THE SCHOOL FOR FIELD STUDIES

Giraffe Ecology and Conservation
SFS 3253

Syllabus

The School for Field Studies (SFS)
Center for Endangered Species Conservation
Kimana, Kenya

4 credits

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 CONTENT SUBJECT TO CHANGE

Please note that this is a copy of a recent syllabus. A final syllabus will be provided to students on the first day of academic programming.

SFS programs are different from other travel or study abroad programs. Each iteration of a program is unique and often cannot be implemented exactly as planned for a variety of reasons. There are factors which, although monitored closely, are beyond our control. For example:

- Changes in access to or expiration or change in terms of permits to the highly regulated and sensitive environments in which we work;
- Changes in social/political conditions or tenuous weather situations/natural disasters may require changes to sites or plans, often with little notice;
- Some aspects of programs depend on the current faculty team as well as the goodwill and generosity of individuals, communities, and institutions which lend support.

Please be advised that these or other variables may require changes before or during the program. Part of the SFS experience is adapting to changing conditions and overcoming the obstacles that they may present. In other words, this is a field program, and the field can change.

Course Overview

The Giraffe (*Giraffa camelopardalis*) is an iconic species in the woodlands of Africa. As the world's tallest land mammal, they have a widespread distribution across Southern and eastern Africa. and has profound influence on the structure and dynamics of landscapes where it co-exists with other species. Historically, giraffes ranged widely across much of the African continent, but they are now confined in national parks and reserves, conservancies, private ranches, and community land. It's one of the most majestic, charismatic, and charming wildlife species but its conservation and population status has continued to attract a lot of concern since their population decline was noticed in 1999 (Giraffe Conservation Foundation, 2013). Across Sub-Saharan Africa, the total numbers of giraffes have reduced by 30% over the past three decades (Ruppert et al., 2021). A current crisis for wild giraffes is their significant decline by over 40% in the past 15 years, with fewer than 80,000 individuals now surviving in the wild (Fennessy et al., 2019).

Landscape changes and modifications in the form of habitat loss and fragmentation is the biggest threat to long-term conservation of giraffes. Habitats which were once woodlands and relatively intact have experienced significant human encroachment and development leading to fragmentation of giraffe habitats. Consequently, most giraffe populations being confined in protected areas where continuous consumption of acacia trees may compromise their health and especially in young giraffes (Brenneman *et al.,* 2009). This also makes them easy and opportunistic prey among predators like lions.

Within the tourism industry, the giraffe is one of the megaherbivores that attracts tourists. Their silhouettes present an outstanding and unmistakable stature that makes people use them to advertise and market a range of goods around the world. Like elephants and rhinos, they are agents of change in habitats and landscape, and can have profound influence on the structure and dynamics of ecosystems where they live. They consume top leaves, flowers, seeds, fruits, and other palatable parts of the tree, thereby opening the environment, promoting growth of foliage for themselves and other animals. In fact, acacias trees have been reported to produce new shoots when moderately browsed by giraffes. Giraffes are also important agents of seed dispersal through their droppings in areas where plant life can thrive. This method of dispersal is critical to most seeds, as they are pre-treated and ready for germination once they go through the digestive tract. Giraffes also play an important role in pollination, especially in areas where acacia species have been found to be declining due to giraffe and other mega-fauna protection. By hosting ticks on their bodies, giraffes attract oxpeckers, which creates a mutually beneficial relationship between the two species.

The spatial-temporal distribution of giraffes in Africa is influenced by diverse factors. Habitat type is the key determinant that greatly influences when and where they will be found. They prefer medium habitats that are low in closed habitats and canopies. This is due to factors such as predation, competition, and quality of food resources. Seasonality is another factor that determines giraffe use of the available habitats, and they generally avoid low lying areas and prefer high grounds. Habitat with even grounds tend to have even distribution of giraffes in all habitats, and this could be due to forage availability or choice of forage (Gathuku *et al.,* 2021).

