



S F S THE SCHOOL
FOR FIELD STUDIES

Wildlife Management and Conservation

SFS 3500

Syllabus, Summer I

The School for Field Studies (SFS)
Center for Wildlife Management Studies (CWMS)
Rhotia, Tanzania

This syllabus may develop or change over time based on local conditions, learning opportunities, and faculty expertise.
Course content may vary from semester to semester.

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Course Overview

This course aims to expose students to community wildlife management and the complexity of sustainable wildlife conservation in Tanzania. It combines concepts and principles of ecology, wildlife management and the human dimension, which is central to effective and sustainable wildlife conservation. During the course students will explore the social, cultural, economic and political context of the relationship between people and wildlife in Tanzania using the Tarangire-Manyara ecosystem as a case study. To understand past, present and future wildlife management in the country, this course examines influences of local people's attitudes, national land tenure regimes and policy frameworks. It will also examine success and failure of involvement of local communities in conservation initiatives in the country. Wildlife conservation in Tanzania and particularly in the Tarangire-Manyara ecosystem is examined in context of competing land use alternatives such as agriculture, pastoralism and agro-pastoralism.

Learning Objectives

The main objectives of the course are to expose students to various wildlife management and conservation issues in the Tarangire-Manyara Ecosystem and generally in Tanzania. These aspects are important in formulating research questions that attempt to understand conservation problems as well as associated human issues before an attempt to offer practical and viable solutions. The learning process will be achieved through interactive learning and experiential activities, including lectures by resident faculty and guest lecturers, field exercises, class discussions, and field lectures. The specific objectives of the course are to:

- Explore the ecology, social organization and behavior of common African large mammals,
- Impart basic skills in field techniques such as animal identification and behavioral ecology of larger African wild mammals, vegetation and wildlife sampling, conducting social surveys and participatory methods
- Understand wildlife conservation issues, livestock-wildlife interactions and associated human-wildlife conflicts
- Understand the principles for design and management of conservation areas
- Explore the role of Manyara Ranch as a buffer zone for Lake Manyara National Park
- Obtain an understanding of the challenges to managing protected areas in Tanzania
- Explore the dilemma of conserving wildlife in protected areas of Tanzania amidst a rapidly changing socio-economic and political environment
- Understanding the key constraints to conservation of wildlife among resource-poor rural populations

Case Study Overview and Background

Title of Case Study

The influence of biophysical and socio-cultural factors on wildlife and other natural resources within Tarangire-Manyara Ecosystem of northern Tanzania

Case Study Question

How can land use practices and resource potentials found in the land contiguous to Lake Manyara and Tarangire National Parks be sustainably managed to enhance the economic livelihood of the local population and at the same time promote wildlife conservation?

Background

The Tarangire-Manyara Ecosystem (TME) is one of the key wildlife conservation areas in Tanzania, and part of the Northern tourist circuit including the famous parks of Serengeti, Ngorongoro, Lake Manyara, Tarangire, Arusha and Mt. Kilimanjoro National Parks. TME is estimated to comprise about 35,000 km². Tarangire and Lake Manyara National Parks are the core protected areas in the TME exclusively designated for photographic tourism. Other forms of protected areas in TME include Wildlife Management Areas (WMA) managed by local communities for tourism investment, game control areas (GCAs) and game reserves (GRs) managed by the Wildlife Division in which consumptive utilization such as trophy hunting is allowed. Consumptive utilization is allowed in open areas that fall under the village lands designated as hunting blocks. All protected areas in TME are not fenced, thus, wildlife move freely between the protected areas and adjacent to dispersal areas in community village land. This leads to high levels of human-wildlife interactions and the ensuing human-wildlife conflicts.

For many decades, the primary inhabitants of the TME have been the pastoral Maasai community with low human population density. However, over the past three decades there has been a rapid increase in human population mainly due to immigration, with consequent changes in land use leading to expansion of agriculture, human settlement and peri-urban development. This has resulted into blockage of migratory wildlife routes (such as into Simanjiro plains and to Lake Manyara through Kwakuchinja and Jangwani Corridors) and habitat fragmentation, and has created more opportunities for human-wildlife conflicts. This poses increasing threat to environmental and wildlife conservation in the TME.

