

PUBLICATIONS by Juha Pöyry:

Articles in peer-reviewed scientific journals:

- 2017
40. **Pöyry, J.**, Böttcher, K., Fronzek, S., Gobron, N., Leinonen, R., Metsämäki, S. & Virkkala, R. (2017) Predictive power of remote sensing versus temperature-derived variables in modelling phenology of herbivorous insects. – *Remote Sensing in Ecology and Conservation*, doi:10.1002/rse2.56.
39. Paukkunen, J., **Pöyry, J.** & Kuussaari, M. (2017) Species traits explain long-term population trends of Finnish cuckoo wasps (Hymenoptera: Chrysididae). – *Insect Conservation and Diversity*, doi: 10.1111/icad.12241.
38. Dainese, M., Isaac, N.J.B., Powney, G.D., Bommarco, R., Öckinger, E., Kuussaari, M., **Pöyry, J.**, Benton, T.G., Gabriel, D., Hodgson, J.A., Kunin, W.E., Lindborg, R., Sait, S.M. & Marini, L. (2017) Land-use simplification weakens the association between terrestrial producer and consumer diversity in Europe. – *Global Change Biology* 23: 3040-3051.
37. **Pöyry, J.**, Carvalheiro, L.G., Heikkinen, R.K., Kühn, I., Kuussaari, M., Schweiger, O., Valtonen, A., van Bodegom, P.M. & Franzén, M. (2017) The effects of soil eutrophication propagate to higher trophic levels. – *Global Ecology and Biogeography* 26: 18-30.
- 2016
36. Gunton, R.M. & **Pöyry, J.** (2016) Scale-specific spatial density dependence in parasitoids: a multifactor meta-analysis. – *Functional Ecology* 30: 1501-1510.
- 2015
35. Heikkinen, R.K., **Pöyry, J.**, Virkkala, R., Bocedi, G., Kuussaari, M., Schweiger, O., Settele, J. & Travis, J.M.J. (2015) Modelling potential success of conservation translocations of a specialist grassland butterfly. – *Biological Conservation* 192: 200-206.
- 2014
34. Heikkinen, R.K., Bocedi, G., Kuussaari, M., Heliölä, J., Leikola, N., **Pöyry, J.** & Travis, J.M.J. (2014): Impacts of land cover data selection and trait parameterisation on dynamic modelling of species' range expansion. – *PLoS ONE* 9(9), e108436.
33. Kuussaari, M., Saarinen, M., Korpela, E.-L., **Pöyry, J.** & Terho Hyvönen, T. (2014) Higher mobility of butterflies than moths connected to habitat suitability and body size in a release experiment. – *Ecology and Evolution* 4: 3800-3811.
32. Niemi, R.M., **Pöyry, J.**, Heiskanen, I., Uotinen, V., Nieminen, M., Erkomaa, K. & Wallenius, K. (2014) Variability of soil enzyme activities and vegetation succession following boreal forest surface soil transfer to an artificial hill. – *Nature Conservation* 8: 1-25.
31. Clough, Y., Ekroos, J., Báldi, A., Batáry, P., Bommarco, R., Gross, N., Holzschuh, A., Hopfenmüller, S., Knop, E., Kuussaari, M., Lindborg, R., Marini, L., Öckinger, E., Potts, S.G., **Pöyry, J.**, Roberts, S.P.M., Steffan-Dewenter, I. & Smith, H.G. (2014) Density of insect-pollinated grassland plants decreases with increasing surrounding

land-use intensity. – *Ecology Letters* 17: 1168-1177.

30. Virkkala, R., **Pöyry, J.**, Heikkinen, R.K., Lehtikoinen, A. & Valkama, J. (2014) Protected areas alleviate climate change effects on northern bird species of conservation concern. – *Ecology and Evolution* 4: 2991-3003.

29. Marini, L., Öckinger, E., Bergman, K.-O., Jauker, B., Krauss, J., Kuussaari, M., **Pöyry, J.**, Smith, H.G., Steffan-Dewenter, I., Bommarco, R. (2014) Contrasting effects of habitat area and connectivity on evenness of pollinator communities. – *Ecography* 37: 544-551.

