DIRECTED RESEARCH PROJECTS

THE SCHOOL FOR FIELD STUDIES

SPRING 2024
**Australia**

**The vascular and non-vascular plant diversity of a palm swamp forest in Mission Beach, Queensland, Australia**

Faculty advisors: Dr. David Tng and Dr. Deborah Apgaua
Student authors: Max Perry Newman¹, Rachael Elizabeth Tomasko², Althea Hope³, Ian Torrens-Martin³, Allen Everett Zhan⁴
1 Brown University, 2 Kenyon College, 3 Smith College, 4 Wheaton College

**Assessing the flammability of Australian littoral rainforest species and their feasibility for green firebreak plantings**

Faculty advisors: Dr. David Tng and Dr. Deborah Apgaua
Student authors: Anika Elizabeth Eastman¹, Katherine Anne Grace¹, Caroline Shin²
1 Skidmore College, 2 The Ohio State University

**Establishing a biocultural arboretum at the Centre for Rainforest Studies**

Faculty advisors: Dr. David Tng and Dr. Deborah Apgaua
Student authors: Elizabeth Lauren Martin¹, Emma Pauline Kaplan², Emma Christine³, Kenney Margaret Elizabeth Muldoon⁴
1 University of Wisconsin Madison, 2 Grinnell College, 3 Elon University, 4 Rochester Institute of Technology

**Rainforest and savanna Grevillea species exhibit divergent leaf and stem but not flammability traits**

Faculty advisors: Dr. David Tng and Dr. Deborah Apgaua
Student authors: Shea Elsie Issendorf¹, Elizabeth Joanne Karatzas², Hung Minh Pham³
1 The University of Minnesota, 2 The University of Massachusetts Amherst, 3 Denison University

**Exploring landowner perceptions of revegetation on the Atherton Tablelands**

Faculty advisors: Dr. Mia Derhé and Dr. Sigrid Heise-Pavlov
Student authors: Devon Fischer¹, Hannah Brazus², Hannah Saglimbeni³
1 Smith College, 2 Miami University, 3 University of Virginia

**From canopy to dung: how dung beetles can help assess recovery of reforested plots of land**

Faculty advisors: Dr. Mia Derhé and Dr. Sigrid Heise-Pavlov
Student authors: Elias Gorby¹, Elise Farley², Miyanna Gamero³, Ollie Safford⁴
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**Assessing leaf litter invertebrate diversity and distribution within established revegetation plots of northeast Queensland's wet tropics**

Faculty advisor: Dr. Mia Derhé
Student authors: Owen McCarthy¹, Grace Filson², Leah Arnold³
1 Middlebury College, 2 Dickinson College, 3 Wheaton College

**Barriers to reforestation: Mabi Rainforest restoration on a cinder cone slope in far north Queensland, Australia**

Faculty advisor: Dr. Sigrid Heise-Pavlov
Student authors: Sheila F. Hulseman¹, Madelyn E. Radtke², Eleanor L. Buchanan³, EJ Holm⁴, Andrew D. Kim⁵
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Bhutan

**Effect of distance from settlements and roads on prey species occurrence in Bumdra-Taktsang area**  
Faculty advisor: Tshering Tempa  
Student authors: Brodie Leo\(^1\), Emma Watkins\(^2\), Ethan Krull\(^3\), Jenna Ward\(^4\), Oliver Satola\(^5\)  
1 Williams College, 2 Gonzaga University, 3 University of Wisconsin/Madison, 4 Clark University, 5 University of Michigan/Ann Arbor

**Effects of physical properties of the Taktsang-Bumdra landscape on occupancy of predator species**  
Faculty advisor: Tshering Tempa  
Student authors: Charlie Haberstock\(^1\), Justin Boshears-Hazen\(^2\), Lauren Hagerty\(^3\), Rachel Bottum\(^4\), Sydney Cohen\(^5\), Tanner Alger\(^4\)  
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**Assessing the impacts of climate change on water resources: a case of Tsendona, Paro, Bhutan**  
Faculty advisor: Norbu Wangdi  
Student authors: Brandon Neifert\(^1\), Brooke Peterson\(^2\), Chloe Miller\(^3\), Jessica Dean\(^4\), Lillian Sharp\(^5\), Mia Jones\(^6\)  
1 Whitman College, 2 University of Minnesota, 3 Colorado State University, 4 Denison University, 5 University of Michigan, 6 Dickinson University

