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Research outputs

A general subpopulation model for the Animal Landscape and Man Simulation System (ALMaSS)

Duan, X. & Topping, C. J., 12 Nov 2024, In: Food and Ecological Systems Modelling Journal. 5, e122467.

A systems-based analysis to rethink the European environmental risk assessment of regulated chemicals using pesticides as a pilot case

Axelman, J., Aldrich, A., Duquesne, S., Backhaus, T., Brendel, S., Focks, A., Holz, S., Knillmann, S., Pieper, S., Silva, E., Schmied-Tobies, M., Topping, C. J., Wipfler, L., Williams, J. H. & Sousa, J. P., 20 Oct 2024, In: Science of the Total Environment. 948, 9 p., 174526.

A conceptual framework for landscape-based environmental risk assessment (ERA) of pesticides

Tarazona, J. V., de Alba-Gonzalez, M., Bedos, C., Benoit, P., Bertrand, C., Crouzet, O., Dafgès, C., CM Dorne, J.-L., Fernandez-Agudo, A., Focks, A., del Carmen Gonzalez-Caballero, M., Kroll, A., Liess, M., Loureiro, S., Ortiz-Santaliestra, M. E., Rasmussen, J., Royauté, R., Rundlöf, M., Schäfer, R. & Short, S. & 11 others, Siddique, A., Sousa, J. P., Spurgeon, D., Staub, P.-F., Topping, C. J., Voltz, M., Axelman, J., Aldrich, A., Duquesne, S., Mazerolles, V. & Devos, Y., 10 Sept 2024, In: Environment International. 191

Formal model for *Acyrtosiphon pisum*, *Aphis fabae*, *Myzus persicae* and *Sitobion avenae* using the ALMaSS subpopulation approach

Thomsen, P., Duan, X. & Topping, C. J., 11 Jul 2024, In: Food and Ecological Systems Modelling Journal. 5, 34 p., e123747.

ALMaSS Landscape and Farming Simulation: software classes and methods

Topping, C. J. & Duan, X., Jun 2024, In: Food and Ecological Systems Modelling Journal. 5, 22 p., e121215.

PollinERA: Understanding pesticide-Pollinator interactions to support EU Environmental Risk Assessment and policy

Topping, C. J., Bednarska, A., Benfenati, E., Chetcuti, J., Simon-Delso, N., Duan, X., Focks, A., Laskowski, R., Lombardo, A., Marcussen, L. K., Metodiev, T., Rubinigg, M., Rundlöf, M., Sgolastra, F., Stoyanova, C., Susanj, G., Williams, J. H. & Ziółkowska, E., 16 May 2024, In: Research Ideas and Outcomes. 10, 51 p., e127485.

Evaluating the impact of landscape structure and source-sink dynamics on non-target arthropod pesticide risk assessments in Germany

Ziółkowska, E., Laskowski, R., Raja Dominic, A., Stein, S., Wenzel, B., Kehlenbeck, H., Riddervold, M. & Topping, C. J., Apr 2024, 06844 Dessau-Roßlau, Germany: Umweltbundesamt. 150 p. (TEXTE; No. 58, Vol. 2024).

Managing large and complex population operations with agent-based models: The ALMaSS Population_Manager

Topping, C. J. & Duan, X., 6 Mar 2024, In: Food and Ecological Systems Modelling Journal. 5, e117593.

Modelling foraging strategies of honey bees as agents in a dynamic landscape representation

Capela, N., Duan, X., Ziółkowska, E. & Topping, C. J., 6 Mar 2024, In: Food and Ecological Systems Modelling Journal. 5, e99103.

Bridging the Gap between Field Experiments and Machine Learning: The EC H2020 B-GOOD Project as a Case Study towards Automated Predictive Health Monitoring of Honey Bee Colonies

van Dooremalen, C., Ulgezen, Z. N., Dall'Olio, R., Godeau, U., Duan, X., Sousa, J. P., Schäfer, M., Beaurepaire, A., van Gennip, P., Schoonman, M., Flener, C., Matthijs, S., Bouúaert, D. C., Verbeke, W., Freshley, D., Valkenburg, D.-J., van den Bosch, T., Schaafsma, F., Peters, J. & Xu, M. & 31 others, Conte, Y. L., Alaux, C., Dalmon, A., Paxton, R. J., Tehel, A., Streicher, T., Dezmirean, D. S., Giurgiu, A. L., Topping, C. J., Williams, J. H., Capela, N., Lopes, S., Alves, F., Alves,

J., Bica, J., Simões, S., Alves da Silva, A., Castro, S., Loureiro, J., Horčíčková, E., Bencsik, M., McVeigh, A., Kumar, T., Moro, A., van Delden, A., Ziółkowska, E., Filipiak, M., Mikołajczyk, Ł., Leufgen, K., de Smet, L. & de Graaf, D. C., Jan 2024, In: *Insects*. 15, 1, p. 1-22 22 p., 76.

Environmental scenarios for ApisRAM version 3, a honey bee colony model for pesticides risk assessment
Rortais, A., Alaux, C., Crall, J., Duan, X., Focks, A., Linguadoca, A., Topping, C. J. & More, S., Dec 2023, European Food Safety Authority. 35 p. (EFSA Supporting Publications; No. 12, Vol. 20).

Modelling dynamic pesticide amounts in multiple environmental compartments at landscape scales in ALMaSS

Poulsen, T., Duan, X. & Topping, C. J., Dec 2023, In: *Food and Ecological Systems Modelling Journal*. 4, 20 p., e107849.

Roadmap for action on the environmental risk assessment of chemicals for insect pollinators (IPol-ERA)

Williams, J. H., Bordoni, A., Bednarska, A., Pinto, M. A., Henriques Martins, C. A., Henriques, D., Sgolastra, F., Knapp, J., Loureiro, J., Sousa, J. P., Gócs, K., Marcussen, L. K., Rundlöf, M., von Post, M., Castro, M., Mølgaard, N., Simon-Delso, N., Capela, N., Thomsen, P. & Casqueiro, R. & 6 others, Magagnoli, S., Holz, S., Castro, S., Dupont, Y. L., Filipiak, Z. & Topping, C. J., Nov 2023, In: *EFSA Supporting Publications*. 20, 11, 99 p., 8431E.

GeSoN: A Geo-Social Network model applying bounded rationality to farmers in socio-ecological simulations

Paparella, A., Cembalo, L. & Topping, C. J., 29 Jun 2023, In: *Food and Ecological Systems Modelling Journal*. 4, e100714.

The Formal Model for the solitary bee *Osmia bicornis* L. agent-based model

Ziółkowska, E., Bednarska, A., Laskowski, R. & Topping, C. J., Jun 2023, In: *Food and Ecological Systems Modelling Journal*. 4, 59 p., e102102.

Statement of the Scientific Panel on Plant Protection Products and their Residues (PPR Panel) on the design and conduct of groundwater monitoring studies supporting groundwater exposure assessments of pesticides

EFSA PPR Panel (EFSA Panel on Plant Protection Products and their Residues), Hernández, A. G., Adriaanse, P., Aldrich, A., Berny, P., Coja, T., Duquesne, S., Focks, A., Marinovich, M., Millet, M., Pelkonen, O., Pieper, S., Topping, C. J., Widenfalk, A., Wilks, M. F., Wolterink, G., Kasteel, R., Kuppe, K. & Tiktak, A., May 2023, In: *EFSA Journal*. 21, 5, 108 p., e07990.

