

Melissa Chapman

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Education

- 2018 – present 📖 **Ph.D., UC Berkeley** Environmental Science, Policy, and Management.
Dissertation: *From individual decisions to international agreements: Multi-scalar approaches to meet post-2020 biodiversity targets*
- 2010 – 2014 📖 **B.Sc. Yale University** Ecology and evolutionary biology.
Thesis: *Assessing patterns of malaria risk: Environmental and social determinants of endemicity across Burkina Faso and Kenya.*

Employment History

- 2022 – present 📖 **International Institute of Applied Systems Analysis (IIASA)** Visiting Science Fellow
- 2020 – 2022 📖 **Resources Legacy Fund** Scientific writer for California's Pathways to 30x30 Initiative
- 2015 – 2018 📖 **Woodwell Climate Research Center** Research Assistant II

Academic publications

[[Google Scholar](#)] | [[ORCID](#)]

Preprints

- 1 Ellis-Soto, D., **Chapman, M.**, & Locke, D. (2022). *Uneven biodiversity sampling across redlined urban areas in the united states*. 📄 doi:10.32942/osf.io/ex6w2
- 2 **Chapman, M.**, Boettiger, C., & Brashares, J. S. (2022). *The potential contribution of private lands to united states 30x30 conservation*. 📄 doi:https://doi.org/10.32942/osf.io/pb2s8
- 3 Kurz, D., Middleton, A. D., **Chapman, M.**, Van Houtan, K. S., Wilkinson, C., Withey, L., & Brashares, J. (2021). *Building bridges in the post-trump era: Can conservation scientists help recover bipartisan support for us environmental protection?* 📄 doi:https://doi.org/10.32942/osf.io/entgj

Conference Proceedings

- 1 **Chapman, M.** (2022). Governing ai applications to monitoring and managing our global environmental commons. In *Aaai/acm conference on artificial intelligence, ethics, and society (aies 2022)*. 📄 doi:10.1145/3514094.3539540
- 2 **Chapman, M.**, Scoville, C., Lapeyrolerie, M., & Boettiger, C. (2022). Power and accountability in reinforcement learning applications to environmental policy. In *The thirty-sixth annual conference on neural information processing systems (neurips 2022)*. 📄 doi:http://arxiv.org/abs/2205.10911

Journal Articles

- 1 Calhoun, K. L., **Chapman, M.**, Tubbesing, C., McInturff, A., Gaynor, K. M., Van Scoyoc, A., ... Brashares, J. (2022). Spatial overlap of wildfire and biodiversity in california highlights gap in non-conifer fire research and management. *Diversity and Distributions*, 28(3), 529–541. 📄 doi:https://doi.org/10.1111/ddi.13394

