



DIRECTED RESEARCH PROJECTS

TITLES & AUTHORS
FALL 2022

THE SCHOOL FOR FIELD STUDIES



AUSTRALIA

The effect of different agricultural practices on carbon sequestration and biodiversity

Faculty advisors: Dr. Deborah Apgaua, Dr. David Tng

Student authors: Edward Xu¹, Andrew Fuller², and Jason Alfandre³

1 University of Massachusetts/Amherst, 2 Grinnell College, 3 Bates College

Species composition and vegetation structure recovery in revegetated plantings on the Atherton Tablelands, Queensland, Australia

Faculty advisors: Dr. David Tng and Dr. Deborah Apgaua

Student authors: Alice B. Dricker¹, Leah T. Harries², and Kyra A. Wells³

1 Wellesley College, 2 Smith College, 3 Elon University

Fighting fire with food: assessing the flammability of crop plant species for building fire resilient agroforestry systems

Faculty advisors: Dr. David Tng and Dr. Deborah Apgaua

Student authors: Ashley Stephanie Pacheco¹, Hannah Danaë Goodman², and Lexi Hankenson¹

1 Grinnell College 2 Reed College

Leaf traits predict shoot flammability differences between forest and savanna trees

Faculty advisors: Dr. Deborah Apgaua and Dr. David Tng

Student authors: Alejandro Ortiz¹, Henry Maxwell Marinace², and Joseph J. Fisk³

1 University of San Diego, 2 Clark University, 3 Grinnell College

An evaluation for the need of an artificial canopy bridge on the Atherton Tableland, Far North Queensland, Australia

Faculty advisor: Dr. Sigrid Heise-Pavlov

Student authors: Katie A. Barton¹, Sebastian A. Donato², Ellen E. Johnson³, and Emma P. Sullivan⁴

1 University of North Carolina - Wilmington, 2 The Ohio State University, 3 Carleton College,

4 University of Minnesota Twin Cities

Arboreal mammal richness across three different land use sites in the Atherton Tablelands, Wet Tropics World Heritage Area

Faculty advisor: Dr. Sigrid Heise-Pavlov

Student authors: Katie A. Barton¹, Sebastian A. Donato², Ellen E. Johnson³, and Emma P. Sullivan⁴

1 University of North Carolina - Wilmington, 2 The Ohio State University, 3 Carleton College,

4 University of Minnesota Twin Cities

Changes in bird species richness in the wet tropics of Australia

Faculty advisor: Dr. Sigrid Heise-Pavlov

Student authors: Charlie Almeida¹, Jane Whitticar², Kaia Hilgendorf-Roost³, and Makena Layton⁴

1 Davidson College, 2 University of Redlands, 3 University of Minnesota/Twin Cities, 4 Carleton College



Exploring options for restoring Mabi rainforest on a cinder cone volcano in the Atherton Tablelands in Far North Queensland, Australia

Faculty advisor: Dr. Sigrid Heise-Pavlov

Student authors: Mary A. Gum¹, Graham H. Kelly², Kayla R. Glynn³, and Lyla Biddle⁴

1 Amherst College, 2 Skidmore College, 3 University of Massachusetts/Amherst, 4 Western Washington University

BHUTAN

Energy disparities in Paro Valley: How energy sources lead to intense income stratification

Faculty advisor: Dr. Kuenga Wangmo

Student authors: Kaitlyn Kliminski¹ and Zoe Kleeblaad²

1 University of Wisconsin/Madison, 2 Dickinson College

Unreliable fuel sources and alternative methods for cooking in Paro Valley, Bhutan

Faculty advisor: Dr. Kuenga Wangmo

Student authors: Allie Ho¹, Ella Williams², and Lukas Bruhler³

1 Amherst College, 2 Davidson College, 3 Grinnell College

Evaluating traditional energy practices as cultural knowledge sources

Faculty advisor: Dr. Kuenga Wangmo

Student authors: Gabby Van Hollander¹, Maya Karmaker², Nola Smith³, and Tristan Moehs⁴