Giraffes have not been spared by the current climatic changes**.** Climate change affects ecosystems through increase in ambient temperature and changes in precipitation leading to severe droughts. This leads to shifts in wildlife range and distribution of many species. Changes arising from Climate change have profound impact on availability, accessibility, and quality of food resources that that are used by wildlife, giraffes included. It also leads to prevalence of human-wildlife conflicts which become more

severe during times of drought. This is partly due to an increase in demand and competition for shared resources such as water and forage. In the case of giraffes, acacia trees that they prefer are also highly valued by the local community for fuelwood, charcoal production, traditional medicine, fencing, construction of homesteads and livestock sheds. Climate change also leads to a noticeable change in wildlife behavior, with some non-migratory species tending to develop migratory tendencies. Giraffes are known to be partial migrants that move in relation to seasonality and changes in plant phenology. Another serious impact of Climate change is change in nutrients concentration in plants and water sources. Mature acacia trees that giraffes forage on tend to grow taller making it rather difficult for giraffes to browse on them.

Giraffes are more vulnerable to disease outbreaks such as rinderpest, anthrax, papillomavirus infection, and lumpy skin disease which are common among mammalian taxa. Emergence of new diseases like the giraffe skin disease (GSD) and giraffe ear disease (GED) have been recorded among East African populations (Muneza et al*.,* 2016). However, there's scanty information on the effects of these diseases on giraffes. There is, therefore, a need to understand the dynamics of such diseases in relation to endangered giraffe populations like the Maasai giraffe.

Giraffe mortality due to snaring in and outside protected areas contributes to difficulty in their mobility. In addition, permanent injuries in affected animals can maim them which makes them prone to predation (Heurich, 2016). Research has shown that giraffes that had snare injuries had poor body condition with transboundary landscape a like long the Kenya-Tanzania borderland recording higher number. The outbreak of Covid-19 pandemic may have contributed to further decline in giraffe numbers due to a surge in bush meat activities. Many people in rural areas rely on wild meat as a source of protein or income. Ruppert et al., (2021) reported there was a surge in bushmeat poaching during the Covid-19 pandemic and giraffes were among wild animals that were highly targeted. Bushmeat is therefore another major threat to long-term conservation of giraffes and if this is not effectively mitigated it will lead to a significant decline in their numbers.

In this course, students will learn and examine diverse aspects of giraffes in Africa, Kenya, especially Amboseli, Nakuru and Maasai-mara landscapes. This learning process will be achieved through classroom interactive learning sessions, experiential field activities, class discussions and lectures by Faculty and various guests.

Course Case Study

Case Study
Giraffe demography, ecology, behavior, movement, resource and space use, management, and conservation.

How can changes in land tenure, human demography and land use in the Amboseli Ecosystem be effectively managed to enhance sustainable and long-term conservation of giraffes whilst promoting socio-economic welling and co-existence of local communities with giraffes?

Background: The Amboseli Ecosystem
This case study will use the Ecosystem Approach, which considers the need to promote landscape connectivity as a key pillar in sustainable and long-term conservation of giraffes. Learning will focus on Maasai giraffe which are found in in Southeastern part of Kenya. The ecosystem comprises of expansive community land which were formerly Maasai group ranches but have recently been

subdivided. Key protected areas, in the landscape include Amboseli, Chyulu Hills, Tsavo West and Mt. Kilimanjaro N. Parks (located in Tanzania along the Kenya-Tanzania borderland). There are also numerous community owned sanctuaries/conservancies, which were established in the recent past to mainstream locals into wildlife conservation and wildlife-based tourism. The local population is made up of a mixed community made up of different ethnic groups; the Maasai, Kikuyu and Kamba among others but the Maasai are the predominant ethnic group. Of importance are the Maasai people, whose pastoral lifestyle has remained highly tied to the environmental conditions and dynamics of the landscape. Thus, this landscape unlike most parts of the country is still endowed with diverse and high wildlife abundance including elephants, Maasai giraffe, lion, spotted hyena, cape buffalo albeit in a rapidly human altered and rapidly changing environment.

Despite being iconically African, the giraffes are unable to circumvent the pressure of Climate change, land use and land tenure changes in their lived-in landscapes. The Amboseli Ecosystem is one such ecosystem that has experienced rapid and significant shifts in land tenure and transformations and socio-economic dynamics in the recent past. A land majorly inhabited by native pastoral Maasai community, has continued to experience increase in human-wildlife, intensive competition for scarce resources such as water and pasture. Collectively, these changes and transformation of the ecosystem are a major threat to long-term conservation of not only the Maasai giraffe but most of the wildlife. The threats facing wildlife and its conservation are also a big danger to availability and sustainable use of other critical natural resources particularly water, pasture, and woody plants. And recently, Climate change has also become another serious and worrisome environmental challenge in the entire ecosystem, and whose impacts on the environment, wildlife, and natural resources as well as local livelihoods are devastating.