Development of adverse outcome pathways relevant for the identification of substances having endocrine disruption properties Uterine adenocarcinoma as adverse outcome

Hernandez-Jerez, A. F., Adriaanse, P., Aldrich, A., Berny, P., Coja, T., Duquesne, S., Focks, A., Millet, M., Pelkonen, O., Pieper, S., Tiktak, A., Topping, C. J., Widenfalk, A., Wilks, M., Wolterink, G., Angeli, K., Recordati, C., Van Duursen, M., Aiassa, E. & Lanzoni, A. & 7 others, Lostia, A., Martino, L., Guajardo, I. P. M., Panzarea, M., Terron, A., Marinovich, M. & EFSA Panel on Plant Protection Products and their Residues (PPR), Feb 2023, In: *EFSA Journal*. 21, 2, 47 p., e07744.

Neonicotinoids and their substitutes in sustainable pest control

Norton, M., Smagghe, G., Hayrabedian, S., Hayrabedian, K., Topping, C. J., Kahru, A., Hardy, I. C. W., Mikó, Z., Székács, A., Pennacchio, F., Geissen, V., de Silva, C., Lipiec, J., Mitchell, E. A. D., Rundlöf, M. & Walløe, L., Feb 2023, *Bulgarian Academy of Sciences*. 55 p.

High accuracy monitoring of honey bee colony development by a quantitative method

Capela, N., Dupont, Y. L., Rortais, A., Sarmiento, A., Papanikolaou, A., Topping, C. J., Arnold, G., Pinto, M. A., J. Rodrigues, P., J. More, S., Tosi, S., Alves, T. & Sousa, J. P., 2023, In: *Journal of Apicultural Research*. 62, 4, p. 741-750 10 p.

Is the effectiveness of policy-driven mitigation measures on carabid populations driven by landscape and farmland heterogeneity? Applying a modelling approach in the Dutch agroecosystems

Ziółkowska, E., Tiktak, A. & Topping, C. J., Dec 2022, In: *P L o S One*. 17, 12, 26 p., e0279639.

Scientific opinion on toxicity of pyrethroid common metabolites

Hernandez-Jerez, A. F., Adriaanse, P., Aldrich, A., Berny, P., Duquesne, S., Focks, A., Marinovich, M., Millet, M., Pelkonen, O., Pieper, S., Tiktak, A., Topping, C. J., Widenfalk, A., Wilks, M., Wolterink, G., Binaglia, M., Chiusolo, A., Serafimova, R., Terron, A. & Coja, T. & 1 others, EFSA Panel on Plant Protection Products and their Residues (PPR), Oct

2022, In: EFSA Journal. 20, 10, 31 p., e07582.

The Formal Model article format: justifying modelling intent and a critical review of data foundations through publication
Topping, C. J., Marcussen, L. K., Thomsen, P. & Chetcuti, J., Oct 2022, In: Food and Ecological Systems Modelling Journal. 3, 14 p., e91024.

A deeper understanding of system interactions can explain contradictory field results on pesticide impact on honey bees
Breda, D., Frizzera, D., Giordano, G., Seffin, E., Zanni, V., Annoscia, D., Topping, C. J., Blanchini, F. & Nazzi, F., Sept 2022, In: Nature Communications. 13, 1, 13 p., 5720.

Building a European Partnership for next generation, systems-based Environmental Risk Assessment (PERA): Final Roadmap Report

Sousa, J. P., Aldrich, A., Acelman, J., Backhaus, T., Brendel, S., Dorronso, B., Duquesne, S., Focks, A., Holz, S., Knillmann, S., Pieper, S., Schmied-Tobies, M., Silva, E., Topping, C. J., Wipfler, L. & Williams, J. H., Aug 2022, In: EFSA Supporting Publications. 19, 8, 58 p.

The Animal Landscape and Man Simulation System (ALMaSS): a history, design, and philosophy

Topping, C. J., Jul 2022, In: Research Ideas and Outcomes. 8, e89919.

ApisRAM Formal Model Description

Duan, X., Wallis, D., Hatjina, F., Simon-Delso, N., Bruun Jensen, A. & Topping, C. J., Feb 2022, In: EFSA Supporting Publications. 19, 2, 9 p., EN-7184.

Statement on the active substance acetamiprid

Hernandez Jerez, A., Adriaanse, P., Berny, P., Coja, T., Duquesne, S., Focks, A., Marinovich, M., Millet, M., Pelkonen, O., Pieper, S., Tiktak, A., Topping, C., Widenfalk, A., Wilks, M., Wolterink, G., Rundlöf, M., Ippolito, A., Linguadoca, A., Martino, L. & Panzarea, M. & 3 others, Terron, A., Aldrich, A. & EFSA Panel on Plant Protection Products and their Residues (PPR), Jan 2022, In: EFSA Journal. 20, 1, 71 p., e07031.

Statement on the active substance flupyradifurone

Hernandez Jerez, A., Adriaanse, T. P., Berny, P., Coja, T., Duquesne, S., Focks, A., Marinovich, M., Millet, M., Pelkonen, O., Pieper, S., Tiktak, A., Topping, C., Widenfalk, A., Wilks, M., Wolterink, G., Rundlöf, M., Ippolito, A., Linguadoca, A., Martino, L. & Panzarea, M. & 3 others, Terron, A., Aldrich, A. & EFSA Panel on Plant Protection Products and their Residues (PPR), Jan 2022, In: EFSA Journal. 20, 1, 55 p., e07030.

Improving pesticide-use data for the EU

Mesnager, R., Straw, E. A., Antoniou, M. N., Benbrook, C., Brown, M. J. F., Chauzat, M. P., Finger, R., Goulson, D., Leadbeater, E., López-Ballesteros, A., Möhring, N., Neumann, P., Stanley, D., Stout, J. C., Thompson, L. J., Topping, C. J., White, B., Zaller, J. G. & Zioga, E., Dec 2021, In: Nature Ecology & Evolution. 5, 12, p. 1560 1 p.

Scientific Opinion of the Scientific Panel on Plant Protection Products and their Residues (PPR Panel) on testing and interpretation of comparative in vitro metabolism studies

EFSA Panel on Plant Protection Products and their Residues (EFSA PPR Panel), Dec 2021, In: EFSA Journal. 19, 12, e06970.

På vej mod udvikling af en ny pesticid-risikovurdering for bier

Dupont, Y. L., Topping, C. J., Duan, X., Williams, J. H., Marcussen, L. K. & Kryger, P., Sept 2021, In: Tidsskrift for Biavl. 9, p. 286-288 3 p.

Development of Integrated Approaches to Testing and Assessment (IATA) case studies on developmental neurotoxicity (DNT) risk assessment

EFSA Panel on Plant Protection Products and their Residues (EFSA PPR Panel), Jun 2021, In: EFSA Journal. 19, 6, e06599.

Supporting non-target arthropods in agroecosystems: modelling effects of insecticides and landscape structure on carabids in agricultural landscapes

Ziółkowska, E., Topping, C. J., Bednarska, A. & Laskowski, R., Jun 2021, In: Science of the Total Environment. 774, 16 p., 145746.

Statement of the PPR Panel on a framework for conducting the environmental exposure and risk assessment for transition metals when used as active substances in plant protection products (PPP)

EFSA Panel of the Plant Protection Products and their Residues (PPR), Mar 2021, In: EFSA Journal. 19, 3, e06498.

Holistic environmental risk assessment for bees

Topping, C. J., Brown, M., Chetcuti, J., de Miranda, J. R., Nazzi, F., Neumann, P., Paxton, R. J., Rundlöf, M. & Stout, J. C., 26 Feb 2021, In: Science. 371, 6532, p. 897 1 p.

Statement on the translocation potential by *Pseudomonas chlororaphis* MA342 in plants after seed treatment of cereals and peas and assessment of the risk to humans

EFSA Panel on Plant Protection Products and their Residues (PPR), Hernandez-Jerez, A. F., Adriaanse, P., Aldrich, A., Berny, P., Coja, T., Duquesne, S., Marinovich, M., Millet, M., Pelkonen, O., Pieper, S., Tiktak, A., Topping, C. J., Wolterink, G., Herman, L., Chiusolo, A., Magrans, J. O. & Widenfalk, A., Oct 2020, In: EFSA Journal. 18, 10, e06276.

