

## Heather Joan Lynch

112 South Street / Port Jefferson, NY 11777  
phone: 631-632-9508 e-mail: heather.lynch@stonybrook.edu  
(Updated September 13, 2016)

### Education

Harvard University Cambridge, MA Ph.D. Organismic and Evolutionary Biology Thesis: Spatiotemporal dynamics of insect-fire interactions	Jan. 2003-Nov. 2006
Harvard University Cambridge, MA A.M. Physics	March 2004
Princeton University Princeton, NJ A.B. Physics ( <i>summa cum laude</i> ) with certificate in Materials Science Engineering	May 2000

### Employment

Associate Professor (Ecology & Evolution) Affiliated Faculty of the School of Marine and Atmospheric Sciences (2013 – ) Affiliated Faculty of the Institute for Advanced Computational Science (2014 – )	Stony Brook University	Sept. 2016 –
Assistant Professor (Ecology & Evolution)	Stony Brook University	Aug. 2011 –
Research Associate (Applied Math and Statistics)	University of California, Santa Cruz	Dec. 2010 – July 2011
Assistant Research Scientist (Biology) Senior Research Fellow	University of Maryland, College Park Oceanites, Inc.	Feb. 2008 – July 2011
Postdoctoral Research Associate (Biology)	University of Maryland, College Park	Nov. 2006 – Feb. 2008

### Grants & Awards

2015-2017: (PI) NSF EarthCube “Collaborative Research: Research Coordination Network for High-Performance Distributed Computing in the Polar Sciences” (Total budget \$300,000; Stony Brook University budget \$27,326) (Lead PI: Shantenu Jha [Rutgers]; Additional PIs: Lynn Yarmey [Colorado] and Jaroslaw Nabrzyski [Notre Dame])

2015-2016: (PI) Brookhaven National Lab/Stony Brook University SEED Grant 2015: “Three-dimensional structure and function for ecological monitoring using unmanned-aerial systems and computer vision” (Total budget \$41,561; Stony Brook University budget \$33,552) (Co-I: Shawn Serbin, Brookhaven National Lab)

2015-2018: (PI) NASA ROSES Program Element A.36 Earth Science Applications Phase II award (No. NNX14AC32G): “Bayesian Data-Model Synthesis for Biological Conservation in Antarctica” (Total budget \$630,651; Stony Brook University budget \$395,475) (Co-I: Mathew Schwaller NASA Goddard)

2014-2017: (PI) NSF Office of Polar Programs (No. 1341440): “Phytoplankton Phenology in the Antarctic: Drivers, Patterns, and Implications for the Adélie Penguin” (Collaborative proposal with Woods Hole Oceanographic Institution, University of Alaska Fairbanks, and the National Snow and Ice Data Center; Total budget \$938,950; Stony Brook University budget \$108,017)

2014-2016: (Collaborator) Dalio Explore Fund: The Danger Islands Expedition: A Multi-scale Study of Remote Penguin Supercolonies (\$419,804)

2014: Block scholarship from the National Outdoor Leadership School to support four Ph.D. students taking a summer course in glacier mountaineering (\$8,000)

2014: (PI) NASA ROSES Program Element A.36 Earth Science Applications Phase I award (No. NNX14AC32G): “Bayesian Data-Model Synthesis for Biological Conservation in Antarctica” (Total budget \$170,605; Stony Brook University budget \$113,120) (Co-I: Mathew Schwaller NASA Goddard)

2013-2018: (PI) NSF CAREER Award in Office of Polar Programs & Geography and Spatial Sciences (No. 1255058): “The use of quantitative geography to predict population tipping points for colonial seabirds” (\$782,840)

2013: (PI) UK Foreign and Commonwealth Office British Antarctic Territory for “Improving estimates of penguin abundance and trends in the British Antarctic Territory for the benefit of conservation and fisheries management” (\$41,317)

2012: Travel award to attend the 2012 Scientific Committee for Antarctic Research (SCAR) Open Science Conference in Portland, Oregon (\$1,000)

2008-2013: (Co-PI) NSF Award in Office of Polar Programs (No. 0739515) for “Multispecies, Multiscale Investigations of Longterm Changes in Penguin and Seabird Populations on the Antarctic Peninsula” (\$476,608)

2010: (PI) Mia J. Tegner Memorial Research Grant in Marine Environmental Sciences (\$10,000)

### **Honors & Distinctions**

2014 Ecological Society of America Early Career Fellow

2006 Certificate of Distinction in Teaching (Harvard University)

2005 Interdisciplinary Graduate Education and Research Training Fellow (Biomechanics)

2005 Howard T. Fisher Prize for Excellence in GIS

2000 American Physical Society Leroy Apker Award for “A Kondo Box: Coulomb Blockade and the Kondo Effect in Iron-doped Copper Nanoparticles” (awarded to the best undergraduate physics thesis from a Ph.D. granting institution in the United States)

2000 Allen Goodrich Shenstone Prize for outstanding work in experimental physics/Princeton University

2000 Lucent Technologies Graduate Research Program for Women Fellowship (accepted; 2000-2004)

2000 National Science Foundation Graduate Research Fellowship

2000 National Defense Science and Engineering Graduate Fellowship

2000 Phi Beta Kappa

2000 Sigma Xi

## **Expert Workshops & Working Groups**

Organized the Polar+Cyberinfrastructure Expert Workshop (Polar Geospatial Center, St. Paul, Minnesota, June 2-3, 2016)