Large scale habitat changes have occurred in the Amboseli Ecosystem over the last two decades due to anthropogenic and natural activities. The most conspicuous feature is the decline of the Acacia xanthopholea woodlands, with over 90% of trees drying out. The primary cause of habitat changes has been attributed to salinization of the Amboseli basin. Prolonged droughts due to Climate change have also led to exposure of soils to erosion processes. Reduction in vegetation cover in the upland areas of Loitokitok along the Kenya-Tanzania border have accelerated occurrence of surface runoff and floods into the basin. This has partly contributed to a rise in the water table in the basin including Amboseli N. Park resulting in a progressive increase in the level of soluble salts in the rooting horizon of Acacia and other woody plants. Elephants have also played a major role in woodland decline within the basin. Overall, these changes have forced giraffes to inhabit community conservancies where shrubland habitats can sustain them. However, they face stiff competition for woody species resources from local communities. In this regard, there is need to understand the type of habitats that giraffes inhabit within the ecosystem, and whether they are suitable and adequate to support viable populations.

Like other parts of the country, human population growth in the Amboseli region continues to increase. The changes in Amboseli region could be attributed to the influx of non-Maasai ethnic communities, tourism activities and large areas of arable land compared to other parts of the country continue to attract many. This demand for land has made the Maasais sell their land and change to sedentary lifestyle like the new inhabitants. This has led further to an unfavorable environment for wildlife and resources conservation. In addition, the county's environmental and resources governance is still evolving, its unstructured, and existing laws and guidelines are not effectively enforced. Currently, there's rampant environmental degradation, misuse, commercialization, and overexploitation of natural resources with total disregard of the impacts on livelihoods which are largely dependent on natural resources.

During the program, students will visit Amboseli National Park, and community conservancies in the former Kimana group ranch. There will be an expedition for a couple of days in Maasai Mara National Reserve and Nakuru National Park. In Maasai Mara students will examine Maasai giraffe conservation in cross-border context and the role of veterinary services in conservation of giraffes. Lake Nakuru National Park is one of the few insularized protected areas in Kenya, and it's a key Rothschild giraffe conservation area in the country. Students and Faculty will examine use of the park as a recovery strategy for this giraffe species and associated challenges.

Learning Objectives

By the end of the course, students are expected to be able to:

1. Discuss the status of giraffe as an endangered species, its role as a keystone and iconic species.
2. Use quantitative and qualitative research methods and techniques in studying giraffe ecology, management, and conservation dynamics.
3. Examine giraffe ecology and social organization, and implications on their conservation in Kenya.
4. Evaluate key constraints to giraffes' conservation considering ongoing land tenure transformations in Kenya and the Amboseli Ecosystem.
5. Examine how challenges and opportunities of conserving giraffes in local contexts are embedded in global and national political and economic processes.
6. Appraise local and community-centered approaches to solving challenges facing giraffe conservation in Kenya.
7. Investigate how the socio-economic, cultural, and political context of local communities is critical in enhancing human-giraffe coexistence in Kenya.
8. Design a suitable conservation education strategy that can contribute to solving anthropogenic problems facing conservation of giraffes in our world today.

Assessment

The evaluation breakdown for the course is as follows:

Assessment Item	Value (%)
Individual essay summarizing giraffe behavior field practice	20
Group paper on conservation challenges facing Maasai giraffes	10
Short film and storytelling project	20
Group presentation on community perceptions and attitudes towards giraffes	10
Participation	10
Final exam	30
TOTAL	**100**

Individual essay summarizing giraffe behavior field practice (20%)

Students will conduct a field practice looking at Giraffe behavior and activity time budget. Afterwards, students will collate and analyze data, and write a short individual essay.