28. Valtonen, A., Leinonen, R., **Pöyry, J.**, Roininen, H., Tuomela, J. & Ayres, M.P. (2014) Is climate warming more consequential towards poles? The phenology of Lepidoptera in Finland. – *Global Change Biology* 20: 16-27.

2013

27. Eskildsen, A., le Roux, P.C., Heikkinen, R.K., Høye, T.T., Kissling, W.D., **Pöyry, J.**, Wisz, M.S. & Luoto, M. (2013) Testing species distribution models across space and time: high latitude butterflies and recent warming. – *Global Ecology and Biogeography* 22: 1293-1303.

26. Ojanen, S., Nieminen, M., Meyke, E., **Pöyry, J.** & Hanski, I. (2013) Long-term metapopulation study of the Glanville fritillary butterfly (*Melitaea cinxia*): survey methods, data management, and long-term population trends. – *Ecology & Evolution* 3: 3713-3737.

25. Arponen, A., Heikkinen, R.K., Paloniemi, R., **Pöyry, J.**, Similä, J. & Kuussaari, M. (2013) Improving conservation planning for semi-natural grasslands: Integrating connectivity into agri-environmental schemes. – *Biological Conservation* 160: 234-241.

2012

24. Öckinger, E., Bergman, K.-O., Franzén, M., Kadlec, T., Krauss, J., Kuussaari, M., **Pöyry, J.**, Smith, H.G., Steffan-Dewenter, I. & Bommarco, R. (2012) The matrix matters: contrasting response of species richness to habitat fragmentation in forest versus agricultural landscapes. – *Landscape Ecology* 27: 121-131.

23. Schweiger, O., Heikkinen, R.K., Harpke, A., Hickler, T., Klotz, S., Kudrna, O., Kühn, I., **Pöyry, J.** & Settele, J. (2012) Increasing range mismatching of interacting species under global change is related to their ecological characteristics. – *Global Ecology and Biogeography* 21: 88-99.

2011

22. **Pöyry, J.**, Leinonen, R., Söderman, G., Nieminen, G., Heikkinen, R.K. & Carter, T.R. (2011) Climate-induced increase of moth multivoltinism in boreal regions. – *Global Ecology and Biogeography* 20: 289-298.

21. Valtonen, A., Ayres, M.P., Roininen, H., **Pöyry, J.** & Leinonen, R. (2011) Environmental controls on the phenology of moths: predicting plasticity and constraint under climate change. – *Oecologia* 165: 237-248.