EarthCube Early Career Strategic Visioning Workshop (Carnegie Institution for Science, Washington, D.C., October 16-17, 2012)

Working Group (John Wesley Powell Center for Analysis and Synthesis, Fort Collins, CO, July 2012 – July 2014) / Topic: Modeling species response to environmental change: development of integrated, scalable Bayesian models of population persistence

Expert Workshop (National Socio-Environmental Synthesis Center, Annapolis, MD, July 2012) / Topic: Visualization Technologies to Support Research on Human - Environment Interactions

Expert Workshop (Galapagos Islands, June 2012) / Topic: Leveraging citizen science for conservation and management of the Galapagos Islands

Expert Workshop (Dessau, Germany, May 2012) / Topic: Census of penguins by remote sensing

## **Professional Service**

Editorial Board for Scientific Reports (2016- )

Delegate for the Antarctic and Southern Ocean Coalition (ASOC) at the XXXVII Antarctic Treaty Consultative Meeting in Brasilia, Brazil (April 2014).

Faculty member, Population Ecology Section, Faculty of 1000 (2011-2015).

Book review consultant for the Quarterly Review of Biology (2011-2015).

Science and Operations Committee (2011-2013) of the University of Minnesota's Polar Geospatial Center.

Steering Group of the Commission for the Conservation of Antarctic Marine Living Resources' (CCAMLR) Krill Predator Workshop held June 16-20, 2008 in Hobart, Australia.

Reviewer for American Naturalist, Animal Conservation, Auk, Biological Conservation, CCAMLR Science, Diversity and Distributions, Ecography, Ecological Applications, Ecology, Ecology & Evolution, Environmental Management, Global Change Biology, Journal of Field Ornithology, Landscape Ecology, Limnology and Oceanography, Marine Ecology Progress Series, Marine Policy, Methods in Ecology and Evolution, PLoS ONE, Polar Biology, Polar Research, Population Ecology, Remote Sensing of Environment, and the Wilson Journal of Ornithology.

Proposal reviewer for the National Science Foundation's Office of Polar Programs in 2011, 2013, and 2015.

Proposal reviewer for the Deutsche Forschungsgemeinschaft (German Research Foundation) in 2013.

### **University Service**

Member of the Coordinating Committee for the School of Marine and Atmospheric Sciences' (SoMAS) M.A. in Marine and Conservation Policy (2013-2015).

### **Outreach, Public Lectures, and Community Service**

Public lecture: "Antarctic penguins: What we know, how we know it, and what the future might hold". Aquarium of the Pacific (March 17, 2015)

Panel member: "Exploring Antarctica". Bruce Museum, Greenwich, CT (January 11, 2015)

Public lecture: "Penguins on the move". Jefferson's Ferry Retirement Community (January 6, 2015)

Public lecture: "Vocal communication among gentoo penguins and its role in new colony formation". Kansas City Zoo (November 21, 2013)

Co-taught a workshop on "Grant Writing" for the Association of Polar Early Career Scientists (APECS) Bristol, UK (August 31, 2013)

Seminar for the Simons Fellows summer students, Stony Brook University (July 30, 2013 & July 15, 2014)

Keynote speaker: Student research symposium Bellport High School, Brookhaven, NY (June 4, 2013)

Co-organizer of Polar Climate Change Research: A Workshop for Educators, a 1 day workshop for middle and high school science educators on polar science and technology. Wang Center, Stony Brook University (April 11, 2012)

Public lecture: "Penguins: Sentinels of climate change". Stony Brook University Living World Lecture Series (March 23, 2012)

### **Teaching Experience**

Biometry (BEE 552)	Spring 2012-2016
Statistics and Data Analysis (BIO 211)	Fall 2013
Graduate seminar (BEE 693)	Spring 2014
Bayesian Statistics and Data Analysis (BEE 569)	Fall 2014

### **Mentoring & Advising**

Ph.D. students advised (8):

- (1) Paula Casanovas (co-advised by Dr. William Fagan, graduated April 2013) Title: "Novel approaches to studying biodiversity in remote areas: Distribution of lichens and penguins across the Antarctic Peninsula"
- (2) Philip McDowall
- (3) Maureen Lynch
- (4) Catherine Foley
- (5) Michael Schrimpf

- (6) Casey Youngflesh
- (7) Alex Borowicz
- (8) Bento Goncalves

Ph.D. student committees (10):

- (1) Michael McCann (E&E; graduated 2015)
- (2) Antonin Machac (E&E; graduated 2015)
- (3) Emily Rollinson (E&E; graduated 2016)
- (4) Benjamin Weinstein (E&E)
- (5) Anusha Shankar (E&E)
- (6) Cecilia O'Leary (SoMAS)
- (7) Sam Urmy (SoMAS)
- (8) Bilgecan Sen (E&E)
- (9) Lisa Prowant (E&E)
- (10) Kristjan Mets (E&E)

Additional thesis committees (2): Jesse Wolfhagan (Stony Brook Anthropology; thesis proposal committee), Breann Ross (Hofstra University; MS thesis committee)

Ecology & Evolution M.A. students advised (4)

Undergraduate students advised (7)

High school students advised (6):

