

Kelly Heber Dunning

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Dr. Kelly H. Dunning is an expert in biodiversity conservation, ecosystem services, coastal resilience, adaptive management, socio-ecological systems, and stakeholder-driven participatory research.

Education

Massachusetts Institute of Technology

Doctor of Philosophy, Sept. 2012 – June 2016

- Fully-funded Ph.D. in **Natural Resources & Environmental Policy** in Dept. of Environmental Policy & Planning.
- Winner of **2016 Best Doctoral Thesis** “Communities of Coral: an Ecological and Institutional Analysis of Biodiversity Conservation in Southeast Asia” to be published as book in the Ecosystem Services Series by Anthem Press, 2018.
- Funding and Grants: **Fulbright Scholar** (2015-2016, \$15000); MIT PhD Studentship (2013-2016, \$135000); **U.S. Department of State Critical Language Scholarship** (2013, \$20000); **Carroll Wilson Fellow** (2013, \$7000); **MIT Presidential Fellow** (2012, \$45000); **USAID Grant for Research Innovation in International Development** (2016, \$3000); MIT Public Service Center Dissertation Grant (2015, \$3000); Best Paper U.S. EPA Coastal Data Contest (2014, \$ 2000); Policy Environmental Governance Sustainability Fellowship (2012, \$2700).
- Service: Representative, MIT Prestigious Fellowship Committee (2016–present); Representative, MIT Environmental Solutions Initiative (2014–2016); Chair, Global Sustainability Working Group (2012–2013) at MIT and Harvard.
- Inaugural 2016 Florida Earth Foundation Scholar and invited keynote speaker at the Florida Earth Foundation Big Data and Decision-making Conference.

University of Oxford, Christ Church College

Master of Science, Sept. 2011 – May 2012

- M.Sc. in **Environmental Policy and Economics** in School of Geography and Environment.
- **Oxford University Clarendon Award** (2012, \$120000, declined)
- Thesis: *“Adaptive Management of Natural Resources in Large-scale Socio-ecological Systems: The Case of the Florida Everglades”*.
- Christ Church College elected environmental representative to the G.C.R.

University of Florida

Bachelor of Arts, Sept. 2005 – May 2009

- B.A. **Political Science** (Magna Cum Laude), concentration in Environmental Policy; B.A. English Literature (Cum Laude), GPA: 3.98/4.
- Florida Bright Futures Scholarship (full funding, 4 years), member of Phi Beta Kappa Honor Society.

Graduate Teaching Experience

Ocean and Coastal Zone Management

MIT spring 2016

- Responsible for entire curriculum;
- Lectured and led discussions on ecosystem-based management;
- Facilitated, assisted, and evaluated students on interdisciplinary presentations, gave verbal and written feedback;

- Designed the course to specifically address a gap in the curriculum based on student interest.

Quantitative Methods and Statistics

MIT spring 2015, spring 2014

- Led the effort to re-write and re-design the course in my second year so that it would become a case-based course;
- Lectured independently every week on quantitative social science methods, wrote two cases based on real world environmental data;
- Solely responsible for lecture material on the use of Stata software;
- Managed two junior teaching assistants; mentored 15 students each year on their final research paper where they designed a study and analyzed their own data set.

Introduction to Environmental Policy and Planning

MIT fall 2014, fall 2013

- Facilitated and wrote assignments for student oral presentations with practice-oriented role play scenarios meant to place students in real life decision-making scenarios in the natural resources field;
- generated course syllabus under the direction of the instructor;
- Organized, prepared, and selected sections of reading materials for student use;
- Lectured independently on ecosystem services, fisheries management, and ecology;
- Edited, commented on, and graded written assignments;
- Spearheaded new effort to give precise written comments and generated new rubrics; Conducted academic writing tutoring and grant writing and careers guidance.