- 2 **Chapman, M.**, Wiltshire, S., Baur, P., Bowles, T., Carlisle, L., Castillo, F., ... Karp, D. et al. (2022). Social-ecological feedbacks drive tipping points in farming system diversification. *One Earth*, 5(3), 283–292. [doi:https://doi.org/10.1016/j.oneear.2022.02.007](https://doi.org/10.1016/j.oneear.2022.02.007)
- 3 Dowd, S., **Chapman, M.**, Koehn, L. E., & Hoagland, P. (2022). The economic tradeoffs and ecological impacts associated with a potential mesopelagic fishery in the california current. *Ecological Applications*, e2578. [doi:https://doi.org/10.1002/eap.2578](https://doi.org/10.1002/eap.2578)
- 4 Jessie A. Moravek, L. R., Andrews, Serota, M. W., Dorcy, J. A., **Chapman, M.**, Wilkinson, C. E., Parker-Shames, P., ... Brashares, J. S. (2022). Centering 30x30 conservation initiatives on freshwater ecosystems. *Frontiers in Ecology and the Environment*.
- 5 Lapeyrolierie, M., **Chapman, M.**, Norman, K. E., & Boettiger, C. (2022). Deep reinforcement learning for conservation decisions. *Methods in Ecology and Evolution* (Accepted). [doi:https://doi.org/10.48550/arXiv.2106.08272](https://doi.org/10.48550/arXiv.2106.08272)
- 6 **Chapman, M.**, Oestreich, W. K., Frawley, T. H., Boettiger, C., Diver, S., Santos, B. S., ... Chand, K. et al. (2021). Promoting equity in the use of algorithms for high-seas conservation. *One Earth*, 4(6), 790–794. [doi:https://doi.org/10.1016/j.oneear.2021.05.011](https://doi.org/10.1016/j.oneear.2021.05.011)
- 7 Kitzes, J., Blake, R., Bombaci, S., **Chapman, M.**, Duran, S. M., Huang, T., ... Oestreich, W. K. et al. (2021). Expanding neon biodiversity surveys with new instrumentation and machine learning approaches. *Ecosphere*, 12(11), e03795. [doi:https://doi.org/10.1002/ecs2.3795](https://doi.org/10.1002/ecs2.3795)
- 8 Nagy, R. C., Balch, J. K., Bissell, E. K., Cattau, M. E., Glenn, N. F., Halpern, B. S., ... Marconi, S. et al. (2021). Harnessing the neon data revolution to advance open environmental science with a diverse and data-capable community. *Ecosphere*, 12(12), e03833. [doi:https://doi.org/10.1002/ecs2.3833](https://doi.org/10.1002/ecs2.3833)
- 9 Ordway, E. M., Elmore, A. J., Kolstoe, S., Quinn, J. E., Swanwick, R., Cattau, M., ... Atkins, J. W. et al. (2021). Leveraging the neon airborne observation platform for socio-environmental systems research. *Ecosphere*, 12(6), e03640. [doi:https://doi.org/10.1002/ecs2.3640](https://doi.org/10.1002/ecs2.3640)
- 10 Roe, S., Streck, C., Beach, R., Busch, J., **Chapman, M.**, Daioglou, V., ... Engelmann, J. et al. (2021). Land-based measures to mitigate climate change: Potential and feasibility by country. *Global Change Biology*, 27(23), 6025–6058. [doi:https://doi.org/10.1111/gcb.15873](https://doi.org/10.1111/gcb.15873)
- 11 Scoville, C., **Chapman, M.**, Amironesei, R., & Boettiger, C. (2021). Algorithmic conservation in a changing climate. *Current Opinion in Environmental Sustainability*, 51, 30–35. [doi:https://doi.org/10.1016/j.cosust.2021.01.009](https://doi.org/10.1016/j.cosust.2021.01.009)
- 12 **Chapman, M.**, Walker, W. S., Cook-Patton, S. C., Ellis, P. W., Farina, M., Griscom, B. W., & Baccini, A. (2020). Large climate mitigation potential from adding trees to agricultural lands. *Global change biology*, 26(8), 4357–4365. [doi:https://doi.org/10.1111/gcb.15121](https://doi.org/10.1111/gcb.15121)
- 13 Griscom, B. W., Busch, J., Cook-Patton, S. C., Ellis, P. W., Funk, J., Leavitt, S. M., ... **Chapman, M.** et al. (2020). National mitigation potential from natural climate solutions in the tropics. *Philosophical Transactions of the Royal Society B*, 375(1794), 20190126. [doi:https://doi.org/10.1098/rstb.2019.0126](https://doi.org/10.1098/rstb.2019.0126)
- 14 Oestreich, W. K., **Chapman, M.**, & Crowder, L. B. (2020). A comparative analysis of dynamic management in marine and terrestrial systems. *Frontiers in Ecology and the Environment*, 18(9), 496–504. [doi:https://doi.org/10.1002/fee.2243](https://doi.org/10.1002/fee.2243)
- 15 Samndong, R. A., Bush, G., Vatn, A., & **Chapman, M.** (2018). Institutional analysis of causes of deforestation in redd+ pilot sites in the equateur province: Implication for redd+

in the democratic republic of congo. *Land Use Policy*, 76, 664–674.

doi:https://doi.org/10.1016/j.landusepol.2018.02.048

16 Cunningham, C., Chen, W. C., Shorten, A., McClurkin, M., Choezom, T., Schmidt, C. P., ... **Chapman, M.** et al. (2014). Impaired consciousness in partial seizures is bimodally distributed. *Neurology*, 82(19), 1736–1744.

doi:https://doi.org/10.1212/FWNL.0000000000000404

17 Galvin, B. D., Li, Z., Villemaine, E., Poole, C. B., **Chapman, M.**, Pollastri, M. P., ... Carlow, C. K. (2014). A target repurposing approach identifies n-myristoyltransferase as a new candidate drug target in filarial nematodes. *PLoS neglected tropical diseases*, 8(9), e3145. doi:https://doi.org/10.1371/journal.pntd.0003145



Policy Documents and Briefs

- 2022
- **Pathways to 30x30 California: Accelerating Conservation of California's Nature**, Scientific/Technical Writer [PDF]
 - **Conserving California: Advancing Science in Support of 30x30**, Scientific Writer and Facilitator [PDF]
 - **California's Pathways to 30x30: Conserving Freshwater Ecosystems**, Legislative Summary; Lead Scientific Writer [PDF available upon request]
 - **California's Pathways to 30x30: Expanding Access to Nature**, Legislative Summary; Contributing Scientific Writer [PDF available upon request]
 - **California's Pathways to 30x30: Working Lands and Other Effective Conservation Measures (OECMs)**, Legislative Summary; Contributing Scientific Writer [PDF available upon request]
 - **California's Pathways to 30x30: Partnering with California Native American Tribes**, Legislative Summary; Contributing Scientific Writer [PDF available upon request]
- 2021
- **Advancing 30x30 and Protecting Biodiversity**, Lead Scientific Writer [PDF]
- 2018
- **Prioritizing Areas for Reforestation of Private Lands in the Brazilian Amazon**. Policy Brief. [PDF]
- 2016
- **Analysis of National Circumstances in the Context of REDD+ and Identification of REDD+ Abatement Levers in Papua New Guinea** Report produced by the Wildlife Conservation Society. [PDF]