Vores risikovurdering af sprøjtemidler truer biodiversiteten

Topping, C. J., 8 Mar 2020, Videnskab.dk.

Scientific Opinion of the Scientific Panel on Plant Protection Products and their Residues (PPR Panel) on the genotoxic potential of triazine amine (metabolite common to several sulfonylurea active substances)

EFSA Panel on Plant Protection Products and their Residues (EFSA PPR Panel), Hernandez-Jerez, A. F., Adriaanse, P., Aldrich, A., Berny, P., Coja, T., Duquesne, S., Gimsing, A. L., Marinovich, M., Millet, M., Pelkonen, O., Pieper, S., Tiktak, A., Topping, C. J., Tzoulaki, I., Widenfalk, A., Wolterink, G., Benford, D., Aquilina, G. & Bignami, M. & 9 others, Bolognesi, C., Crebelli, R., Guertler, R., Marcon, F., Nielsen, E., Schlatter, J. R., Vleminckx, C., Maurici, D. & Parra Morte, J. M., Mar 2020, In: EFSA Journal. 18, 3, 24 p., 6053.

Overhaul environmental risk assessment for pesticides

Topping, C. J., Aldrich, A. & Berny, P., Jan 2020, In: Science. 367, 6476, p. 360-363 4 p.

European hares do not avoid newly pesticide-sprayed fields: Overspray as unnoticed pathway of pesticide exposure

Mayer, M., Duan, X., Sunde, P. & Topping, C. J., 2020, In: Science of the Total Environment. 715, 136977.

Landscape-scale simulations as a tool in multi-criteria decision making to support agri-environment schemes

Topping, C., Dalby, L. & Valdez, J., Nov 2019, In: Agricultural Systems. 176, 102671.

Scientific statement on the coverage of bats by the current pesticide risk assessment for birds and mammals

Hernández-Jerez, A., Adriaanse, P., Aldrich, A., Berny, P., Coja, T., Duquesne, S., Gimsing, A. L., Marina, M., Millet, M., Pelkonen, O., Pieper, S., Tiktak, A., Tzoulaki, I., Widenfalk, A., Wolterink, G., Russo, D., Streissl, F., Topping, C. & EFSA Panel on Plant Protection Products and their Residues (PPR), Jul 2019, In: EFSA Journal. 17, 7, 81 p., e05758.

Using problem formulation for fit-for-purpose pre-market environmental risk assessments of regulated stressors

Devos, Y., Craig, W., Devlin, R. H., Ippolito, A., Leggatt, R. A., Romeis, J., Shaw, R., Svendsen, C. & Topping, C. J., Jul 2019, In: EFSA Journal. 17, S1, 31 p., e170708.

A modelling approach to evaluate the effectiveness of different mitigation strategies to reduce the negative effects of agricultural practices on biodiversity in the Netherlands: Final report within the framework of the project: "Developing and application of a methodology to assess impacts of pesticides on key ecosystem services"

Ziółkowska, E. & Topping, C. J., Jun 2019, ResearchGate. 148 p.

Scientific Opinion on the setting of health-based reference values for metabolites of the active substance terbuthylazine

Hernandez-Jerez, A. F., Adriaanse, P., Aldrich, A. P., Berny, P., Duquesne, S., Gimsing, A. L., Millet, M., Pelkonen, O., Pieper, S., Tiktak, A., Topping, C. J., Tzoulaki, I., Widenfalk, A., Wolterink, G., Kuhl, T., Friel, A., Istace, F., Kardassi, D., Lythgo, C. & Serafimova, R. & 2 others, Coja, T. & EFSA Panel on Plant Protection Products and their Residues (PPR),

Jun 2019, In: EFSA Journal. 17, 6, 26 p., e05712.

Digitale bier kan afsløre uønskede effekter af sprøjtegift

Dupont, Y. L., Kryger, P., Axelsen, J. A., Sørensen, P. B. & Topping, C. J., Mar 2019, In: *Aktuel Naturvidenskab*. 1, p. 29-31 3 p.

Exposure of non-target small mammals to anticoagulant rodenticide during chemical rodent control operations

Elmeros, M., Bossi, R., Christensen, T. K., Kjær, L., Lassen, P. & Topping, C. J., Feb 2019, In: *Environmental Science and Pollution Research*. 26, 6, p. 6133-6140 8 p.

Wing membrane and fur samples as reliable biological matrices to measure bioaccumulation of metals and metalloids in bats

Mina, R., Alves, J., Alves da Silva, A., Natal-da-Luz, T., Cabral, J. A., Barros, P., Topping, C. J. & Sousa, J. P., 2019, In: *Environmental Pollution*. 253, p. 199-206 8 p.

Where to go goose hunting? Using pattern-oriented modeling to better understand human decision processes

Williams, J. H., Topping, C. J., Dalby, L., Clausen, K. & Madsen, J., Nov 2018, In: *Human Dimensions of Wildlife*. 23, 6, p. 533-551 19 p.

Ecological Recovery and Resilience in Environmental Risk Assessments at the European Food Safety Authority

Brock, T., Bigler, F., Frampton, G., Hogstrand, C., Luttik, R., Martin-Laurent, F., Topping, C. J., van der Werf, W. & Rortais, A., Sept 2018, In: *Integrated Environmental Assessment and Management*. 14, 5, p. 586-591 6 p.

Rabbit Population Landscape-Scale Simulation to Investigate the Relevance of Using Rabbits in Regulatory Environmental Risk Assessment

Topping, C. J. & Weyman, G. S., Aug 2018, In: *Environmental Modeling & Assessment*. 23, 4, p. 415-457 43 p.

Scientific Opinion about the Guidance of the Chemical Regulation Directorate (UK) on how aged sorption studies for pesticides should be conducted, analysed and used in regulatory assessments

EFSA Panel on Plant Protection Products and their Residues (PPR), Aug 2018, In: *EFSA Journal*. 16, 8, e05382.

Scientific Opinion on the state of the art of Toxicokinetic/Toxicodynamic (TKTD) effect models for regulatory risk assessment of pesticides for aquatic organisms

EFSA Panel on Plant Protection Products and their Residues (PPR), Aug 2018, In: *EFSA Journal*. 16, 8, e05377.

Scientific opinion on pesticides in foods for infants and young children

EFSA Panel on Plant Protection Products and their Residues (PPR), Jun 2018, In: *EFSA Journal*. 16, 6, e05286.

Ecological recovery and resilience in environmental risk assessments at the European Food Safety Authority

Brock, T., Bigler, F., Frampton, G., Hogstrand, C., Luttik, R., Laurent, F. M., Topping, C. J., Vand den Werf, W. & Rortais, A., 13 May 2018.

Applying a biocomplexity approach to modelling farmer decision-making and land use impacts on wildlife

Malawska, A. & Topping, C. J., May 2018, In: *Journal of Applied Ecology*. 55, 3, p. 1445-1455 11 p.

Scientific Opinion on the state of the science on pesticide risk assessment for amphibians and reptiles

EFSA Panel on Plant Protection Products and their Residues (PPR), 1 Feb 2018, In: *EFSA Journal*. 16, 2, e05125.

Exposure of stone marten (*Martes foina*) and polecat (*Mustela putorius*) to anticoagulant rodenticides: Effects of regulatory restrictions of rodenticide use

Elmeros, M., Lassen, P., Bossi, R. & Topping, C. J., 15 Jan 2018, In: *Science of the Total Environment*. 612, p. 1358-1364 7 p.

Rodenticide exposure of stone marten and polecat: effects of regulatory restrictions and exposure risk modelled on landscapes

Elmeros, M., Lassen, P., Bossi, R. & Topping, C. J., 17 Nov 2017.

