Avery P. **Hill**

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Education

Stanford University

Stanford, CA

PhD in Biology

September 2017 - June 2022

- Dissertation: The Causes, Characteristics, and Repercussions of Widespread Vegetation Transitions in Western U.S. Forests
- Cumulative GPA: 3.82/4.00

Cornell University

Ithaca, NY

B.S. in General Biology, Plant Biology concentration

August 2013 - May 2017

- minor in Philosophy
- Cumulative GPA: 3.63/4.00, Cum Laude
- Distinction in Research

Research Experience

California Academy of Sciences, Center for Biodiversity and Community Science

Stanford, CA

Postdoctoral Researcher

September 2022 - PRESENT

- Built tools for land managers to access biodiversity data for their lands
- Extended species distribution models of conservation-target species to urban areas
- Collaborated with other scientists and community members on conservation solutions for California grasslands

Global Ecology Lab (Prof. Chris Field)

Stanford, CA

PhD Candidate

September 2017 - PRESENT

- Computationally modeled the environmental niches of vegetation in the western U.S. and mapped expected and observed shifts
- Established the first empirical evidence that wildfire can facilitate climate change-induced vegetation transitions
- Researched philosophical underpinnings of conservation praxis in the Anthropocene
- Worked to further wildfire mitigation and adaptation planning in CA with interdiscplinary group of wildfire researchers
- Developed collaboration with iNaturalist to help identify regions of expected vegetation transition in the Sierra Nevada

Department of Plant Biology, Cornell University

Ithaca, NY

Honors Thesis Candidate

May 2016 - May 2017

- Wrote iOS app for field data collection
- Spent summer 2016 in the high Sierra Nevada collecting plant occurrence data
- Found that vetting community-sourced subalpine tree occurrences with altitude envelope determined from field work improved MaxEnt model performance
- Presented poster of research and submitted written thesis to Honors Thesis Committee

Plant Systematics Lab (Prof. Kevin Nixon)

Ithaca, NY

Undergraduate Research Assistant

January 2014 - May 2017

- Cleaned plant occurrence data from GBIF
- Performed DNA extraction, PCR, and gel electrophoresis on Pilocarpus samples to help Ph.D. student develop PCR primers
- Used R to integrate WorldClim data and USGS species occurrence data to develop a predictive vegetation mapping algorithm for use by Ph.D. student

Teaching Experience

Department of Biology, Stanford University

Stanford, CA

Teaching Assistant

September 2018 - June 2019

BIO 130 Ecosystems of California, BIO 313 Ethics in the Anthropocene, BIO 81 Intro to Ecology

- Helped organize and lead 5 field trips to various California ecosystems
- Held weekly office hours
- Helped facilitate in-class discussion
- Led weekly discussion section and helped make lesson plans

Department of Biochemistry, Cornell University *Ithaca, NY*

AUTOTUTORIAL BIOCHEMISTRY TA *January 2016 - May 2017*

- Administered and graded weekly quizzes, and performed oral assessment of students' knowledge of biochemistry
- Students worked through a study guide on their own and came to my office hours for examination and additional training

Naturalist Outreach Practicum *Ithaca, NY*

VOLUNTEER TEACHER *August 2016 - December 2016*

- Traveled to local elementary schools and after-school programs to teach North American plant diversity and plant adaptations to climate
- Designed activities and content for 40 minute lessons
- Developed an educational iOS app for children to learn more about plant adaptations to climate

Skills

General	Grant Writing, Science Communication
Laboratory	PCR, Gel electrophoresis, DNA extraction, Microscopy
Field Work	Line-intercept transect, Herbarium voucher collection, GPS/compass/topographic map navigation, Plant identification by dichotomous key
Computer Programs	RStudio, QGIS, Git, Excel, Illustrator, Photoshop, ArcGIS, Xcode, Mesquite
Programming Languages	R (6 years), bash (4 years), html (3 years), css (3 years), Python (2 years), Objective C (2 years), C++ (1 year), JavaScript (1 year)

Service

Biology 1st-year Student Mentor	Helped students navigate the first year of their PhD through regular meetings and events. (2018-present)
Team Lead/Research Mentor	Advised and co-led a group of 5 undergraduate students in the Stanford Data Science and Mapping for Society (DAMS) club in producing an historical vegetation map of the Santa Cruz Mountains. (2021)
Research Mentor	Advised the biodiversity mapping project of underrepesented undergraduate student through the Stanford Summer Research Program. (2020-2021)
Research Mentor	Advised the tree range-shift mapping project of undergraduate student in the Field Lab. (2020-2021)
Academic Mentor	Helped undergaduate student navigate academia and post-grad paths through the First-Gen/Low-Income Mentorship Program. (2020-2021)
Guest Editor	*PNAS*– Manuscript concerning anthropogenic impacts on vegetation range-filling. 2018

Honors

2021 **Philippe S. Cohen Graduate Fellowship**, Stanford University *Stanford, CA*

2019 **Excellence in Teaching**, Department of Biology *Stanford, CA*

Media

Interview	Sierra Garcia. "Global Study Finds Adaptation Progress Local Not Societal." *Kneedeep Times*	2021
Article	R. Jordan. "Stanford researchers reveal how wildfire accelerates forest change." *Stanford Report*	2021
Interview	Katherine Ellison. "The Heat is On." *Stanford Magazine*	2021
Interview	Lillios et al. "This is Not a Drill." *C Magazine*	2019

Presentations

- **A.P. Hill** and M. Harris. 2021 November. *Public Science Communications: Op-Eds and Webinars* (talk). Biology Graduate Seminar Series; Stanford University
- **A.P. Hill**, K. Hemes, C. Nolan, T. Cambron, and C.B. Field. 2021 November. *Zombie Forests: Long-term Wildfire Management and California's Standing Dead* (talk). Mechanism Design for Social Good Seminar Series; Virtual
- **A.P. Hill** and C.B. Field. 2021 April. *Wildfire, Competition, and the Rate of Tree Range Shifts in the American West* (talk). Bay Area Conservation Biology Symposium; Virtual

- **A.P. Hill**, K. Hemes, C. Nolan, T. Cambron, and C.B. Field. 2021 April. *Zombie Forests: Fire Risk of the Standing Dead in the Sierra Nevada* (talk). Stanford Wildland Fire Seminar Series; Virtual
- **A.P. Hill** and C.B. Field. 2020 August. *How Competition and Wildfire Affect Tree Range Shifts in the American West* (talk). Ecological Society of America Meeting; Virtual

Publications

- **A.P. Hill** et al. "Low-elevation conifers in California's Sierra Nevada are out of equilibrium with climate." *PNAS Nexus* (2023) (in press)
- **A.P. Hill** and C.B. Field. "Forest fires and climate-induced tree range shifts in the western US." *Nature Communications* (2021)
- **A.P. Hill**, C.B. Field, and N.S. Diffenbaugh. "Even Fire-Adapted Giant Sequoias Can't Withstand California's Megafires" *The Hill* (2021)
- Berrang-Ford et al. "A Systematic Global Stocktake of Evidence on Human Adaptation to Climate Change." *Nature Climate Change* (2021)
- **A.P. Hill**. "Cities as Refugia for Ecosystems Adrift." *MOLD Magazine* (2021)
- **A.P. Hill** and E.A. Hadly. "Rethinking 'Native' in the Anthropocene." *Frontiers in Earth Science* 6 (2018): 96.