**The impacts of development on the culinary traditions and food basket in Paro Valley**  
Faculty advisor: Kuenga Wangmo  
Student authors: Adeera Batley\(^1\), Annabel Resor\(^2\), Katie McKenna\(^3\), Lizzy Jack\(^4\), Lorelei Smillie\(^5\)  
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**The impacts of climate change on the culinary traditions and food basket in Paro Valley**  
Faculty advisor: Kuenga Wangmo  
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Cambodia

**Soil in the Tonle Sap: assessing nutrients, pH, and microbial communities**  
Faculty advisor: Megan English  
Student authors: Isabelle Larson\(^1\), Grace Winkelman\(^2\)  
1 Bates College, 2 Lewis & Clark College

**Assessing water quality parameters and macroinvertebrate bioindicators near Kampong Khleang Commune, Tonle Sap Lake**  
Faculty advisor: Megan English  
Student authors: Liberty Chesney\(^1\), Jordan Durst\(^2\)  
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Strike a pose: a camera trap survey analyzing the impact of domestic water buffalo *Bubalus bubalis* reintroduction on species richness and relative abundance across seasonal ponds in Cambodia’s northern plains
Faculty advisor: Megan English
Student authors: Anna Hoehlein¹, Sara Reiss², Julia Willey³
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Survivalist fishers of the Tonle Sap
Faculty advisor: Tim Frewer
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Filming the survivalist fishers of the Tonle Sap
Faculty advisor: Tim Frewer
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Land use and land cover change in Kampong Khleang and surrounding areas
Faculty advisor: Jean-Christophe Diepart
Student authors: Kaitlin Cowan¹, Erica Erdenesanaa², Nathan Parr³
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Livelihood diversification strategies of two villages in the Tonlé Sap floodplain: Cheay Chet and Preaek Sramaoch
Faculty advisor: Jean-Christophe Diepart
Student authors: Camille Newman¹, Eliza Sullivan²
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Chile

Indigenous presence in Torres del Paine Biosphere Reserve
Faculty advisor: Rafaela Retamal D.
Student authors: Kiara Bonilla¹, Owen Jakel²
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Wetlands in Torres del Paine Biosphere Reserve: perceptions and interactions of park rangers, estancieros, and other residents
Faculty advisor: Rafaela Retamal D.
Student authors: Isha Goyal¹, Sammy Stuhlmiller²
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The estancia, its industry, and our future: climate change and its impacts on Magallanes
Faculty advisor: Rafaela Retamal D.
Student author: Michael Keegan¹
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Cleaning Río Natales watershed
Faculty advisor: Rafaela Retamal D.
Student author: Mariana Woeber Gardner
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Modernist urban planning in the downfall of Chilean water conservation
Faculty advisor: Rafaela Retamal D.
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Evaluating the effectiveness of on-site digital cameras for capturing phenological data in southern Patagonia
Faculty advisor: Francisco Aguirre
Student authors: Delaney Carlin¹, Audrey Lemoine², Erin O’Donovan³
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Drought indicators in southern Patagonia: analysis of ENSO and SAM climate oscillation impact on endorheic lakes
Faculty advisor: Francisco Aguirre
Student authors: Fiona Madrid¹, Jesse Paull², Sydney Paull³
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Snowpack contamination in southern Patagonia: feasibility and opportunities of study
Faculty advisor: Francisco Aguirre
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WRF hydro model for flood prediction and management of Río de las Minas watershed in Magallanes region, Chile
Faculty advisor: Francisco Aguirre
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Seasonal variation of macroinvertebrate communities in southern Patagonian streams
Faculty advisor: Shaw Nozaki Lacy
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Parasites and projections: modeling and mapping tree and fungal niches in southern Patagonia
Faculty advisor: Shaw Nozaki Lacy
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Carbon sequestration in post-wildfire reforestation area of Laguna Azul: reuptake modeling
Faculty advisor: Shaw Nozaki Lacy
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Understanding the influence of directional winds on wildfire dynamics in southern Patagonia
Faculty advisor: Shaw Nozaki Lacy
Student authors: Grace Aho¹, Margaret Burgess², Pranav Parekh³
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Optimizing field methods for estimating river cross-sectional area: insights from southern Chilean Patagonia
Faculty advisor: Shaw Nozaki Lacy
Student author: Grace Carter¹
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Accuracy of various methods of measuring river geomorphology
Faculty advisor: Shaw Nozaki Lacy
Student author: Helena Shapiro¹
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Costa Rica
Community action and food security through the Monteverde Community Garden
Faculty advisor: Mary Little
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Assessing how plant functional traits influence species flammability in Atenas, Costa Rica
Faculty advisor: Milena Cambronero
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Flammability of native and non-native plants in the Bosque Municipal of Atenas, Costa Rica
Faculty advisor: Milena Cambronero
Student authors: Jack Riccobono¹, Sónia McCollum²
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Leaf traits explain species flammability in a forest fragment in Atenas, Costa Rica
Faculty advisor: Milena Cambronero
Student authors: Shira Goldman¹, Ava Piebenga²
¹ Smith College, 2 Colorado College