Scientific Opinion of the PPR Panel on the follow-up of the findings of the External Scientific Report 'Literature review of epidemiological studies linking exposure to pesticides and health effects'

EFSA Panel on Plant Protection Products and their Residues (PPR), 1 Oct 2017, In: EFSA Journal. 15, 10, e05007.

Simulation to aid in interpreting biological relevance and setting of population-level protection goals for risk assessment of pesticides

Topping, C. J. & Luttik, R., Oct 2017, In: Regulatory Toxicology and Pharmacology. 89, p. 40-49 10 p.

Investigation into experimental toxicological properties of plant protection products having a potential link to Parkinson's disease and childhood leukaemia

EFSA Panel on Plant Protection Products and their Residues (PPR), Mar 2017, In: EFSA Journal. 15, 3, e4691.

Scientific Opinion addressing the state of the science on risk assessment of plant protection products for in-soil organisms

EFSA PPR Panel (EFSA Panel on Plant Protection Products and their Residues), Ockleford, C., Adriaanse, P., Berny, P., Brock, T., Duquesne, S., Grilli, S., Hernandez-Jerez, A. F., Bennekou, S. H., Klein, M., Thomas, K., Laskowski, R., Machera, K., Pelkonen, O., Pieper, S., Stemmer, M., Sundh, I., Teodorovic, I., Tiktak, A. & Topping, C. J. & 9 others, Wolterink, G., Craig, P., de Jong, F., Manachini, B., Sousa, P., Swarowsky, K., Auteri, D., Arena, M. & Smith, R., 22 Feb 2017, In: EFSA Journal. 15, 2, e04690-n/a.

Modeling Exposure of Mammalian Predators to Anticoagulant Rodenticides

Topping, C. J. & Elmeros, M., 19 Dec 2016, In: Frontiers in Environmental Science - Agroecology and Land Use Systems. 4, DEC, 12 p., 80.

A modelling approach to evaluating the effectiveness of Ecological Focus Areas: the case of the European brown hare

Langhammer, M., Grimm, V., Putz, S. & Topping, C. J., 15 Nov 2016, In: Land Use Policy. 61, p. 63-79 17 p.

A mechanistic model to assess risks to honeybee colonies from exposure to pesticides under different scenarios of combined stressors and factors

European Food Safety Authority, 28 Jul 2016, In: EFSA Supporting Publications. 13, 7, 116 p.

Evaluating the role of behavioral factors and practical constraints in the performance of an agent-based model of farmer decision making

Malawska, A. K. & Topping, C. J., Mar 2016, In: Agricultural Systems. 143, p. 136-146 11 p.

Anticoagulant rodenticides in four mustelids in relation to food habits and habitat use

Elmeros, M., Lassen, P., Topping, C. J. & Madsen, A. B., 27 Jan 2016.

Rodenticide exposure risk for predators

Elmeros, M. & Topping, C. J., 27 Jan 2016.

An example of population-level risk assessments for small mammals using individual-based population models

Schmitt, W., Auteri, D., Bastiansen, F., Ebeling, M., Lui, C., Luttik, R., Mastitsky, S., Nacci, D., Topping, C. J. & Wang, M., 2016, In: Integrated Environmental Assessment and Management. 12, 1, p. 46-57 12 p.

Landscape structure and management alter the outcome of a pesticide ERA: evaluating impacts of endocrine disruption using the ALMaSS European Brown Hare model

Topping, C. J., Dalby, L. & Skov, F., 2016, In: Science of the Total Environment. 541, p. 1477-1488 12 p.

Recovery in environmental risk assessments at EFSA

EFSA Scientific Committee (Scientific Committee) & Topping, C. J., 2016, In: EFSA Journal. 14, 2, 85 p., 4313.

Towards a landscape scale management of pesticides: ERA using changes in modelled occupancy and abundance to assess long-term population impacts of pesticides

Topping, C. J., Craig, P. S., de Jong, F., Klein, M., Laskowski, R., Manachini, B., Pieper, S., Smith, R., Sousa, J. P., Streissl, F., Swarowsky, K., Tiktak, A. & van der Linden, T., 15 Dec 2015, In: *Science of the Total Environment*. 537, p. 159-169 11 p.

Per Aspera ad Astra: Through Complex Population Modeling to Predictive Theory

Topping, C. J., Alroe, H. F., Farrell, K. N. & Grimm, V., Nov 2015, In: *American Naturalist*. 186, 5, p. 669-674 6 p.

Rodenticide exposure risk for predators modelled on landscapes

Elmeros, M., Topping, C. J. & Lassen, P., 21 Sept 2015, *Abstracts 10th European Vertebrate Pest Management Conference*.

Statement on the suitability of the BEEHAVE model for its potential use in a regulatory context and for the risk assessment of multiple stressors in honeybees at the landscape level

EFSA PPR Panel (EFSA Panel on Plant Protection Products and their Residues) & Topping, C. J., 25 Jun 2015, In: *EFSA Journal*. 13, 6, 91 p., 4125.

Scientific Opinion addressing the state of the science on risk assessment of plant protection products for non-target arthropods

EFSA PPR Panel (EFSA Panel on Plant Protection Products and their Residues) & Topping, C. J., 12 Feb 2015, In: *EFSA Journal*. 13, 2, 212 p., 3996.

Spredning af antikoagulante rodenticider med mus og eksponeringsrisiko for rovdyr

Elmeros, M., Topping, C. J., Christensen, T. K., Lassen, P. & Bossi, R., 6 Feb 2015, *Bekæmpelsesmiddelforskning fra Miljøstyrelsen*. 67 p.

Why do we need to integrate farmer decision making and wildlife models for policy evaluation?

Malawska, A. K., Topping, C. J. & Nielsen, H. Ø., Mar 2014, In: *Land Use Policy*. 38, p. 732-740

Øger økologisk landbrug biodiversiteten? Hovedkonklusioner fra REFUGIA-projektet

Andersen, L. W., Bruus, M., Jensen, T. S., Marchi, C., Topping, C. J., Damgaard, C., Olsen, K., Dalgaard, T. & Strandberg, B., 2014, In: *ICROFS nyt*. 3, 19 p.

Recovery based on plot experiments is a poor predictor of landscape-level population impacts of agricultural pesticides

Topping, C. J., Kjær, L., Hommen, U., Høye, T. T., Preuss, T. G., Sibly, R. M. & van Vliet, P., 2014, In: *Environmental Toxicology and Chemistry*. 33, 7, p. 1499–1507

Scientific Opinion on good modelling practice in the context of mechanistic effect models for risk assessment of plant protection products

Topping (Contributor), C. J. & EFSA Panel on Plant Protection Products and their Residues (PPR), 2014, In: *EFSA Journal*. 12, 3, p. 1-92 92 p.

Mighty small: Observing and modeling individual microbes becomes big science

Kreft, J.-U., Plugge, C. M., Grimm, V., Prats, C., Leveau, J. H. J., Banitz, T., Baines, S., Clark, J., Ros, A., Klapper, I., Topping, C. J., Field, A. J., Schuler, A., Litchman, E. & Hellweger, F. L., 5 Nov 2013, In: *Proceedings of the National Academy of Sciences (PNAS)*. 110, 45, p. 18027-18028 2 p.

Anticoagulant rodenticides in four mustelids in relation to food habits and habitat use

Elmeros, M., Lassen, P., Topping, C. J. & Madsen, A. B., 24 Sept 2013. 1 p.

Using agent-based simulation to predict and manage rodenticide resistance development

Topping, C. J. & Elmeros, M., 24 Sept 2013. 1 p.

Development of an Agent-based model to compare the impacts from different OWF development scenarios on Divers
Petersen, I. K. & Topping, C. J., 22 Sept 2013. 1 p.