The Tarangire-Manyara ecosystem (TME) in the Maasai Steppes of northern Tanzania is also faced with multiple threats ranging from land use changes, tourism proliferation, human population increase and general ecological changes. The parks are renowned for their biodiversity in a relatively dry landscape, but their future is in jeopardy due to insularization. There are growing land use changes, such as large scale farming, unplanned settlements and increase in human population in the dispersal areas, migratory routes and corridors, which are necessary for the free movement of large mammalian species. Moreover, uncontrolled tourist activities and accommodation (such as camp sites and curio shops) around the parks contribute to then insularization of the parks. Uncontrolled and often illegal hunting of wildlife in the dispersal and game controlled areas outside the parks is prevalent, hence endangering critical wildlife species. Human-wildlife conflict is equally rampant, further compromising the future of wildlife conservation, local livelihoods and harmonious co-existence between locals and wildlife.

Unplanned development of tourist accommodation facilities (such as camp sites and lodges) around the parks, although benefiting the local communities, exert a high demand on water, reducing quantity of water discharge into lake Manyara, reducing water quality due to potential pollution from sewerage and domestic effluents. Expanding irrigation in nearby rice farms in Mto wa Mbu town, heavy siltation, pesticide application, pollution caused by erosion and depletion of vegetation due to farming in the highland catchment areas affect the ecology and biodiversity of Lake Manyara and the adjacent wetlands. The summer 2018 course will offer a series of lectures and field exercises that will be used to explore the wildlife conservation issues in the TME through a multidisciplinary approach. Student projects will focus on providing baseline assessments, critical analysis and investigation with the aim of providing information to contribute towards sustainable environment and natural resource management, promote wildlife conservation and livelihood improvement for local communities.

Assessment

Active participation is expected through class discussions, field exercises, field trips and course readings. The assessment breakdown for the course grade is as follows:

| Assessment Item | | Weight (%) |
|--|---|------------|
| EE 10 | Elephant ecology | 22.5 |
| EE 14 | Community based natural resource conservation | 22.5 |
| EE 15 | Management plan paper | 20 |
| EE 19 | Management plan presentation | 5 |
| Total Grade Score for Field Exercises | | 70 |
| | Case study exam | 30 |
| Total | | 100 |

Grading Scheme

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|----|-----------------|----|----------------|----|----------------|---|----------------|
| A | 95.00 – 100.00% | B+ | 86.00 – 89.99% | C+ | 76.00 – 79.99% | D | 60.00 – 69.99% |
| A- | 90.00 – 94.99% | B | 83.00 – 85.99% | C | 73.00 – 75.99% | F | 0.00 – 59.99% |
| | | B- | 80.00 – 82.99% | C- | 70.00 - 72.99% | | |

General Reminders

Assigned readings and hand outs (exercises/assignments) will be available prior to the scheduled activities. Course readings must be read and clarification on issues sought where necessary since ideas and concepts contained in them will be expected to be used and cited appropriately in assigned course essays and research papers.

Plagiarism – using the ideas or material of others without giving due credit – is cheating and will not be tolerated. A grade of zero will be assigned for anyone caught cheating or aiding another person to cheat either actively or passively (e.g. allowing someone to look at your exam).

Deadlines for written field exercises and other assignments are posted to promote equity among students and to allow faculty ample time to review and return assignments in good time. As such, deadlines are firm and extensions will only be considered under the most extreme circumstances. Late

assignments will incur a 10% penalty for each hour that they are late. This means an assignment that is five minutes late will have 10% removed, an assignment that is one hour and five minutes late will have 20% of the grade deducted.

Course Content

Codes: **L** = Lecture, **FE** = Field Exercise, **FL** = Field Lecture, **TL** = Travelling Lecture.