Comparing amphibian and reptile diversity between two clouded forests in Costa Rica
Faculty advisor: Víctor Acosta, assisted by Ricardo Sánchez
Student authors: Kate Boutell¹, Douglas Giles², Phoebe Shubin³, Abha Upadhye⁴
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Variability in bat communities across various sites within Costa Rica’s tropical premontane forest belt
Faculty advisor: Víctor Acosta, assisted by Ricardo Sánchez
Student authors: Diego Ramirez¹, Leah Fikermiam², Tomás Brockett-Delgado³
¹ Yale University, 2 University of San Diego, 3 Denison University
Variation of functional traits according to size and habitat in three *Cecropia* species
Faculty advisor: Gerardo Avalos
Student authors: Ariel Schwartzman Miles¹, Liya Miksovsky², Tyler Caine³
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Variation in sexual size dimorphism and fit to Rensch's rule in Costa Rican hummingbirds
Faculty advisor: Gerardo Avalos
Student authors: Claire Labuda¹, Ethan Ruderman², Reece H. Brown³, Annalise H. Thapaliya⁴
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Kenya

Effectiveness of the Mbirikani Predator Consolation Fund: mitigating human-lion conflicts and enhancing attitude, tolerance, and coexistence within communities
Faculty advisor: Richard Kiaka
Student authors: Aaron Richmond-Crosset¹, Alexandra Greene², Pranneil Thankavel³
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Challenges and long-term sustainability of the Mbirikani Predator Consolation Fund
Faculty advisor: Richard Kiaka
Student authors: Dylan Maddux¹, Ella Elizabeth Francis², Gabrielle Roman³
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Abundance, distribution, and habitat preference of grey crowned crane *Balearica regulorum gibbericeps* in Amboseli National Park and its environs
Faculty advisor: John Kiringe
Student authors: Natalie Angstadt¹, Halle Banks², Sanjit Ramesh Chandran³
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Abundance, distribution, habitat quality, and key threats facing grey crowned crane in the Amboseli ecosystem, Kenya
Faculty advisor: John Kiringe
Student authors: Luke Chavez¹, Amina Farah²
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Abundance, distribution, and threats facing grey crowned crane in Amboseli National Park and its environments
Faculty advisor: Jennifer Wanyingi
Student authors: Rachel Bartelt¹, Solveig Olson²
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The influence of socio-cultural perceptions, politics, and intervention measures on giraffe bushmeat activities in the Amboseli ecosystem
Faculty advisor: Jennifer Wanyingi
Student authors: Abigaël Dawson¹, Noah Randall², Charlotte Veenstra-VanderWeele³
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The dynamics, severity, and community awareness of giraffe bushmeat activity within the Amboseli ecosystem
Faculty advisor: Jennifer Wanyingi
Student authors: Mikayla Stowe¹, Amelia Thrasher²
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The role of community in Masai Giraffe conservation and mitigating bushmeat activity in the Amboseli Ecosystem
Faculty advisor: Jennifer Wanyingi
Student authors: Sailor Brown¹, Alexandra Zolman²
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Panama
Surfonomics in Bocas del Toro: a tourism demand analysis of surf ecosystem value
Faculty advisor: Leon Mach
Student authors: Joseph Degraw¹, Sophia Kishimoto², Julia Lynch³, Alina Malin⁴, Zea Segnitz⁵
1 Whitman College, 2 University of San Francisco, 3 St. Michael's College, 4 University of Michigan, 5 Northeastern University

Empowering Ngöbe indigenous communities through tourism: assessing dimensions of empowerment in the Bocas del Toro archipelago
Faculty advisor: Leon Mach and Laura Bruce
Student authors: Sabilah Alibhai¹, Aarani Balendran², Gabby Cournoyer²
1 Connecticut College, 2 University of Michigan