2010

20. Öckinger, E., Schweiger, O., Crist, T.O., Debinski, D.M., Krauss,

- J., Kuussaari, M., Petersen, J.D., **Pöyry, J.**, Settele, J., Summerville, K.S. & Bommarco, R. (2010) Life-history traits predict species responses to habitat area and isolation – A cross-continental synthesis. – *Ecology Letters* 13: 969-979.
19. Hambäck, P.A., Bergman, K.-O., Riccardo Bommarco, Jochen Krauss, Mikko Kuussaari, **Juha Pöyry** & Erik Öckinger: Allometric density responses in butterflies: The response to small and large patches by small and large species. – *Ecography* 33: 1149-1156.
18. Bommarco, R., Biesmeijer, J.C., Meyer, B., Potts, S.G., **Pöyry, J.**, Roberts, S.P.M., Steffan-Dewenter, I. & Öckinger, E. (2010) Dispersal capacity and diet breadth modify the response of wild bees to habitat loss. – *Proceedings of the Royal Society of London. Series B* 277: 2075-2082.
17. Krauss, J., Bommarco, R., Guardiola, M., Heikkinen, R.K., Helm, A., Kuussaari, M., Lindborg, R., Öckinger, E., Pärtel, M., Pino, J., **Pöyry, J.**, Raatikainen, K.M., Sang, A., Stefanescu, C., Teder, T., Zobel, M. & Steffan-Dewenter, I. (2010) Habitat fragmentation causes immediate and time-delayed biodiversity loss at different trophic levels. – *Ecology Letters* 13: 597-605.
16. Heikkinen, R.K., Luoto, M., Leikola, N., **Pöyry, J.**, Settele, J., Kudrna, O., Marmion, M., Fronzek, S. & Thuiller, W. (2010) Assessing the vulnerability of European butterflies to climate change using multiple criteria. – *Biodiversity and Conservation* 19: 695-723.
- 2009
15. **Pöyry, J.**, Paukkunen, J., Heliölä, J. & Kuussaari, M. (2009) Relative contributions of local and regional factors to species richness and abundance of butterflies and moths in semi-natural grasslands. – *Oecologia* 160: 577-587.
14. **Pöyry, J.**, Luoto, M., Heikkinen, R.K., Kuussaari, M. & Saarinen, K. (2009) Species traits explain recent range shifts of Finnish butterflies. – *Global Change Biology* 15: 732-743.
- 2008
13. van Teeffelen, A., Cabeza, M., **Pöyry, J.**, Raatikainen, K.M. & Kuussaari, M. (2008) Maximizing conservation benefit for grassland species with contrasting management requirements. – *Journal of Applied Ecology* 45: 1401-1409.
12. Mitikka, V., Heikkinen, R.K., Luoto, M., Araújo, M.B., Saarinen, K., **Pöyry, J.** & Fronzek, S. (2008) Predicting range expansion of the map butterfly in Northern Europe using bioclimatic models. – *Biodiversity and Conservation* 17: 623-641.
11. **Pöyry, J.**, Luoto, M., Heikkinen, R.K. & Saarinen, K. (2008) Species traits are associated with the quality of bioclimatic models. – *Global Ecology and Biogeography* 17: 403-414.
- 2007
10. Kuussaari, M., Heliölä, J., **Pöyry, J.** & Saarinen, K. (2007) Contrasting trends of butterflies preferring semi-natural grasslands, field margins and forest edges in northern Europe. – *Journal of Insect Conservation* 11: 351-366.
9. Kuussaari, M., Heliölä, J., Luoto, M. & **Pöyry, J.** (2007) Effects of

land cover and climate on species richness of butterflies in boreal agricultural landscapes. – *Agriculture, Ecosystems & Environment* 122: 453-460.

- 2006 8. **Pöyry, J.**, Luoto, M., Paukkunen, J., Raatikainen, K.M., Pykälä, J. & Kuussaari, M. (2006) Different responses of plants and insects to a gradient of vegetation height: an indicator of the vertebrate grazing intensity and successional age. – *Oikos* 115: 401-412.
7. Luoto, M., Heikkinen, R.K., **Pöyry, J.** & Saarinen, K. (2006) Determinants of biogeographical distribution of butterflies in boreal regions. – *Journal of Biogeography* 33: 1764-1778.
- 2005 6. Heikkinen, R.K., Luoto, M., Kuussaari, M. & **Pöyry, J.** (2005) New insights into butterfly-environment relationships using partitioning methods. – *Proceedings of the Royal Society of London. Biological Sciences* 272: 2203-2210.
5. Luoto, M., **Pöyry, J.**, Heikkinen, R.K. & Saarinen, K. (2005) Uncertainty of bioclimate envelope models based on geographical distribution of species. – *Global Ecology and Biogeography* 14: 575-584.
4. **Pöyry, J.**, Lindgren, S., Salminen, J. & Kuussaari, M. (2005) Responses of butterfly and moth species to restored cattle grazing in semi-natural grasslands. – *Biological Conservation* 122: 465-478.
- 2004 3. **Pöyry, J.**, Lindgren, S., Salminen, J. & Kuussaari, M. (2004) Restoration of butterfly and moth communities in semi-natural grasslands by cattle grazing. – *Ecological Applications* 14: 1656-1670.
- 1997 2. **Pöyry, J.** & Kullberg, J. (1997) A taxonomical revision of the genus *Holoarctia* Ferguson, 1984 (Arctiidae). – *Nota lepidopterologica* 20: 45-65.
- 1995 1. Hanski, I., **Pöyry, J.**, Pakkala, T. & Kuussaari, M. (1995) Multiple equilibria in metapopulation dynamics. – *Nature* 377: 618-621.