Faculty involved: **CK** = Christian Kiffner, **JM** = John Mwamhanga, **BK** = Bernard Kissui

| No. | Lecture Title and Description | Type/Lecturer | Time (Hrs) | Readings |
|------|---|---------------|------------|---|
| EE01 | <p>Case study introduction: Conservation issues in the Tarangire – Manyara Ecosystem</p> <p>This topic will define the current status of environmental and conservation reality in the ecosystem and elaborate issues that need to be addressed for wildlife and other resource conservation to be successful.</p> | L/BK | 1.5 | <p>Msoffe F, et al (2011)</p> <p>Nelson, F. (eds). 2005.</p> |
| EE02 | <p>Wildlife policy and management in Tanzania</p> <p>This topic will trace the origins of wildlife management and establishment of protected areas in Tanzania (then Tanganyika) from pre-colonial era to contemporary network of protected areas in Tanzania. Will explore strategies and challenges in implementing wildlife policy objectives</p> | L/JM | 1.5 | <p>Ministry of Natural Resources and Tourism (MNRT). 1998.</p> <p>Stolla, F. 2005.</p> <p>Nelson F., et al. 2010.</p> |
| EE03 | <p>Mammal identification and social organization I</p> <p>This topic will give an introduction to large mammal social organization and behavior, putting in context why mammals occur in particular grouping, show dominance and have spatial distribution such as territoriality</p> | L/CK | 1.5 | <p>Estes, R. D. 1991.</p> <p>Kingdon, J. 1997.</p> <p>Jarman, P.J. 1974.</p> |
| EE04 | <p>Environmental conservation initiatives in Karatu District</p> | TL/JM/Guest | 2.5 | N/A |

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|------|--|-----------|-----|--|
| | This lecture will provide an overview of natural resource conservation issues in Karatu district by highlighting the conservation challenges and the current initiatives | | | |
| EE05 | <p>Land use changes and human activities in the Lake Manyara catchment and its consequence to wildlife and environmental conservation.</p> <p>This field lecture will expose students to the the challenges facing Lake Manyara and Tarangire National Parks by observing human encroachment and effects of agriculture, urbanization and human settlements</p> | TL/JM &CK | 3.0 | <p>Tanapa 2010.</p> <p>Rohde, R and Hihorst, T (2009).</p> |
| EE06 | <p>The techniques of studying primates I</p> <p>During this lecture students will learn about behavioral ecology of baboons and will be introduced to primates studying exercise</p> | L/JM | 1.5 | <p>Silk et al. 2002.</p> <p>Estes R. D. 1991. (Page 509-519)</p> |
| EE07 | <p>Mammal identification and social organization II</p> <p>During visits to protected area the student will be able to identify and define social organization of various mammals seen.</p> | FE/CK | 3.0 | See EE04 |
| EE08 | <p>The techniques of studying primates II</p> <p>During this field exercise students put into practice what they learnt in lecture EE 06</p> | FE/JM | 3.0 | <p>Hilland Dunbar, 2002.</p> <p>Estes R. D. 1991. Pages 501- 519</p> |
| EE09 | <p>Studying birds: Count Techniques</p> <p>This is a lecture and a follow up field exercise meant to introduce students to bird ecology and count techniques. Students will as well learn the birds of Rhotia area as they practice use of field guides in bird identification.</p> | L/FE/CK | 3.0 | Dale A. Z, Donald A. T, and David J. P (1996) |
| EE10 | <p>Studying the behavior of African large mammal species – case of African elephant</p> <p>Ecology of African elephants: This lecture explores</p> | L/FE/BK | 3.0 | KANGWANA, K., (1996) |