Landscape structure mediates the effects of a stressor on field vole populations

Dalkvist, T., Sibly, R. M. & Topping, C. J., 22 Aug 2013, In: *Landscape Ecology*. 28, p. 1961-1974

Modelling skylarks (*Alauda arvensis*) to predict impacts of changes in land management and policy: development and testing of an agent-based model

Topping, C. J., Odderskær, P. & Kahlert, J. A., 6 Jun 2013, In: *P L o S One*. 8, 6, p. e65803

Representing the acquisition and use of energy by individuals in agent-based models of animal populations

Sibly, R., Grimm, V., Johnston, A. S. A., Kułakowska, K., Topping, C. J., Calow, P., Nabe-Nielsen, J., Thorbek, P. & DeAngelis, D., Feb 2013, In: *Methods in Ecology and Evolution*. 4, 2, p. 151-161 11 p.

Post-Hoc Pattern-Oriented Testing and Tuning of an Existing Large Model: Lessons from the Field Vole

Topping, C. J., Dalkvist, T. & Grimm, V., 25 Sept 2012, In: *P L o S One*. 7, 9, p. e45872

Hvordan sikrer vi agerlandets biodiversitet?

Høye, T. T., Ejrnæs, R., Dalgaard, T., Svenning, J.-C. & Topping, C. J., 2012, *Danmarks Natur frem mod 2020*. Meltofte, H. (ed.). Det Grønne Kontaktudvalg, c/o Danmarks Naturfredningsforening, p. 49-53

Interpreting outputs of agent-based models using abundance-occupancy relationships

Høye, T. T., Skov, F. & Topping, C. J., 2012, In: *Ecological Indicators*. 20, p. 221-227

Potential for Use of Modelling in Regulation and Risk Assessment

Topping, C. J. & Bohan, D., 2012, *ESCORT 3: Linking Non-Target Arthropod Testing and Risk Assessment with Protection Goals*. Alix, A., Bakker, F., Barrett, K., Brühl, C. A., Coulson, M., Hoy, S., Jansen, J.-P., Jepson, P., Lewis, G., Neumann, P., Süssenbach, D. & van Vliet, P. (eds.). Society of Environmental Toxicology and Chemistry, p. 95-97

Recovery

Brühl, C. A., Neumann, P., Aldershof, S., Bohan, D., Brown, K., Candolfi, M., Geiger, F., Kovalkovicová, N., Kula, C., Nienstedt, K., Pestanudo, S., Roembke, J., Schmidt, T., Topping, C. J. & van Vliet, P., 2012, *ESCORT 3: Linking Non-Target Arthropod Testing and Risk Assessment with Protection Goals*. Alix, A., Bakker, F., Barrett, K., Brühl, C. A., Coulson, M., Hoy, S., Jansen, J.-P., Jepson, P., Lewis, G., Neumann, P., Süssenbach, D. & van Vliet, P. (eds.). Society of Environmental Toxicology and Chemistry, p. 39-41

Review af udkast til VVM-redegørelse for en fast forbindelse over Femern Bælt

Bach, H., Petersen, I. K., Nielsen, R. D., Fox, A. D., Topping, C. J., Nygaard, B., Elmeros, M., Søgaard, B., Kahlert, J. A., Sveegaard, S., Dietz, R., Tougaard, J., Nabe-Nielsen, J., Teilmann, J., Olsen, M. T., Josefson, A. B., Mohn, C., Hansen, J. L. S., Timmermann, K. & Andersen, J. & 14 others, Maar, M., Jakobsen, H., Møller, E. F., Dahl, K., Lund-Hansen, L. C., Grønkjær, P., Rasmussen, M. B., Hansen, J. W., Strand, J., Winther, M., Hasler, B., Zandersen, M., Olesen, H. R. & Münier, B., 2012, 116 p.

Spatial dynamic factors affecting population-level risk assessment for a terrestrial arthropod: an agent-based modelling approach

Topping, C. J. & Lagisz, M., 2012, In: *Human and Ecological Risk Assessment*. 18, p. 168-180

Why complexity matters: using ALMaSS for risk assessment of wildlife

Topping, C. J., 2012. 1 p.

Evaluating and communicating simulated wildlife responses to land-use scenarios

Høye, T. T., Skov, F. & Topping, C. J., 6 Oct 2011.

An Evolutionary Modelling Approach To Understanding The Factors Behind Plant Invasiveness And Community Susceptibility To Invasion

Warren, J., Topping, C. J. & James, P., 2011, In: *Journal of Evolutionary Biology*. 24, 10, p. 2099-2109 11 p.

Biodiversity and the mitigation of climate change through bioenergy: Impacts of increased maize cultivation on abundance of farmland wildlife

Gevers, J., Høye, T. T., Topping, C. J., Glemnitz, M. & Schröder, B., 2011, In: *Global Change Biology Bioenergy*. 3, 6, p. 472-482 11 p.

Effekter af pesticidpolitiske virkemidler - en integreret analyse af effekter på økonomi, landbrug og fauna

Nielsen, H. Ø., Topping, C. J., Hasler, B., Christensen, T., Jacobsen, L.-B., Pedersen, A. B., Dalgaard, T. & Fønnesbech-Wulff, A., 2011, København : Miljøstyrelsen. 75 p. (Bekæmpelsesmiddelforskning fra Miljøstyrelsen; No. 133).

Evaluation of wildlife management through organic farming

Topping, C. J., 2011, In: *Ecological Engineering*. 37, 12, p. 2009-2017 8 p.

How predation and landscape fragmentation affect vole population dynamics

Dalkvist, T., Sibly, R. & Topping, C. J., 2011, In: *P L o S One*. 6, 7, p. e22834

Report on a Red-throated Diver Agent-Based Model to assess the cumulative impact from offshore wind farms

Topping, C. J. & Petersen, I. K., 2011, 44 p.

Building resilience in organic and low-input farming systems - an ecological geneticist's vision

Warren, J. & Topping, C. J., 3 Dec 2010.

A pattern-oriented modelling approach to simulating populations of grey partridge

Topping, C. J., Høye, T. T., Odderskær, P. & Aebischer, N., 2010, In: *Ecological Modelling*. 221, p. 729-737

Biodiversity and the mitigation of climate change through bioenergy: impacts of increased maize cultivation on abundance of farmland wildlife

Gevers, J., Høye, T. T., Topping, C. J., Glemnitz, M. & Schröder, B., 2010.

Biodiversity effects of different policies for pesticide reduction

Hasler, B., Topping, C. J. & Nielsen, H. Ø., 2010.

Har landskabsstrukturen betydning for effekten af et sprøjtemiddel på markmusbestande?

Dalkvist, T., Sibly, R. & Topping, C. J., 2010, In: *Apodemus : nyhedsbrev for Dansk Pattedyrforening*. 11, p. 11-12

Opening the black box - development, testing and documentation of a mechanistically rich agent-based model

Topping, C. J., Høye, T. T. & Olesen, C. R., 2010, In: *Ecological Modelling*. 221, 2, p. 245-255

Short report on simulating Scale-of-Use and toxicity scenarios in ALMaSS: Appendix 3

Topping, C. J. & Dalkvist, T., 2010, *Accounting for scale of use in bird and mammal risk assessment PS2347: Report to Chemicals Regulation Directorate by Joe Crocker, FERA*. Defra, p. 60-77 18 p.

The effects of landscape modifications on the long-term persistence of animal populations

Nabe-Nielsen, J., Sibly, R. M., Forchhammer, M. C., Forbes, V. E. & Topping, C. J., 2010, In: *P L o S One*. 5, e8932, 7 p.