- (1) Ryan Burke (Earl L. Vandermeulen High School; current attending Brown University) Summer 2013: "Using camera trap methods to study the reproductive success of penguins"
- (2) Will Engellenner (Smithtown East High School; current attending Northwestern University) Summer 2013: "A 15-year longitudinal study of the impact of marine ecotourism on Antarctic penguin populations"
- (3) Caroline Biondo (Earl L. Vandermeulen High School; currently attending the University of Virginia) Summer 2014: "Are stone stealing dynamics in a penguin colony consistent with predictions from game theory?"
- (4) Erin Burke (Earl L. Vandermeulen High School) Summer 2016: "Seabird life-history trade-offs and climate change resilience"
- (5) Reid Biondo (Earl L. Vandermeulen High School) Summer 2016: "King- penguin population dynamics"
- (6) Andrea Dahl (Olathe North, Kansas City) Summer 2016: "Behavioral acoustics of gentoo penguins in captivity"

### **Additional Academic Experience/Training**

2014: National Socio-Environmental Synthesis Center (SESYNC) Summer Computational Institute

2006: Summer Institute at Duke University's Center on Global Change: Uncertainty and Variability in Ecological Inference, Forecasting, and Decision Making

2005: ENR-423: Regional Ecosystem Management: Science, Policy and Law

- Seminar course taught by William Clark and Jody Freeman at the J.F.K. School of Public Policy

2005: Park City Mathematics Institute graduate summer school in Mathematical Biology

## Publications & Lectures

★ Indicates a Ph.D. student under my supervision, ✦ Indicates a postdoc under my supervision

## Refereed Journals

- (48) ★Lynch, M., ★C. Foley, L. H. Thorne, and **H. J. Lynch**. 2016. Improving the use of biological data in Antarctic management. *In press at Antarctic Science*.
- (47) Cimino, M.A., **H. J. Lynch**, V.S. Saba, and M.J. Oliver. 2016. Asymmetric response of Adélie penguins to Antarctic climate change. *Scientific Reports* 6:28785.
- (46) ✦Witharana, C., and **H.J. Lynch**. 2016. An object-based image analysis approach for detecting penguin guano from very high spatial resolution satellite images. *Remote Sensing* 8(5): 375.
- (45) **Lynch, H.J.**, R. White, R. Naveen, A.D. Black, M.S. Meixler, and W.F. Fagan. 2016. In stark contrast to widespread declines along the Scotia Arc, a survey of the South Sandwich Islands finds a robust seabird community. *In press at Polar Biology*.
- (44) ✦Witharana, C., M.A. LaRue, and **H.J. Lynch**. 2016. Benchmarking of data fusion algorithms in support of earth observation based Antarctic wildlife monitoring. *ISPRS Journal of Photogrammetry and Remote Sensing* 113: 124-143.
- (43) Levy, H., G. Clucas, A. Rogers, A.D. Leaché, K. Ciborowski, M. Polito, **H.J. Lynch**, M. Dunn, and T. Hart. 2016. Population structure and phylogeography of the Gentoo Penguin (*Pygoscelis papua*) across the Scotia Arc. *Ecology and Evolution* 6(6): 1834-1853.
- (42) ★Bender, N., K. Crosbie, and **H.J. Lynch**. 2016. Spatial patterns of tour ship traffic in the Antarctic Peninsula region: A twenty-year re-analysis. *Antarctic Science* 28(3): 194-203.
- (41) Trathan, P.N., **H.J. Lynch**, and W. Fraser. 2015. Changes in penguin distribution over the Antarctic Peninsula and Scotia Arc. Emerging Issues summary for the Antarctic Environments Portal [Peer reviewed, online only].
- (40) ★Casanovas, P.V., R. Naveen, S. Forrest, J. Poncet, **H.J. Lynch**. 2015. A comprehensive coastal seabird survey maps out the front lines of ecological change on the Western Antarctic Peninsula. *Polar Biology* 38:927-940.
- (39) LaRue, M., G. Kooyman, **H.J. Lynch**, and P. Fretwell. 2015. Emigration in emperor penguins: Implications for interpretation of long-term studies. *Ecography* 38:114-120.
- (38) Trathan, P. N., P. García-Borboroglu, D. Boersma, C.-A. Bost, R. J. M. Crawford, G. T. Crossin, R. J. Cuthbert, P. Dann, L. S. Davis, S. De la Puente, U. Ellenberg, **H.J. Lynch**, T. Mattern, K. Pütz, P. J. Seddon, W. Trivelpiece, B. Wienecke. 2015. Pollution, habitat loss, fishing, and climate change as critical threats to penguins. *Conservation Biology* 29(1): 31-41.
- (37) **Lynch, H. J.**, and M.R. Schwaller. 2014. Multi-sensor cross validation of Adélie penguin detection and abundance estimation. *PLoS ONE* 9(11): e113301.