Fellowships and Grants

- 2022
- **International Institute of Applied Systems Analysis (IIASA) Summer Fellowship**, Funded through the National Academy of Science (\$6500)
 - **Artificial Intelligence, Ethics, and Society (AIES-22) Conference Student grant**, Funded through the National Science Foundation (\$1500)
 - **Environmental Data Science Summit travel grant** (\$800), NCEAS (delayed to 2023 due to COVID)
- 2021
- **SESYNC Graduate Student Pursuit: Co- PI** (project link) (approx. \$35000)
- 2020
- **Berkeley Center For Technology, Society, and Policy Fellowship** (project link) (\$4000)
- 2018
- **NSF National Research Traineeship** Environment and Society: Data sciences for the 21st Century (\$32,000)

Fellowships and Grants (continued)

- 2014  NSF Graduate Research Fellowship Program Honorable Mention.
- 2014  Foreign Language Area Studies (FLAS) Fellowship: Kiswahili (\$35,000)


Teaching and Mentoring

- Graduate Student Instructor  UC Berkeley; ESPM 157: Data Science for Global Change Ecology (2020)
- Graduate Student Mentor  UC Berkeley; Fung Fellowship Conservation and Technology Course (2022)
- Guest Lectures  Stanford University; Introduction to conservation planning and practice (2022)
-  Trinity College; U.S. Environmental Policy, Partisanship, and the Global Climate Crisis (2022)
-  Middlebury Institute of International Studies; Ecological Analysis (2022)
- Research Mentor  Undergraduate Research Apprentice Program (URAP) (2020-2022)
-  Undergraduate Honors Thesis Program (2019-2022)
- Technical Mentor  IPAM; Public Policy Course (2017)
- Undergraduate Instructor  Yale University; Physics I (2014)
-  Yale University; Organic Chemistry II (2013)






Working Groups

- 2022  Ethics and Practices of Algorithmic Conservation Reading Group ([link](#)) *Co-founder/organizer*
-  Environmental Data Science Summit (NCEAS) (delayed to 2023 due to COVID)
- 2019-2021  Ecological Forecasting Initiative *Student Working Group Co-chair and Co-founder*
- 2021  UC Berkeley Data and Environment Working Group *Co-founder*
-  Bioinformatics and Community Science Round Table steering committee, California Biodiversity Network
-  Culturally Relevant Education in Environmental Data Science (CREEDS) Workshop
- 2020  SESYNC Cyberinfrastructure Summer Institute
-  NIMBioS Adaptive Management Tutorial
-  People, Land, and Ecosystems: Leveraging NEON for Socio-Environmental Synthesis
- 2019  National Ecological Observation Network (NEON) Science Summit
-  Advancing Integrated Process-Based Modeling of Socio-Environmental Systems (SESYNC)
-  Graduate Student Workshop on Socio-Environmental Synthesis (SESYNC)
-  Ecological Forecasting Initiative Summer Course





Working Groups (continued)



2017  Mathematical Ecology Working Group: Woods Hole, MA


Professional Service and Outreach

2022  Graduate Programs Committee student representative (ESPM, UC Berkeley)
2021-2022  Graduate Admission Committee student representative (ESPM, UC Berkeley)
2018-2021  UC Berkeley Graduate Student Association (GSA)
2019-2021  Letters to a Pre-scientist: *Volunteer*
2018-2021  Bay Area Scientists in Schools (BASIS): *Instructor*





Selected Presentations

2021  **Chapman, MS**, Scoville, C., Lapeyrolerie, M., Boettiger, C. Power and Accountability in RL-driven Environmental Policy. *35th Conference on Neural Information Processing Systems (NeurIPS 2021)* [**Poster**]
 **Chapman, M.**, Schell, C., Brashares, J. "30x30: The New Conservation". Breakthroughs Magazine Virtual Series. [**Recording**]
 **Chapman, M.**. Pathways to 30x30: Accelerating Conservation of California's Nature. California Biodiversity Network Bioinformatics and Conservation Planning round table.
 **Chapman, M.**, Boettiger, C. From data to decisions: Algorithms, power, and effective ocean management. UN FAO global forum on AI for a digital blue Planet. [**Recording**]

2020  **Chapman, M.**. Large climate mitigation from adding trees to agricultural lands. Woodwell Climate Research Center Friday Seminar Series (Invited Talk).
 **Chapman, M.**, et al. Tipping points in diversified farming systems. Ecological Society of America 2020 Meeting. Contributed Talk. [**Recording**]

2018  **Chapman, M.**, and Walker, W. (2018). A Global Analysis of Woody Aboveground Carbon Storage in Crop and Pasture lands. AGU Fall Meeting. (Presentation)

Skills

Languages  Native English, Basic Spanish and Kiswahili
Coding  R, Python, SQL, L^AT_EX, Google Earth Engine, ArcGIS
Statistics  Spatial statistics, Hierarchical Bayesian modeling, Decision processes
Misc.  Academic research, teaching, training, consultation, graphic design

References

Available on Request