

THE SCHOOL FOR FIELD STUDIES

DIRECTED RESEARCH TANZANIA

Center for Wildlife Management Studies · Rhotia. A complete record of student research projects from the four most recent semesters.



SPRING 2026

3 projects · 8 student authors

FALL 2025

6 projects · 13 student authors

SPRING 2025

7 projects · 21 student authors

FALL 2024

8 projects · 20 student authors

24

RESEARCH PROJECTS

62

STUDENT AUTHORS

4

FACULTY ADVISORS

4

SEMESTERS

FALL 2024 – SPRING 2026

ABOUT THIS GUIDE

Directed Research is the capstone of every SFS semester: students work in small teams with resident faculty on questions set by the needs of the host community and its ecosystems. This guide collects the Directed Research projects completed at the Center for Wildlife Management Studies in Rhotia, Tanzania, over the four most recent semesters.

Projects are listed newest first. Each entry gives the project title, its faculty advisor or advisors, and the student authors with their home institutions. Each entry closes with a research summary drawn from the Center’s semester final report for that project. Where a project’s final paper carries a formal author abstract, that abstract replaces the summary and is labelled as such.

CONTENTS

SPRING 2026	3 projects · 8 student authors
FALL 2025	6 projects · 13 student authors
SPRING 2025	7 projects · 21 student authors
FALL 2024	8 projects · 20 student authors

FACULTY ADVISORS

Directed Research at the Center for Wildlife Management Studies was advised by 4 faculty and researchers across these semesters.

ADVISOR	PROJECTS	SEMESTERS
Mr. John Mwamhanga	9	All four semesters
Dr. Egidius James Rwebuga	7	All four semesters
Dr. Shem Mwasi	5	All four semesters
Dr. Bernard Kissui	4	All four semesters

Center for Wildlife Management Studies · Rhotia, Tanzania

01 **Assessing Challenges to Documentation and Dissemination of Traditional Ecological Knowledge Among Mbugwe People**

Faculty advisor: Mr. John Mwamhanga

Hana Rottach¹, Lija Sverns²

¹ Whitman College, ² University of Michigan

RESEARCH SUMMARY

Elders in the Mbugwe community still hold and use Traditional Ecological Knowledge: the medicinal and spiritual uses of plants and animals, the identification of soil types for different purposes, and the reading of wildlife behaviour to predict weather. This project documented that knowledge and the barriers to passing it on, which the students identified as modernisation, formal education, and imported religions. None of it is currently incorporated into the management of the Burunge Wildlife Management Area, and the elders were emphatic that it should be recorded so that future generations can use it. The advisor recommends extending the study to other ethnic groups around Burunge and continuing in Vilima Vitatu and Maweni villages in Fall 2026.

02 **Status and Impacts of Invasive Plants on Indigenous Grasses in Burunge Wildlife Management Area**

Faculty advisor: Dr. Shem Mwasi

Weaver Whitehead¹, Rylie Crow², Meredith Burt³

¹ Clemson University, ² Scripps College, ³ University of Massachusetts Amherst

RESEARCH SUMMARY

This project measured the status of invasive plants in the Burunge Wildlife Management Area and their effect on indigenous grasses. Abundance, density, and distribution of invasive species did not vary between habitat types, but invasive plant cover differed significantly among them. Indigenous grass diversity declined as mean invasive cover rose, a significant negative impact of invasive plants on the grass community. Additional sampling focused on the non-treated grids is planned for Fall 2026.

03 **Assessing the Impact of Roadkill on Wildlife Biodiversity in the Tarangire-Manyara Ecosystem**

Faculty advisors: Dr. Bernard Kissui and Dr. Egidius James Rwebuga

Emily Sipprell¹, Hahna Beaudoin², Ilan Friedman³

¹ Hollins University, ² Whitman College, ³ University of Minnesota

RESEARCH SUMMARY

Roadkill data collected over 745 days across 2019, 2023, 2025, and 2026 along a 113 km stretch of road were analysed to establish the impact on wildlife biodiversity in the Tarangire–Manyara ecosystem. Bushland habitats showed higher numbers of roadkill; most incidents occurred near human-made features such as ditches, bridges, and buildings; and the wet season significantly influenced both the pattern and the number of deaths. Roadkill was not

evenly distributed but concentrated in identifiable hotspots. The study recommends prioritising mitigation at those hotspots — fences with designated wildlife crossing zones, tunnels and culverts with dry ledges for amphibians, reptiles, and small mammals, and lowered speed limits with speed bumps.