Malaysia Field Practicum

January 2014, January 2015, January 2016

- Co-led one-month field research trip on environmental field methods with supervisor by generating the syllabus and assignments focusing on natural resource management;
- Led a section of students on collecting field data on mangrove and estuary management;
- Mentored, coordinated, and supervised students,
- Assisted students in formulating research questions and designed field methods training for students;
- developed regional, multi-year partnerships with the Mangrove Lab at the National University of Singapore (NUS) and the Iskandar Regional Development Authority (IRDA) where NUS students and IRDA officials.

Participatory Action Research

MIT fall 2014, fall 2015

- Managed logistics for faculty instructors;
- Generated the course syllabus under the direction of the instructors;
- Organized and prepared reading materials for student use.
- Graded mid term and final assignments and gave written feedback.

Research Experience

MIT Science Impact Collaborative

Graduate research assistant, Sept. 2012 – May 2016

- Independently **conducted over 300 surveys and interviews** with stakeholders, policy-makers, and civil society on biodiversity conservation and stakeholder participation;
- Successfully acquired over US\$25,000 in grants to fund **1 year of field research** in Southeast Asia;
- American Academy of Underwater Sciences **AAUS Scientific Diver** certified;

- **Analyzed large data sets** using qualitative & quantitative research methods, **designed integrated experiments** using social & ecological data, maintained databases;
- Implemented over 75 ecological surveys on coral reef and mangrove systems;
- Trained 8 partner communities in ecological data collection and best practices for community based natural resource management.
- Trained ministry officials on community based natural resource management in both data use for decision-making and supporting local institutions for community based coral reef management.

Woods Hole Oceanographic Institution

Graduate researcher, Sept. 2012 – May 2016

- Worked on a large and diverse team to conduct **National Science Foundation-funded research on New York City's shoreline planning.**
- Used **computational ecological modeling and GIS software**, creating a large database.
- Employed **scenario planning tools** and ecological data sets for measuring shoreline resilience and interactions between the natural and built environment (e.g. the maritime sector, coastal wetlands, estuarine data).
- **presented research** on behalf of the team at conferences across the United States.

IRDA Iskandar Regional Development Authority

Coastal Planning Researcher, May 2013 – Aug. 2013

- Based in Johor Bahru, Malaysia.
- Developed and reviewed components of **shoreline plan** for the **Iskandar Master Plan** including detailed economic analysis of the **maritime sector, petrochemical sector, & the fisheries sector.**
- Conducted site visits to planning offices, villages, and government agencies to acquire data and research the capacity for **community based mangrove and fisheries conservation.**
- Analyzed shoreline development scenarios and ecological data sets for **resilience and mangrove conservation.**
- Engaged Malaysian policy-makers on research findings through workshops and research presentations.

Fiji Ministry of Housing Urban Development and Environment

Coastal Planning & Policy Analyst, Dec. 2012 – Feb. 2013

- Based in **Suva, Fiji.** Developed policy recommendations on **coastal land use planning** and **informal housing regulations** aimed at **community based mangrove conservation.**
- Designed monitoring, evaluation, and learning (MEL) research for the **Ministry of Housing Urban Development and Environment.**
- **Public affairs duties** such as authoring reports & presenting **policy briefs** to government & embassy officials.

Professional Experience

Marine Stewardship Council (MSC)

Senior Fisheries Assessment Manager, July 2017 – present

- **Senior management** position overseeing all fisheries assessment team activities and research including a portfolio of over 100 fisheries all over the world.
- Manages technical and scientific oversight of fisheries in order to liaise with key stakeholders such as government agencies and industry.
- Responsible for review of fisheries standards including analysis of data on **habitats, endangered/threatened/protected species, by-catch, and maximum sustainable yield.**
- **Program management** responsibilities such as financial and narrative reporting, recruiting staff, staff appraisals, work plan development, logframe development in line with donors, budget management, representing RFUK in international conferences, & preparing communications.

