertebrates in national parks of Poland]. Zakład Ochrony Wód, Adam Mickiewicz Univ., Poznań. ISBN 978-83-62298-09-9. (Pol., with Engl. s's). – Publishers: Umultowska 89, PO-61-614 Poznań).
- [Papers containing odon. information]: Joniak, T.: Benthic fauna of humic lakes of Drawieński National Park: history of research and state of knowledge (pp. 40-46); – Kownacki, A.: Benthic macroinvertebrates from waters of the Tayra National Park: present state, threats, protection (pp. 54-60); – Michalskiewicz, M.: Long-term changes of macrozoobenthos of Rosnowskie Duże Lake (pp. 61-68); – Tończyk, G. & M. Osóbka: Macrofauna colonising yellow water-lily, *Nuphar lutea* (L.) Sibth. & Sm.: distribution and structure analysis (pp. 74-79); – Hallmann, E., J. Vandekerckhove, L. Namiotko & T. Namiotko: Selective predation of Odonata-Anisoptera and Hemiptera larvae on Ostracoda in periodical reservoirs (p. 94).
- (18160) JOVIĆ, M., B. GLIGOROVIĆ & M. STANKOVIĆ, 2010. Review of faunistical data on Odonata in Bosnia & Hercegovina. *Acta ent. serb.* 15(1): 7-27. (With Serb. s.). – (First Author: Nat. Hist. Mus., Njegoševa 51, RS-11000 Belgrade).
A review is presented of all published and hitherto unpublished records covering 57 spp. The information on the occurrence of *Lestes macrostigma*, *L. parvidens*, *Erythromma viridulum*, *Aeshna grandis*, *Lindenia tetraphylla* and *Somatochlora flavomaculata* in Bosnia & Hercegovina is provided here for the first time. A comprehensive bibliography and the list of previously unpublished localities (with UTM MGRS grids) are appended.
- (18161) KARUBE, H., H. MORIYA & F. HAYASHI, 2010. Distribution of calopterygid damselflies of the genus *Mnais* in Kanagawa prefecture and its adjacent areas, central Japan. *Bull. Kanagawa prefect. Mus. (Nat. Sci.)* 39: 25-34. (Jap., with Engl. s.). – (First Author: Kanagawa Prefect. Mus. Nat. Hist., 499 Iryuda, Odawara, Kanagawa, 250-0031, JA).
3 *Mnais* types were established by sequencing 223-bp of ITS1 region in 543 specimens from Kanagawa, Shizuoka, Yamanashi, Tokyo and Saitama prefectures, viz. *M. pruinosa*, *M. costalis* and another one. The latter occurs in the central part of the region studied and appears morphologically intermediate between the 2 spp., hence it seems to represent a hybrid between these. The distributions are mapped (Jap. captions only) and the paleogeographical events that could affect the distribution patterns are discussed.

(18162) KUCK, P., K. MEUSEMANN, J. DAMBACH, B. THORMANN, B.M. VON REUMONT, J.W. WÄGELE & B. MISOF, 2010. Parametric and non-parametric masking of randomness in sequence alignments can be improved and leads to better resolved trees. *Frontiers in Zoology* 2010, 7: 10, 12 pp.; – DOI: 10.1186/1742-9994-7-10. – (First Author: Zool. Forschungsmus. A. Koenig, Adenauerallee 160, D-53113 Bonn).
 Methods of alignment masking, which refers to the technique of excluding alignment blocks prior to tree reconstructions, have been successful in improving the signal-to-noise ratio in sequence alignments. However, the lack of formally well-defined methods to identify randomness in sequence alignments has prevented a routine application of alignment masking. Here, the effects on tree reconstructions of the most commonly used profiling method (GBLOCKS), which uses a predefined set of rules in combination with alignment masking, are compared with a new profiling approach (ALISCORE) based on Monte Carlo resampling within a sliding window, using different data sets and alignment methods. While the GBLOCKS approach excludes variable sections above a certain threshold which choice is left arbitrary, the ALISCORE algorithm is free of a priori rating of parameter space and therefore more objective. ALISCORE was successfully extended to amino acids using a proportional model and empirical substitution matrices to score randomness in multiple sequence alignments. A complex bootstrap resampling leads to an even distribution of scores of randomly similar sequences to assess randomness of the observed sequence similarity. Testing performance on real data, both masking methods, GBLOCKS and ALISCORE, helped to improve tree resolution. The sliding window approach was less sensitive to different alignments of identical data sets and performed equally well on all data sets. Concurrently, ALISCORE is capable of dealing with different substitution patterns and heterogeneous base composition. ALISCORE and the most relaxed GBLOCKS gap parameter setting performed best on all data sets. Correspondingly, Neighbor-Net analyses showed the most decrease in conflict. Alignment masking improves signal-to-noise ratio in multiple sequence alignments prior to phylogenetic reconstruction. Given the robust performance of alignment profiling, alignment masking should routinely be used to improve tree reconstructions. Parametric methods

