

## HAWTHORNE L. BEYER, Ph.D.

Research Fellow  
Global Change Institute & Centre of Excellence for Environmental Decisions  
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### RESEARCH SUMMARY

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My research is at the interface between people and the environment, more specifically how biological systems are impacted by humans and the implications of this for management of both environmental and social systems. My applied research promotes evidence-based management using quantitative modelling and operations research methods to develop decision support systems for better managing environmental systems. I have applied this approach to a variety of environmental management problems including fire planning, zoning plans, wildlife disease management, landscape scale forest restoration and protected area prioritisation. My principal current and near-term future research interests are: (i) prescribed fire management planning in Australia to maximise multiple objectives; (ii) robust, global-scale coral reef conservation planning in the context of uncertainty arising from climate change; and (iii) large scale forest restoration planning in Brazil to maximise biodiversity and carbon returns and inform the creation of national offset markets. All three of these themes involve the development of novel, evidence-based, quantitative approaches to management and decision support.

### TEACHING SUMMARY

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For the last three years I have co-taught the *Sampling design and analysis in conservation science* course within the Master of Environmental Management and Master of Conservation Biology programmes at the University of Queensland (10 one-hour lectures). I have had strong student evaluations in this course, scoring 4.82-5.0 (2015) and 4.5-4.65 (2016) out of 5.0 across 8 evaluation criteria. I have also taught 9 workshops that I created and led (41 hours, c. 330 participants), including 4 workshops at national or international conferences. My strongest contribution to teaching would be in quantitative subjects, including mathematical modelling, statistics, optimisation, and decision theory within an ecology, conservation biology, or geospatial analysis context.

### MEDIA ATTENTION

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Regarding koala population trends in SE Queensland:

ABC News (TV) 7 May 2016

ABC News (web) 7 May 2016 <http://www.abc.net.au/news/2016-05-07/koala-extinction-imminent-in-southern-queensland-report-warns/7388912>

Channel 7 News (TV) 7 May 2016

Channel 10 Eyewitness News (TV) 7 May 2016

Queensland Government response 7 June 2016

<http://statements.qld.gov.au/Statement/2016/6/7/queensland-bolsters-koala-protection-with-12-million-budget-boost>

Brisbane Times 26 July 2016 <http://www.brisbanetimes.com.au/queensland/281-koala-deaths-around-moreton-bay-rail-project-20160726-gqecyu.html>

*In submission / review*

Correa, D.F, **Beyer, H.L.**, Possingham, H.P., Thomas-Hall, S.R., & Shenk, P.M. Adoption of novel, sustainable bioenergy alternatives at lowest environmental costs. *BioScience*

O'Bryan, C.J., Brackowski, A.R., **Beyer, H.L.**, Carter, N., Watson, J.E.M., & McDonald-Madden, E. The contribution of predators and scavengers to human health and well-being. *Nature Ecology & Evolution*

Allek, A., Assis, A.S., Eiras, N., Amaral, T.P., Williams, B., Butt, N., Renwick, A., Bennett, J. & **Beyer, H.L.** The threats endangering Australia's at-risk fauna. *Biological Conservation*.

Wadey, J., **Beyer, H.L.**, Saaban, S., Othman, N., Leimgruber, P. & Campos-Arceiz, A. Why did the elephant cross the road? The complex response of wild elephants to a major road in Peninsular Malaysia. *Biological Conservation*.

**Beyer, H.L.**, de Villiers, D., Loader, J., Robbins, A., Stigner, M., Forbes, N. and Hanger, J. Management of multiple threats achieves meaningful koala conservation outcomes. *Journal of Applied Ecology*.

