



2024 CONS 454 Field School

Communities, Wildlife, and Conservation in Post-Apartheid South Africa

--Professors David Bunn and Melissa McHale

(Department of Forest Resources Management, University of British Columbia)



Course information

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Title	Communities, Wildlife, and Conservation in Post-Apartheid South Africa
Code (section):	CONS 454
Term:	2025 (April – June 2025)
Credits:	6
Schedule:	Theoretical lectures in Vancouver in weeks 1,2, and 7, and fieldwork in South Africa in weeks 3-5.
Pre-requisites:	None
Co-requisites:	None
Syllabus version:	2024-08-29

1. Teaching team*

Instructors:

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*The course is supported by the contribution of several leading savanna scientists and community leaders, as guests, both during the lecture phase in Vancouver and fieldwork in South Africa. This team includes, amongst others, Dr. Navashni Govender [Senior Manager, Conservation Services SANParks], Nicholas Funda [Chief Ranger, Kruger National Park], Paul Allin [Research Director, Olifants West Nature Reserve], Dr. Wayne Twine [Wits Rural Facility], Dr. Rhian Twine [Wits Rural Facility], Dr. Tony Swemmer [SAEON], Dr. Danny Govender [General Manager, Scientific Services KNP], Dr. Louise Swemmer [Social and Economic Sciences, SANParks], Dr. Laurence Kruger [Head: OTS South Africa], Dr. Jody Vogeler [Colorado State, NASA], Steven Midzi [Section Ranger, Kruger National Park], Thomas Ngobene [Freelance safari guide], Lamson Maluleke [Collins Chabane Municipality]

2. Course description

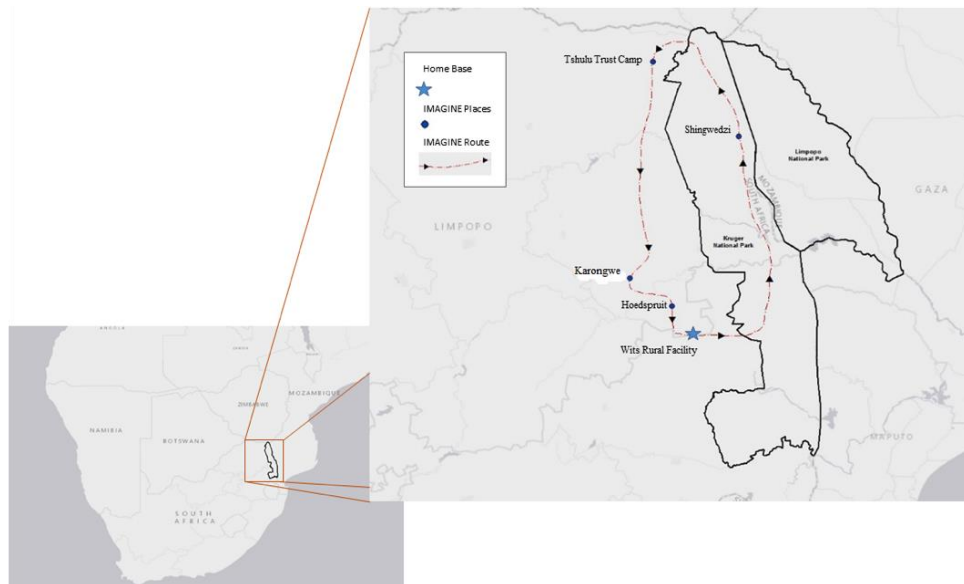


Figure 1: Course location in north eastern South Africa

CONS 454

Wildlife conservation has a long and difficult association with colonialism. In Africa, many of its early methods derived from violent and exclusive settler-colonial land management practices designed to fortify protected areas against the interests of local African and working class people.

This new program takes students into the heart of the African savanna biome to work with and learn from rural community members. It will offer insights into the innovative forms of community-based natural resource management emerging in South Africa. Our goal will be to understand the new landscapes of conservation associated with post-apartheid South Africa, and in the process, to explore the wicked problems faced by the millions of people living in poverty on the edge of protected areas. Unlike most study-abroad programs in the region, this is not a tour. It combines some very adventurous travel with detailed field experience, data gathering, and meaningful, long-term partnerships with rural South African communities.