Group paper on conservation challenges facing Maasai giraffes (10%)

In this field exercise, students will assess the challenges facing Maasai giraffe in Amboseli ecosystem and Maasai Mara ecosystem and make comparisons in Amboseli ecosystem. The research will involve

observational assessment of the habitats and surrounding factors that determine giraffe distribution. Afterwards, students will write a group 5-page paper summarizing their findings.

Short film and storytelling project (20%)

Creating a film to apply the integration storytelling methods in conservation science of endangered giraffe conservation in Kenya: Students will be asked to make short video clips, compile, and edit into 10-15-minute educative film on giraffe conservation. They are required to employ storytelling techniques in educating the audience. They record the short clips during field exercises for all the courses, expeditions, home stays and park visits, then compile the video clips into one ~15 min film.

Group presentation on community perceptions and attitudes towards giraffes (10%)

Presenting results on communities' perceptions and attitudes towards giraffe and their conservation in former Kimana group ranch: Students will analyze data collected on perceptions and attitudes of local communities on giraffes and their conservation in former Kimana group ranch. Students will thereafter work in groups to make a presentation on findings from the survey on perceptions and attitudes of communities on giraffes and their conservation.

Participation (10%)

Everybody should be prepared for each academic session. This implies reading the materials for each session with enough detail to be able to ask relevant questions and to participate in analytical discussions about the key issues. Active participation during classes, discussions, assignments, and hikes is expected. All faculty members shall work together to evaluate students on their participation throughout the course. A grading rubric shall be provided to students at the beginning of the program.

Final Exam (30%)

The final exam will comprise of 6 questions of equal weight in terms of points. Each of the two faculties will set 3 questions from which students will answer any 2. Thus, in total, students will answer 4 questions. Students will be expected to demonstrate an understanding of giraffe ecology, their conservations, as well associated human dimensions, and conservations, from the diverse class activities, field exercises and lecture and use them in contexts as appropriate.

Grading Scheme

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

Readings – 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.

Honor Code/Plagiarism – SFS places high expectations on their students and we hold students accountable for their behaviors. SFS students are held to the honor code below. SFS has a zero-tolerance policy towards student cheating, plagiarism, data falsification, and any other form of dishonest academic and/or research practice or behavior. Using the ideas or material of others without giving due credit is cheating and will not be tolerated. Any SFS student found to have engaged in or facilitated academic and/or research dishonesty will receive no credit (0%) for that activity.

"SFS does not tolerate cheating or plagiarism in any form. While participating in an SFS program, students are expected to refrain from cheating, plagiarism and any other behavior which would result in a student receiving credit for work which they did not accomplish on their own. Students are expected to report any instance of cheating or plagiarism by others."

Deadlines – 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.

Content Statement – Every student comes to SFS with unique life experiences, which contribute to the way various information is processed. Some of the content in this course may be intellectually or emotionally challenging but has been intentionally selected to achieve certain learning goals and/or showcase the complexity of many modern issues. If you anticipate a challenge engaging with a certain topic or find that you are struggling with certain discussions, we encourage you to talk about it with faculty, friends, family, the HWM, or access available mental health resources.

Participation – 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 attending the SFS program. Therefore, it is important that you are prompt for all course activities.

Course Content

Type: L: Lecture, **FEX:** Field Exercise, **TL:** Travelling Lecture, **GL:** Guest Lecture, **CD:** Class discussion, **V:** Video & Films, **LB**: Lab

No	*Title and outline*	*Type*	*Time (hrs)*	*Readings*
1	**Case study introduction with a focus on Giraffe ecology and conservation:** This introductory lecture will give an overview on giraffe vulnerability in Anthropocene era with a focus on endangered giraffes globally, regionally and in the Southern Part of Kenya.	L	2 hrs 30 min	Okello and Kiringe (2004). Shorrocks, B. (2016).
2	**Anthropological factors and landscape heterogeneity affecting Giraffe conservation in former Kimana and Imbirikani Group Ranches:** This travelling lecture will explore issues related to land tenure transformation,	TL	3 hrs	