Rainforest Foundation United Kingdom Head of Mapping and Research, May 2016 – July 2017
(RFUK)

- **Senior management** position overseeing all participatory forest mapping, land use planning, and citizen science; aimed at securing the rights of forest communities and indigenous peoples to co-manage ecosystems.
- Managed institutional donor-funded, multi-year, mapping program on **tropical forests in the Congo Basin** in 5 countries including Cameroon, The DRC, The Central African Republic, Republic of Congo, & Gabon. Programs have respective budgets of £300,000 and £100,000.
- **Program management** responsibilities such as financial and narrative reporting, recruiting staff, staff appraisals, monitoring and evaluation, work plan development, budget management, representing RFUK in international conferences, & preparing communications.
- Identifies and **develops the capacity of in-country partners in NGOs, governments, & communities.**
- Line manager for 4 direct reports, and 15 regional technicians.
- **Hostile Environment Awareness Training (HEAT)** certified to work in countries with instability & conflict.

Datagrid Inc.

Natural resource management specialist, 2008 – 2011

- Consulting firm based in Sweden, experience in USA, Sweden, & Uganda.
- Designed **policies for land management for the Ugandan government** while working in the private sector on a **World Bank contract.**
- Drafted **World Bank Tenders & European Union Framework Grants** in the **10 million Euro** range.
- Managed and implemented program in rural Uganda and government offices to educate stakeholders on the **economic & gender implications** for GIS technology.
- Authored and presented reports for government, World Bank, & U.S. embassy officials.

Teach for America

Secondary school teacher, Sept. 2009 – May 2011

- TFA is a “national teacher corps of recent college graduates who commit two years to teach and to effect change in under-resourced urban and rural public schools”, selected through a highly competitive process.
- Taught English to low-income children in a diverse community in Prince Georges County, Maryland, achieving significant improvements in educational outcomes.

Publications, Reports, and Presentations

Select peer-reviewed publications

- **Dunning, Kelly Heber.** (2018, expected) “Communities of Coral: An Ecological and Institutional Analysis of Southeast Asian Coral Reefs”. London: Anthem Press.
- **Dunning, Kelly Heber.** (2017) “Missing the trees for the forest? Bottom-up policy implementation and adaptive management in the US natural resource bureaucracy”. *Environmental Policy and Planning*. <http://bit.ly/2zDBhIZ>
- **Dunning, Kelly Heber.** (2014) “Ecosystem Services and Community Based Coral Reef Management Institutions in Post Blast Fishing Indonesia”. *Ecosystem Services*. <http://bit.ly/1Km1SJ5>
- **Dunning, Kelly Heber.** “Participation and Conflict Resolution in Co-Managed Coral Reef Ecosystems: a comparative analysis of two Balinese cases”. (in review)
- **Dunning, Kelly Heber.** “Economic Valuation of Coral Reefs: the potential for Deliberative Methods in the Port of Miami Conflict”. *Ecological Economics* (second round revisions)
- **Heber, Kelly.** (2013) “Community-based Coral Reef Management”. *Oxford Journal of Human Welfare*. <http://bit.ly/1SzkquR>

Reports

- “Logging in Congo’s Rainforests: A Carbon Bomb About to Be Primed by the Government of Norway?” <http://www.rainforestfoundationuk.org/media.ashx/drc-carbon-bomb-briefing-2017.pdf>
- **Dunning, Kelly H.** (2017) Stakeholder Needs Assessment for Participatory Cameroon Tropical Forest Mapping. RFUK.
- **Dunning, Kelly H.** (2017) Stakeholder Needs Assessment for Participatory DRC Tropical Forest Mapping. RFUK.
- **Dunning, Kelly H.** (2017) Stakeholder Needs Assessment for Participatory Central African Republic Tropical Forest Mapping. RFUK.
- **Dunning, Kelly H.** (2017) Stakeholder Needs Assessment for Participatory Tropical Forest Mapping in Gabon. RFUK.
- **Dunning, Kelly H.** (2017) Stakeholder Needs Assessment for Participatory Republic of Congo Tropical Forest Mapping. RFUK.
- MIT-UTM Malaysian Sustainable Cities Practicum Research Agenda (2015) <http://bit.ly/1IWuFGQ>
- **Heber, Kelly** and Dunning, Iain. (2014) “Modeling the Link Between Stakeholder Communities and Coastal Ecosystem Health”. US EPA National Aquatic Resource Survey Research Challenge. <http://bit.ly/1JRtpix>
- **Heber, Kelly.** (2013) “Incentivizing Environmentally Resilient Behavior at the Individual Level Through a Fijian Incremental Housing Policy”. SIGUS MIT. <http://bit.ly/1BmkinX>