The main focus is on social-ecological issues facing the 2.9 million or so people living on the edge of one of the world's great game reserves: the Kruger National Park. Flying in to a research base in the southern part of the Park, we'll spend time interacting with community leaders in Kruger's southern border villages, studying land use/land cover change and rewilding in the Greater Kruger National Park region, post-apartheid land restitution, rural resource harvesting, and human-wildlife conflict. Moving through Kruger itself, travelling in open safari vehicles, we'll experience the reserve's remarkable savanna species diversity. Working with South African National Parks scientists, we'll examine current issues around elephant and lion management, and the racial and economic complexities surrounding rhino poaching.

The course offers an intimate and interactive experience of different models of "decolonized" conservation management: innovative adaptive management in a national park; work with unarmed anti-poaching teams of black women in private reserves; an emergent community-conservation project on land returned to tribal authorities in the post-apartheid land claims process; a community-managed ecotourism and research base; and a high end safari tourism lodge. A highlight of the course will be a week of fieldwork in the villages of Hamakuya, on Kruger's northern border and close to Zimbabwe. Staying in platform tents and rural huts, we'll be privileged to work with an energetic young team of African environmentalists associated with the Tshulu Trust, helping to support their resource management and ecotourism program.

UBC Professors David Bunn and Melissa McHale will be leading this study abroad and field school program. Together they have considerable experience in the region, combining decades of work with local communities on the edge of Kruger, and having privileged research access to areas and facilities closed to tourists.

4. Learning Outcomes

4.1 Course Learning Objectives

Pre-South Africa

A successful student will be able to:

- Identify travel requirements and protocols for traveling to South Africa on this program
- Describe in broad terms the pre-colonial, colonial, and pre-apartheid history and culture of South Africa
- Discuss the relationships among politics, culture and the environment in post 1945 South Africa
- Have a more nuanced understanding of race, gender, culture, language, and lifestyle in rural South Africa
- Consider the implications for indigenous people of policy embodied in international agreements like the United Nations Declaration of Indigenous People's Rights (UNDRIP), the Nagoya Protocol, and Section 9 of the Canada Tri-Council Policy Statement (TCPS)

South Africa

A successful student will be able to:

- Describe the social, political, and cultural history of South Africa in the pre- and post-apartheid years, and the impact of this history on present-day environmental management, land restitution policy, and justice
- Have a broad understanding of the links between colonial fortress-conservation methods, and current forms of neo-colonial green militarism, continuing displacements of rural people, and transboundary protected area management
- Be able to compare and contrast different emergent forms of collaborative conservation management, in South Africa and elsewhere
- Explain how ethnographic methods can be implemented in communities in South Africa to share their stories of place, people, and the environment
- Evaluate community-based natural resource programs in Africa, considering a range of success stories, failures, and lessons learned
- Interact with a variety of interdisciplinary scientists, managers, non-profits, and communities while researching complex natural resource challenges in the Greater Kruger National Park Social-Ecological System
- Collect and analyze wildlife camera data along an urban gradient, showing the complex relationships between people and wildlife along the border of Kruger National Park
- Analyze the specific challenges faced by the people of HaMakuya, Limpopo Province, and work with the Tshulu Trust to contemplate integrative long-term sustainable solutions in the region
- Describe the relationship between rural household metabolism, including resource harvesting, and pressures on biodiversity in protected areas
- Reflect on the necessity of maintaining ethical and respectful standards of equitable collaboration with indigenous knowledge-keepers

Post-South Africa

A successful student will be able to:

- Reflect on the overall learning experience in South Africa and evaluate lessons learned in the context of Canadian environmental policies and cultural norms
- Compare and contrast the historical situation of indigenous peoples in settler-colonial societies such as South Africa, Australia and Canada
- Communicate complex social-ecological challenges and insights to a broader audience
- Develop the critical thinking skills for (1) reading, analyzing, and interpreting readings and (2) articulating and defending one's positions in writing, in-class discussions, and oral presentations.
- Participate in class discussions while respecting the views of others.
- Have a greater appreciation of diversity, inclusion, and cultural awareness in the seminar topic.