1 Skidmore College, 2 Bates College, 3 Oberlin College, 4 Sarah Lawrence College

Phytogeography along the altitudinal and disturbance gradients in Western Bhutan

Faculty advisor: Dr. Purna B.Chhetri

Student authors: Colleen Barrett¹, Iris Cessna², Nash Holley³, Miya Jacobs⁴, Henry Kelso⁵, Jessica Melhorn⁶, Gabriel Miller-Trabold⁷, Fiona Neely⁸, and Jonah Schwartz⁹

1 Colorado State University/Fort Collins, 2 Wellesley College, 3 Bates College, 4 University of San Diego, 5 North Carolina State University, 6 Lafayette College, 7 Syracuse University, 8 Elon University, 9 Dickinson College

Large field spatial distribution along elevation gradients and forest types within Bhutan

Faculty advisor: Dr. Tshering Tempa

Student authors: Sasha Gannon¹, Jamie Larson², Ella Kraus-McLean³, Nell Horner⁴, and Lilith Hafner⁴

1 Clark University, 2 Salisbury University, 3 Reed College, 4 Grinnell College

CAMBODIA

The first behavioral survey of captive Bengal Floricans (*Houbaropsis bengalensis blandini*) in Cambodia

Faculty advisor: Dr. Megan English

Student authors: Emily Cassady¹ and Lucy Stiff²

1 University of Richmond, 2 University of Redlands



S F S THE SCHOOL
FOR FIELD STUDIES

Asian elephant (*Elephas maximus*) activity budget, foraging selection, and plant taxonomy at Kulen Elephant Forest, Siem Reap Province, Cambodia

Faculty advisor: Dr. Megan English

Student authors: Ty Cryan¹ and Emma Brewer²

1 Davidson College, 2 Drake University

Livelihoods, marketization, and vulnerability on the Tonle Sap, Cambodia

Faculty advisor: Dr. Tim Frewer

Student author: Julia Darter¹

1 Knox College

The silenced voices of the lake: A study of the stateless Vietnamese communities on Cambodia's Tonle Sap Lake

Faculty advisor: Dr. Tim Frewer

Student author: Teagan Freda-Cowie¹

1 Whitman College

Tourism driven gentrification and urban relocation in Siem Reap, Cambodia

Faculty advisor: Dr. Tim Frewer

Student authors: Walter Joachim-DelPoio¹ and Harvey Wilhelm²

1 Bates College, 2 Grinnell College

Precarious livelihoods of recycling collectors in Siem Reap, Cambodia

Faculty advisor: Dr. Tim Frewer and Rothsopal Nguon, M.S.

Student authors: Zoe Friese¹ and Campbell Nicholson²

1 Tulane University, 2 Davidson College

CHILE

Wetland management and conservation practices on private property outside Torres Del Paine National Park, Chile

Faculty advisor: Dr. Rafaela Retamal

Student authors: Caison Gray¹, Logan Ruch², and Elisabeth Sutphen³

1 Davidson College, 2 Western Washington University, 3 Muhlenberg College

Wetland management on private land in the Torres del Paine Biosphere Reserve, Chile

Faculty advisor: Dr. Rafaela Retamal

Student author: Kurt Oelschlager¹

1 Williams College



Conservation and sustainable development: a case study of wetlands in the Torres del Paine Biosphere Reserve

Faculty advisor: Dr. Rafaela Retamal

Student authors: Isabella Acosta-Jimenez¹, Eli Beech-Brown², and Derek Jensen³

1 Davidson College, 2 University of Richmond, 3 University of Massachusetts/Amherst

Statistical runout modelling of snow avalanche risk using GIS on Cerro Mocho, Patagonia, Southern Chile