Virtuel vildtbiologi - en simuleringsmodel til forvaltning af harebestande

Høye, T. T., Topping, C. J. & Olesen, C. R., 2010, In: *Apodemus : nyhedsbrev for Dansk Pattedyrforening*. 11, p. 19

Incorporating realism into ecological risk assessment: NABM approach

Topping, C. J., Dalkvist, T. & Nabe-Nielsen, J., 1 Jan 2009, *Ecological Models for Regulatory Risk Assessments of Pesticides: Developing a Strategy for the Future*. CRC Press, p. 57-66 10 p.

A unifying evolutionary theory for the biomass-diversity-fertility relationship

Warren, J. M., Topping, C. J. & James, P., 2009, In: *Theoretical Ecology*. 2, 2, p. 119-126 8 p.

Forvaltning af agerlandets vilde fauna

Odderskær, P., Topping, C. J. & Høye, T. T., 2009.

Incorporating realism into ecological risk assessment - an ABM approach

Topping, C. J., Dalkvist, T. & Nabe-Nielsen, J., 2009, *Ecological Models for Regulatory Risk Assessments of Pesticides: Developing a Strategy for the Future*. Thorbek, P., Forbes, V. E., Heimbach, F., Hommen, U., Thulke, H.-H., van den Brink, P. J., Wogram, J. & Grimm, V. (eds.). Society of Environmental Toxicology and Chemistry, p. 57-66

Kan haren og agerhønen vende tilbage - hvad skal der til?

Odderskær, P., Topping, C. J. & Høye, T. T., 2009, *Vildt & Landskab. Resultater af 6 års integreret forskning i Danmark 2003-2008*. Kanstrup, N., Asferg, T., Flinterup, M., Thorsen, B. J. & Jensen, T. S. (eds.). Skov- og Naturstyrelsen, p. 30-35

Population-level impacts of pesticide-induced chronic effects on individuals depend more on ecology than toxicology

Dalkvist, T., Topping, C. J. & Forbes, V. E., 2009, In: *Ecotoxicology and Environmental Safety*. 72, 6, p. 1663-1672 10 p.

Predation and fragmentation portrayed in the statistical structure of prey time series

Hendrichsen, D. K., Topping, C. J. & Forchhammer, M. C., 2009, In: *B M C Ecology*. 9, 10, p. (online)

The effect of habitat fragmentation on the distribution and abundance of farmland wildlife inferred from an individual-based model

Høye, T. T. & Topping, C. J., 2009, *39th Annual Conference of the Ecological Society of Germany, Austria and Switzerland (GfÖ)*. Holzheu, S. & Thies, B. (eds.). Vol. 115. p. 190-191

The effects of spatial and temporal heterogeneity on the population dynamics of four animal species in a Danish landscape

Sibly, R. M., Nabe-Nielsen, J., Forchhammer, M. C., Forbes, V. E. & Topping, C. J., 2009, In: *B M C Ecology*. 9, 18, p. 1-9

The Potential for the Use of Agent-Based Models in Ecotoxicology

Topping, C. J., Dalkvist, T., Forbes, V. E., Grimm, V. & Sibly, R. M., 2009, *Ecotoxicology Modeling*. Devillers, J. (ed.). Springer, Vol. 2. p. 205-235 (Emerging Topics in Ecotoxicology).

Fup og fakta om brak og natur

Berthelsen, J. P., Ejrnæs, R., Hald, A. B., Odderskær, P., Strandberg, M. T. & Topping, C. J., 2008, In: *Aktuel Naturvidenskab*. 2008, p. 32-35

Pesticide reducing instruments - an interdisciplinary analysis of effectiveness and optimality

Jacobsen, L.-B., Jensen, J. D., Hauch, J., Topping, C. J. & Martin, A., 2008, *Critical Issues in Environmental Taxation: International and comparative perspectives*. Milne, J., Deketelaere, K., Kreiser, L. & Ashiabor, H. (eds.). Oxford University Press, Vol. V. p. 569-602 33 p.

Application of 2 Modeling Techniques in a Theoretical Assessment for Agricultural Pesticide Registration: Appendix 2: Workshop Exercise

Topping, C. J., Sibly, R., Delorme, P. D., Moller, V., Fritz, A. T., Elmegaard, N. & Munns Jr., W. R., 2007, *Population-Level Ecological Risk Assessment*. Barnthouse, L. W., Munns, W. R. J. & Sorensen, M. T. (eds.). Brussels: SETAC, p. 301-306

Effects of landscape complexity in agent-based population models

Nabe-Nielsen, J., Sibly, R., Topping, C. J., Forchhammer, M. C. & Sudharsan, K., 2007, *25 years of Landscape Ecology: Scientific Principles in Practice. Proceedings of the 7th IALE World Congress 8-12 July Wageningen, The Netherlands*.

Bunce, R. G. H., Jongman, R. H. G., Hojas, L. & Weel, S. (eds.). IALE, p. 329-330 (IALE Publication series; No. 4).

Modeling approaches to population-level ecological risk assessment

Munns, W. R. J., Gervais, J., Hoffman, A. A., Hommen, U., Nacci, D. E., Nakamaru, M., Sibly, R., Topping, C. J., Barnhouse, L. W. (Editor), Munns, W. R. J. (Editor) & Sorensen, M. T. (Editor), 2007, *Population-Level Ecological Risk Assessment*. Barnhouse, L. W., Munns, W. R. J. & Sorensen, M. T. (eds.). Brussels: SETAC, p. 179-210

Ukrudtsstriglingens effekter på dyr, planter og ressourceforbrug

Odderskær, P., Topping, C. J., Rasmussen, J., Pedersen, M. B., Dalgaard, T. & Erlandsen, M., 2007, *Plantekongres 2007*. Dansk Landbrugsrådgivning, Landscentret, Århus, p. 198-199 (Plantekongres 2007).

Case Study Part 1: How to Calculate Appropriate Deterministic Long-Term Toxicity to Exposure Ratios (TERs) for Birds and Mammals

Shore, R. F., Crocker, D. R., Akcakaya, H. R., Bennett, R. S., Chapman, P. F., Clook, M., Crane, M., Dewhurst, I. C., Edwards, P. J., Fairbrother, A., Ferson, S., Fischer, D., Hart, A. D. M., Holmes, M., Hooper, M. J., Lavine, M., Leopold, A., Luttik, R., Mineau, P. & Moore, D. R. J. & 10 others, Mortenson, S. R., Noble, D. G., O'Conner, R. J., Roelofs, W., Sibly, R. M., Smith, G. C., Spendiff, M., Springer, T. A., Thompson, H. M. & Topping, C. J., 2005, In: *Ecotoxicology*. 14, 8, p. 877-893

Case Study Part 2: Probabilistic Modelling of Long-term Effects of Pesticides on Individual Breeding Success in Birds and Mammals

Roelofs, W., Crocker, D. R., Shore, R. F., Moore, D. J. M., Smith, G. C., Akcakaya, H. R., Dewhurst, I. C., Edwards, P. J., Fairbrother, A., Ferson, S., Fischer, D., Hart, A. D. M., Holmes, M., Hooper, M. J., Lavine, M., Leopold, A., Luttik, R., Mineau, P., Mortenson, S. R. & Noble, D. G. & 6 others, O'Connor, R. J., Sibly, R. M., Spender, M., Springer, T. A., Thompson, H. M. & Topping, C. J., 2005, In: *Ecotoxicology*. 14, 8, p. 895-923

Evaluating consequences of land-use strategies on wildlife populations using multiple-species predictive scenarios

Jepsen, J. U., Topping, C. J., Odderskær, P. & Andersen, P. N., 2005, In: *Agriculture, Ecosystems & Environment*. 105, 4, p. 581-594

Hvad påvirker harens og agerhønenes vilkår i agerlandet?

Tybirik, K., Asferg, T., Odderskær, P., Olesen, C. R., Bertelsen, J. P., Topping, C. J. & Noer, H., 2005, *Plantekongres 2005*. Dansk Landbrugsrådgivning, Landscentret, Århus, p. 320-321 (Plantekongres 2005 - Sammendrag af indlæg).