Center for Wildlife Management Studies • Rhotia, Tanzania

01 **Local Communities' Understanding, Attitudes, and Perceived Socio-Economic Impacts of Carbon Tanzania's Lake Eyasi Project**

Faculty advisor: Mr. John Mwamhanga

Abby Patrick-Dooling¹, Nathaniel Shipman²

¹ Wellesley College, ² College of the Holy Cross

RESEARCH SUMMARY

Carbon Tanzania's Lake Eyasi project sells forest carbon credits on behalf of local communities. This project surveyed what those communities understand of it, how they regard it, and what socio-economic impact they perceive. All but one respondent supported the project, yet 76% of those wanted changes to it — the conclusion being that Carbon Tanzania's claimed successes are not felt at household level. The study recommends new communication strategies from village leaders to broaden understanding and make decision-making more inclusive, and stands as baseline information for evaluating the scheme five years from now.

02 **Assessing Carbon Trade Impacts on Environmental Health from Local Perspectives in Lake Eyasi Basin, Northern Tanzania**

Faculty advisor: Mr. John Mwamhanga

Tate Weathers¹, Linden Wright²

¹ Pomona College, ² Colorado College

RESEARCH SUMMARY

The companion study to the socio-economic assessment, this project asked how communities in the Lake Eyasi Basin perceive the environmental health effects of carbon trading. Because the projects are recent — 2021 at Dumbachan and Mbuga Nyekundu villages, 2023 at Endamaghan — the findings reflect early-stage observation and are difficult to attribute directly to carbon trading. It therefore serves as a baseline assessment, with evaluation to be carried out five years on before the ecological effects can be determined conclusively.

03 **Assessing the Use, Preservation, and Integration of Traditional Knowledge within Burunge Wildlife Management Area**

Faculty advisor: Mr. John Mwamhanga

Zara Lall¹, Diya Nookala²

¹ Bowdoin College, ² George Washington University

RESEARCH SUMMARY

This project examined how traditional knowledge is practised, preserved, and shared among the communities surrounding the Burunge Wildlife Management Area. Some members continue traditional practice, but transmission has declined sharply. Spiritual and ecological knowledge are particularly threatened: the traditions are stigmatised and participation discouraged under anti-witchcraft laws, while restrictions on access to sacred sites and the natural resources used in those practices further reduce the occasions on which knowledge can be shared. The findings reveal a disconnect between community-based conservation policy and lived experience. Future work will document the knowledge held by Mbugwe elders and chiefs, sacred and ritual sites included.

04 **The Effect of Burning on Wildlife Habitat Health Seasonally in Burunge Wildlife Management Area – Tanzania**

Faculty advisor: Dr. Shem Mwasi

Julia Beatty¹, Meira Rice¹

¹ Oregon State University

RESEARCH SUMMARY

This project tested how burning affects wildlife habitat health across seasons in the Burunge Wildlife Management Area. Burning produced significant seasonal variation in habitat health, with a significant difference between burn and control treatments within the 2024 dry season. New experimental plots are to follow, subjecting 100 m² blocks to burning, mechanical removal of invasive plants, and a control under an experimental block design, treated in June/July 2026 during the early dry season.

05 **Diversity of Birds, Small Mammals, and Associated Ectoparasites in Karatu and Monduli Districts, Northern Tanzania**

Faculty advisor: Dr. Egidius James Rwebuga

Cooper Andersen¹, Ashley Correll²

¹ Whitman College, ² Colby College

RESEARCH SUMMARY

This project surveyed the diversity of birds and small mammals across Karatu and Monduli Districts along with the ectoparasites they carry. It is one instalment of an ongoing programme, run to accumulate enough data for sound analysis and eventual publication.

06 **Effects of Human and Lion Activity on Temporal Activity Patterns of Mesopredators in Ndotu Area**

Faculty advisor: Dr. Bernard Kissui

Tyler Robinson¹, Erin Singdahlsen², Nicholas Cabral³

¹ Washington State University, ² Macalester College, ³ University of Central Florida

RESEARCH SUMMARY

This project examined how human and lion activity shape the temporal activity patterns of mesopredators in the Ndotu area, using a camera trap grid. The advisor emphasises the need for deeper analysis of mesopredator–mesopredator interactions in eastern Africa: understanding those dynamics is what allows conservation to anticipate how the loss or decline of one species will affect others. Next steps are to bring in camera trap data from the Lake Eyasi escarpment to test the usefulness of the Random Encounter Model for estimating abundance, and to focus on the Hyaenidae — particularly temporal segregation between striped and spotted hyena.

