

DIANE HOPE, PhD

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SCIENTIST & AUDIO PRODUCER

*with unique research and media skills for achieving results
in the field of environmental science and ecology - and communicating with the public*

WRITING & EXPERIENCE OVERVIEW

Over 45 papers in the international peer-reviewed literature

Written on a wide range of topics from biodiversity to biogeochemistry to culture to history

Fluent with technical concepts and terminology

Years of experience researching and crafting audio content for radio, podcasting, internet and museum audio guides

Crafting concise (250 word) radio scripts is a particular joy: <http://knau.org/people/diane-hope>

Written articles for online magazines like *OZY* and *Atlas Obscura*: <http://www.dianehope.com/writing>

EDUCATION

PhD, Biogeochemistry , Department of Plant & Soil Science, University of Aberdeen	1996
MSc, Ecology , Department of Zoology, University of Aberdeen	1985
BSc (First Class Honours), Mining Geology , Imperial College London	1983

SCIENTIFIC PUBLICATIONS

Water Resources

Ruddell, B. L. Rushforth, R., Toy, D. & Hope, D. Water productivity of Phoenix Metropolitan Statistical Area Cities. *Journal of the American Water Resources Association*. Preprint: December 2022 DOI: [10.5194/egusphere-2022-1367](https://doi.org/10.5194/egusphere-2022-1367)

Global carbon cycle

Hope, D., Palmer, S., Billett, M.F. & Dawson, J.J.C. 2001. Carbon dioxide and methane evasion from a temperate peatland stream. *Limnology and Oceanography* 46: 847-857.

Hope, D., Palmer, S., Billett, M. F. & Dawson, J. J. C. Variations in dissolved CO₂ and CH₄ in a first order stream and catchment: an investigation of soil-stream linkages. 2004. *Hydrological Processes* 18: 3255-3275.

Billett, M. F., Palmer, S. M., Hope, D., Deacon, C., Storeton-West, R., Hargreaves, K. J., Flechard, C. and Fowler, D. 2004. Linking Land-Atmosphere-River Carbon Fluxes in a Lowland Peatland System. *Global Biogeochemical Cycles* 18(1): GB1024.

Hope, D., Billett, M. F., Milne, R. & Brown, T. A. W. (1997). Exports of organic carbon in British rivers. *Hydrological Processes*, **11**: 325-344.

Hope, D., Billett, M.F. & Cresser, M.S. 1994. A review of the export of carbon in river water: fluxes and processes. *Environment Pollution*, **84**: 301-324.

Cannell, M. G. R., Milne, R., Hargreaves, K. J., Brown, T. A. W., Cruickshank, M. M., Bradley, R. I., Spencer, T., Hope, D., Billett, M. F., Adger, W. N. & Subak, S. (1999). National inventories of terrestrial carbon sources and sinks: the U.K. experience. *Climatic Change* 42: 505-530.

Aquatic & soil biogeochemistry

- Billett, M. F., C. M. Deacon, S. M. Palmer, J. J. C. Dawson, and D. Hope. 2006. Connecting organic carbon in stream water and soils in a peatland catchment, *J. Geophys. Res.*, 111, G02010, doi:10.1029/2005JG000065.
- Hope, D., Billett, M. F. & Cresser, M. S. (1997). Exports of organic carbon in two river systems in NE Scotland. *Journal of Hydrology*, **193**: 61-82.
- Hope, D., Kratz, T. K. & Riera, J. L. 1996 The relationship between $p\text{CO}_2$ and dissolved organic carbon in northern Wisconsin lakes. *Journal of Environmental Quality*, **25/6**: 1442-1445.
- Hope, D., Dawson J.J.C., Cresser M.S. & Billett, M.F. 1995. A method for measuring free CO_2 in upland streamwater using headspace analysis. *Journal of Hydrology* **166**: 1-14.
- Billett, M. F., Deacon, C. M., Palmer, S. M., Dawson, J. J. C., and Hope, D. Connecting organic carbon in streamwater and soils in a peatland catchment. *Journal of Geophysical Research*, in press.
- Dawson, J. J. C., Billett, M. F., Hope, D., Palmer, S. M. & Deacon, C. M. Sources and sinks of aquatic carbon linked to a peatland stream continuum. *Biogeochemistry* 70: 71-92.
- Palmer, S. M., Hope, D., Billett, M. F. & Bryant, C. 2001. Sources of organic and inorganic carbon in a headwater stream: evidence from carbon isotope studies. *Biogeochemistry*. 52: 321-338.
- Dawson, J. J. C., Billett, M. F. & Hope, D. 2001. Diurnal variations in the carbon chemistry of two acidic peatland streams in north-east Scotland. *Freshwater Biology* 46: 1309-1322.
- Aitkenhead, J., Hope D. & Billett, M. F. 1999. The relationship between dissolved organic carbon in streamwater and soil organic carbon pools at different spatial scales. *Hydrological Processes*. 13:22-33.
- Dawson, J.J.C., Hope, D., Cresser, M.S. & Billett, M.F. 1995. Downstream changes in free CO_2 in an upland catchment in NE Scotland. *Journal of Environmental Quality*, 24: 699-706.
- Barton, D., Hope, D., Billett, M.F. & Cresser, M.S. 1994. Sulphate adsorption capacity and pH of upland podzolic soils in Scotland: Effects of parent material, texture and precipitation chemistry. *Applied Geochemistry*, **9**: 127-139.