*Published (peer-reviewed)*

1. Brackowski, A., O'Bryan, C., **Beyer, H.L.**, Stringer, M., Watson, J. & Possingham, H.P. (in press) Large carnivores can save money and lives in developing nation cities. *Frontiers in Ecology and the Environment*
2. Tisdell, C., Preece, H., Abdullah, S. & **Beyer, H.L.** (in press). Strategies to conserve the koala: cost-effectiveness considerations. *Australasian Journal of Environmental Management* DOI: 10.1080/14486563.2017.1349693
3. Williams, B., Shoo, L., Wilson, K. & **Beyer, H.L.** 2017. Navigating asset protection and conservation objectives associated with fire management in a fire-dependent ecosystem. *Journal of Applied Ecology*, DOI: 10.1111/1365-2664.12920.
4. Correa, D.F, **Beyer, H.L.**, Thomas-Hall, S.R., Possingham, H.P., & Shenk, P.M. 2017. Biodiversity impacts of bioenergy production: Microalgae vs. first generation biofuels. *Renewable & Sustainable Energy Reviews*, 74: 1131–1146.
5. Raynor, E, **Beyer, H.L.**, Joern, A. 2017. Complex variation in habitat selection strategies among individuals driven by intrinsic and extrinsic factors. *Ecology & Evolution*, 7(6): 18021822.
6. Runting, R.K., Lovelock, C.E., **Beyer, H.L.** and Rhodes, J.R. 2016. Costs and opportunities for preserving coastal wetlands under sea level rise. *Conservation Letters* 10, 49–57. doi: 10.1111/conl.12239.
7. **Beyer, H.L.**, Dujardin, Y., Watts, M.E. and Possingham, H.P. 2016. Solving conservation planning problems with integer linear programming. *Ecological Modelling*, 328: 14–22. doi: 10.1016/j.ecolmodel.2016.02.005
8. Stigner, M.G., **Beyer, H.L.**, Klein, C., Watts, M. & Fuller, R.A. 2016. Reconciling recreational use and conservation values in a coastal protected area. *Journal of Applied Ecology*, 53, 1206–1214. doi: 10.1111/1365-2664.12662.

9. **Beyer, H.L.**, Gurarie, E., Börger, L., Panzacchi, M., Basille, M., Herfindal, I., van Moorter, B., Lele, S.R. and Matthiopoulos, J. 2016 "You shall not pass!": quantifying barrier permeability and proximity avoidance by animals. *Journal of Animal Ecology*, 85: 43–53.
10. Bunton, J., Ernst, A.T., Hanson, J., **Beyer, H.L.**, Hammill, E., Runge, C., Venter, O., Possingham, H.P. and Rhodes, J.R. 2015. Integrated planning of linear infrastructure and conservation areas. MODSIM2015, 20th International Congress on Modelling and Simulation. Modelling and Simulation Society of Australia and New Zealand (*peer-reviewed conference proceeding*).
11. Crouzeilles, R., **Beyer, H.L.**, Mills, M., Grelle, C.E.V., & H.P. Possingham. 2015. Incorporating habitat availability into systematic planning for restoration: a species specific approach for Atlantic Forest mammals. *Diversity & Distributions*, 21: 1027–1037. doi:10.1111/ddi.12349
12. Campbell, H.A., **Beyer, H.L.**, Dennis, T.E., Dwyer, R.G., Forester, J.D., Fukuda, Y., Lynch, C., Hindell, M.A., Menke, N., Morales, J.M., Richardson, C., Rodgers, E., Taylor, G., Watts, M.E. & Westcott, D.A. 2015. Finding our way: on the sharing and reuse of animal telemetry data in Australasia. *Science of the Total Environment*, 534: 79-84. doi: 10.1016/j.scitotenv.2015.01.089
13. Matthiopoulos, J., Fieberg, J., Aarts, G., **Beyer, H.L.**, Morales, J. and Haydon, D.T. 2015. Establishing the link between habitat selection and animal population dynamics. *Ecological Monographs*, 85: 413–436. doi:10.1890/14-2244.1
14. Hopcraft, G.C., Morales, J.M., **Beyer, H.L.**, Borner, M., Mwangomo, E., Sinclair, A.R.E, Olf, H. and Haydon, D.T. 2014. Competition, predation, and migration: individual choice patterns of Serengeti migrants captured by hierarchical models. *Ecology* 84: 355–372. doi: 10.1890/13-1446.1
15. Cleaveland, S., **Beyer, H.L.**, Hampson, K., Haydon, D., Lankester, F., Lembo, T., Meslin, F.-X., Morders, M. Mtema, Z., Sambo, M. and Townsend S. 2014. The changing landscape of rabies epidemiology and control. *Onderstepoort Journal of Veterinary Research*, 82(2) Art 731.
16. Roever, C.L., **Beyer, H.L.**, Chase, M.J. and van Aarde, R.J. 2014. The pitfalls of ignoring behaviour when quantifying habitat selection. *Diversity & Distributions*, 20 (3), 322–333.
17. Butt, N., **Beyer, H.L.**, Bennett, J.R., Biggs, D., Maggini, R., Mills, M., Renwick, A., Seabrook, L.M. & Possingham, H.P. 2013. Biodiversity risks from fossil fuel extraction. *Science* 342 (6157), 425–426.
18. **Beyer, H.L.**, Morales, J.M., Murray, D.L. and Fortin, M.-J. 2013. The effectiveness of Bayesian state-space models for estimating behavioural states from movement paths. *Methods in Ecology and Evolution* 4, 433–441.
19. Craft, M.E., **Beyer, H.L.** and Haydon, D.T. 2013. Predicting epidemic size using observable data: an indeterminate problem? *PLoS One* 8(3), e57878.
20. **Beyer, H.L.**, Ung, R., Murray, D.L. and Fortin, M.-J. 2013. Functional responses, seasonal variation and thresholds in behavioural responses of moose to road density. *Journal of Applied Ecology* 50(2), 286–294.
21. **Beyer, H.L.**, Hampson, K., Lembo, T., Cleaveland, S., Kaare, M. and Haydon, D.T. 2012. The implications of metapopulation dynamics on the design of rabies vaccination campaigns. *Vaccine* 30(6), 1014–1022.
22. Gillies, C.S., **Beyer, H.L.** and Cassady St. Clair, C. 2011. Fine-scale movement decisions of tropical forest birds in a fragmented landscape. *Ecological Applications* 21(3), 944–954.