Population-level Assessment of Risks of Pesticides to Birds and Mammals in the UK

Sibly, R. M., Akçakaya, H. R., Topping, C. J. & O'Conner, R. J., 2005, In: *Ecotoxicology*. 14, 8, p. 863-876

Randzoner uden pesticider giver flere lærker

Tybirik, K. & Topping, C. J., 2005, In: *Jord & Viden*. 150, 3, p. 12-13

Risk Assessment of UK Skylark Populations Using Life-History and Individual-Based Landscape Models

Topping, C. J., Sibly, R. M., Akçakaya, H. R., Smith, G. C. & Crocker, D. R., 2005, In: *Ecotoxicology*. 14, 8, p. 925-936

The impact on skylark numbers of reductions in pesticide usage in Denmark: Predictions using a landscape-scale individual based model

Topping, C. J., 2005, National Environmental Research Institute. 34 p. (NERI Technical Report, Vol. 527).

The influence of landscape diversity and heterogeneity on spatial dynamics of agrobiont linyphiid spiders: An individual-based model

Thorbek, P. & Topping, C. J., 2005, In: *BioControl*. 50, 1, p. 1-33

ALMaSS simulation of the impact of removing pesticides: ALMaSS simulering af virkningen af at fjerne pesticider

Odderskær, P., Topping, C. J., Jepsen, J. U. & Danmarks JordbrugsForskning (Editor), 2004, *DJF-rapport. Markbrug*. Danmarks Jordbrugsforskning, p. 57-58 (DJF-rapport. Markbrug, Vol. 99).

A trait specific model of competition in a spatially structured plant community
Warren, J. & Topping, C. J., 2004, In: Ecological Modelling. 180, 4, p. 477-485

Evaluating the effect of corridors and landscape heterogeneity on dispersal probability: a comparison of three spatially explicit modelling approaches
Jepsen, J. U., Baveco, J. M., Topping, C. J., Verboom, J. & Vos, C. C., 2004, In: Ecological Modelling. 181, 4, p. 445-459

Impact assessment predicted by means of genetic agent-based modelling
Pertoldi, C. & Topping, C. J., 2004, In: Critical Reviews in Toxicology. 34, 6, p. 487-498

Life history traits interact with landscape composition to influence population dynamics of a terrestrial arthropod: a simulation study
Bilde, T. & Topping, C. J., 2004, In: Ecoscience. 11, 1, p. 64-73

Modeling the influence of temporal and spatial factors on the assessment of impacts of pesticides on Skylarks
Topping, C. J. & Odderskær, P., 2004, In: Environmental Toxicology and Chemistry. 23, 2, p. 509-520

Modelling roe deer (*Capreolus capreolus*) in a gradient of forest fragmentation: behavioural plasticity and choice of cover
Jepsen, J. U. & Topping, C. J., 2004, In: Canadian Journal of Zoology. 82, 9, p. 1528-1541

Reproductive biology of agrobiont linyphiid spiders in relation to habitat, season and biocontrol potential
Thorbek, P., Sunderland, K. D. & Topping, C. J., 2004, In: Biological Control. 30, 2, p. 193-202

The use of Agent-based modelling of genetics in conservation genetics studies
Pertoldi, C. & Topping, C. J., 2004, In: Journal for Nature Conservation. 12, 2, p. 111-120

ALMaSS, an agent-based model for animals in temperate European landscapes
Topping, C. J., Hansen, T. S., Jensen, T. S., Jepsen, J. U., Nikolajsen, F. & Odderskær, P., 2003, In: Ecological Modelling. 167, 1-2, p. 65-82

Effekten af landskabsændringer på den vilde fauna
Topping, C. J., Odderskær, P., Jepsen, J. U., Andersen, P. N., Lange, P., Nikolajsen, F. & Hansen, J. F. (Editor), 2003, *Arealanvendelse og landskabsudvikling - Fremtidsperspektiver for natur, jordbrug, miljø og arealforvaltning*. Hansen, J. F. (ed.). ARLAS, p. 59-68

Effekter af reduceret pesticidanvendelse på planter, insekter og fugle
Odderskær, P., Tybirk, K., Topping, C. J., Pedersen, M. B. & Axelsen, J. A., 2003, *DJF rapport - Markbrug*. Danmarks Jordbrugsforskning, p. 199-211 (DJF Rapport - Markbrug, Vol. 89).

Eggsac development rates and phenology of agrobiont linyphiid spiders in relation to temperature
Thorbek, P., Sunderland, K. D. & Topping, C. J., 2003, In: Entomologia Experimentalis et Applicata. 109, p. 89-100

Evaluating the impact of pesticides on populations of terrestrial non-target organisms
Topping, C. J. & Wolffhechel, H. (Editor), 2003, In: DIAS Report. 96, p. 239-248

Modelling the loss of genetic diversity in vole populations in a spatially and temporally varying environment
Topping, C. J., Østergaard, S., Pertoldi, C. & Bach, L. A., 2003, In: Annales Zoologici Fennici. 40, 3, p. 255-267 13 p.

Population-Level Risk Assessment of Pesticides Using a Tiered Model Procedure
Topping, C. J., Sibly, R. M., Delorme, P., Møller, V., Fritz, A., Elmegaard, N. & Munns, W., 2003.

Watershed level scenarios - managing interactions between agriculture, environment, nature and economy

Dalgaard, T., Hansen, J., Hutchings, N., Dahl, M., Münier, B., Topping, C. J. & Schou, J. S., 2003.

Naturen i et kulturlandskab

Ejrnæs, R., Näsman, U., Odgaard, B., Stenak, M., Aude, E., Jepsen, J. U., Topping, C. J., Møller, P. G. (Editor), Ejrnæs, R. (Editor), Höll, A. (Editor), Krogh, L. (Editor) & Madsen, J. (Editor), 2002, *Foranderlige landskaber: Integration af natur og kultur i forvaltning og forskning*. Møller, P. G., Ejrnæs, R., Höll, A., Krogh, L. & Madsen, J. (eds.). Syddansk Universitetsforlag, p. 62-79

Pesticidmonitoring og modellering: effekter af reduceret pesticidanvendelse på planter, insekter og fugle

Tybjerg, K., Pedersen, M. B., Axelsen, J. A., Topping, C. J. & Odderskær, P., 2002.

Simulation Models of Animal Behaviour are Useful Tools in Landscape and Species Management

Topping, C. J. & Jepsen, J. U., 2002, In: *Iale Bulletin*. 20, 3, p. 1-2

Simulerede markmus i naturforvaltningen: - ALMaSS, et nyt værktøj

Topping, C., Jepsen, J. U., Pertoldi, C., Odderskær, P., Lange, P. & Madsen, A. B., 2002, In: *Aktuel Naturvidenskab*. p. 22-25

Validation of a Simple Method for Monitoring Aerial Activity of Spiders

Thorbek, P., Topping, C. J. & Sunderland, K. D., 2002, In: *Journal of Arachnology*. 30, p. 57-64

Trait Evolution in an Individual-Based Model of Herbacious Vegetation

Warren, J. & Topping, C. J., 2001, In: *Evolutionary Ecology*. 15, p. 15-35

Why some Trees are Less Equal than others

Warren, J., Diaz, A. & Topping, C., 2001.

Getting the Right Information for Landscape Modelling. Year 2000

Andersen, P. N., Topping, C. J., Odderskær, P. & Lange, P., 2000.

Erratum: A space occupancy model for the vegetation succession that occurs on set-aside (Agriculture, Ecosystems and Environment (1999) 72 (119-129) PII: S0167880998001686)

Warren, J. M. & Topping, C. J., 1 Jan 1999, In: *Applied Soil Ecology*. 75, 1-2, p. 143-144 2 p.