of alignment profiling can be easily extended to more complex likelihood based models of sequence evolution which opens the possibility of further improvements.

(18163) LOCKLIN, J.L., 2010. *Gregarine parasitism in dragonfly populations of central Texas with an assessment of fitness costs in Erythemis simplicicollis*. PhD Diss., Baylor Univ., Waco/TX. xi+88 pp. – (Dept Biol., Temple Coll., MBS, Temple, TX 76504, USA).
 Odon. parasites are widespread and frequently include gregarines (Apicomplexa) in the gut of the host. Gregarines are ubiquitous protozoan parasites that infect arthropods worldwide. More than 1600 gregarine spp. have been described, but only a small percentage of invertebrates have been surveyed for these parasites. Some consider gregarines rather harmless, but recent studies suggest otherwise. Odonate-gregarine studies have more commonly involved zygopterans, and some have considered gregarines to rarely infect Anisoptera. In this study, anisopteran populations were surveyed for gregarines and an assessment of fitness costs was made in a common and widespread host sp., *Erythemis simplicicollis*. Adult Anisoptera populations were surveyed weekly at 2 reservoirs in close proximity to one another and at a flow-through wetland system. Gregarine prevalences and intensities were compared within host populations between genders, among locations, among wing loads and through time. Host fitness parameters measured included wing load, egg size, clutch size, and total egg count. Of the 37 spp. surveyed, 14 spp. (38%) hosted gregarines. 13 of those spp. were previously unreported as hosts. Gregarine prevalences ranged from 2-52%. Intensities ranged from 1-201. Parasites were aggregated among their hosts. Gregarines were found only in individuals exceeding a minimum wing load, indicating that gregarines are likely not transferred from the larva to adult during emergence. Prevalence and intensity exhibited strong seasonality during both years at one of the reservoirs, but no seasonal trend was detected at the wetland. The seasonal trend at the reservoir suggests that gregarine oocyst viability parallels increasing host population densities and may be short-lived. Prevalence and intensity also differed between anisopteran populations at the locations. Regression analyses revealed that host sp., host gender, month, and year were significant explana-

tory variables related to gregarine prevalence and intensity. The fitness parameters measured were not correlated with presence or intensity of gregarines, suggesting that either gregarines do not affect wing loading and egg production in *E. simplicicollis*, or that virulence depends on parasite intensity and/or the specific gregarine spp. infecting the hosts. The results emphasize the importance of considering season, hosts, and habitat when studying gregarine-dragonfly ecology.