23. **Beyer, H.L.**, Hampson, K., Lembo, T., Cleaveland, S., Kaare, M. and Haydon, D.T. 2011. Metapopulation dynamics of rabies and the efficacy of vaccination. *Proceedings of the Royal Society B-Biological Sciences* 278, 2182–2190 [Ph.D.].
24. **Beyer, H.L.**, Haydon, D.T., Morales, J.M., Frair, J.L., Hebblewhite, M., Mitchell, M. and Matthiopoulos, J. 2010. The interpretation of habitat preference metrics under use-availability designs. *Philosophical Transactions of the Royal Society B*, 365, 2245–2254. [Ph.D.] *Received 2011 Outstanding Article Award from The Wildlife Society.*
25. Fortin, D., Fortin, M.E., **Beyer, H.L.**, Dushesne, T., Courant, S. and Dancose, K. 2009. Group size mediated habitat selection and group fusion-fission dynamics of bison under predation risk. *Ecology* 90(9), 2480–2490.
26. Nielsen, S.E., Stenhouse, G.B., **Beyer, H.L.**, Huettmann, F. and Boyce, M.S. 2008. Can natural disturbance-based forestry rescue a declining population of grizzly bears? *Biological Conservation* 141(9), 2193–2207.
27. Aldridge, C.L., Nielsen, S.E., **Beyer, H.L.**, Boyce, M.S., Connelly, J.W., Knick, S.T. and Schroeder, M.A. 2008. Range-wide patterns of greater sage-grouse persistence. *Diversity and Distributions* 14(6), 983–994.
28. Frair, J.L., Merrill, E.H., **Beyer, H.L.**, and Morales, J.M. 2008. Thresholds in landscape connectivity and mortality risks in response to growing road networks. *Journal of Applied Ecology* 45(5), 1504–1513.
29. **Beyer, H.L.**, Merrill, E.H., Varley, N. and Boyce, M.S. 2007. Willow on Yellowstone's northern range: evidence for a trophic cascade? *Ecological Applications* 17(6), 1563–1571. [Masters]
30. Forester, J.D., Ives, A.R., Turner, M.G., Anderson D.P., Fortin, D., **Beyer, H.L.**, Smith, D.W. and Boyce, M.S. 2006. State-space models link elk movement patterns to landscape characteristics in Yellowstone National Park. *Ecological Monographs* 77(2), 285–299.
31. Anderson, D.P., Turner, M.G., Forester, J.D., Zhu, J., Boyce, M.S., **Beyer, H.L.**, and Stowell, L. 2006. Scale-dependent summer resource selection by reintroduced elk in Wisconsin, USA. *Journal of Wildlife Management* 69(1), 298–310.
32. Fortin, D., **Beyer, H.L.**, Boyce, M.S., Smith, D.W., Duchesne, T. and Mao, J.S. 2005. Wolves influence elk movements: behaviour shapes a trophic cascade in Yellowstone National Park. *Ecology* 86(5), 1320–1330.
33. Frair, J.L., Merrill, E.H., Visscher, D.R., Fortin, D., **Beyer, H.L.**, and Morales, J.M. 2005. Scales of movement by elk (*Cervus elaphus*) in response to heterogeneity in forage resources and predation risk. *Landscape Ecology* 20(3), 273–287.
34. Frair, J.L. Nielsen, S.E., Merrill, E.H. Lele, S.R., Boyce, M.S., Munro, R.H.M., Stenhouse, G.B., and **Beyer, H.L.** 2004. Removing GPS-collar bias in habitat selection studies. *Journal of Applied Ecology* 41, 201–212.
35. Merrill, E.H., **Beyer, H.L.**, Jones, G.P. and McDaniel, G.W. 2003. Deciduous woodland conservation under heavy deer browsing on Devils Tower National Monument, USA. *Journal for Nature Conservation*, 10, 221–232.