- (36) **Lynch, H.J.**, J. Thorson, O. Shelton. 2014. Dealing with under- and over-dispersed count data in life history, spatial, and community ecology. *Ecology* 95(11): 3173-3180.
- (35) **Lynch, H.J.**, and M.A. LaRue. 2014. First global survey of Adélie penguin populations. *The Auk* 131(4): 457-466.
- (34) ★Casanovas, P.V., **H.J. Lynch**, and W.F. Fagan. 2014. Using citizen science to estimate lichen diversity. *Biological Conservation* 171: 1-8.
- (33) LaRue, M.A., **H.J. Lynch**, P. Lyver, K. Barton, D.G. Ainley, A.M. Pollard, W. Fraser, G. Ballard. 2014. Establishing a method to estimate Adélie penguin populations using remotely-sensed imagery. *Polar Biology* 37: 507-517.
- (32) Zipkin, E.F., J.T. Thorson, K. See, **H. J. Lynch**, E.H.C. Grant, Y. Kanno, R.B. Chandler, B.H. Letcher, J.A. Royle. 2014. Modeling structured population dynamics using data from unmarked individuals. *Ecology* 95: 22-29.
- (31) **Lynch, H.J.**, M. Rhainds, J. Calabrese, S. Cantrell, C. Cosner, and W.F. Fagan. 2014. How climate extremes - not means - define a species' geographic range boundary via a demographic tipping point. *Ecological Monographs* 84:131-149.
- (30) **Lynch, H.J.**, R. Naveen, ★P.V. Casanovas. 2013. Antarctic Site Inventory breeding bird survey data 1994/95-2012/13. *Ecology (Data Paper)* 94(11): 2653.
- (29) Fagan, W.F., Y. Pearson, E.A. Larsen, **H.J. Lynch**, J. Turner, H. Staver, A. Noble, S. Bewick, and E.E. Goldberg. 2013. Phylogenetic prediction of the maximum *per capita* rate of population growth. *Proceedings of the Royal Society B* 280: 20130523.
- (28) ★Casanovas, P., **H.J. Lynch**, R. Naveen, and W.F. Fagan. 2013. Understanding lichen diversity on the Antarctic Peninsula using parataxonomic units as a surrogate for species richness. *Ecology (Data Paper)* 94(9): 2110-2110.
- (27) **Lynch, H.J.**, N. Ratcliffe, J. Passmore, E. Foster, P.N. Trathan. 2013. Sensitivity analysis identifies high influence sites for estimates of penguin krill consumption on the Antarctic Peninsula. *Antarctic Science* 25(1): 19-23.
- (26) Rhainds, M., J. Régnière, **H.J. Lynch**, and W.F. Fagan. 2013. Overwintering survival of bagworms, *Thyridopteryx ephemeraeformis* Haworth (Lepidoptera: Psychidae): influence of temperature and egg cluster weight. *The Canadian Entomologist* 145:77-81.
- (25) ★Casanovas, P., **H.J. Lynch**, and W.F. Fagan. 2013. Multi-scale patterns of lichen and moss richness on the Antarctic Peninsula. *Ecography* 36: 209-219.
- (24) Brasso, R.L., M.J. Polito, **H.J. Lynch**, R. Naveen, and S.D. Emslie. 2012. Penguin eggshell membranes reflect homogeneity of mercury in the marine food web surrounding the Antarctic Peninsula. *Total Science of the Environment* 439: 165-171.

- (23) Naveen, R.\*, **H. J. Lynch\***, S. Forrest, T. Mueller, and M. Polito. 2012. First direct, site-wide penguin survey at Deception Island, Antarctica suggests significant declines in breeding chinstrap penguins. *Polar Biology* 35(12): 1879-1888. [\* joint first authors]
- (22) Grant, E.H.C., **H.J. Lynch**, R. Muneeppeerakul, M. Arunachalam, I. Rodriguez-Iturbe, and W.F. Fagan. 2012. Interbasin water transfer, riverine connectivity, and spatial controls on fish biodiversity. *PLoS ONE* 7(3): e34170.
- (21) **Lynch, H.J.**, R. Naveen, P.N. Trathan and W.F. Fagan. 2012. Spatially integrated assessment reveals widespread changes in penguin populations on the Antarctic Peninsula. *Ecology* 93(6): 1367-1377.
- (20) **Lynch, H.J.**, R. White, A.D. Black, and R. Naveen. 2012. Detection, differentiation, and abundance estimation of penguin species by high-resolution satellite imagery. *Polar Biology* 35: 963-968.
- (19) **Lynch, H.J.**, W.F. Fagan, R. Naveen, S.G. Trivelpiece, and W.Z. Trivelpiece. 2012. Differential advancement of breeding phenology in response to climate may alter staggered breeding among sympatric pygoscelid penguins. *Marine Ecology Progress Series* 454: 135-145.
- (18) **Lynch, H.J.**, E.H.C. Grant, R. Muneeppeerakul, M. Arunachalam, I. Rodriguez-Iturbe, and W.F. Fagan. 2011. How restructuring river connectivity changes freshwater fish biodiversity and biogeography. *Water Resources Research* 47(5): W05531.
- (17) Polito, M.J., **H.J. Lynch**, R. Naveen, and S.D. Emslie. 2011. Stable isotopes reveal regional heterogeneity in the pre-breeding distribution and diets of sympatrically breeding *Pygoscelis* spp. penguins. *Marine Ecology Progress Series* 421: 265-277.
- (16) **Lynch, H.J.**, S. Zeigler, L. Wells, J.D. Ballou, W.F. Fagan. 2010. Survivorship patterns in captive mammalian populations: implications for estimating population growth rates. *Ecological Applications* 20(8): 2334-2345.
- (15) **Lynch, H.J.**, K. Crosbie, W.F. Fagan, R. Naveen. 2010. Spatial patterns of tour ship traffic in the Antarctic Peninsula region. *Antarctic Science* 22(2): 123-130.
- (14) **Lynch, H.J.**, W.F. Fagan, and R. Naveen. 2010. Population trends and reproductive success at a frequently visited penguin colony on the western Antarctic Peninsula. *Polar Biology* 33(4): 493-503.
- (13) Goldberg, E., **H.J. Lynch**, M. Neubert, W.F. Fagan. 2010. Effects of branching spatial structure and life history on the asymptotic growth rate of a population. *Theoretical Ecology* 3(3): 137-152.
- (12) Fagan, W.F., **H.J. Lynch**, and B. Noon. 2010. Pitfalls and challenges of estimating population growth rate from empirical data: consequences for allometric scaling relations. *Oikos* 119(3): 455-464.
- (11) Bertuzzo, E., R. Muneeppeerakul, **H.J. Lynch**, W.F. Fagan, I. Rodriguez-Iturbe, and A. Rinaldo. 2009. On the geographic range of freshwater fish in river basins. *Water Resources Research* 45: W11420.
- (10) Chesalin, M. R. Naveen, **H. Lynch**, I. Bullock, M. Rider, A. Miller, S. Forrest, R. Dagit, I. Dykyy, and V. Timofeyev. 2009. Long-term changes in populations of seabirds on Petermann Island and surrounding islands in Graham Land, Antarctic Peninsula. *Marine Ecological Journal* VIII(3): 5-13.
- (9) **Lynch, H.J.** and W.F. Fagan. 2009. Survivorship curves and their impact on the estimation of maximum population growth rates. *Ecology* 90(4): 1116-1124.