5. Course structure

The course is organized in two major phases:

- **Weeks 1,2 and 7:** background lectures and seminar meetings, and debriefing sessions, at UBC in Vancouver
- **Weeks 3 – 6:** thematic field trips in South Africa covering the different modules, themes, and sub-topics

5.1 Overview: main course themes and sub-topics

Main Course Themes	Sub-topics
1. Introduction	Contexts for South African travel: background reading, packing, equipment, health and safety guidelines, dynamics of team field work in remote areas; course methods and deliverables
2. Political, cultural, and environmental history of precolonial, colonial, and post apartheid South Africa	Resource economies of precolonial hunter-gatherer communities, animal alterity and therianthropy; Iron Age Bantu migrations, cattle, maize, ivory and gold; first colonial contacts, frontier wars, Mfecane; indigenous knowledge and zoonotic diseases; hunting, ivory trade, the Boer Republics; British imperialism, segregation, Land Acts; early apartheid biopolitical controls, fencing, Bantustans; resistance and Black Consciousness, ANC and PAC in rural areas; Mozambique and Angolan wars; militarization, state of emergency, conservation and war; the moment of 1994, the TRC, and questions of environment in the Mandela decade; contemporary South African politics, demographics, and cultural and ideological trends.
3. Phases in the decolonization of conservation management	The Kruger National Park and settler colonial pastoral power; evictions and forced removals; Bantustans as protected area borders; apartheid's version of fortress conservation; border wars and the militarization of the Kruger National Park; carrying capacity and elephant culling; refugees and migrants from Mozambique and Zimbabwe; rise of strategic adaptive management; 1994 new constitution and environmental rights; land claims and reparation; transboundary conservation systems, and new forms of collaborative management; the crisis of illegal wildlife trafficking; CBNRM in Namibia and South Africa, versus CAMPFIRE in Zimbabwe; contemporary corporate-community protected area partnerships; economies of illegal wildlife trafficking.
4. Savanna Biome and Savanna Ecology	What is a savanna? Tree-grass relationships, herbivory, fire, and other top-down drivers; rainfall gradients; trophic orders and feeding classes of mammals, including meso and megaherbivores, carnivores, ungulates; landscape of fear; trees, shrubs, CO ₂ responses, plant defenses; herbivore grazing and browsing dynamics; catena sequences (across granite and basalt soils, and sodic sites); water in the landscape, and water provision; elephants and termites as landscape engineers
5. Current wicked problems in wide-area conservation management	Social ecological systems thinking; the problem of racism and inequity in protected area management; poverty, rural household metabolism, resource harvesting, fuelwood and deforestation; expanding equity in the wildlife economy; neo-liberal green grabbing and militarization; the dark economies of rhino poaching, pangolins, lion bones; elephants and fencing in the new wide area ecosystem management and rewilding experiments; constituencies and stakeholders, land claims, land reparation, and the challenge of rewilding; corruption and elite capture; kinship, witchcraft beliefs, and the popular understanding of animal agency.
6. Field methods: camera traps, mixed mode interviews and focus groups, LULC data interpretation	New developments in terrestrial versus earth observation data methods for conservation; land use/land cover [LULC] interpretation; camera trap methods, camera trap installation and maintenance, and statistical implications of random versus non-random designs; capture-recapture, and occupancy modeling; social science contributions to ecological understanding; mixed methods, life histories, ecosystem services and asset mapping; problems of gender and class in focus groups; snowball surveying.
7. Ethics and Equity in Field Collaboration with Indigenous Communities	Overall historical survey of extractive and inequitable methods of research knowledge transfer; ethics of engagement; maintaining dialogic exchange opportunities in focus groups, participatory mapping, oral histories, and experimental collaboration.