- (18164) LOCKLIN, J.L. & D.S. VODOPICH, 2010. Patterns of gregarine parasitism in dragonflies: host, habitat, and seasonality. *Parasitol. Res.* 107: 75-87. — (First Author: Dept Biol., Temple Coll., MBS, Temple, TX 76504, USA).
Gregarines are ubiquitous protozoan parasites that infect arthropods worldwide. More than 1600 spp. have been described, but only a small percentage of invertebrates have been surveyed for these apicomplexan parasites. Adult anisopteran populations were surveyed for gregarines at 2 reservoirs in Texas, USA for 2 yr. Gregarine prevalence and intensity were compared intra-specifically between host genders and reservoirs among wing loads and through time. Of the 29 odon. spp. collected, 41% hosted gregarines. 9 of these were previously undocumented as hosts. Among the commonly collected hosts, prevalence ranged from 18 to 52%. Parasites were aggregated among hosts and had a median intensity of 5 parasites per host. Gregarines were found only in hosts exceeding a minimum wing load, indicating that gregarines are likely not transferred from the larva to adult during emergence. Prevalence and intensity increased during both years, suggesting that gregarine oocyst viability parallels increasing host population densities and may be short-lived. Prevalence and intensity also differed between odon. populations at 2 reservoirs. Regression analyses revealed that host species, host gender, month, and year were significant explanatory variables related to gregarine prevalence and intensity. Abundant information on odon. distributions, diversity, and mating activities makes dragonfly-gregarine systems excellent avenues for ecological, evolutionary, and parasitological research. These results emphasize the importance of considering season, hosts, and habitat when studying gregarine-dragonfly ecology.
- (18165) MACHADO, A.B.M., 2010. Four new spe-

cies of *Phoenicia-grion* von Ellenrieder, 2008 from Brazil (Odonata, Coenagrionidae). *Zootaxa* 2517: 44-52. — (Dept Zool., UFMG, C.P. 486, BR-31270-901 Belo Horizonte, MG).

Described and illustrated are: *P. flavescens* sp. n. (holotype ♂, allotype ♀: Anapá, Serra do Navio, pool below a fall in Igarapé Agua Fria, I-1957; deposition not stated), *P. ibseni* sp. n. (holotype ♂: Pará, Conceição do Araguaia, date not stated; deposited in Author's coll.), *P. karaja* sp. n. (holotype ♂, allotype ♀: Pará, Conceição do Araguaia, date not stated; deposited in Author's coll.), and *P. megalobos* sp. n. (holotype ♂, allotype ♀: Pará, Cachimbo, X-1955; deposited in Author's coll.). Keys to both sexes of the known spp. are provided.

- (18166) NEKREP, I., T. GREGORC & P. MOHAR, 2010. *Študija možnosti in vpliv umestitve odpiranja kammolomov na območju doline Bele v občini Poljčane za usmeritve občini Poljčane pri pripravi OPN-ja.* — [Study on the possibilities and impact of the opening of stone-pits in the Bela valley, municipality of Poljčane]. Lutra, Ljubljana. 3 pp. (Slovene). — (c/o Lutra, Pot ilegalcev 17, SI-1210 Ljubljana).
The Bela stream is a breeding habitat of *Cordulegaster heros*; — Poljčane, Slovenia.
- (18167) PALACINO-RODRIGUEZ, F. & C.A. MILLAN-OCAMPO, 2010. Diversidad de libélulas: potencial inexplorado de control biológico. *Arroz* 58(484): 12-17. — (First Author: Inst. Cienc. Nat., Univ. Nac. Colombia, Bogota-7495, Colombia).
A list of 35 spp. known to occur in Soldaña and Llanos Orientales (Colombia), with field observations on some of them.
- (18168) PETRULEVIČIUS, J.F., A. NEL & J.-F. VOISIN, 2010. A new genus and species of damer dragonfly (Aeshnidae: Odonata) from the Lower Eocene of Laguna del Hunco, Patagonia, Argentina. *Anns Soc. ent. Fr. (N.S.)* 46(1/2): 271-275. (With Fr. s.). — (First Author; Depto Paleozool. Invert., Mus. La Plata, Paseo del Bosque s/n, AR-1900 La Plata).
Huncoaeshna corrupta gen. n., sp. n. is described and illustrated from Ypresian of Laguna del Hunco.
- (18169) POSCHMANN, M., T. SCHINDLER & D. UHL, 2010. Fossil-Lagerstätte Enspel: a short