- (8) **Lynch, H.J.**, W.F. Fagan, R. Naveen, S.G. Trivelpiece, and W.Z. Trivelpiece. 2009. Timing of clutch initiation in *Pygoscelis* penguins on the Antarctic Peninsula: Towards an improved understanding of off-peak census correction factors. *CCAMLR Science* 16:149-165.
- (7) **Lynch, H.J.**, R. Naveen, and W.F. Fagan. 2008. Censuses of penguin, blue-eyed shag *Phalacrocorax atriceps* and southern giant petrel *Macronectes giganteus* populations on the Antarctic Peninsula, 2001-2007. *Marine Ornithology* 36: 83-97.
- (6) **Lynch, H.J.** and P.R. Moorcroft. 2008. A spatiotemporal Ripley's K-function to analyze between spruce budworm and fire in British Columbia, Canada. *Canadian Journal of Forest Research* 38: 3112-3119.
- (5) Muneeppeerakul, R., E. Bertuzzo, **H.J. Lynch**, W.F. Fagan, A. Rinaldo, and I. Rodriguez-Iturbe. 2008. Neutral metacommunity models predict fish diversity patterns in Mississippi-Missouri basin. *Nature* 453: 220-223.
- (4) **Lynch, H.J.**, S. Hodge, C. Albert, and M. Dunham. 2008. The Greater Yellowstone Ecosystem: Challenges for regional ecosystem management. *Environmental Management* 41: 820-833.
- (3) **Lynch, H.J.**, R.A. Renkin, R.L. Crabtree, and P.R. Moorcroft. 2006. The influence of previous mountain pine beetle (*Dendroctonus ponderosae*) activity on the 1988 Yellowstone fires. *Ecosystems* 9: 1318-1327.
- (2) DiCarlo, L., **H.J. Lynch**, A.C. Johnson, L.I. Childress, K. Crockett, C.M. Marcus, M.P. Hanson, and A.C. Gossard. 2004. Differential Charge Sensing and Charge Delocalization in a Tunable Double Quantum Dot. *Physical Review Letters* 92: 226801.
- (1) Cronenwett, S.M., **H. J. Lynch**, D. Goldhaber-Gordon, L. P. Kouwenhoven, C. M. Marcus, K. Hirose, N. S. Wingreen, and V. Umansky. 2002. Low-Temperature Fate of the '0.7 Structure' in a Point Contact: A Kondo-like Correlated State in an Open System. *Physical Review Letters* 88: 226805.

### **Reference Books and Reports**

- Harris, C.M., K. Lorenz, L.D.C. Fishpool, B. Lascelles, J. Cooper, N. Coria, J.P. Croxall, L.M. Emmerson, R. Fijn, P. Jouventin, M.A. LaRue, Y. Le Maho, **H.J. Lynch**, R. Naveen, S. Poncet, R.A. Phillips, C.J. Southwell, J.A. van Franeker, H. Weimerskirch, B. Wienecke, and E.J. Woehler. 2015. Important Bird Areas in Antarctica Summary 2015. BirdLife International and Environmental Research & Assessment Ltd., Cambridge.
- R. Naveen, and **H.J. Lynch**. 2011. Antarctic Peninsula Compendium, 3<sup>rd</sup> Edition. Environmental Protection Agency, Washington, D.C.

### **Book chapters**

- Lynch, H.J.** 2013. The gentoo penguin in P.D. Boersma and P.G. Borboroglu (eds) Penguins: Natural History and Conservation. University of Washington Press, Seattle, Washington.
- Fagan, W.F., E.H.C. Grant, **H.J. Lynch**, and P.J. Unmack. 2009. Riverine Landscapes: Ecology for an Alternative Geometry in Spatial Ecology. CRC/Chapman Hall Press.

### **Book reviews**

Weinstein, B., and **H.J. Lynch**. 2015. Review of “A Primer in Biological Data Analysis and Visualization Using R” (Gregg Hartvigsen) for Quarterly Review of Biology.

**Lynch, H.J.** 2014. Review of “Penguins: The Animal Answer Guide” (Gerald L. Kooyman and Wayne Lynch) for Quarterly Review of Biology.