5.2 Main Program Field and Residential Sites

Greater Kruger National Park [GKNP]	This is the general geographical context for the program. The GKNP is an integrated network of reserves encompassing 22,686 km ² of low-lying savannas in eastern South Africa. At its core is the internationally renowned Kruger National Park [KNP] covering 20 000 km ² , with rich savanna biodiversity, including 147 mammal species, 500 species of birds, 116 reptiles, 34 amphibians, 49 fish, 457 types of trees and shrubs, and 1 500 smaller plants. It has a long history of world-class research on savanna ecology and, in particular, adaptive management of ecosystems.
Skukuza Science Leadership Initiative [SSLI] research base	The SSLI research base in the Kruger National Park is a partnership of South African National Parks (SANParks), the Organization for Tropical Studies, and the Nsasani Trust, with additional funding from the US National Science Foundation. It accommodates 40

	researchers/students, with dining halls, a substantial laboratory equipped to support, biodiversity research, avian and small mammal haemo- and ectoparasites, plant life history traits, and pollination and dispersal ecology. Specialist equipment includes: camera traps, licor leaf area and photosynthesis meters, rodent trapping equipment, bat acoustic monitoring equipment, and research vehicles.
Wits Rural Facility (University of the Witwatersrand)	Wits Rural Facility (WRF) is the rural campus of the University of the Witwatersrand. It supports a wide range of research, student training and community engagement, and is situated in the far north-east of South Africa, in the central lowveld of Limpopo Province, close to the Kruger National Park. Infrastructure includes extensive accommodation, conference facilities, a restaurant, offices, and laboratory space. The facilities are situated on a 350-hectare game reserve, flanked by commercial private game reserves and the rural communities of Bushbuckridge local municipality. <i>UBC professor Dr. David Bunn was the previous research director of this facility.</i>
Olifants Camp, Kruger National Park	This spectacular KNP tourist camp is perched on a cliff edge overlooking the river. Thatched bungalows fitted with en-suite facilities and kitchenettes afford panoramic views. 3 distinct ecotypes are found here: mopane woodland in the north; in the south, basalt plains with buffalo, giraffe kudu, plains game and all the major carnivores; and the riparian vegetation of the Olifants River which is rich in wildlife such as leopard and lion, crocodiles and hippos, with prolific birdlife.
Punda Maria Camp, Kruger National Park	Punda Maria is one of the oldest and most picturesque of the KNP tourist camps. It is located in a much more tropical region, close to the Zimbabwe border, with spectacular bird and plant biodiversity. We will use this camp as a base for research in the Pafuri region, in the Limpopo river valley, with its fever tree forests and Iron Age archaeological sites.
Tshulu Camp, Hamakuya	The Tshulu Wilderness Camp is managed and run by the local community through the Tshulu Trust. Situated on the banks of the Mutale River near the village of Tshianzwane, the camp is in a pristine natural area surrounded by lebombo ironwood groves, baobabs, and mopane woodlands. Tshulu Camp is a sustainable ecotourism venture: the camp is solar-powered, with spacious ‘meru-style’ tents on raised platforms. The camp offers vital employment for nearby villagers. It is staffed by local community members and provides income for more than 30 impoverished households annually through hosted homestays for visiting students. <i>Dr. David Bunn was the co-founder of this camp, with local leaders, and he and Dr. Melissa McHale have worked here for decades.</i>
Lekgalameetse	Lekgalameetse Provincial Park is a conserved mountain wilderness area in the northern Drakensberg mountains of Limpopo Province, South Africa. Current amenities include self-catering accommodation, a bush camp with log cabins beside a stream, farmhouses serving as guest houses, and a camp for school outings. Crucially, the reserve was returned to local community control in the post-apartheid land claims process.
Olifants West Private Reserve and Black Mambas anti-poaching unit	Olifants West is part of the Associated Private Nature Reserves network. The Black Mambas Anti-Poaching Unit is a world famous, unarmed women’s anti-poaching unit founded by Transfrontier Africa NPC and popularized by <i>National Geographic</i> documentaries. The UBC program will spend a full day here, joining in foot patrols and wire snare collection.
Makalali Nature Reserve	This exclusive nature reserve in the APNR, close to Wits Rural, exemplifies the high end and most luxurious aspects of safari tourism, with all of its attendant problems.