Articles in peer-reviewed scientific conference proceedings:

- 2007 1. Hanski, I. & **Pöyry, J.** (2007) Insect populations in fragmented habitats. – Pages 175-202 in Stewart, A.J.A., New, T.R. and Lewis, O.T. (Editors): *Insect Conservation Biology*. Proceedings of the Royal Entomological Society's 23 Symposium. CABI Publishing, Wallingford, UK

Chapters in peer-reviewed books:

- 2014 1. Arponen, A., Heikkinen, R., Paloniemi, R., **Pöyry, J.**, Similä, J. & Kuussaari, M. 2014: The importance of connectivity for agri-environment schemes. – Pages 161–166 in K. Henle, S. Potts, W. Kunin, Y. Matsinos, J. Similä, J. Pantis, V. Grobelnik, L. Penev & J. Settele (editors): *Scaling in ecology and biodiversity conservation*. Pensoft Publisher, Sofia

Articles intended for professional communities:

- 2016
18. Costa, L., Hildén, M., Kropp, J., Böttcher, K., Fronzek, S., Swart, R., Otto, J., McCormick, N., Radojevic, M., Lückenötter, J., Keup-Thiel, E., Luojus, K., Singh, T., **Pöyry, J.**, Sanchez, E. & Juckes, M. (2016) Assessing climate impact indicators: Evaluation criteria and observed strengths and weaknesses. – *Reports of the Finnish Environment Institute 41/2016: 1-67.*
17. Leinonen, R., **Pöyry, J.**, Söderman, G. & Tuominen-Roto, L. (2016) Suomen yöperhosseurantaa 1993–2012. – *Suomen ympäristökeskuksen raportteja 15/2016: 1-71.*
- 2012
16. Heikkinen, R.K., **Pöyry, J.**, Fronzek, S. & Leikola, N. (2012) Ilmastonmuutos ja vieraslajien leviäminen Suomeen – Tutkimustiedon synteesi ja suurilmastollinen vertailu. – *Suomen ympäristö 7/2012: 1-117.*
- 2009
15. Paukkunen, J., Söderman, G., Leinonen, R., **Pöyry, J.**, Raekunnas, M., Teräs, I., Viitasaari, M. & Vikberg, V. (2009) Havaintoja Suomelle uusista, hävinneistä, uhanalaisista ja silmälläpidettävistä myrky- ja sahapistiäisistä. – *Sahlbergia 15: 2-20.*
- 2008
14. Heliölä, J. & **Pöyry, J.** (2008) Niittymäisten johtoaukeiden tunnistaminen kaukokartoitusmenetelmillä. – *Suomen ympäristö 34/2008: 1-42.*
- 2005
13. **Pöyry, J.** & Toivonen, H. (2005) Climate change adaptation and biological diversity. FINADAPT Working Paper 3. – *Finnish Environment Institute Mimeographs 333: 1-46.*
- 2004
- Pykälä, J., **Pöyry, J.**, Kuussaari, M. & Heikkinen, R. (2004) Perinnebiotooppien kasvi- ja eläinlajisto – Pages 204-219 in Tiainen, J., Kuussaari, M., Laurila, I.P. & Toivonen, T. (eds.): *Elämää pellossa - Suomen maatalousympäristön monimuotoisuus.* Edita, Helsinki.
- Pöyry, J.**, Heliölä, J., Rytteri, T. & Alanen, A. (2004) Perinnebiotooppien lajiston uhanalaistuminen – Pages 220-233 in Tiainen, J., Kuussaari, M., Laurila, I.P. & Toivonen, T. (eds.): *Elämää pellossa - Suomen maatalousympäristön monimuotoisuus.* Edita, Helsinki.
- 2003
12. Kuussaari, M., Rytteri, T., Heikkinen, R.K., Manninen, P., Aitolehti, M., **Pöyry, J.**, Pykälä, J. & Ikävalko, J. (2003) Voimajohtoaukeiden merkitys niittyjen kasveille ja perhosille. – *Suomen ympäristö 638: 1-65.*
11. Kesküla, T. & **Pöyry, J.** (2003) The Wood Whites *Leptidea sinapis* and *L. reali* (Lepidoptera, Pieridae), with the occurrence of *L. reali* confirmed in Estonia. – *LepInfo 14: 1-7.* [In Estonian with English summary]
- 2001
10. **Pöyry, J.**, Wahlberg, N. & Nieminen, M. (2001) Perhosten istutukset lajien suojelussa. – *Baptia 26(1): 18-28.*