No	Title and outline	Type	Time (hrs)	Readings
	changes in settlement patterns, cultural beliefs that have direct or indirect bearing on giraffe conservation in former Kimana and Imbirikani Group ranches. It involves a drive through the former Kimana Group Ranch and Imbirikani during which Faculty will make strategic stops to demonstrate to the students the following: land uses, water resources availability, Maasai homesteads and their lifestyle and general state of the landscape environment. This lecture and GEC 01 will collectively ground students in understanding the general ecological and sociocultural contexts that giraffe conservation in Amboseli ecosystem is embedded.			
3	**Land tenure regimes in Kenya, Land Use Changes, and their impacts on wildlife conservation:** In Kenya land and resource tenure is still at its nascent stage. This classroom lecture will trace land tenure transformation in Kenya, since the colonial times to current situation, and how these changes in land tenure impinge on the conservation of giraffe and other wildlife species of concern.	L	1 hr 40 min	Groom and Western (2013). Mwangi and Ostrom (2009). Kantai (2007). Pas, Watson, and Butt (2023).
4	**Historical background of conservation practice and thought** *Film : A place without people (54 min)* This film tackles the history of creation of world-famous conservation areas in Africa, and the associated human rights issues. Focusing on Tanzania's Serengeti and Ngorongoro parks, the film shines a light on the intersection of conservation, land use, community livelihoods and the tourism industry, which has similarities with Kenya.	L; V	1 hr 40 min	Nelson (2003). Cockerill and Hagerman (2020). Kothari et al. (2013).
5	**Giraffe taxonomy and ecology:** The lecture will introduce students to evolution of wildlife management as a discipline and the conservation changes to endangered species in the Amboseli ecosystem.	L	1 hr 40 min	Shorrocks, B. (2016).
6	**Integrating storytelling in the science of conserving giraffe in Kenya:** In this lecture, the faculty discusses Storytelling as a useful tool that conservation scientists and managers can use to educate, in compelling ways, a wider audience on the dynamics of conserving endangered large mammals in Kenya. Examples are discussed in class and thereafter faculty gives a semester-long assignment. Students are required to work in groups	L	50 min	Green, Grorud-Colvert, and Mannix (2018). De Groot and Zwaal (2007).

No	Title and outline	Type	Time (hrs)	Readings
	throughout the semester to create a 10 -15 -minute film in which they use storytelling methods to educate a digital audience about giraffes and their conservation. To film scenes and landscapes, students will integrate this assignment in all Field Exercises, Expeditions and Guest Lectures, for all the courses. Students may create a YouTube Channel for Kenya Program and upload the films there. On the last day, Faculty and some stakeholders are invited to watch and review the films.			
7	**Giraffe behavior and distribution:** This lecture will introduce students to giraffe behavior and distribution in Africa, with focus on endangered giraffe species in Kenya. The lecture will also prepare student for ethogram activity within the ALOCA conservancies.	L	1 hr 30 min	Shorrocks, B. (2016). Kingdon, J. (1997). Marealle, Holmern, and Røskaft (2020).
8	**Community perceptions, attitudes and beliefs towards giraffes and their conservation in Amboseli ecosystem:** In this lecture students will learn about attitude and perceptions of communities who share the same habitat with giraffes, towards their conservation. Questions addressed include how cultures and socio-economic contexts shape those attitudes and perceptions towards giraffes and their conservation. Furthermore, students will learn ways of tailoring conservation education to localized contexts, for enhanced integration of human dimensions information into giraffe conservation efforts.	L	50 min	Ruppert et al. (2022). Gathuku, Gichuki, Ngare, and Otieno (2021). Mahenya and Chacha (2020).
9	**Assessing community's perceptions and attitudes towards giraffe and their conservation in former Kimana group ranch:** In this field exercise, students will conduct a survey with community members in the former Kimana group ranch to determine their perceptions and attitudes towards giraffes and their conservation, as well as determine measures to take to improve coexistence.	FEX	3 hrs	
10	**Presenting results on communities' perceptions and attitudes towards giraffe and their conservation in former Kimana group ranch:** Students will make a presentation in groups on findings from the survey on perceptions and attitudes of communities on giraffe and their conservation.	CD	3 hrs	
11	**Giraffe behavior and activity time budget:** This field exercise will introduce students to giraffe ethogram within the ALOCA conservancies.	FEX	3 hrs	Paulse et al (2023). Kingdon, J. (1997).