#### *Book chapters*

1. Bart, J. and **Beyer, H.L.** 2012. Analysis options for estimating status and trends in long-term monitoring, in *Design and Analysis of Long-term Ecological Monitoring Studies* (eds: Gitzen, R.A., Millspaugh, J.J., Cooper, A.B. and Licht, D.S.). Cambridge University Press.

2. **Beyer, H.L.**, Jenness, J. and Cushman, S. 2010. Components of Spatial Information Management in Wildlife Ecology: Software for Statistical and Modeling Analysis, in *Spatial Complexity, Informatics, and Wildlife Conservation* (eds: Huettmann, F. and Cushman, S.). Springer.

*Grey literature & popular writing*

1. Butt, N., **Beyer, H.L.** & Possingham, H.P. 2016. Globally important biodiversity under immediate threat in Yasuni National Park, Ecuador. E-letter to Science. <http://science.sciencemag.org/content/342/6157/425.e-letters> (click on *Show more*).
2. **Beyer, H.L.**, Butt, N. & Seabrook, L. 2014. Herding cats and other perspectives on the organisation of our science. *Decision Point*, 81. <http://www.decision-point.com.au>
3. Butt, N., **Beyer, H.L.** & Seabrook, L. 2014. Biodiversity and fossil fuel extraction: the other legacy of our energy consumption. *Decision Point*, 76. <http://www.decision-point.com.au>
4. Butt, N. & **Beyer, H.L.**. 2013. Leave it in the ground! How fossil fuel extraction affects biodiversity. *The Conversation*. <http://theconversation.com/leave-it-in-the-ground-how-fossil-fuel-extraction-affects-biodiversity-19484>
5. **Beyer, H.L.**. 2012. *The Geospatial Modelling Environment* (150pp).
6. **Beyer, H.L.**. 2011. The changing nature of data, questions, and analytical tools. *The Wildlife Society Spatial Analysis Newsletter* (2pp).

## EXPERIENCE

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SENIOR RESEARCH FELLOW	Global Change Institute, University of Queensland (7/2017-present).
ARC DECRA FELLOW	School of Biological Sciences, University of Queensland (6/2014-6/2017).
POSTDOCTORAL FELLOW	ARC Centre of Excellence for Environmental Decisions, University of Queensland (2/2012-3/2014).
POSTDOCTORAL FELLOW	Dept. of Ecology and Evolutionary Biology, University of Toronto (5/2010-12/2011).
RESEARCH ASSOCIATE	Environmental and Evolutionary Biology, University of Glasgow (11/2006-4/2010)
BIOLOGIST	Pacific Northwest Research Station, USDA Forest Service, Olympia, WA (1/2006-9/2006)
ANALYTICAL CONSULTANT	Spatial Ecology LLC (2004-Present)
RESEARCH ASSOCIATE	Department of Biological Sciences, University of Alberta, Edmonton, Alberta, Canada (2001-2005)
SENIOR GIS CONSULTANT	Macaulay Land Use Research Institute, Scotland (2000-2001)
INFORMATION TECHNOLOGIST	Information Technology, Univ. of Wisconsin-Stevens Point (UWSP), WI (1998-2000)
GIS LAB MANAGER	College of Natural Resources, UWSP, WI (1996-1998)
RESEARCH ASSISTANT	Forestry Dept., Univ. of Wisconsin-Madison (1995-1998)
GIS TEACHING ASSISTANT	Geography Dept., UWSP, WI (1995-1997)