Center for Wildlife Management Studies • Rhotia, Tanzania

01 Exploring Tourist Satisfaction and Economic Potentials of Tourist Enterprises to Local People of Makuyuni–Mto wa Mbu–Karatu Corridor, Northern Tanzania

Faculty advisor: Mr. John Mwamhanga

Emmanuela Aboh¹, Lila Miller², Harper Smith³

¹ University of Southern California, ² Vassar College, ³ University of Wisconsin/Madison

RESEARCH SUMMARY

This project examined tourist satisfaction with locally owned enterprises along the Makuyuni–Mto wa Mbu–Karatu corridor and the economic potential those enterprises hold for local people. Interviews with 41 tourists and 53 sellers revealed a disconnect between the two groups on the shopping environment, perceived tourist preferences, item selection, and the effectiveness of marketing strategies. Because the work was carried out in low season, the advisor notes that more data from the June–August high season are needed before firm conclusions can be drawn.

02 The Assessment of Useful Plant Species by Hadzabe in the Lake Eyasi Basin, Karatu District

Faculty advisor: Mr. John Mwamhanga

Danielle Melius¹, Layla Townsend²

¹ University of New Hampshire, ² Hollins University

RESEARCH SUMMARY

This project assessed the plant species used by the Hadzabe in the Lake Eyasi Basin of Karatu District, documenting a body of knowledge held by one of the last hunter-gatherer communities in East Africa. It is a long-term project, continued in the following autumn semester.

03 Optimal Burn Timing and Wildlife Corridor Health in Burunge Wildlife Management Area

Faculty advisor: Dr. Shem Mwasi

Delaney O'Brien¹, Maelen Rose Movich-Fields², Anneh Britz³, Ainsley Murphy²

¹ University of Vermont, ² Scripps College, ³ University of Minnesota

RESEARCH SUMMARY

This project tested optimal burn timing against wildlife corridor health in the Burunge Wildlife Management Area. Mechanical removal proved more effective than burning at reducing invasive plant cover — a result that bears directly on how the management area treats its corridors.

04 Effectiveness of Burning and Manual Removal on Invasive Plant Species in Burunge Wildlife Management Area

Faculty advisor: Dr. Shem Mwasi

Nora Correio¹, Alia Harris², Otis Wildman³

¹ University of Richmond, ² University of Southern California, ³ Vassar College

RESEARCH SUMMARY

Run alongside the burn timing study, this project compared the effectiveness of burning against manual removal for controlling invasive plant species in the Burunge Wildlife Management Area. The results fed into a new experimental design: 100 m² plots laid out under an experimental block design and subjected to burning, mechanical removal, and a control, treated in the early dry season of June/July.

05 **Assessing Nocturnal Bird Richness in Karatu and Monduli Districts, Northern Tanzania: Implications for Agricultural Productivity**

Faculty advisor: Dr. Egidius James Rwebuga

Audrey Wegener¹, Sam Zwiefelhofer², Luke Young³

¹ University of Wisconsin/Madison, ² University of Minnesota/Twin Cities, ³ University of Massachusetts/Amherst

RESEARCH SUMMARY

Nocturnal birds — owls and nightjars among them — take rodents and insects that would otherwise reach the crop, which makes their richness an agricultural question as much as an ecological one. This project assessed nocturnal bird richness across Karatu and Monduli Districts and what it implies for agricultural productivity. It forms part of an ongoing programme accumulating data toward sound analysis.

06 **Airport and Maize Field Effects on Bird and Small Mammal Diversity: Aviation Safety Implications**

Faculty advisor: Dr. Egidius James Rwebuga

Eleanore Roberts¹, Lillian Wallace², Tessa Martin³

¹ Hamilton College, ² Dickinson College, ³ Mount Holyoke College

RESEARCH SUMMARY

Birds and small mammals near runways are an aviation safety problem, and the maize fields beside them are part of what draws the animals in. This project compared bird and small mammal diversity between airport surrounds and maize fields in northern Tanzania, and considered what the difference implies for aviation safety.

07 **Mesopredator Spatial-Temporal Activity Patterns and Niche Differentiation in the Lake Eyasi Escarpment**

Faculty advisor: Dr. Bernard Kissui

Mira Allen¹, Veronica Britton², Kennedy Fast³

¹ Kenyon College, ² Pitzer College, ³ Washington State University

RESEARCH SUMMARY

This project examined the spatial and temporal activity patterns of mesopredators along the Lake Eyasi escarpment and how those species differentiate their niches. Further camera trap data not analysed this semester will be combined with the current dataset in a subsequent programme.

01 Assessing the State of Beekeeping Activities in Karatu District, Northern Tanzania**Faculty advisor:** Mr. John MwamhangaWren Tetreault¹, Peter Landis²¹ University of Vermont, ² Graduate Student**RESEARCH SUMMARY**

This project assessed the state of beekeeping in villages of Karatu District and found women largely absent from the industry, excluded both by a lack of education and skills in beekeeping and by cultural traditions that treat it as an activity for men. The finding prompted one of the student authors to begin a fundraising effort for seed money to buy hives and protective gear for women's groups, so that they can take up beekeeping as a conservation, economic, and nutrition project.