9. Pitkänen, M., Kuussaari, M. & **Pöyry, J.** (2001) Butterflies. – Pages 51-68 in Pitkänen, M. & Tiainen, J. (editors): *Biodiversity of agricultural landscapes in Finland. BirdLife Finland Conservation Series (No 3).*
8. **Pöyry, J.** (2001) Perhoset. – Pages 101-121 in Ilmonen, J., Rytteri, T. & Alanen, A. (editors): *Luontodirektiivin kasvit ja selkärangattomat eläimet: Suomen Natura 2000 -ehdotuksen luonnontieteellinen arviointi. Suomen ympäristö 510. Edita, Helsinki.*
7. **Pöyry, J.** (2001) Suoperhosten uhanalaisuus ja suojelutilanne Etelä-Suomessa. – Pages 213-257 in Aapala, K. (Editor): *Soidensuojelualueverkon arviointi. Suomen ympäristö 490. Edita, Helsinki.*
- 2000 6. Kuussaari, M., **Pöyry, J.** & Lundsten, K.-E. (2000) Maatalousympäristön päiväperhosseuranta: seurantamenetelmä ja ensimmäisen vuoden tulokset. – *Baptria 25(2): 44-56.*
- 1999 5. Paukkunen, J., **Pöyry, J.**, Savolainen, M. & Kuussaari, M. (1999) Lehtohopeatäplän (*Clossiana titania*) esiintyminen ja biologia Suomessa. – *Baptria 24(1): 39-46.*
- 1998 4. Kuussaari, M., **Pöyry, J.**, Savolainen, M. & Paukkunen, J. (1998) Suomen uhanalaisia lajeja: Lehtohopeatäplä (*Clossiana titania*). – *Suomen ympäristö 169: 1-47.*
- 1995 3. Kuussaari, M., Nieminen, M., **Pöyry, J.** & Hanski, I. (1995) Täpläverkkoperhosen (*Melitaea cinxia*) elinkierto ja esiintyminen Suomessa. – *Baptria 20: 167-180.*
2. Kawecki, T., Kuussaari, T. & **Pöyry, J.** (1995) A study of local adaptation to host plants by the butterfly *Melitaea cinxia*. – *Tvärminne Studies 6: 66.*
- 1994 1. Pekkarinen, A., Teräs, I., Koivula, M., **Pöyry, J.** & Wahlberg, N. (1994) Kimalaisten (Hymenoptera, Apidae) melanismista Fennoskandiassa. – *Baptria 19: 85-90.*

Abstracts in scientific conference proceedings:

- 2016 13. **Pöyry, J.**, Leinonen, R. & Tuominen-Roto, L. (2016) Twenty years of moth monitoring in Finland. – Future 4 Butterflies in Europe, Hof van Wageningen Hotel and Congress Centre, Wageningen, 31 March-2 April, 2016.
- 2014 12. **Pöyry, J.**, Carvalheiro, L.G., Heikkinen, R.K., Kuussaari, M., Schweiger, O., Valtonen, A. & Franzén, M. (2014) A positive relationship between host plant nitrogen content and size of butterflies and moths enhances the opposite population trend of species. – 7th International Conference on the Biology of Butterflies, University of Turku, 11-14 August, 2014.
- 2009 11. **Pöyry, J.** (2009) Local and regional factors affecting insect diversity in Finnish grasslands. – 2nd European Congress of Conservation Biology, Symposium for Promoting grassland insect

conservation and diversity, Czech University of Life Sciences, Prague, 1-5 September, 2009.