Faculty advisor: Dr. Francisco Aguirre

Student author: Sydney Carste¹

1 University of Illinois/Urbana-Champaign

Long-term mountain climate monitoring on Cerro Mocho, Southern Chilean Patagonia

Faculty advisor: Dr. Francisco Aguirre

Student authors: Ambra Jacobson¹ and Lucinda Pike²

1 University of San Francisco, 2 Bates College

Long-term precipitation and temperature trend analysis in Southern Chilean Patagonia

Faculty advisor: Dr. Francisco Aguirre

Student authors: Laura Nicault¹ and Rylee Gramiak¹

1 University of Colorado/Boulder

Evaluation of ERA5-Land Temperature Analysis in Torres del Paine, Southern Patagonia

Faculty advisor: Dr. Francisco Aguirre

Student author: Bertrand Yan¹

1 Yale-NUS College/Singapore

Subpixel mapping of vegetation distributions in Southern Patagonia using ground truth validation and unmixed multispectral satellite imagery in Google Earth Engine

Faculty advisor: Dr. Francisco Aguirre

Student author: Levi Cass¹

1 College of the Holy Cross

Review of studies on methods of downscaling hydrology for the Rio Serrano Watershed

Faculty advisor: Dr. Francisco Aguirre

Student author: Ty Zanders¹

1 Wake Forest University

Species distribution of *Misodendrum punctulatum* on *Nothofagus* trees in Última Esperanza Province of Southern Chilean Patagonia

Faculty advisor: Dr. Shaw Lacy

Student authors: Elizabeth Overstrum¹ and Jordan Bryant²

1 Hamilton College, 2 College of William and Mary



A stand-level analysis of *Misodendrum punctulatum* distribution among *Nothofagus* species in Southern Patagonia

Faculty advisor: Dr. Shaw Lacy

Student author: Marissa Crue¹

1 Amherst College

Geomorphological and seasonal effects on macroinvertebrate populations in Chilean Southern Patagonia

Faculty advisor: Dr. Shaw Lacy

Student authors: Frances Atmore¹ and Tanner Honnef²

1 Grinnell College, 2 Clark University

Evidence of *N. pumilio* and *N. antarctica* hybridization displayed in leaf morphology and fluctuating asymmetry

Faculty advisor: Dr. Shaw Lacy

Student author: Yewon (Riley) Jung¹

1 Williams College

Investigation of tree hybridization between *Nothofagus pumilio* and *Nothofagus antarctica* in Southern Patagonia.

Faculty advisor: Dr. Shaw Lacy

Student authors: Katie Spaulding¹ and Uma Plambeck²,

1 University of Illinois/Urbana-Champaign, 2 University of Tennessee/Chattanooga

COSTA RICA

Aboveground carbon sequestration and tree composition of a secondary forest fragment in Costa Rica from 2000-2022.

Faculty advisor: Milena Cambronero, M.S.

Student authors: Jill Cass¹, Ramón Colón¹, Tiffany Trinh², Arana Camila Rodríguez³, and Macy Bryer-Charette¹

1Clark University, 2 Oregon State University, 3 University of San Diego

Preliminary diversity assessment of avifauna in the municipal Forest of Atenas, Costa Rica

Faculty advisor: Víctor Acosta-Chaves, M.S.

Student authors: Madelyn Brown¹ and Tenny-Ann Dandy²

1 University of Illinois Chicago, 2 Franklin & Marshall College

Localized tourism & food security in Monteverde

Faculty advisor: Mary Little, LL.M.