5.3 Calendar: Lectures and Activities

Pre-Trip (gray): 9 contact hours (6 X 1.5 hour meetings)

Trip (green): 4 weeks

Post-Trip (blue): 8 online or in-person contact hours

Date	Location and Logistics	Activities and Content	Assignments and Reading
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<p>Vancouver Week 1,2: March 15, March 26, April 4, April 8</p>	<p>UBC Campus</p>	<ol style="list-style-type: none"> 1. Preparation, health and safety, course overview and deliverables UBC Go Global presentation. 2. Lectures: precolonial and colonial environmental history of South Africa; post 1945 politics, culture, environment [Bunn] 3. Ethics of data collecting and field work [McHale]; field camera and GEDI plot surveys [Fedak, Filippelli] 4. tshiVenda and Shangaan language phrase book; workshop on rural southern Africa: race, gender, household metabolism [Bunn/McHale] 	<p>Review pre-trip portion of syllabus and be prepared to schedule class and meeting times. Explore ideas on keeping journals:</p> <p>https://penzu.com/travel-journal-guide https://www.tripsavvy.com/writing-a-travel-journal-like-a-pro-4059287</p> <p>Assignment – Read Fontein, “Doing Research”</p> <p>Assignment – Read Dangarembga, <i>Nervous Conditions</i></p>
<p>SA Week 1 1. Thursday May 15</p>	<p>18 UBC students arrive OR Tambo airport. Johannesburg. Shuttle to Emerald Guest House.</p>	<p>Students will be met at OR Tambo by DB and LN. Get SIM cards, adaptors, cash at OR Tambo. Overnight accommodation at Emerald. Pizza and evening briefing [DB, LN].</p>	<p>Start malaria medication, and start travel journals</p>
<p>2. Friday May 16</p>	<p>Bus transfer, Johannesburg to Tshulu Community Camp, Hamakuya</p> <p>S22 34.779 E30 48.518 Guyuni Village, Hamakuya, 0973</p>	<p>TRAVEL DAY 7am. Breakfast. 7 hour bus trip to Hamakuya, via Polokwane, Makhado, and Thohoyandou.</p> <p>Arrive Tshulu camp 2pm. Lunch and camp briefing I</p> <p>3.00 pm Late afternoon guided walk, Mutale river gorge (birding, plants, mammals)</p> <p>6pm: fireside Lecture 1: Dr. David Bunn. Gender and Traditional Authority in Limpopo Province</p>	<p>Notes and photos for field journals</p> <p>Theme: Ancestors and Sacred Places</p> <p>Reading: Pikirayi and Magoma 2021, “Retrieving intangibility, stemming biodiversity loss: the case of sacred places in Venda”</p> <p>Field task: find five trees and ask about their tshiVenda names (Lebombo Ironwood, red bushwillow, large leaf rock fig, commiphora, Gyrocarpus)</p>
<p>3. Saturday May 17</p>	<p>Tshulu Camp, and Hamakuya villages</p>	<p><u>7am:</u> breakfast</p> <p><u>8-12midday:</u> Briefing meeting II: meet Venda translator/guides; HaMakuya, homestays; mixed methods interviewing, focus group, and Photovoice methodologies.</p> <p><u>12.30-1.30 lunch</u></p> <p><u>12.30pm:</u> groups drive to assigned villages and families</p> <p>Focus – Community development, cultural immersion experience,</p>	