02 Spiritual Practices of Maasai and Mbugwe Communities and their Implications for Environmental Conservation, Northern Tanzania**Faculty advisor:** Mr. John MwamhangaAnnika Dank¹, Stefani Wojcik²¹ Pitzer College, ² Davidson College**RESEARCH SUMMARY**

This project documented the spiritual practices of Maasai and Mbugwe communities in northern Tanzania and what they imply for environmental conservation — practices that often protect particular sites and species without being framed as conservation. The next step is to map the totemic sites of both groups within the study area; the advisor notes these have potential as tourist attractions.

03 The Styles, Creation, and Cultural Ties of Paintings and Carvings in Northern Tanzania**Faculty advisor:** Mr. John MwamhangaCassidy Jones¹¹ Pomona College**RESEARCH SUMMARY**

This project examined the styles, creation, and cultural ties of paintings and carvings in northern Tanzania, tracing both the making of the work and the meaning carried in it. Because the study fell at the end of the tourist season, the data collected from tourists were not sufficient to support firm conclusions, and the project was continued into the spring semester.

04 Assessing Invasive Plant Species Control Strategy Effectiveness in Burunge Wildlife Management Area, Northeastern Tanzania**Faculty advisor:** Dr. Shem MwasiBailey Klusack¹, Tabatha LeeKeenan², Audrey Maloy³, Katie Riley⁴

¹ Oregon State University, ² University of Wisconsin-Madison, ³ Western Washington University, ⁴ Reed College

RESEARCH SUMMARY

This was the first preliminary assessment of burning and mechanical removal as control strategies for invasive plant species in the Burunge Wildlife Management Area. It was conducted at the start of the short wet season, following early burn and mechanical removal — mowing and invasive plant clipping — carried out together in June/July. The next step is to assess the effect of both treatments after the short wet season ends.

05 Activity Patterns and Temporal Niche overlap of Mesopredators in the Tarangire-Manyara ecosystem

Faculty advisor: Dr. Bernard Kissui

Nicolas DiPietro¹, Joshua Worwa²

¹ Washington State University, ² University of Minnesota

RESEARCH SUMMARY

This project examined the activity patterns and temporal niche overlap of mesopredators in the Tarangire–Manyara ecosystem from camera trap data. The next step is further analysis of overlap between mesopredators and their prey, to be incorporated into a manuscript for peer-reviewed publication.

06 Small mammal ecology and vulnerability to ectoparasites across different Karatu District, Northern Tanzania land-use areas

Faculty advisor: Dr. Egidius James Rwebuga

James Offor¹, Jiali Pickering², Auguste Reboussin³

¹ Davidson College, ² Franklin & Marshall College, ³ Davidson College

RESEARCH SUMMARY

This project examined small mammal ecology and vulnerability to ectoparasites across different land-use areas of Karatu District. It opened a line of work continued in Spring 2025 and beyond, in which small mammals and the parasites they carry serve as an index of how land use is affecting the wider community.

07 Influence of Noise on Avian Behavior in Northern Tanzania: Exploring Practical Solutions to Avian Deterrence

Faculty advisor: Dr. Egidius James Rwebuga

Ally Fetterman¹, Mackenzie Zerbe², Haley Eckert³

¹ College of the Holy Cross, ² Bucknell University, ³ Colorado State University

RESEARCH SUMMARY

This project examined how noise influences avian behaviour in northern Tanzania and explored practical solutions for deterring birds — a question that bears on crop protection and on aviation safety alike. The advisor notes the project was to be redesigned and its implementation continued in Spring 2025.

08 Investigating Selected Ecological Parameters of Herpetofauna in Karatu and Monduli Districts, Northern Tanzania

Faculty advisor: Dr. Egidius James Rwebuga

Jocelyn Conder¹, Gloria Kawai², Kinsey Patrick³

¹ The George Washington University, ² University of Michigan, Berry College³

RESEARCH SUMMARY

This project investigated selected ecological parameters of the herpetofauna of Karatu and Monduli Districts, establishing an account of the amphibians and reptiles present and the conditions they occupy. The same study was to be conducted again during the wet season, when these groups are substantially more detectable.

THE SCHOOL FOR FIELD STUDIES

Center for Wildlife Management Studies, Rhotia, Tanzania. Titles, faculty advisors, student authors, and home institutions compiled from the SFS Directed Research project lists for Fall 2024, Spring 2025, Fall 2025, and Spring 2026.