**Lynch, H.J.** 2012. Review of “Encyclopedia of Theoretical Ecology” (Eds. Alan Hastings and Louis J. Gross) for Journal of Experimental Marine Biology and Ecology.

**Lynch, H.J.** 2012. Review of “Statistics Explained: An Introductory Guide for Life Scientists, 2<sup>nd</sup> Edition” (Steve McKillup) for Quarterly Review of Biology.

**Lynch, H.J.** 2011. Review of “Remote Sensing of Vegetation: Principles, Techniques, and Applications” (Hamlyn G. Jones and Robin A. Vaughan) for Quarterly Review of Biology.

### **Popular Writing and Published Correspondence**

Hart, T., **H.J. Lynch**, and R. Naveen. 2015. Probe effects of krill fishing and climate. (Correspondence) *Nature* 523: 410.

**Lynch, H.J.** 2013. Spying on climate change: Using satellites to monitor penguin populations. Penguins of the World. Firefly Books, Ontario, Canada. (Essay)

### **Refereed Conference Proceedings**

**Lynch, H.J.**, R.A. Renkin, R.L. Crabtree, and P.R. Moorcroft. 2006. Insect-fire interactions in Yellowstone National Park: The influence of historical mountain pine beetle (*Dendroctonus ponderosae*) activity on the spatial pattern of the 1988 Yellowstone fires. Pages 109-118 in A. Wondrak Biel, ed., *Greater Yellowstone Public Lands: A Century of Discovery, Hard Lessons, and Bright Prospects*. Proceedings of the 8<sup>th</sup> Biennial Scientific Conference on the Greater Yellowstone Ecosystem. October 17-19, 2005, Mammoth Hot Springs Hotel, Yellowstone National Park, Wyo.: Yellowstone Center for Resources.

### **Papers written on behalf of the United States and other countries for Antarctic Treaty Consultative Meetings**

Naveen, R., ★C. Foley, and **H. Lynch**. 2015. A methodology to assess site sensitivity at visitor sites: Progress report, Information Paper submitted by Australia, New Zealand, Norway, the United Kingdom, and the United States to the XXXVIII Antarctic Treaty Consultative Meeting in Sofia, Bulgaria.

Naveen, R., and **H. Lynch**. 2015. Antarctic Site Inventory: Results from long-term monitoring, Information Paper submitted by New Zealand and the United States to the XXXVIII Antarctic Treaty Consultative Meeting in Sofia, Bulgaria.

Naveen, R., ★C. Foley, and **H. Lynch**. 2014. Developing a new methodology to analyze site sensitivities, Information Paper submitted by the United States to the XXXVII Antarctic Treaty Consultative Meeting in Brasilia, Brazil.

- Naveen, R., ★C. Foley, and **H. Lynch**. 2014. Advancing recommendations of the CEP tourism study, Working Paper submitted by Australia, New Zealand, Norway, the United Kingdom, and the United States to the XXXVII Antarctic Treaty Consultative Meeting in Brasilia, Brazil.
- Naveen, R., and **H. Lynch**. 2014. Antarctic Site Inventory: 1994-2014, Information Paper submitted by the United States to the XXXVII Antarctic Treaty Consultative Meeting in Brasilia, Brazil.
- Naveen, R., and **H. Lynch**. 2013. Antarctic Site Inventory: 1994-2013, Information Paper submitted by the United States to the XXXVI Antarctic Treaty Consultative Meeting in Brussels, Belgium.
- Naveen, R., and **H. Lynch**. 2012. First direct, site-wide penguin survey at Deception Island, Antarctica suggests significant declines in breeding chinstrap penguins, Information Paper submitted by the United States to the XXXV Antarctic Treaty Consultative Meeting in Hobart, Australia.
- Naveen, R., **H.J. Lynch**, and W. Fagan. 2011. Antarctic Site Inventory: 1994-2011, Information Paper submitted by the United States to the XXXIV Antarctic Treaty Consultative Meeting in Buenos Aires, Argentina.
- Lynch, H.J.**, K. Crosbie, W.F. Fagan, R. Naveen. 2010. Spatial patterns of tour ship traffic in the Antarctic Peninsula region, Information Paper submitted by the United States to the XXXIII Antarctic Treaty Consultative Meeting in Punta del Este, Uruguay.
- Naveen, R., **H.J. Lynch**, and W. Fagan. 2010. Antarctic Site Inventory: 1994-2010, Information Paper submitted by the United States to the XXXIII Antarctic Treaty Consultative Meeting in Punta del Este, Uruguay.
- Naveen, R., **H.J. Lynch**, and W. Fagan. 2009. Antarctic Site Inventory: 1994-2009, Information Paper submitted by the United States to the XXXII Antarctic Treaty Consultative Meeting in Baltimore, Maryland.
- Naveen, R., **H.J. Lynch**, and W. Fagan. 2009. Monitoring and assessment using hierarchical Bayesian modeling: An approach taken by the Antarctic Site Inventory, Information Paper submitted by the United States to the XXXII Antarctic Treaty Consultative Meeting in Baltimore, Maryland.
- Naveen, R., **H.J. Lynch**, and W. Fagan. 2008. Antarctic Site Inventory: 1994-2008, Information Paper submitted by the United States to the XXXI Antarctic Treaty Consultative Meeting in Kiev, Ukraine.