Invited lectures

- “Coral Reef Communities in the Indonesian Post Blast Fishing Era.” Oregon State University, 2015.
- “Ecosystem Service Valuation.” Mangrove Lab, National University of Singapore, 2015.
- “GIS for Resource Management in Uganda.” University of Oxford Center for the Environment, 2012.

Select conference presentations

- **Dunning, Kelly Heber.** (2017) Keynote Presentation: “Mapping for Rights: Community based mapping of tropical forests in the Congo Basin.” Participatory GIS (PPGIS) Conference. California Polytechnic State University.
- **Dunning, Kelly Heber.** (2016) Keynote Presentation: “Communities of Coral an Ecological and Institutional analysis of Biodiversity Conservation in Southeast Asia.” Florida Earth Foundation Big Data for Decision-making Conference. University of Florida.
- **Dunning, Kelly Heber.** (2015) “Community based Coral Reef Management: An Ecological and Institutional Analysis of Indonesian and Malaysian Cases.” American Collegiate Schools of Planning (ACSP) Houston, Texas.
- **Dunning, Kelly Heber.** (2015) “Socio-ecological systems and community based coral reef management in Indonesia and Malaysia.” Association for European Schools of Planning (AESOP) Young Academics, Palermo, Italy.
- Hoagland, P., Parsons, G., Carr, E., **Dunning, K.H.**, Beet, A., Shirazi, Y. (2015) “Potential Effects on Ecosystem Services Due to Channel Deepening in the Delaware and Hudson Estuaries.” Coastal and Estuarine Research Foundation (CERF), Providence, R.I., USA.
- Levenson, J., Thompson, M., **Heber, K.**, Grétarsdóttir, R., Rasmussen, M., Harris, E., Hardy, S., Nelson, P. (2014) “Conservation in the cloud: Leveraging mobile technology to connect marine tourism businesses with resource managers.” Third International Marine Conservation Congress, Glasgow, UK.
- **Heber, K.**, Carr, E., Shiraz, Y. (2014) “Ecosystem Services of the Hudson and Delaware Estuaries.” Stanford NatCap Annual Conference and Training, Palo Alto, C.A., USA.

Service

MIT Distinguished fellowship committee Member: Fulbright and Rhodes, Sept. 2016 – present

- Reviews, scores, comments on MIT student applicants to prestigious fellowships;
- Mentors applicants on improving their application both by Skype and through editing;
- Interviews and recommends students on behalf of MIT for prestigious fellowships;

Global Sustainability Working Group Chair, Sept. 2013 – September 2014

- Chaired a joint Harvard-MIT-Tufts forum where graduate students could share research and gain peer feedback;
- Invited external speakers to weekly meetings;
- Organized and oversaw meetings, managed a small budget;

MIT Environmental Solutions Initiative (ESI) Graduate Student Representative, Sept. 2015 – September 2016

- Served on a committee seeking to create an interdisciplinary, environment-focused major at MIT that would be focused on social science and the biophysical sciences;
- Served as a channel of communication between departmental leadership and the committee;

Media coverage

- 2017 REDD Monitor Feature: <http://bit.ly/2t7vJGm>
- 2017 Conservation Watch Feature: <http://bit.ly/2dNjqXt>
- 2016 Vice Feature: <http://bit.ly/2s3judQ>
- 2015 Business and ASEAN feature: <http://bit.ly/240KBq2>
- 2014 Phys.org feature: <http://bit.ly/1mNmZ9e>
- 2014 Oceans at MIT feature: <http://bit.ly/1Km0Dth>
- 2014 MIT News feature: <http://bit.ly/1F9jCCQ>
- 2014 EPA Announcement of Best Paper Prize: <http://1.usa.gov/1FCg6nW>