No	Title and outline	Type	Time (hrs)	Readings
12	**Aging and sexing of giraffes I:** In this lecture, students will learn the anatomy of giraffe with focus on aging and sexing individuals of Maasai giraffe.	L	1 hr	Strauss (2015).
13	**Aging and sexing of giraffes II:** Students will have practical field aging and sexing of individual Maasai giraffe in the ALOCA conservancies.	FEX	3 hrs	
14	**Global, regional, and national legal and policy instruments for wildlife conservation:** This classroom lecture critically examines some of treaties, laws and policies that govern the conservation and interaction with wildlife, especially the giraffe. These may include CITES, East African frameworks on the conservation of the elephants, rhinos and endangered cats, Kenya's Wildlife Conservation and Management Act. Etc. Focus will also be on the international collaboration on the enforcement of these instruments. Students will watch a film to learn how the enforcement of these laws and policies intersects with human rights concerns.	FEX	1 hr 40 min	Duffy (2014). Duffy (2013). Büscher (2018).
15	**The political economy of giraffe poaching and trade on giraffe products:** In this lecture students will learn about factors that mediate market-embedded crimes on giraffes. Local and international trade networks for giraffes and associated products are explored and how these markets are sustained and linked with other forms of cross border crimes e.g., money laundering, terrorism, drug trafficking etc. Rationalities of commodification e.g., conservation gains of trophy hunting, local meat supply, and consumerism of luxury goods will be discussed.	L	1 hr 40 min	Massé and Lunstrum (2016). Anderson and Jooste (2014).
16	**Habitat assessment techniques:** This field exercise will be done in one of the ALOCA conservancies and will provide students with techniques on how to evaluate woody vegetation and range condition. Students will also learn the implications of range deterioration condition on giraffe conservation.	FEX	3 hrs	Coulloudon et al. (1999). Ruch et al. (2008).
17	**Giraffe habitat assessment techniques:** Students will use this lab session to synthesize data on woody vegetation collected during the past FEX.	Lab	3 hrs	Ruch et al. (2008).
18	**Conservation challenges facing Maasai giraffes I:** In this field exercise, student will identify current and emerging threats and challenges facing Maasai giraffe in Amboseli National park, in Amboseli ecosystem.	FEX	1 hr 40 min	Gašparová et al. (2020). Shorrocks, B. (2016).
19	**Conservation challenges facing Maasai giraffes II:** This field exercise students will identify current and emerging threats and challenges facing Maasai giraffe in Maasai Mara national reserve, in Maasai mara ecosystem.	FEX	1 hr 40 min	Gašparová et al. (2020). Shorrocks, B. (2016).

No	Title and outline	Type	Time (hrs)	Readings
20	**Application of radio telemetry in giraffe conservation:** Guest lecture from Kenya Wildlife Service (KWS) will explore the technology applications that KWS is using to monitor giraffe and how the data collected from radio telemetry is useful in conservation of giraffe outside protected areas. Students will then be shown the radio telemetry instruments.	GL	1 hr 30 min	Kenward (1985). Langman (1973).
21	**Wildlife diseases and conservation:** A guest from Kenya Wildlife Service Veterinary Department will give an introductory lecture on diseases affecting wildlife and the intervention involvement by KWS.	GL	1 hr 30 min	Tompkins et al (2011).
22	**Cross-border collaboration in the conservation of giraffes and other wildlife species:** The guest lecture will be given by a practitioner in giraffe conservation in the Maasai Mara ecosystem. The lecture will focus on the opportunities and challenges for Kenya-Tanzania collaboration in conserving giraffes and other wildlife species in the Mara-Serengeti ecosystem.	GL	1 hr 30 min	Shah and Krhoda (2018).
	Role of non-governmental organizations in giraffe conservation: Guest lecture from non-Governmental organization, Sheldrick Wildlife Trust (SWT) will give a lecture on their role in conservation of orphaned, injured/abandoned endangered species with focus on giraffe orphanage center. Student will grow their understanding of procedures involved in rescue operations.	GL	1 hr 30 min	Minick (2013).
	Community-based conservation and its role in conserving giraffes in the Maasai Mara ecosystem: A manager of a community conservancy in Maasai Mara ecosystem will talk about how the conservancy model helps in creating conservation space for giraffes within the context of changing land tenure. In addition, the lecture will also explore modalities of engaging communities in giraffe conservation.	GL	1 hr 30 min	Fisher et al. (2021) Liang et al. (2018).
	In-situ and ex-situ conservation model for recovery of Rothschild's giraffe: This traveling lecture will seek to understand the recovery strategy for Rothschild giraffe in Lake Nakuru N. Park using a combination of in-situ-ex-situ conservation model.	TL	1 hr 30 min	Bond, Ozgul, and Lee (2023). Ngare, Gichuki, and Gathuku (2021).
	Course overview and exam review: This session will involve review of the key highlights of the course and a review on how the students will be examined.	L	50 min	
		Total	**50.5**	

