

# Avery P. Hill

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## Education

### Stanford University

Stanford, CA

PHD CANDIDATE IN BIOLOGY

September 2017 - PRESENT

- 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

### 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 interdisciplinary 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

<b>General</b>	Grant Writing, Science Communication
<b>Laboratory</b>	PCR, Gel electrophoresis, DNA extraction, Microscopy
<b>Field Work</b>	Line-intercept transect, Herbarium voucher collection, GPS/compass/topographic map navigation, Plant identification by dichotomous key
<b>Computer Programs</b>	RStudio, QGIS, Git, Excel, Illustrator, Photoshop, ArcGIS, Xcode, Mesquite
<b>Programming Languages</b>	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

<b>Biology 1st-year Student Mentor</b>	Helped students navigate the first year of their PhD through regular meetings and events. (2018-present)
<b>Team Lead/Research Mentor</b>	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)
<b>Research Mentor</b>	Advised the biodiversity mapping project of underrepresented undergraduate student through the Stanford Summer Research Program. (2020-2021)
<b>Research Mentor</b>	Advised the tree range-shift mapping project of undergraduate student in the Field Lab. (2020-2021)
<b>Academic Mentor</b>	Helped undergraduate student navigate academia and post-grad paths through the First-Gen/Low-Income Mentorship Program. (2020-2021)
<b>Guest Editor</b>	PNAS- Manuscript concerning anthropogenic impacts on vegetation range-filling. 2018

## Honors

2021	<b>Philippe S. Cohen Graduate Fellowship</b> , Stanford University	Stanford, CA
2019	<b>Excellence in Teaching</b> , Department of Biology	Stanford, CA

## Media

<b>Interview</b>	Sierra Garcia. <a href="#">“Global Study Finds Adaptation Progress Local Not Societal.”</a> <i>Kneedeep Times</i>	2021
<b>Article</b>	R. Jordan. <a href="#">“Stanford researchers reveal how wildfire accelerates forest change.”</a> <i>Stanford Report</i>	2021
<b>Interview</b>	Katherine Ellison. <a href="#">“The Heat is On.”</a> <i>Stanford Magazine</i>	2021
<b>Interview</b>	Lillios et al. <a href="#">“This is Not a Drill.”</a> <i>C Magazine</i>	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

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- **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.