- review of current knowledge, the fossil association, and a bibliography. *Palaeobio Palaeoenvir.* 90: 3-20. – (First Author: Referat Erdgeschichte, Direktion Landesarchäologie, Generaldirektion Kulturelles Erbe RLP, Grosse Langgasse 29, D-55116 Mainz).
- A complete, to the bibliography cross-referenced list of the organisms known from the “Fossil-Lagerstätte Enspel”, an Upper Oligocene crater lake in Rhineland-Palatinate, Germany. The geology is outlined and the higher taxa are briefly reviewed.
- (18170) PROKOP, J. & A. NEL, 2010. New griffinfly, *Bohemiatus elegans* from the Late Carboniferous of western Bohemia in the Czech Republic (Odonoptera: Meganisoptera: Meganeuridae). *Annls Soc. ent. Fr.* (N.S.) 46(1/2): 183-188. (With Fr. s.). – (First Author: Dept Zool., Fac. Sci., Charles Univ., Viničná 7, CZ-12844 Praha-2).
- Bohemiatus elegans* gen. n., sp. n. is described and illustrated from the Bosovian deposits of Ovčín nr Radnice and compared with the other meganeurid genera.
- (18171) RAĐA, B. & S. PULJAS, 2010. Do karst rivers “deserve” their own biotic index? A ten year study on macrozoobenthos in Croatia. *Int. J. Speleol.* 39(2): 137-147. – (Dept Biol., Fac. Sci., Univ. Split, Teslina 12/III, HR-21000 Split).
- The Dalmatian rivers Jadro, Žrnovnica, Grab and Ruda were studied, In the macrozoobenthos samples *Calopteryx virgo*, *Pyrrhosoma* sp., *Anax imperator* and *Cordulegaster boltonii* were identified. It is stated that odon. have no indicator values for karst rivers.
- (18172) RAEBEL, E.M., T. MERCKX, P. RIOR-DAN, D.W. MACDONALD & D.J. THOMPSON, 2010. The dragonfly delusion: why it is essential to sample exuviae to avoid biased surveys. *J. Insect Conserv.* 2010: 11 pp.; – DOI: 10.1007/s10841-010-9281-7. – (Last Author: Sch. Biol. Sci., Univ. Liverpool, Biosciences Bldg, Crown St., Liverpool, L69 7ZB, UK).
- Odon. populations and spp. numbers are declining globally. Successful conservation requires sound assessments of both odon. distributions and habitat requirements. Most surveys that are used to inform conservation managers are undertaken of the adult stage. This study investigates whether this bias towards adult records in odon. recording is misinterpreting the environmental quality of sites. The habitat focus is farmland ponds, a key feature of agricultural landscapes. It was tested whether or not, adult, larval and exuvial surveys lead to similar conclusions on species richness and hence on pond quality. Results showed that pond surveys based upon larvae and exuviae are equally suitable for the reliable assessment of presence/absence of odon., but that adult surveys are not interchangeable with surveys of larvae/exuviae. Larvae were also found at ponds with no emerging individuals due to changes in habitat quality, therefore presence of exuviae remains the only proof of life-cycle completion at a site. Ovipositing ♀♀ were recorded at all ponds where exuviae were totally absent hence adult surveys over-estimate pond quality and low-quality ponds are functioning as ecological traps. Highly mobile and generalist spp. were recorded at more locations than other spp. Adult surveys also bias recording towards gen., spp. and populations with non-territorial mate-location strategies. Odon. biodiversity monitoring would benefit from applying the best survey method (exuviae) to avoid wasting valuable financial resources while providing unbiased data, necessary to achieve conservation objectives.
- (18173) SENEGAČNIK, A. et al., 2010. *Močeradova pot.* – [*Salamander trek*]. Fold. brochure, 6 pp. Občina Slovenska Bistrica. (Slovene). – (c/o M. Bedjanič, Kolodvorska 21/b, SI-2310 Slovenska Bistrica).
- A brochure on plant and animal life in the forest of Črnec near Slovenska Bistrica (Slovenia). A stream there is a breeding habitat of *Cordulegaster heros*.
- (18174) TÜZÜN, A., F. FABIRI & S. YÜKSEL, 2010. Preliminary study and identification of insects’ species of forensic importance in Urmia, Iran. *Afr. J. Biotechnol.* 9(24): 3649-3658. – (Dept Biol., Fac. Sci., Univ. Ankara, TR-06100 Tandogan/Ankara).
- It presents a tab. of aquatic insects that come to the pig corpses in aquatic environment, listing *Argia*, *Calopteryx* and *Zoniagrion*. The tab. is based on the work by G. Vance et al., 2005, *J. forensic Sci.* (bibl. reference incomplete).