Student authors: Clara Lima¹, Amritha Pai², Samantha Landy³, Kevin Murphy⁴, and Cate Wolfe⁶

1 Wells College, 2 Clark University, 3 Bard College at Simon's Rock, 4 Allegheny College, 5 University of San Diego



KENYA

Assessing spatial distribution and impacts of the selected invasive species in Kimana Group Ranch – Amboseli Ecosystem

Faculty advisor: Dr. Jennifer Wanyingi

Student authors: Irina Kornberg¹, Emily Wall², and Isabella Ceresia³

1 University of Minnesota/Twin Cities, 2 Wellesley College, 3 University of Massachusetts/Amherst

Exploring the effectiveness and sustainability of electric fence for protection of crops constructed by Big Life, Amboseli Kenya

Faculty advisor: Dr. Richard Kiaka

Student authors: Amanda Clark¹, Suzanna Schofield², and Nicholas Delameter³

1 Muhlenberg College, 2 Wellesley College, 3 Bates College

PANAMA

Community structure of keystone reef fishes across Acroporid habitats in the Bocas Del Toro, Archipelago, Panama.

Faculty advisor: Dr. Dagoberto E. Venera-Pontón

Student authors: Lauren Carlson¹, Sarah Clarke², Mason Pratt¹, and Jack Rice³

1 University of Wisconsin/Madison, 2 Elon University, 3 University of Vermont

Heath assessment of staghorn and Elkhorn coral populations in Bocas Del Toro, Panama.

Faculty advisor: Dr. Dagoberto E. Venera-Pontón

Student authors: Beth Belanger¹, Jessica Garofalo², Ianna Gilbert³, and Victoria Haghighi⁴

1 Dickinson College, 2 University of Richmond, 3 Brandeis University, 4 Bates College

Homing and nest structure in a Neotropical mud nesting Harvestmen

Faculty advisor: Dr. Rosannette Quesada-Hidalgo

Student authors: Abigail Erickson¹, Theresa Galban², Riley Krudop³, and Tony Penate⁴

1 Muhlenberg College, 2 Franklin & Marshall College, 3 Colorado State University, 4 Colby College

When the host takes over: Airbnb host motivations and connections to lifestyle migration in the Bocas Del Toro Archipelago of Panama

Faculty advisor: Dr. Leon Mach

Student authors: Sophia Bloom¹ and Stacie Strombom²

1 The University of Vermont, 2 Knox College



S F S THE SCHOOL
FOR FIELD STUDIES

Airbnb host perceptions of sustainable development impacts on local communities in the Bocas Del Toro Archipelago, Panamá

Faculty advisor: Dr. Leon Mach

Student author: Chloe Davis¹

¹ Davidson College

Airbnb host perceptions of sustainable development impacts on local communities in the Bocas Del Toro Archipelago, Panamá

Faculty advisor: Dr. Leon Mach

Student author: Makayla Stroud¹

¹ University of Minnesota

PERU

Diversity and abundance of moths in the SFS Center for Amazon Studies

Faculty advisor: Dr. Akira A. Wong Sato

Student author: Janelle Paul¹

¹ University of Colorado Boulder

Edge-effect of road on moth community composition in Loreto, Peru

Faculty advisor: Dr. Akira A. Wong Sato

Student author: Will Ekstrom¹

¹ University of Washington

Facilitation of deforestation drivers by different road types in Loreto, Peru

Faculty advisor: Dr. C. Steven Sevillano-Ríos

Student authors: Michael Forozis¹ and Collin Gibbons²

¹ University of Massachusetts/Amherst, ² Gonzaga University

Examining mechanisms used by local communities to co-manage the Regional Conservation Areas of Loreto

Faculty advisor: Dr. Pamela Montero Alvarez

Student author: Sky Milstein¹

¹ Oberlin College

Analysis of the development of the Regional Conservation Areas (ACR) of Loreto through narratives of Political Ecology

Faculty advisor: Dr. Pamela Montero Alvarez

Student author: Alena Arnold¹

¹ Ohio Wesleyan University



TANZANIA

The perceptions of the local people on the benefits of wildlife management strategies in Tanzania: Assessing the sharing of information between stakeholders.

Faculty advisor: John Mwamhanga, M.S.