## EDUCATION

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DOCTORATE (2006-2010)	University of Glasgow, Scotland. <i>Epidemiological models of rabies in domestic dogs: dynamics and control.</i> (With Prof. Daniel T. Haydon FRSE)
MASTER OF SCIENCE (2005-2006)	University of Alberta, Canada. <i>Wolves, elk and willow on Yellowstone National Park's northern range.</i> (With Prof. Mark S. Boyce, Prof. Evelyn H. Merrill)
BACHELOR OF SCIENCE (1989-1993)	University of Nottingham, England. Behavioural Ecology, Joint Hons. (With Prof. Chris J. Barnard)

## RESEARCH FUNDING AWARDS

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**Beyer, H.L.** ARC Discovery Early Career Research Award (DECRA). \$320,000

Rhodes, J.R., McAlpine, C. and **Beyer, H.L.** Queensland Department of Environment and Heritage Protection. \$200,000

**Beyer, H.L.** Wildlife disease management in south-east Queensland. Industry funding from Endeavour Veterinary Ecology. \$50,000

Rhodes, J., Maron, M., Liu, Y. and **Beyer, H.L.** Queensland Department of Environment and Heritage Protection. \$80,000

Fuller, R. & Phinn, S. (H. L. Beyer contributor). Google Earth Engine grant US\$80,000

## TEACHING

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I have teaching experience of undergraduates, graduate students and professionals in roles that include lecturer, teaching assistant, guest lecturer, and workshop instructor.

### Sampling Design and Analysis in Conservation Science (CONS7008)

Ten lectures and one essay assignment as part of the Masters of Conservation Science programme at the University of Queensland. Co-instructed with Dr. Richard Fuller and Dr. Pat Ward (2015, 2016 & 2017).

Teaching evaluation:

<i>criteria</i>	<i>score (of 5)</i>	<i>criteria</i>	<i>score (of 5)</i>
well organised	4.88	inspired me to learn	4.88
good at explaining things	5.00	encouraged student input	4.88
approachable	5.00	treated students with respect	4.94
stimulated interest in field	4.94	overall rating	4.82

Highlights of student feedback comments:

- “Best lecturer we have had this semester, content and examples really interesting for what could have been a dry topic!”
- “Such an excellent lecturer!! Very patient, supportive of students, approachable, articulate with interesting and well paced lectures.”
- “I feel very fortunate to have taken this component of the course. Hawthorne’s lectures were some of the best I’ve had anywhere and it stood out as a highlight of the Master of Conservation Biology teaching.”

- “I really appreciate the way in which Hawthorne framed the content of this section. It conveyed to me, in a really interesting and relevant way, the importance of sound experimental design in ecology and conservation.”
- “One of the best educators I have encountered in my academic career. He is an excellent story teller, using humor and enthusiasm to keep students engaged. His assessment task was thoughtful and encouraged self learning using content in the lectures.”

### **Courses:**

Sampling design and analysis in conservation science. Masters of Conservation Biology, University of Queensland. 2015 (12 lectures, 1 essay assignment).

Unsolicited comments from students about my teaching:

“Thank you for your lectures - these were some of the best lectures I’ve had in a course, anywhere.” (2015)

“I just wanted to say how much I enjoyed your component of the course and that I found it really beneficial.” (2015)

“Thank you for your lectures, they were very informative and captivating!” (2015)

### **Classes:**

Hierarchical habitat selection (Guest Lecturer). 2012. Hedmark University College, Evenstad, Norway [1.5h]

Geographic Information Systems II (Teaching Assistant). 2000. University of Wisconsin-Stevens Point, U.S.A. [3 credit course with labs]

Geographic Information Systems I (Teaching Assistant). 1999. University of Wisconsin-Stevens Point, U.S.A. [3 credit course with labs]

Geographic Information Systems II (Teaching Assistant). 1999. University of Wisconsin-Stevens Point, U.S.A. [3 credit course with labs]

Geographic Information Systems I (Teaching Assistant). 1998. University of Wisconsin-Stevens Point, U.S.A. [3 credit course with labs]

### **Workshops taught:**

**Beyer, H.L.** & Kaim, A. 2014. Introduction to Latex. University of Queensland. [duration: 3h]

**Beyer, H.L.** & Runting, R. 2013. Introduction to GIS with R and QGIS. Student Conference on Conservation Science. [duration: 2 x 3h]