**Papers written for the Commission for the Conservation of Antarctic Marine Living Resources' Working Group on Ecosystem Monitoring and Management (CCAMLR WG-EMM)**

- Lynch, H.J.**, and M.A. LaRue. 2014. First global survey of Adélie penguin populations. CCAMLR WG-EMM-14/P05.
- Lynch, H.J.**, and M. Schwaller. 2013. Bayesian data-model synthesis for biological conservation and management in Antarctica. CCAMLR WG-EMM-13/26.
- Lynch, H.J.**, N. Ratcliffe, J. Passmore, E. Foster, and P.N. Trathan. 2012. Sensitivity analysis identifies high influence sites for estimates of penguin krill consumption on the Antarctic Peninsula. CCAMLR WG-EMM-12/P02.

- Trathan, P.N., **H. Lynch**, C. Southwell, P.T. Fretwell, G. Watters, and N. Ratcliffe. 2012. Extending ecological monitoring to underpin the development of feedback management approaches for the Antarctic krill fishery. CCAMLR WG-EMM-12/04.
- Southwell, C., J. Forcada, M. Goebel, J. Hinke, **H. Lynch**, P. Lyver, J. McKinlay, N. Ratcliffe, D. Ramm, K. Reid, C. Reiss, W. Trivelpiece, S. Trivelpiece, and P. Trathan. 2009. Update on progress in inter-sessional work from the Predator Survey workshop. CCAMLR WG-EMM-09/39.
- Trivelpiece, S., W. Trivelpiece, **H. Lynch**, D. Ramm, J. McKinlay, R. Naveen, P. Trathan, and C. Southwell. 2008. Preliminary estimation of penguin breeding abundance at spatial scales of relevance to CCAMLR: Incorporating uncertainty in count data. CCAMLR WG-EMM-08/53.
- Trivelpiece, S.G., W.F. Fagan, **H. J. Lynch**, W.Z. Trivelpiece, and R. Naveen. 2008. Timing of clutch initiation in *Pygoscelis* penguins on the Antarctic Peninsula: Towards an improved understanding of off-peak census correction factors. WG-EMM-PSW-08/15.

### **Invited Talks & Seminars**

- H.J. Lynch**. 2016. "Spatiotemporal dynamics of Antarctic penguin populations". Department of Biology Seminar, Hofstra University (March 18, 2016).
- H.J. Lynch**. 2015. "Spatial ecology in the era of high-resolution satellite imagery: Linking pattern and process to understand population tipping points for Antarctic penguins". Ecology & Evolutionary Biology Colloquium, University of California, Santa Cruz (February 18, 2015).
- H.J. Lynch**. 2014. "Spatial ecology in the era of high-resolution satellite imagery: Linking pattern and process to understand population tipping points for Antarctic penguins". Ecology, Evolution, & Environmental Biology Colloquium, Columbia University (September 9, 2014).
- H.J. Lynch**. 2014. "Data fusion modelling approaches for tracking Adélie penguin abundance, distribution, and demography". Morss Colloquium, Woods Hole Oceanographic Institute (May 5, 2014).
- H.J. Lynch**. 2013. "How many Adélie penguins are there? (and other mysteries solved by satellites)". Stony Brook Southampton Lecture Series 2013 (November 1, 2013).
- H.J. Lynch**. 2013. "Thinking big and thinking small: How satellites are revolutionizing penguin ecology". Biology Department seminar at Woods Hole Oceanographic Institute.
- H.J. Lynch**. 2013. "A sea change in seabird research: How emerging geospatial technologies are radically changing the study of spatial ecology in the Antarctic". Departmental seminar at the University of Massachusetts, Amherst.
- H.J. Lynch**. 2013. "Climate change winners and losers: Penguin population dynamics on the Antarctic Peninsula". Departmental seminar at the School of Marine and Atmospheric Sciences, Stony Brook University.
- H.J. Lynch**. 2012. "Automated classification of Antarctic penguin colonies in satellite imagery". Social-Environmental Synthesis Center Workshop on Data Visualization, Annapolis, MD.

- H.J. Lynch.** 2010. "Climate change winners and losers: Penguin population dynamics on the Antarctic Peninsula". Departmental seminar at the University of Maryland, College Park.
- H.J. Lynch.** 2010. "Climate change winners and losers: Penguin population dynamics on the Antarctic Peninsula". Seminar at the University of California, Santa Cruz.
- H.J. Lynch, E.H.C. Grant, R. Muneeppeerakul, I. Rodriguez-Iturbe, and W.F. Fagan.** 2009. "India's Inter Basin Water Transfer project: The impact of network manipulation on freshwater fish communities". Organized Oral Session 16-7 of ESA Annual Conference 2009.
- H.J. Lynch.** 2005. "Spatiotemporal dynamics of insect-fire interactions". Seminar at the University of Colorado, Boulder.
- H. Lynch.** 2001. "A Kondo box: Coulomb blockade and the Kondo effect in iron-doped copper nanoparticles". Invited Talk in Session J1 of APS March Meeting 2001.