Student author: Georgiana Ducai¹

¹ Wellesley College

Climate change's impact on people and its effects on natural resources in Tarangire-Manyara Ecosystem, Tanzania.

Faculty advisor: John Mwamhanga, M.S.

Student author: Evelyn Connor¹

¹ Allegheny College

The impacts of Covid-19 on local small-scale tourism-based enterprises near Lake Manyara and Tarangire National Parks, Northern Tanzania.

Faculty advisor: John Mwamhanga, M.S.

Student author: Luna Li¹

¹ Colorado State University

Socio-economic effects of the coronavirus pandemic on Tanzania's tour guides and the tourism industry

Faculty advisor: John Mwamhanga, M.S.

Student author: Luca Perrett¹

¹ University of Massachusetts/Amherst

TURKS AND CAICOS ISLANDS

Distribution and severity of Black Spot Syndrome in reef fishes related to the proximity of an Osprey (*Pandion haliaetus*) nest at South Caicos, Turks and Caicos Islands

Faculty advisor: Dr. C.E O'Brien

Student authors: Annika Baldwin¹, Langcheng Gong², and Jackson Holland³

¹ Amherst College, ² Grinnell College, ³ University of Colorado Boulder

Exploring fish biodiversity and client behaviors at marine cleaning stations in South Caicos, Turks and Caicos Islands

Faculty advisor: Dr. C.E O'Brien

Student authors: Caitlin Fay¹, Sara Bonipart², and Olivia Coleman³

¹ University of Richmond, ² Gonzaga University, ³ University of Michigan/Ann Arbor



Comparing *Octopus briareus* behavioral responses under white and red light

Faculty advisor: Dr. C.E O'Brien

Student authors: Jewlz Humphrey¹, Mya Carter², and Lydia Coleson³

1 University of San Diego, 2 Skidmore College, 3 University of Redlands

Analyzing red light as a less disruptive alternative to white light on *Callistoctopus furvus* in South Caicos

Faculty advisor: Dr. C.E O'Brien

Student authors: Lhamo Dixey¹, Calista Hundley², and Jackson Pillifant³

1 Duke University, 2 Amherst College, 3 Reed College

Octopus insularis' interactions with prey species and other organisms around South Caicos

Faculty advisor: Dr. C.E O'Brien

Student author: Evelyn Burdsall¹

1 Hamilton College

Local and geophysical factors affecting anthropogenic marine debris on South Caicos

Faculty advisor: Dr. Cassandra Dudek

Student authors: Oceane Caporal¹, Kiara Ganther², Grace McGonagle³, and Melissa Scala⁴

1 Wheaton College, 2 Dickinson College, 3 John Hopkins University, 4 Hamilton College

The role of *Sargassum* in depositing and retaining anthropogenic marine debris on beaches in South Caicos

Faculty advisor: Dr. Cassandra Dudek

Student authors: Mia Bawendi¹, Alexandra Haymons², Charlotte Kratovil-Lavelle³, and Prerana Patil³

1 Amherst College, 2 Colorado College, 3 Dickinson College

An Ecological Risk Assessment of Queen Conch in South Caicos

Faculty advisor: Dr. Cassandra Dudek

Student authors: Kailee Berge¹, Lucas Lowe², and Jady "Carter" McLean³

1 University of Wisconsin/Madison, 2 University of California/Santa Barbara, 3 Arizona State University

Effects of SCTL on South Caicos' coral reef ecosystems

Faculty advisor: Dr. Heidi Hertler

Student authors: Ashley Groff¹, Kaitlyn Knapp², and Marley Barton³

1 Dickinson University, 2 Wofford College, 3 Sewanee College

Turks and Caicos Islands Reef Response Plan

Faculty advisor: Dr. Heidi Hertler

Student authors: Emily Timberman¹, Clara Masseur², Anna Ferko³, and Elyse Wick⁴

1 Depauw University, 2 University of Colorado/Boulder, 3 Providence College, 4 St. Edwards College