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|------|---|--------------|-----|---|
| | the behavioral ecology of African elephant. Ecology of African elephants: In this field exercise students will gain skills of collecting behavioral ecology data on large mammals such as; getting to know a population, aging and sexing, and studying behavioral patterns. | | | |
| EE11 | Community based natural resources conservation This lecture will outline concepts and approaches in natural resource conservation and utilization | L/JM | 2.0 | URT. (2007). |
| EE12 | Wildlife-Livestock interactions This lecture is outlining the niche concept with application to coexistence between wild and domestic herbivores | L/CK | 1.5 | Odadi et al. (2011) |
| EE13 | Management planning This lecture will expose students to the methods used commonly to prepare a management plan of a multi-use conservation area | L/CK | 1.5 | The Tanzania Land Conservation Trust (2011) |
| EE14 | Community based natural resources conservation Assessment This field exercise will expose students to a community based effort to conserve forest and water resources | FE/JM | 3.0 | Blomley, T., and Ramadhani, A. (2007). Meshack, C., and Raben, K. (2007). Pfliegner, K., and Moshi, E. (2007). |
| EE15 | Management planning field exercise In this field exercise students will conduct an interdisciplinary assessment of Manyara Ranch. | FE/CK | 3.0 | Manyara Ranch Management Plan |
| EE16 | Wildlife Poaching control in Tanzania Poaching control in Tanzania. This lecture is intended to provide students with the first-hand information on poaching controls in Tanzania and techniques of gathering information on the poaching status in a given area. | L / JM/Guest | 1.5 | N/A |

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|------|--|-------------------------|-----|--|
| EE17 | <p>Integrating wildlife conservation and human development: the case of Ngorongoro Conservation Area, Tanzania</p> <p>Conservation in Ngorongoro is unique and interesting because it has lived in Maasai community. Conservation has been integrated to cater for community interests. This lecture will explore this relationship and the challenges</p> | FL/JM/ Guest | 3.0 | <p>Estes, R.D., Atwood, J.L., Estes, A.B. 2006.</p> <p>Boone, R.B., et al, 2006.</p> |
| EE18 | <p>Community conservation: role and contributions of Wildlife Management Areas (WMA) in Tanzania</p> <p>This topic will explore the relationships between conservation, protected areas and the surrounding communities; and how these interactions are playing out in the Tarangire – Manyara Ecosystem</p> | TL/JM &CK | 3.0 | <p>Nelson.F., and Blomley, T., 2007.</p> <p>Paul Wilfred, 2010.</p> <p>URT. 2003.</p> |
| EE19 | <p>Management plan presentation (In house student presentation and display)</p> <p>The idea behind this module is to impart skills on oral communication and group working skills</p> | Present ation/ CK | 2.0 | |
| EE20 | <p>Conservation and wildlife Research in Serengeti National Park, Tanzania</p> <p>The history of Serengeti National Park, Tanzania, and current research projects</p> <p>This lecture will highlight the history of Serengeti National Park and explore how historic developments interacted with the ecology of the ecosystem; current research projects are briefly summarized.</p> | L/CK | 1.5 | |
| EE21 | <p>Bird diversity in Serengeti National Park: Bird count techniques</p> <p>This field exercise in Serengeti National Park aims to explore the diversity of bird species in Serengeti National Park. Students will learn skills of identifying, counting and understanding the trends in bird species in Serengeti National Park</p> | FE/CK | 3.0 | <p>Dale A. Z, Donald A. T, and David J. P (1996)</p> |

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|------|---|--------------------|------|---------------------------|
| EE22 | Carnivore behavior in Serengeti National Park Student will study carnivore ecology in Serengeti National Park, focusing on activity pattern and feeding ecology | FE/CK | 3.0 | Estes, R. D. 1991. |
| EE23 | African traditions and culture: Case of Iraqw (Part I -II) | L/FE/J M | 7.5 | N/A |
| | | Total hours | 59.0 | |

Since we offer a program that is likely more intensive than you might be used to at your home institution, missing even one lecture can have a proportionally greater effect on your final grade simply because there is little room to make up for lost time. Participation in all components of the program is mandatory because your actions can significantly affect the experience you and your classmates have while at CWMS. Therefore, it is important that you are prompt for all course activities.