Land-use change decreases species richness and biodiversity of Panamanian leaf-litter frog communities
Faculty advisor: Daniel Medina
Student authors: Isabelle Dugan¹, Owen Hardy², Kayla O'Shea³, Mattie Vandiver⁴
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Land use change induces microhabitat alterations with implications on Oophaga pumilio species
Faculty advisor: Daniel Medina
Student authors: Chiara Bachmann Gómez¹, Allison Conwell², Helena Lepre³, Lucy Zullo⁴
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Population structure of keystone herbivorous reef fishes in Bocas del Toro, Caribbean Panama
Faculty advisor: Dagoberto E. Venera-Pontón
Student authors: Charlotte Latham¹, Danielle Nader², Kasia Jackson², Kellen Kennedy³
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Herbivory and aggression in keystone herbivorous fishes from Bocas Del Toro, Panama
Faculty advisor: Dagoberto E. Venera-Pontón
Student authors: Ana Zbaraschuk¹, Katie Parker², Rosalie Averill³, Zoe Malouf⁴
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Tanzania

A Survey of the plant species use and availability among the Hadzabe of Lake Eyasi, northern Tanzania
Faculty advisor: John Mwamhanga
Student authors: Matt Butler¹, True Usiatynski², Andrew Fredericks³
1 Iowa State University, 2 Mount Holyoke College, 3 Hamilton College

Documenting medicinal plant usage, knowledge acquisition, and conservation perspectives of the Hadzabe northern Tanzania, Africa
Faculty advisor: John Mwamhanga
Student authors: Madis Kennedy¹, Margot Collins²
1 Kenyon College, 2 University of Massachusetts/Amherst

The assessment of the tourist satisfaction and economic potential of Maasai cultural bomas, northern Tanzania
Faculty advisor: John Mwamhanga
Student authors: Frainer Castillo¹, Kenya Twyman²
1 Franklin & Marshall College

Small mammal community ecology in community protected forest and Maize field in Karatu district, northern Tanzania
Faculty advisor: Egidius James Rwebuga
Student authors: Ella Webber¹, Shelly Coleman², Kylie Lakin³
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Investigating bird species community structure in Moyo Hill Community Protected Forest and Lake Manyara Airport compounds
Faculty advisor: Egidius James Rwebuga
Student authors: Zora Beaty¹, Abigail Gewirtz², Evelyn Johnson³
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Rangeland health assessment in the Burunge Wildlife Management Area of northern Tanzania
Faculty advisor: Dr. Shem Mwasi
Student authors: Daniel Block¹, Maria Giarusso²
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Effect of zonation on herbivore density and standing crop biomass calibration in Burunge Wildlife Management Area
Faculty advisor: Dr. Shem Mwasi
Student authors: Skyler Williams¹, Abby Strom², Savannah Vonesh³
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Impact of invasive plants on mammal distribution and diversity in Burunge Wildlife Management Area
Faculty advisor: Dr. Shem Mwasi
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Turks and Caicos Islands

**Land Crab Ecology**
Faculty advisor: William F. Bigelow
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**Ecotourism**
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Over the edge: higher lucinid density observed above erosion edges compared to below in fragmented seagrass meadows of the Turks and Caicos Islands
Faculty advisor: C.E. O’Brien
Student authors: Violet Apodaca¹, Kira Kaplan², Sophie Moniz³, Rory O’Connor⁴
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Ink-redibly mysterious: *Octopus briareus*’ body patterns and behavior are affected by movement and substrate types
Faculty advisor: C.E. O’Brien
Student authors: Cailey Johns¹, Alexa Heerma²
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Investigation of the skin patterning of nocturnal octopus species *Callistoctopus furvus*
Faculty advisor: C.E. O’Brien
Student authors: Ryan Horrigan¹, George Wall²
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Ecological risk assessment for blue land crabs: investigating microplastic contamination and translocation in *Cardisoma guanhumi* in South Caicos
Faculty advisor: Kassandra Dudek
Student authors: Arlette Aguilera¹, Eurnett Christopher², Trevor Deterville³, Laura Hooper⁴
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Ontogenetic shift in *Pterois volitans* and *Pterois miles* in South Caicos
Faculty advisor: Kassandra Dudek
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Invasive lionfish *Pterois spp.* in South Caicos: sex-specific growth parameters and population dynamics
Faculty advisor: Kassandra Dudek
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