- 2008 10. **Pöyry, J.**, Luoto, M., Heikkinen, R.K., Kuussaari, M. & Saarinen, K. (2008) Species traits explain recent range shifts of Finnish butterflies. – *International Symposium Future of Butterflies in Europe II, WICC Conference Centre, Wageningen, 17-19 April, 2008.*
- 2005 9. **Pöyry, J.**, Lindgren, S., Paukkunen, J., Salminen, J. & Kuussaari, M. (2005) Opposing effects of restoration and abandonment on butterfly and moth communities in semi-natural grasslands. – *Butterfly Conservation 5th International Symposium: Lepidoptera as indicators of biodiversity conservation, Southampton University, 8-10 April, 2005.*
8. Kuussaari, M., Heliölä, J., Luoto, M. & **Pöyry, J.**: Determinants of species richness of butterflies and moths in Finnish agricultural landscapes (2005) – *Butterfly Conservation 5th International Symposium: Lepidoptera as indicators of biodiversity conservation, Southampton University, 8-10 April, 2005.*
- 2004 7. Kuussaari, M., Pykälä, J., **Pöyry, J.**, Ikonen, I., Lammi, A. & Lindström, M. (2004) Ketojen uhanalainen lajisto ja optimaalinen hoito. – *Pages 168-169 in Otsamo, A. (editor): MOSSE puolimatka – monimuotoisuuden tutkimusohjelman (2003-2006) välitulokset. Hanasaari 17.-18.11.2004, Seminaarikooste. MMM:n julkaisu 14/2004.*
- 2002 6. **Pöyry, J.** (2002) Effects of grassland management on insects - with special emphasis on Lepidoptera. – *Management of meadows - Nordic and Baltic solutions, Saaremaa, Estonia 28-31 August 2002.*
5. **Pöyry, J.** & Lindgren, S. (2002) Communities of day-active Lepidoptera in three types of grasslands with different grazing history. – *Proceedings of the 4th International Conference on the Biology of Butterflies, Leiden, The Netherlands, 23-27 March 2002.*
4. Kuussaari, M., Aitolehti, M., **Pöyry, J.**, von Bonsdorff, T., Ikävalko, J. & Heikkinen, R.K. (2002) Significance of power line areas for grassland butterflies and day-active moths. – *Proceedings of the 4th International Conference on the Biology of Butterflies, Leiden, The Netherlands, 23-27 March 2002.*
- 2001 3. **Pöyry, J.** (2001) Communities of day-active Lepidoptera in three types of differently grazed grasslands. – *Spring Symposium, Department of Ecology and Systematics, University of Helsinki, Finland, 4-6 April 2001.*
- 1999 2. **Pöyry, J.** (1999) The effects of mire drainage and fragmentation on lepidopteran fauna in South Finland. – *Butterfly Conservation's 3rd International Symposium, Oxford Brookes University, 3-5 September 1999.*
1. **Pöyry, J.** (1999) The effects of mire drainage and fragmentation on lepidopteran fauna in South Finland. – *Habitat loss: Ecological, Evolutionary and Genetic Consequences. Helsinki, Finland, 7-12 September 1999.*

Publications intended for the general public:

- 2005 3. Kuussaari, M., Luoto, M. & **Pöyry, J.** (2005) Niittyjen päiväperhoskannat ovat taantuneet. – *Helsingin Sanomat* 18.9.2005 (mielipide).
- 2004 2. Kuussaari, M., Pykälä, J. & **Pöyry, J.** (2004) Kedot hoitoon - niittyjen monimuotoisuus kunniaan. – *Maaseudun Tulevaisuus* 1.11.2004 (yliökirjoitus).
- 1999 1. **Pöyry, J.** & Sundell, P.R. (1999) Harjujemme uhanalaiset sinisiivet. – *Helsingin Sanomat* 20.8.1999.