The ecology and conservation of butterflies and moths

John W. Dover¹ · Nigel A. D. Bourn² · Owen T. Lewis⁴ · Tim G. Shreeve³

Received: 17 March 2015 / Accepted: 24 March 2015 / Published online: 28 March 2015
© Springer International Publishing Switzerland 2015

In 2011, we published the proceedings of Butterfly Conservation's Sixth International Symposium '*2010 and beyond for Lepidoptera*' (volume 15:1–365). That meeting attempted to assess whether the Convention on Biological Diversity's aspiration to significantly reduce the rate of biodiversity loss in the Lepidoptera had been achieved. Sadly the conclusion was that it had not. Nevertheless, the papers in that Special Edition were not uniformly concerned with doom and gloom and many reported important insights into species' ecology and approaches which could lead to improvements in the future.

Now, 4 years on, we publish the written contributions to the Seventh Symposium held in April 2014. The Symposium title was deliberately less focussed than that held in 2010 to attempt to capture a broad snapshot of work on Lepidoptera from around the world—in that it was successful, with over 80 presentations from 28 countries. The

Journal is proud to present 20 written papers from that intense and exhilarating 3-day long meeting. Nineteen papers are presented in this edition, one has already been published (Maes et al. 2014).

Inevitably the preoccupation of many authors was with the ongoing impacts of climate change and how to overcome them. Parmesan et al. (2015) examined elevational range and hostplant shifts in the quino checkerspot *Euphydryas editha quino* whilst Wilson et al. (2015) examined turnover, habitat quality and microclimate changes at a contracting range margin of the Apollo *Parnassius apollo* in the Sierra de Guadarrama mountains of Spain. Indeed, microclimate was something of a theme: Curtis and Isaac (2015) examined the impact of microclimate heterogeneity on the Glanville fritillary *Melitaea cinxia*, Hindle et al. (2015) scrutinised the value of topographical variation to the marbled white butterfly *Melanargia galathea*, whilst Suggitt et al. (2015) studied the influence of microclimate in buffering the effects of climate change and contributing to landscape-scale persistence of butterflies and moths.

Dispersal studies were also evident ranging from an investigation of threats to the scarce copper (*Lycaena virgaureae*) from development in Sweden (Haaland 2015) and the impact of altitude (Cassacci et al. 2015). Several papers were concerned with population trends (Swengel and Swengel 2015a, b; Curtis et al. 2015) including monitoring approaches (Roy et al. 2015) or conservation at very different spatial scales such as South Africa (Edge and Mecenero 2015) and the vineyards of Washington State in the USA (James et al. 2015). Autecological studies are always welcome; Edge and Bazin (2015) contributed an in-depth study of the Knysna skolly *Thestor brachycerus brachycerus*, Čelik et al. (2015) a paper on the habitat quality determinants for the false ringlet *Coenonympha oedipus*, whilst Tjørnløv et al. (2015) focussed on

✉ John W. Dover
J.W.Dover@staffs.ac.uk

Nigel A. D. Bourn
nbourn@butterfly-conservation.org

Owen T. Lewis
owen.lewis@zoo.ox.ac.uk

Tim G. Shreeve
tgshreeve@brookes.ac.uk

¹ The Science Centre, Staffordshire University, Room 113, Leek Rd, Stoke-on-Trent ST4 2DF, UK

² Butterfly Conservation, Manor Yard, East Lulworth, Wareham, Dorset BH20 5QP, UK

³ School of Life Sciences, Oxford Brookes University, Headington, Oxford OX3 0BP, UK

⁴ Department of Zoology, University of Oxford, South Parks Road, Oxford OX1 3PS, UK

oviposition site selection in the marsh fritillary *Euphydryas aurinia*.

Maes et al. (2014) highlights the value of a neglected biotope, the ecotone, and examines the requirements of an ecotonal species, the ilex hairstreak *Satyrrium ilicis*, concluding that a resource-based approach is most appropriate for this butterfly. Klop et al. (2015) reminds us that the impact of nitrogen deposition on larval habitats is not simple and examines the resulting impact of microclimate modification on the wall butterfly *Lasiommata megera*. Botham et al. (2015) continue the exploration of agroecological impacts on Lepidoptera assessing the effects of area and habitat diversity on specialist and generalist species. Whilst professional ecologists and conservationists write most of the academic papers on population trends of Lepidoptera, much of the monitoring data they use is collected by amateurs and enthusiasts in what is now termed, appropriately, ‘Citizen Science’ programmes. Jue and Daniels (2015) describe how a database of at-risk butterflies was built-up using just such an approach in Florida.

We hope you enjoy the collection of papers from the Seventh Symposium and anticipate, as eagerly as we do, the Eighth, to be held in Butterfly Conservation’s 50th year, 2018!