**Beyer, H.L.** 2011. Geospatial skills workshop. University of Toronto. [duration: 4h]

**Beyer, H.L.** & Frair, J. 2011. Geospatial skills workshop. The Wildlife Society Conference, Hawaii. [duration: 8h]

**Beyer, H.L.** 2011. The Geospatial Modelling Environment. US Fish & Wildlife Service, National Conservation Training Center, West Virginia, USA. [duration: 3h]

**Beyer, H.L.** 2006. Spatial analysis using Hawth’s Analysis Tools. US Fish & Wildlife Service, National Conservation Training Center, West Virginia, USA. [duration: 3h]

## Teacher training courses attended:

Designing exams and grading assignments for English Language Learning students. Univ. of Toronto, 2010.

## PUBLISHED SOFTWARE

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**Beyer, H.L.** GEOSPATIAL MODELLING ENVIRONMENT. 2009-2012. Downloads: > 20000.  
URL: <http://www.spatalecolony.com/gme>

**Beyer, H.L.** HAWTH'S ANALYSIS TOOLS FOR ARCGIS. 2002-2009. Downloads: > 180000  
URL: <http://www.spatalecolony.com/htools>

Dubé, M., Pietroniro, E., and **Beyer, H.L.** THE HEALTHY RIVER ECOSYSTEM ASSESSMENT TOOL. 2006-2009. URL: <http://www.threatscanada.ca>

Rodgers, A.R., Carr, A.P., **Beyer, H.L.**, Smith, L., J.G. Kie. 2007. HRT: HOME RANGE TOOLS FOR ARCGIS. URL: <http://blue.lakeheadu.ca/hre/>

**Beyer, H.L.** PRISM: PROGRAM FOR REGIONAL AND INTERNATIONAL SHOREBIRD MONITORING. 2007.

## PROFESSIONAL ACTIVITIES

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Editor for *Conservation Letters*. Grant reviewer for *Australian Research Council* and *Australian Antarctic Division*.

Peer-reviewer for:

- Ecology Letters
- Ecology
- Ecological Applications
- Journal of Applied Ecology
- Conservation Letters
- Global Ecology & Biogeography
- Axios Reviews
- PLoS One
- Ecography
- J Royal Society Interface
- Epidemics
- Landscape Ecology
- Ecological Modelling
- Marine Ecology Progress Series
- Journal of Animal Ecology
- Functional Ecology
- Oecologia
- Biological Conservation
- Austral Ecology
- Ecosphere
- Botany
- Landscape and Urban Planning
- Environmental Modelling and Software
- Canadian Journal of Zoology
- BMC Veterinary Research
- Naturwissenschaften
- Wildlife Research
- Biodiversity and Conservation
- International Journal of GIS
- Intl J Environ Res Public Health

### *Service*

Queensland Government Koala Action Group advisory board

New South Wales Government Koala Action Group advisory board

Seminar organiser (weekly seminars for Centre of Excellence for Environmental Decisions)

OzTrack Advisory Board member

Workshop organiser: "The Psychology of Communicating Environmental Science" (Drs W. Louis & K. Fielding, School of Psychology, University of Queensland)

### *Awards*



University of Queensland - Biological Sciences Staff Award 2016  
The Wildlife Society Software Author Award 2016  
The Wildlife Society 2011 Wildlife Publications Award - Outstanding Article (see Beyer et. al. 2010, Phil Trans Roy Soc paper)  
NASA-MSU Professional Enhancement Award 2011 (\$600)  
The Wildlife Society Software Author Award 2010  
ESRI Most Valuable Professional Award, Jan-Apr 2005

### *Workshops (attended)*

Integral population modelling. 2013. University of Queensland.  
Movement modelling and habitat selection workshop. 2012. Evenstad, Norway.  
Metapopulation workshop. 2012. University of Queensland.  
Network Theory in Ecology and Evolution Workshop. 2011. McGill University, Montreal, CA.  
NimBioS - Graph Theory. 2010. Knoxville, TN, USA.  
Resource selection and movement ecology workshop. 2008. Trento, Italy.  
Bayesian methods workshop. 2008. Glasgow, U.K.