Reading List

1. Anderson, B., & Jooste, J. (2014). Wildlife poaching: Africa's surging trafficking threat. Africa Center for Strategic Studies.
2. Bond, M. L., Ozgul, A., & Lee, D. (2023). Effect of local climate anomalies on giraffe survival. Biodiversity and Conservation, 1-19.
3. Büscher, B. (2018). From biopower to ontopower? Violent responses to wildlife crime and the new geographies of conservation. Conservation and Society, 16(2), 157-169.
4. Cockerill, K., & Hagerman, S. (2020). Historical insights for understanding the emergence of community-based conservation in Kenya: international agendas, colonial legacies, and contested worldviews. Ecology and Society, 25(2).
5. Coulloudon, B., Eshelman, K., Gianola, J., Habich, N., Hughes, L., Johnson, C., ... & Willoughby, J. W. (1999). Sampling vegetation attributes: interagency technical reference.
6. De Groot, W. T., & Zwaal, N. (2007). Storytelling as a medium for balanced dialogue on conservation in Cameroon. Environmental conservation, 34(1), 45-54.
7. Duffy, R. (2013). Global environmental governance and north—south dynamics: the case of the CITES. Environment and Planning C: Government and Policy, 31(2), 222-239.
8. Duffy, R. (2014). Waging a war to save biodiversity: the rise of militarized conservation. International Affairs, 90(4), 819-834
9. Fisher, Keely A.; Donnelly, Marc R.; and Adams, Collin (2021). "The Rise of Community Based Natural Resource Management Strategies as Explained by Transaction Costs," Undergraduate Economic Review: Vol. 18 : Iss. 1 , Article 5.
10. Gašparová, K., Fennessy, J., Rabeil, T., & Brandlová, K. (2020). Threat analysis: West African giraffe (Giraffa camelopardalis peralta) in Republic of Niger.
11. Gathuku, G. N., Gichuki, C., Ngare, I., & Otieno, M. (2021). Community Attitudes and Knowledge on Conservation of Rothschild's Giraffes in Ruma National Park and Mwea National Reserve in Kenya. Asian Journal of Environment & Ecology, 16(4), 41-50.
12. Green, S. J., Grorud-Colvert, K., & Mannix, H. (2018). Uniting science and stories: perspectives on the value of storytelling for communicating science. Facets, 3(1), 164-173.
13. Groom and Western (2013). Impact of land subdivision and sedentarization on wildlife in Kenya's Southern Rangelands Rangeland Ecology & Management, 66(1):1-9.
14. Kantai (2007). In the grip of a vampire state: Maasai land struggles in Kenyan politics.
15. Kenward, R. E. (1985). Raptor radio-tracking and telemetry. ICBP Technical publication, 5(409), e420.
16. Kingdon, J. (1997). The Kingdon Field Guide to African Mammals. A.P., London. (Suggested Field Guide/Library)
17. Kothari et al. (2013). Conservation as if people also mattered: Policy and practice of community-based conservation.
18. Langman, V. A. (1973). Radio-tracking giraffe for ecological studies. South African Journal of Wildlife Research-24-month delayed open access, 3(2), 75-78.

19. Liang, W., Linxiu, Z., Min, W., Erustus, K., & Cong, D. (2018). The Development of Wildlife Community Conservancies in Kenya: A Preliminary Review. Journal of Resources and Ecology, 9(3), 250-256.

20. Mahenya, O., & Chacha, N. (2020). Attitudes of the local community toward giraffe in Arusha National Park, Tanzania. Protected Areas in Northern Tanzania: Local Communities, Land Use Change, and Management Challenges, 45-57.

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