### **Contributed Talks**

- ★**P. McDowall and H.J. Lynch.** 2014. "High-resolution terrestrial habitat models for *Pygoscelis* Penguins". Diversity and Connectivity in Antarctica & Spatial Analysis of Antarctic Biodiversity Session of the Scientific Committee on Antarctic Research Biennial Meeting 2014.
- H.J. Lynch.** 2014. "Data fusion modelling approaches for tracking Adélie penguin abundance and distribution". Remote Sensing of the Antarctic Environment Session of the Scientific Committee on Antarctic Research Biennial Meeting 2014.
- H.J. Lynch and M.A. LaRue.** 2013. "Emerging geospatial technologies for studying penguin biogeography". 8<sup>th</sup> International Penguin Conference, Bristol, UK.
- H.J. Lynch.** 2012. "Detection, differentiation, and abundance estimation of penguin species by high-resolution satellite imagery". Birds and Marine Mammals Session of the Scientific Committee on Antarctic Research Biennial Meeting 2012.
- H.J. Lynch.** 2010. "Climate change winners and losers: Penguin population dynamics on the Antarctic Peninsula". 7<sup>th</sup> International Penguin Conference, Boston, MA.
- H.J. Lynch.** 2010. "Climate change winners and losers: Penguin population dynamics on the Antarctic Peninsula". Organized Oral Session 33 of ESA Annual Conference 2010.
- H.J. Lynch and P.R. Moorcroft.** 2007. "The 1988 Yellowstone fires: A geospatial examination of the impact of historical insect damage on forest fire risk". Contributed Oral Session 78-3 of ESA Annual Conference 2007.
- H.J. Lynch and P.R. Moorcroft.** 2006. "Mountain Pine Beetle Dynamics in a Spatially-Explicit Heterogeneous Landscape". Contributed Oral Session 91 of ESA Annual Conference 2006.
- H.J. Lynch, Paul R. Moorcroft., Roy A. Renkin, and Robert L. Crabtree.** 2005. "Insect-fire interactions in Yellowstone National Park". Greater Yellowstone Public Lands Conference 2005.

- H.J. Lynch** and P.R. Moorcroft. 2005. "Spatiotemporal Dynamics of Insect-Fire Interactions". Contributed Oral Session 130 of ESA Annual Conference 2005.
- H.J. Lynch**, L. DiCarlo, L.I. Childress, N.J. Craig, M.D. Lukin, C.M. Marcus, M.P. Hanson, A.C. Gossard. 2003. "Capacitive Sensing of Localized Charge in a Double Quantum Dot System". Session Y19 of APS March Meeting 2003.
- H.J. Lynch**, S. M. Cronenwett, C. M. Marcus, L. P. Kouwenhoven, V. Umansky. 2002. "Spin Effects and '0.7 Structure' in Quantum Point Contacts". Session F24 of APS March Meeting 2002.
- H.J. Lynch**, L. L. Sohn. 2000. "Spin Polarized Tunneling in an Iron-doped Copper Nanoparticle". Session P28 of APS March Meeting 2000.
- C. E. Sosolik, A. C. Lavery, J. R. Hampton, **H.J. Lynch**, B.H. Cooper. 1999. "Temperature Dependent K<sup>+</sup> and Ca<sup>+</sup> Scattering from Cu(001)". Session FC33 of APS March Meeting 1999.

### Posters

- H.J. Lynch**, ★P. McDowall, ★C. Youngflesh, and M.R. Schwaller. Design of a geospatial decision-support tool for biological conservation and management in Antarctica: A call for stakeholder input. Poster at the Scientific Committee for Antarctic Research Open Science Conference 2014.
- H.J. Lynch**, and M.R. Schwaller. Bayesian data-model synthesis for biological conservation and management in Antarctica Poster at the NASA Biodiversity and Ecological Forecasting Team Meeting, Silver Spring, MD, 2014.
- R. Naveen, and **H.J. Lynch**. Antarctic Site Inventory, 1994-2013. Poster at the 8<sup>th</sup> International Penguin Conference, Bristol, UK, 2013.
- LaRue, M., **H.J. Lynch**, P. Lyver, K. Barton, D. Ainley, A. Pollard, and G. Ballard. 2013. Establishing a method for estimating populations of Adélie penguins using satellite imagery, Scientific Committee on Antarctic Research Biology Meeting 2013.
- ★P. Casanovas, **H.J. Lynch**. Understanding lichen diversity on the Antarctic Peninsula using parataxonomic units as a surrogate for species richness, Scientific Committee on Antarctic Research Biennial Meeting 2012. [Won Best Poster for Social Science]
- H.J. Lynch**, N. Ratcliffe, P. Trathan, C. Southwell, J. McKinlay, J. Forcada, M. Goebel, J. Hinke, S. Trivelpiece, W. Trivelpiece, P. Wilson, D. Wilson, S. Candy, R. Fewster, B. Raymond, D. Patterson-Fraser, K. Reid, D. Ramm, and J. Turner. Status of the CCAMLR database on predator abundance. Poster at the 7<sup>th</sup> International Penguin Conference, Boston, MA, 2010.
- ★P. Casanovas, **H.J. Lynch**, and W.F. Fagan. Patterns of lichen and moss richness along the Antarctic Peninsula islands. Poster at the ESA Annual Conference in Pittsburgh, PA, 2010.
- H.J. Lynch**, W.F. Fagan, and R. Naveen. The Antarctic Site Inventory: Monitoring *Pygoscelis* Penguin Populations Along the Antarctic Peninsula. Poster at the 6<sup>th</sup> International Penguin Conference in Hobart, Tasmania. Sept. 3-7, 2007.

R. Naveen, and **H.J. Lynch**. The Antarctic Site Inventory and Antarctic Treaty Site Management. Poster at the 6<sup>th</sup> International Penguin Conference in Hobart, Tasmania. Sept. 3-7, 2007.