References

- Botham MS, Fernandez-Ploquin EC, Brereton T, Harrower CA, Roy DB, Heard M (2015) Lepidoptera communities across an agricultural gradient: how important are habitat area and habitat diversity in supporting high diversity? *J Insect Conserv*. doi:10.1007/s10841-015-9760-y
- Cassacci LP, Cerrato C, Barbero F, Bosso L, Ghidotti S, Paveto M, Pesce M, Plazio E, Panizza G, Balletto E, Viterbi R, Bonelli S (2015) Dispersal and connectivity effects at different altitudes in the *Euphydryas aurinia* complex. *J Insect Conserv*. doi:10.1007/s10841-014-9715-8
- Čelik T, Bräu M, Bonelli S, Cerrato C, Vreš B, Balletto E, Stettmer C, Dolek M (2015) Winter-green host-plants, litter quantity and vegetation structure are key determinants of habitat quality for *Coenonympha oedippus* in Europe. *J Insect Conserv*. doi:10.1007/s10841-014-9736-3
- Curtis RJ, Isaac NJB (2015) The effect of temperature and habitat quality on abundance of the Glanville fritillary on the Isle of Wight; implications for conservation management in a warming climate. *J Insect Conserv*. doi:10.1007/s10841-014-9738-1
- Curtis RJ, Botham MS, Brereton TM, Isaac NJB (2015) The rise and demise of the Glanville fritillary on the Isle of Wight. *J Insect Conserv*. doi:10.1007/s10841-014-9737-2
- Edge DA, Bazin EA (2015) The ecology and conservation of *Thestor brachycerus brachycerus* (Trimen, 1883)—an aphytophagous miletine butterfly from South Africa. *J Insect Conserv*. doi:10.1007/s10841-015-9756-7
- Edge DA, Mecenero S (2015) Butterfly conservation in southern Africa. *J Insect Conserv*. doi:10.1007/s10841-015-9758-5
- Haaland C (2015) Abundances and movement of the scarce copper butterfly (*Lycaena virgaureae* L.) on future building sites at a settlement fringe in southern Sweden. *J Insect Conserv*. doi:10.1007/s10841-014-9708-7
- Hindle BJ, Kerr CL, Richards SA, Willis SG (2015) Topographical variation reduces phenological mismatch between a butterfly and its nectar source. *J Insect Conserv*. doi:10.1007/s10841-014-9713-x
- James DG, Seymour L, Buckley K (2015) Beauty with benefits: butterfly conservation in Washington State, USA, wine grape vineyards. *J Insect Conserv*. doi:10.1007/s10841-015-9761-x
- Jue DK, Daniels JC (2015) A successful model for citizen scientist involvement in building a statewide at-risk butterfly database. *J Insect Conserv*. doi:10.1007/s10841-014-9733-6
- Klop E, Omon B, WallisDeVries M (2015) Impact of nitrogen deposition on larval habitats: the case of the wall brown butterfly *Lasiommata megera*. *J Insect Conserv*. doi:10.1007/s10841-014-9748-z
- Maes DA, Jacobs I, Segers N, Vanreusel W, Van Dele T, Laurijsens G, Van Dyck H (2014) A resource-based conservation approach for an endangered ecotone species: the ilex hairstreak (*Satyrrium ilicis*) in Flanders (north Belgium). *J Insect Conserv* 18:939–950
- Parmesan C, Williams-Anderson A, Moskwik M, Mikheyev AS, Singer MC (2015) Endangered quino checkerspot butterfly and climate change: short-term success but long-term vulnerability? *J Insect Conserv*. doi:10.1007/s10841-014-9743-4
- Roy DB, Ploquin EF, Randle Z, Risely K, Botham MS, Middlebrook I, Noble D, Cruickshanks K, Freeman SN, Brereton TM (2015) Comparison of trends in butterfly populations between monitoring schemes. *J Insect Conserv*. doi:10.1007/s10841-014-9739-0
- Suggitt AJ, Wilson RJ, August TA, Fox R, Isaac NJB, Macgregor NA, Morecroft MD, Maclean IMD (2015) Microclimate affects landscape level persistence in the British Lepidoptera. *J Insect Conserv*. doi:10.1007/s10841-014-9749-y
- Swengel AB, Swengel SR (2015a) Grass-skipper (Hesperiinae) trends in midwestern USA grasslands during 1988–2013. *J Insect Conserv*. doi:10.1007/s10841-015-9759-4
- Swengel SR, Swengel AB (2015b) Assessing abundance patterns of specialized bog butterflies over 12 years in northern Wisconsin USA. *J Insect Conserv*. doi:10.1007/s10841-014-9731-8
- Tjørnløv RS, Kissling WD, Barnagaud J-Y, Bøcher PK, Høye TT (2015) Oviposition site selection of an endangered butterfly at local spatial scales. *J Insect Conserv*. doi:10.1007/s10841-014-9747-0
- Wilson RJ, Bennie J, Lawson CR, Pearson D, Ortúzar-Ugarte G, Gutiérrez D (2015) Population turnover, habitat use and microclimate at the contracting range margin of a butterfly. *J Insect Conserv*. doi:10.1007/s10841-014-9710-0