Urban Biogeochemistry & Water Use

- Lohse, K. A., Hope, D., Sponseller, R. A., Allen, J. O. & Grimm, N. B. (2008). Atmospheric deposition of carbon and nutrients across an arid metropolitan area. *Science of the Total Environment* 25: 402(1): 95-105. doi: 10.1016/j.scitotenv.2008.04.044. Epub 2008 Jun 11.
- Jenerette, G. D., Wu, J., Grimm, N. B. & Hope D. 2006. Points, patches and regions: scaling soil biogeochemical patterns in an urbanized arid ecosystem. *Global Change Biology* 12: 1532-1544.
- Hope, D., Zhu, W., Gries, C., Oleson, J. Kaye, J., Grimm, N. B., Baker, B. 2005. Spatial variation in soil inorganic nitrogen across an arid urban ecosystem. *Urban Ecosystems* 8: 253-273.
- Hope, D., Naegeli, M. W., Chan, A. H., & Grimm, N. B. 2004. Nutrient loads on asphalt parking surfaces in Phoenix, AZ. *Water Air & Soil Pollution* 4:371-390.
- Fenn, M. E. Haebuer, R., Tonnesen, G. S., Baron, J. S., Grossman-Clarke, S., Hope, D., Jaffe, D. A., Copeland, S., Geiser, L., Rueth, H. M. and Sickman, J. O. 2003. Nitrogen Emissions, Deposition and Monitoring in the Western United States. *BioScience* 53 (4): 391-403.
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- Zhu, W., Hope, D., Gries, C. & Grimm, N. B. 2006. Soil characteristics and the accumulation of inorganic nitrogen in an arid urban ecosystem 2006. *Ecosystems* 9: 711-724.
- Kaye, J.P., Majumdar, A., Gries, C., Buyantuyev, A., Grimm, N.B., Hope, D., Jenerette, D., Zhu, W., and L. Baker. 2008. Hierarchical Bayesian scaling of soil properties across urban, agricultural, and desert ecosystems. *Ecological Applications* 18: 132-145. *Biodiversity & Wildlife Ecology*.
- Ruddell, B., Rushforth, R., and Hope, D. 2022. Water Productivity of Phoenix Metropolitan Area Cities, *EGUsphere* [preprint], <https://doi.org/10.5194/egusphere-2022-1367>.

Biodiversity & Animal Behaviour

- Hope, D., Gries, C., Xhu, W., Redman, C. L., Grimm, N. B. G., Nelson, A.L., Martin, C., Kinzig, A. 2003. Socio-economics drive urban plant diversity. *Proceedings of the National Academy of Sciences*. 100: 8788-8792.
- Hope, D., Gries, C., Casagrande, D., Redman, C. L., Grimm, A, Martin, C. 2006. Drivers of spatial variation in plant diversity across the Central Arizona-Phoenix ecosystem. *Society and Natural Resources* 19: 101-116.
- Kinzig, A. P., P. Warren, C. Martin, D. Hope and M. Katti 2005. The Effects of Human Socioeconomic Status and Cultural Characteristics on Urban Patterns of Biodiversity. *Ecology and Society* 10 (1): 23. [online] URL: <http://www.ecologyandsociety.org/vol10/iss1/art23/>
- Stuart, G., Gries, C. & Hope, D. 2006. The relationship between pollen and extant vegetation across an arid urban ecosystem and surrounding desert. *J. Biogeography* Vol. 33, No. 4 (Apr., 2006), pp. 573-591.
- Cousins, J. R., Hope, D., Gries, C. & Stutz, J. C. 2003. Preliminary assessment of arbuscular mycorrhizal fungal diversity and community structure in an urban ecosystem. *Mycorrhiza* 13: 319-326.
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Urban Ecology

- Shen, W., Wu, J., Grimm, N. B., Reynolds, J. F. and Hope, D. 2008. Effects of urbanization-induced environmental changes on ecosystem functioning in the Phoenix metropolitan region, USA. *Ecosystems* 11: 138-155.
- Shochat, E., Warren, P.S., Faeth, S. H, McIntyre, N.E. & Hope, D. 2006. From patterns to emerging processes in mechanistic urban ecology. *Trends in Evolution and Ecology*, 21: 186-191.
- Cook, W., Casagrande, D., Hope, D., Groffman, P., Collins, S. 2004. Learning to roll with the punches: Adaptive experimentation in human-dominated systems. *Frontiers in Ecology and the Environment* 2: 467-474.
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Social Science

- Larsen, L. Harlan, S., Bolin, R., Hackett, E., Hope, D., Kirby, A., Nelson, A., Rex, T. & Wolf, S. Bonding and Bridging: Understanding the Relationship Between Social Capital and Civic Action. 2004. *Journal of Planning Education and Research* 24: 64-77.
- Casagrande, D. G., Hope, D., Farley-Metzger, E., Cook, W., Yabiku, S. and Redman, C. 2007. Problem and opportunity: Integrating anthropology, ecology, and policy through adaptive experimentation in the urban American Southwest. *Human Organization* 66(2):125-139.
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Ecological Modelling & Statistics

- Oleson, J., Hope, D., Gries, C. & Kaye, J. A Bayesian approach to estimating regression coefficients for soil properties in land use patches with varying degrees of spatial variation. *Environmetrics*. 17: 517-525.
- Wentz, E. A., Stefanov, W. L., Gries, C. & Hope, D. 2004. Land use and land cover mapping from aerial photography, Landsat Thematic Mapper Satellite Images, and on the ground observations in an arid urban environment. *Computers, Environment, and Urban Systems* 30:320-346.

Aitkenhead, M. J., McDonald, A. J. S., Dawson, J. J., Couper, G., Smart, R. P., Billett, M., Hope, D. & Palmer, S. 2003. A novel method for training neural networks for time-series prediction in environmental systems. *Ecological Modelling* 162: 87-95.

Lohse, K. A., Hope, D., Sponseller, R., Allen, J. O., and Grimm, N. B. 2008. Atmospheric deposition of nutrients across a desert city. *Science of the Total Environment* 402: 95-105.