Field Exercises

| <i>Field Exercise</i> | <i>Objectives</i> | <i>Deliverables</i> |
|---|---|--|
| EE 07: Mammal identification and social organization II (CK) | -Identify common large wildlife mammals in the African savanna ecosystems -Distinguish (if possible) between males and females of each species -Observe and document social organizations of common large mammals | -Quiz on species and sex identification of common wildlife species as well as assessing knowledge on feeding guides. -This exercise will not be graded. |
| EE 08: The techniques of studying primates II (JM) | During this lecture students will learn about behavioral ecology of baboons. | Gain knowledge on conducting primate studies. This exercise will not be graded |
| EE 09: Studying birds: Count techniques (CK) | -Gain knowledge of bird ecology -Learn techniques of bird identification -Use skills in identifying birds of TME | -A checklist of the common birds in Rhotia-Moyo Hill area -A checklist of common birds of Serengeti National Park and their habitat utilization -This exercise will not be graded |
| EE 10: Studying the behavior of African large mammal species (BK) | Gain skills of collecting behavioral ecology data on large mammals (e.g. African elephants) -Getting to know a population -Ageing and sexing -Studying behavioral patterns | -A field based practice of this method for understanding individual large mammal populations. -This exercise will be undertaken during the Tangire field trip and will be graded based on a written report. |

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|--|--|---|
| EE 11/14: Community based natural resource conservation (JM) | Acquire knowledge on social surveys and participatory methods | This exercise will be graded and is worth 22.5% of the EE course grade. A report will be required for grading. |
| EE 15: Management planning field exercise (CK) | Learn how to plan, prepare, and conduct a resource inventory and interviews in a multiple-use area. | -Students will be divided into groups to carry out a diversity of assessments in Manyara Ranch. -Students will write a graded group report (20% of the EE course) and will present their management plans (5% of EE course). |
| EE 21: Bird diversity in Serengeti National Park: Checklist of birds in Serengeti (CK) | In this exercise, students will learn the patterns of bird aggregations in Serengeti National Park; Students will practice how to identify birds. -Discussion of the trends in patterns of birds in the Serengeti National Park | -A field based assessment of animal-habitat assessment and a class discussion thereafter. -This exercise will not be graded and will be undertaken during the Serengeti field trip. |
| EE 22: Carnivore ecology (CK) | Students will learn the behavioral ecology of lions focusing on: time budgeting, food choice, habitat use, and hunting strategy. | This exercise will not be graded and will be undertaken during the Serengeti field trip. |
| EE 23: African traditions and culture; Case of Iraqw (JM) | To give students the chance to learn about African culture and its relevance to natural resource management in TME | This exercise will not be graded. |

Reading List

Blomley, T., and Ramadhani, A. (2007). Participatory Forest Management in Tanzania. An overview of status, progress and challenges ahead. *The Arc Journal*, No. 21 September, 2007. pp 3 – 5.

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- Nelson.F.,** and Blomley, T., 2007. Is Participatory Forest Management Working? Eating from the same plate: Integrating Community-based Wildlife and Forest management. *The Arc Journal* ISSN 0856 – 8715 pp 11 – 13.
- Odadi et al. (2011) African Wild Ungulates Compete with or Facilitate Cattle Depending on Season. *Science*, 333, 1753-1755.
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- Rohde, R** and Hihorst, T (2009). A profile of environmental changes in Lake Manyara basin, Tanzania, Sunrise project

Silk et al. 2002. The structure of social relationship among female savannah Baboons in Moremi Reserve, Botswana. *Behaviour* 136; 679-703

Stolla, F. 2005. Wildlife management areas: a legal analysis. TNRF Occasional Paper No. 5.

Tanapa 2010. Lake Manyara, plenty of water, yet semi-arid area, Citizen newspaper

The Tanzania Land Conservation Trust (2011) Manyara Trust Lands Conservation Area Management Plan, 2011 – 2021. Unpublished report

URT. (2007). Community Based Forest Management. *Guidelines for the establishment of village land forest reserves and community forest reserves*. Forestry and Beekeeping Division, Ministry of Natural Resources and Tourism, Dar es Salaam. Pp 1 – 6

URT. 2003. Reference Manual for Implementing Guidelines for the Designation and Management of Wildlife Management Areas (WMAs) in Tanzania, Ministry of Natural Resources and Tourism.

Wilfred, P. 2010. Towards Sustainable Wildlife Management Areas in Tanzania. *Mongabay.com Open Access Journal - Tropical Conservation Science* Vol. 3 (1):103-116, 20