### **SELECTED PRESENTATIONS**

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#### *Invited speaker presentations*

**Beyer, H.L.** 2013. Disease transmission in spatially structured animal populations and the implications for disease control. Winter School in Mathematical and Computational Biology, University of Queensland.  
**Beyer, H.L.** 2011. Plenary: informing management and conservation decision making using ecological process modelling. US Fish & Wildlife Service National Conference.  
**Beyer, H.L.**, Hampson, K., Lembo, T., Cleaveland, S., Kaare, M. and Haydon, D.T. 2010. Transmission dynamics and control of rabies in Tanzania. Biology Dept., Trent University.  
**Beyer, H.L.** 2006. Recent developments in the analysis of wildlife telemetry data. US Fish & Wildlife Service, National Conservation Training Center, West Virginia, USA.

#### *Selected presentations*

**Beyer, H.L.** 2017. The value of decision science for informing fire management planning. South-east Queensland Fire & Biodiversity Consortium Forum.  
Williams, B., Wilson, K., Shoo, L. & **Beyer, H.L.** 2017. Spatial planning of prescribed burns to achieve multiple objectives in a fire dependent ecosystem. South-east Queensland Fire & Biodiversity Consortium Forum.  
Williams, B., Shoo, L., **Beyer, H.L.** & Wilson, K. 2016. Navigating asset protection and conservation objectives associated with fire management in a fire-dependent ecosystem. Bushfire 2016 conference.  
Leighton, P., **Beyer, H.L.**, Fortin, M.-J. and Ogden, N. 2012. Climate change and the spatial population dynamics of ticks at their expanding northern range limit. Wildlife Disease Association conference, Lyon, France.  
**Beyer, H.L.**, Hampson, K., Lembo, T., Cleaveland, S., Haydon, D.T. and Possingham, H. 2012. Transmission dynamics and control of disease in metapopulations: rabies in Tanzania. Resource Modelling Association Conference, Brisbane.  
**Beyer, H.L.**, Hampson, K., Lembo, T., Cleaveland, S. and Haydon, D.T. 2012. Transmission dynamics and control of rabies in Tanzania. University of Queensland.  
**Beyer, H.L.**, Ung, R., Fortin, M.-J., and Murray, D. 2011. Incorporating behavioural processes into movement models: memory, site fidelity, patch use and road avoidance in moose. The Wildlife Society International Conference, Hawaii.  
**Beyer, H.L.**, Ung, R., Fortin, M.-J., and Murray, D. 2011. Incorporating behavioural processes into movement models: state-space modelling of moose telemetry data. International Association for Landscape Ecology, Portland, OR.

- Townsend, S., **Beyer, H.L.**, Hampson, K., Lembo, T., Cleaveland, S. and Haydon, D.T. 2011. Transmission dynamics and control of rabies in Tanzania. SEARG Meeting, Mozambique.
- Beyer, H.L.**, Hampson, K., Lembo, T., Cleaveland, S., Kaare, M. and Haydon, D.T. 2010. Transmission dynamics and control of rabies in Tanzania. Dept. of Ecology and Evolution, University of Toronto.
- Beyer, H.L.** 2009. Bayesian approaches to animal movement and patch occupancy problems. Dept. of Statistics, University of Glasgow.
- Beyer, H.L.** 2008. Some comments on inference and the scientific method. Environmental and Evolutionary Biology, University of Glasgow.
- Beyer, H.L.**, Merrill, E.H., Boyce, M.S., Fortin, D., Forester, J.F. and Smith, D.W. 2007. Willow on Yellowstone National Park's Northern Winter Range: evidence of a trophic cascade? British Ecological Society Conference, Glasgow.
- Beyer, H.L.**, Frair, J.L., Merrill, E.H., Lewis, M.A., Visscher, D.R., and Boyce, M.S. 2005. Estimating resource use along animal paths: a diffusion model approach. Ecological Society of America Conference.
- Beyer, H.L.**, E.H. Merrill, N. Varley, M.S. Boyce. 2005, Evidence for a behaviorally mediated trophic cascade between wolves, elk and willow in Yellowstone National Park. The Wildlife Society Conference.
- Beyer, H.L.**, Merrill, E.H., Varley, N., and Boyce, M.S. 2004. Willow on Yellowstone National Park's Northern Winter Range: evidence of a trophic cascade? The Wildlife Society Conference (International), Calgary.

## POSTERS

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- Beyer, H.L.**, Allek, A., Assis, A.S., Eiras, N., Amaral, T.P., Butt, N., Renwick, A., & Bennett, J. 2016. The threats endangering Australia's threatened fauna. Society for Conservation Biology, Brisbane.
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