

Dr Andrea S. Downing

Personal information

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Summary

Research scientist with strong analytical and communication skills. My work has focused on combining multiple perspectives to address complex problems of sustainable development. Working in teams and collaborations, I have bridged between disciplines, understanding the interplay of societies and their environment; between theory and practice; and between global and local goals and perspectives

What I can offer:

- Data analysis: qualitative & quantitative methods
- Resilience & sustainability knowledge
- Value chain analyses, cross-system & cross-scale impacts of production systems
- Sustainable development goals analyses
- Project management; strategy formulation & analysis
- Strong presentation & editorial skills

Professional career:

Throughout my career, I have been active in sharing my research in conferences, lectures, workshops, reports, academic papers and writing proposals for research funding.

Since 2021: Theme leader – Stewardship and Transformative Futures

Since 2014: Researcher at the Stockholm Resilience Centre – Stockholm University (SU)

Project ABC – Financial Dimensions of a key climate system “Wild Card”: The Atmospheric Brown Cloud over South Asia. Start: 2020. Based at the Swedish Royal Academy of Sciences in the Global Economic Dynamics and the Biosphere program. *Roles:* Value chain analyses, interdisciplinary social ecological system mapping

Project X-Paths - Science in action: intersecting pathways to the SDGs across scales in the drylands. Start: 2020. *Roles:* Work package lead on cross-scale interactions, including telecoupling, value chain and SDG analyses.

Project SEQUAL - Social-ecological relations and gender equality: Dynamics and processes for transformational change. Start: 2019. *Roles:* Policy analyses – gender in Swedish national and international policies around climate change and natural resource use (forestry).

Project GRAID - Guiding Resilience in the Anthropocene, Investments for development. (2016-2019). *Roles:* coordinator of the complexity flagship; editorial co-lead on the theme of peace and security.

Project SLIP - Systematic Links and Interactions of the Planetary Boundaries (www.pb-net.org). (2014-16). *Role:* Focus on global sustainability goals and framings across scales: how to implement the planetary boundaries framework at sub-global levels; how do local and national sustainable development initiatives influence progress on the UN’s 2030 Agenda?

2012-14 Postdoctoral researcher: department of Ecology, Environment and Plant Sciences (SU)

Project: Baltic phytoplankton time-series analyses. *Role:* Focus on using multiple statistical analyses to detect patterns in large datasets.

Qualifications:

Project Management – Gotlandsakademin (2019)

PhD Environmental Sciences, excellent distinction (2012): *Wageningen University (NL)– Modelling Lake Victoria’s (socio-) ecological system.*

Graduate Diploma of Research Methods in marine biology *James Cook University, Australia* (2006).

BSc Biology (2004) *University of Geneva Switzerland, including ERASMUS Île de la Réunion – Indian Ocean*

Languages

Native: English, French

Fluent: Swedish

Other: Portuguese, German, Dutch, German, Italian, Swahili

Selected academic publications:

- **Downing, A. S.**, M. Kumar, A. Andersson, A. Causevic, Ö. Gustafsson, N. U. Joshi, C. K. B. Krishnamurty, B. Scholtens, and B. I. Crona. 2022. Unlocking the unsustainable rice-wheat system of Indian Punjab: Assessing alternatives to crop-residue burning from a systems perspective. *Ecological Economics* In press.
- **Downing, A. S.**, G. Y. Wong, M. Dyer, A. P. Aguiar, O. Selomane, and A. Jiménez Aceituno, (2021). When the whole is less than the sum of all parts – Tracking global-level impacts of national sustainability initiatives. *Global Environmental Change* 69.
- Queiroz, C., A. V. Norström, **A. Downing**, Z. V. Harmáčková, C. De Coning, ..., and N. Matthews, (2021). Investment in resilient food systems in the most vulnerable and fragile regions is critical. *Nature Food* 2(8):546–551.
- **Downing, A. S.**, M. Chang, J. J. Kuiper, M. Campenni, T. Häyhä, S. E. Cornell, U. Svedin, and W. M. Mooij. (2020). Learning from generations of sustainability concepts. *Environmental Research Letters* 15(8).
- **Downing, A.S.**, Bhowmik, A., Collste, D., Cornell, S., Donges, J.F., Fetzer, I., Häyhä, T., Hinton, J., Lade, S.J., Mooij, W.M., (2019). Matching scope, purpose and uses of planetary boundaries science. *Environ. Res. Lett.*, 14 (073005)
- Koschorreck, M., **Downing, A.S.**, Hejzlar, J., Laas, A., Arndt, W.G., Keller, P.S., Smolders, A.J.P., Dijk, G. Van, Kosten, S., (2019). Hidden treasures: Human-made aquatic ecosystems harbour unexplored opportunities. *Ambio*
- Jaramillo, F., Desormeaux, A., Hedlund, J., Jawitz, J.W., Clerici, N., Piemontese, L., Alexandra, J., Blanco-libreros, J.F., Borja, S., Celi, J., Chalov, S., Chun, K.P., Cresso, M., Destouni, G., Dessu S.B., Di Baldassarre G., **Downing, A.S.**, ... (2019). Priorities and Interactions of Sustainable Development Goals (SDGs) with Focus on Wetlands. *Water* 11, 619.
- Hjerne, O., Hajdu, S., Larsson, U., **Downing, A.S.**, Winder, M., 2019. Climate Driven Changes in Timing, Composition and Magnitude of the Baltic Sea Phytoplankton Spring Bloom. *Front. Mar. Sci.* 6, 482.
- Mooij, W.M., Wijk, D. Van, Beusen, A.H.W., Brederveld, R.J., Chang, M., Cobben, M.M.P., Deangelis, L., **Downing, A.S.**, Green, P., Gsell, A.S., ... *et al.* 2018. Modeling water quality in the Anthropocene : directions for the next-generation aquatic ecosystem models. *Curr. Opin. Environ. Sustain.* 36, 85–95.
- Griffiths, J. R., Hajdu, S., **Downing, A. S.**, Hjerne, O., Larsson, U., & Winder, M. (2015). Phytoplankton community interactions and environmental sensitivity in coastal and offshore habitats. *Oikos*, (October), 1–10.
- **Downing, A. S.**, van Nes, E. H., Balirwa, J. S., Beuving, J., Bwathondi, P. O. J., Chapman, L. J., ... Mooij, W. M. (2014). Coupled human and natural system dynamics as key to the sustainability of Lake Victoria's ecosystem services. *Ecology and Society*, 19(4), 31.
- **Downing, A. S.**, Hajdu, S., Hjerne, O., Otto, S. A., Blenckner, T., Larsson, U., & Winder, M. (2014). Zooming in on size distribution patterns underlying species coexistence in Baltic Sea phytoplankton. *Ecology Letters*, 17(10), 1219-1227.
- Mooij, W. M., Brederveld, R. J., de Klein, J. J. M., DeAngelis, D. L., **Downing, A. S.**, Faber, M., ... Kuiper, J. J. (2014). Serving many at once: How a database approach can create unity in dynamical ecosystem modelling. *Environmental Modelling & Software*.
- **Downing, A. S.**, Galic, N., Goudswaard, K. P. C., van Nes, E. H., Scheffer, M., Witte, F., & Mooij, W. M. (2013). Was Lates Late? A Null Model for the Nile Perch Boom in Lake Victoria. *PLoS ONE*, 8(10).
- **Downing, A. S.**, van Nes, E. H., van de Wolfshaar, K. E., Scheffer, M., & Mooij, W. M. (2013). Effects of resources and mortality on the growth and reproduction of Nile perch in Lake Victoria. *Freshwater Biology*, 58(4), 828–840.
- **Downing, A. S.**, Nes, E. H. Van, Mooij, W. M., & Scheffer, M. (2012). The Resilience and Resistance of an Ecosystem to a Collapse of Diversity. *PloS One*, 7(9)
- **Downing, A. S.**, van Nes, E. H., Janse, J. H., Witte, F., Cornelissen, I. J. M., Scheffer, M., & Mooij, W. M. (2012). Collapse and reorganization of a food web of Mwanza Gulf, Lake Victoria. *Ecological Applications*, 22(1), 229–239.
- Mooij, W. M., Trolle, D., Jeppesen, E., Arhonditsis, G., Belolipetsky, P. V., Chitamwebwa, D. B. R., ... **Downing, A. S.**, ... Janse, J. H. (2010). Challenges and opportunities for integrating lake ecosystem modelling approaches. *Aquatic Ecology*, 44(3), 633–667.