Viola: A new visual programming language designed for the rapid development of interacting agent systems

Topping, C. J., Rehder, M. J. & Mayoh, B. H., 1 Jan 1999, In: *Acta Biotheoretica*. 47, 2, p. 129-140 12 p.

An Individual-Based Model for Dispersive Spiders in Agroecosystems: Simulations of the Effects of Landscape Structure

Topping, C. J., 1999, In: *Journal of Arachnology*. 27, p. 378-386

A Space Occupancy Model for the Vegetation Succession that Occurs on Set-Aside

Warren, J. M. & Topping, C. J., 1999, In: *Agriculture, Ecosystems & Environment*. 72, p. 119-129

Viola: A New Visualprogramming Language Designed for the Rapid Development of Interacting Agent Systems

Topping, C. J., Rehder, M. J. & Mayoh, B. H., 1999, In: *Acta Biotheoretica*. 47, p. 129-140

A Language for Biological, Hydraulic and Ecological Modelling

Mayoh, B. H., Topping, C. J. & Rehder, M. J., 1998, *Hydroinformatics '98: Proceedings of the Third International Conference on Hydroinformatics/Copenhagen/Denmark/24-26 August 1998*. Babovic, V. & Larsen, L. C. (eds.). A.A. Balkema, p. 657-662

Population Dynamics and Dispersal of *Lepthyphantes tenuis* in an Ephemeral Habitat

Topping, C. J. & Sunderland, K. D., 1998, In: *Entomologia Experimentalis et Applicata*. 87, p. 29-41

RAPD Profiling of Spider (ARANEAE) DNA

A'Hara, S., Harling, R., McKinlay, R. & Topping, C. J., 1998, In: *Journal of Arachnology*. 26, p. 397-400

Predicting the Effect of Landscape Heterogeneity on the Distribution of Spiders in Agroecosystems Using a Population Dynamics Driven Landscape-Scale Simulation Model

Topping, C. J., 1997, In: *Entomological Research in Organic Agriculture*. p. 325-336

Spider Density and Diversity in Relation to Disturbance in Agroecosystems in New Zealand, with a Comparison to England

Topping, C. J. & Lövei, G. L., 1997, In: *New Zealand Journal of Ecology*. 21, 2, p. 121-128

The Construction of a Simulation Model of the Population Dynamics of *Lepthyphantes tenuis* (Araneae: Linyphiidae) in an Agroecosystem

Topping, C. J., 1997, In: *Acta Jutlandica*. 72, 2, p. 65-77

The Use of Single-Species Spatially Explicit Models

Topping, C. J., Booij, K., Daamen, R. A., Dinter, A., Heimbach, U., Kennedy, P. J., Langer, V., Perry, J. N., Powell, W., Skirvin, D., Stilmant, D. & Winstone, C. F. G. T. L., 1997, In: *Acta Jutlandica*. 72, 2, p. 171-191

A Spider Population in Flux: Selection and Abandonment of Artificial Web-Sites and the Importance of Intraspecific Interactions in *Lepthyphantes tenuis* (Araneae: Linyphiidae) in Wheat

Samu, F., Sunderland, K. D., Topping, C. J. & Fenlon, J. S., 1996, In: *Oecologia*. 106, p. 228-239

Assessment of Survival and Mortality Factors in Field Populations of Beneficial Arthropods

Booij, C. J. H., Topping, C. J., Szysko, J., Van Dijk, T., Paoletti, M. & Helenius, J., 1996, In: *Acta Jutlandica*. 71, 2, p. 69-78

Estimating the Mortality Rate of Eggs and First Free-Living Instar *Lepthyphantes tenuis* (Araneae: Linyphiidae) from Measurements of Reproduction and Development

Topping, C. J. & Sunderland, K. D., 1996, In: *Acta Jutlandica*. 71, 2, p. 57-68

Host Location by *Gelis festinans*, an Eggsac Parasitoid of the Linyphiid Spider *Erigone atra*

Baarden, P. V., Topping, C. J. & Sunderland, K. D., 1996, In: *Entomologia Experimentalis et Applicata*. 81, p. 155-163

Reproduction and Survival of Linyphiid Spiders, with Special Reference to *Lepthyphantes tenuis* (Blackwall)

Sunderland, K. D., Topping, C. J., Ellis, S., Long, S., Van de Laak, S. & Else, M., 1996, In: *Acta Jutlandica*. 71, 2, p. 81-95

A spatial population dynamics model for *Lepthyphantes tenuis* (Araneae: Linyphiidae) with some simulations of the spatial and temporal effects of farming operations and land-use

Topping, C. J. & Sunderland, K. D., Apr 1994, In: *Applied Soil Ecology*. 48, 3, p. 203-217 15 p.

Eggsac parasitism of money spiders (Araneae, Linyphiidae) in cereals, with a simple method for estimating percentage parasitism of *Erigone* spp. eggsacs by Hymenoptera

Van Baarden, P., Sunderland, K. D. & Topping, C. J., 1 Jan 1994, In: *Journal of Applied Entomology*. 118, 1-5, p. 217-223 7 p.

Behavioural responses of three linyphiid spiders to pitfall traps

Topping, C. J., Sept 1993, In: *Entomologia Experimentalis et Applicata*. 68, 3, p. 287-293 7 p.

The spatial dynamics of linyphiid spiders in winter wheat

Sunderland, K. D. & Topping, C. J., 1 Jan 1993, In: *Memoirs - Queensland Museum*. 33, 2, p. 639-644 6 p.

A large improved rotary trap for sampling aerial invertebrates

TOPPING, C. J., SUNDERLAND, K. D. & BEWSEY, J., Dec 1992, In: Annals of Applied Biology. 121, 3, p. 707-714 8 p.

Limitations to the use of pitfall traps in ecological studies exemplified by a study of spiders in a field of winter wheat

Topping, C. J. & Sunderland, K. D., 1 Jan 1992, In: Journal of Applied Ecology. 29, 2, p. 485-491 7 p.

Ground beetles and weevils (Carabidae and Curculionoidea) as indicators of grassland management practices

Eyre, M. D., Luff, M. L., Rushton, S. P. & Topping, C. J., 1 Jan 1989, In: Journal of Applied Entomology. 107, 1-5, p. 508-517 10 p.

Current Main Projects

ApisRAM: Developing a honey bee model for regulatory risk assessment for EFSA

Topping, C. J. (PI) & Duan, X. (Participant)

08/03/2017 → 08/10/2021

ApisRAM implementation towards version 3: Pesticides and biological agent modules

Topping, C. J. (PI), Duan, X. (Participant), Poulsen, T. (Participant), Alison, J. (Participant) & Xie, L. (Participant)

24/11/2022 → 24/10/2024

BETTER-B: Improving Bees' Resilience to Stressors by Restoring Harmony and Balance

Topping, C. J. (PI), Williams, J. H. (Participant), Duan, X. (Participant) & Dupont, Y. L. (Participant)

01/06/2023 → 01/06/2027

BFOOD-DK: Documentation of flower resource availability and optimization of location and density of honey bee hives in Denmark

Dupont, Y. L. (Project manager), Topping, C. J. (Participant), Duan, X. (Participant), Marcussen, L. K. (Participant), Kryger, P. (Participant), Greve, M. B. (Participant) & Ziolkowska, E. (PI)

01/06/2023 → 01/06/2026

B-GOOD: Giving Beekeeping Guidance by cOMputatiOnal-assisted Decision making

Topping, C. J. (PI), Duan, X. (Participant), Williams, J. H. (Participant), Poulsen, T. (Participant), Marcussen, L. K. (Participant), Alison, J. (Participant), Groom, G. B. (Participant) & Mølgaard, N. (Participant)

01/07/2019 → 01/11/2023