		<p>rural household metabolism, energy use, water use, and resource harvesting, indigenous plant use, sustainable tourism, politics and ethnicity</p> <p>Family Homestay – live in village with a homestay family, participate in daily life, conduct interviews, record experiences</p> <p>Probable village locations: Guyuni, Masunda, Maludzawela, Makomowabani</p>	
4. Sunday May 18	Hamakuya Homestay day 2	<p>Focus – Community development, cultural immersion experience, rural household metabolism, energy use, water use, and resource harvesting, indigenous plant use, sustainable tourism, politics and ethnicity</p> <p>Family Homestay – live in village with a homestay family, participate in daily life, conduct interviews, record experiences</p>	<p>Theme: Household interviews: mixed method, and focus group; Photovoice</p> <p>Assignments – Reflection, Write in journals</p> <p>Participant observation: write in journals; Photovoice project</p>
5. Monday May 19	Hamakuya, Tshulu Camp	<p>Homestay debrief</p> <p>Lecture 2: Dr Lorien Nesbitt. From urban green equity to rural savanna resource use</p> <p><u>7pm</u>: fire and music. Obed Ramashia (Venda guitarist)</p>	
6. Tuesday May 20	To Olifants Camp, Kruger National Park	<p>TRAVEL DAY</p> <p><u>5am</u> breakfast. Bags to vehicles. *Packed lunch.</p> <p>enter Kruger National Park at Pafuri gate and full day drive through KNP to Olifants Camp.</p> <p>Focus – basalt plains and plains game; mopane biome; strategic adaptive management in Kruger National Park; waterhole closures</p> <p><u>4-7pm</u>: free time, Olifants Camp</p> <p><u>7pm</u>: dinner</p> <p><u>8pm</u>: Stars, southern constellations, and sounds of the African night (David and Thomas Ngobeni)</p>	<p>Theme: Plains Game and Carnivore Ecology</p> <p>Assignment: Keep bird and mammal sightings lists on way. Find and identify 20 bird and 15 mammal species.</p> <p>Reading: Srinivisan & Wursig, eds. <i>Social Strategies of Carnivorous Mammalian Predators</i> (page 7-47)</p>

<p>SA WEEK 2</p> <p>7. Wednesday May 21</p>	<p>Olifants Camp, Kruger National Park</p>	<p><u>5.30am</u>: Coffee and rusks. Game drive, Olifants-Satara region, KNP.</p> <p>Focus: plains game and carnivores.</p> <p><u>10am</u>: late breakfast, Olifants.</p> <p><u>11am-12.30pm</u>: Field skill: Camera trap installation and settings, plant ID, compasses and azimuth (in Olifants camp).</p> <p><u>1pm</u>: lunch</p> <p><u>2pm-5.30</u> camera trap installation at 4 waterhole sites</p> <p><i>**Two SANParks game guards required</i></p> <p><u>7pm</u>: dinner. Fireside discussion: human-animal conflict</p>	<p>Reading: Thomas and Grant (2022) <i>SAPPI Tree Spotting: Lowveld Including Kruger National Park</i>, pp. 1-60;</p> <p>Assignment: 1) draw a diagram of a catenal sequence in your field notebook. Identify and collect leaves from one tree species commonly found on the midslope seepline, and one often found in lower sodic sites 2) discuss your design for the first camera experiment with your work team</p> <p>Theme: Human-Animal Co-Existence and Conflict</p> <p>Film: <i>Beast</i> [make sure you have watched this film before coming to South Africa]</p>
<p>8. Thursday May 22</p>	<p>Olifants, KNP</p>	<p><u>8am</u>: breakfast. [*packed lunch]</p> <p>9am: : Guest Lecture 3: Dr. Louise Swemmer (chief social scientist, South African National Parks), “Kruger National Park, Benefit Sharing, and Border Communities”</p> <p><u>10am-2pm</u>: Field Work <i>***2 SANParks game guards needed</i></p> <p><u>2-7pm</u>: In-camp work time (blogs and Photovoice project)</p> <p><u>7pm</u>: dinner</p> <p><u>8pm-9pm</u>: fireside discussion: conservation and land restitution</p>	<p>Theme: land claims, conservation, CBNRM</p> <p>Reading: Cousins and Claassens, 2004. “Communal land rights in post-apartheid South Africa”;</p> <p>*Assignments: Blog 1 due;</p>
<p>9. Friday May 23</p>	<p>Olifants, KNP</p>	<p><u>6am</u>: morning game drive, coffee and rusks; riparian systems Olifants River</p> <p>9.30am: breakfast</p> <p>10am -11.30: Lecture 4: Tercia Strydom, Conservation Water Policies</p> <p>12 midday: lunch</p> <p>1-4pm: Field Work, Olifants</p>	<p>Theme: the problem of surface water resources</p> <p>Reading: Smit et al 2020, “Megaherbivore responses to droughts under different management regimes”</p>

		<p>***2 SANParks game guards needed.</p> <p>5.30-9.30pm: Evening drive and bush barbecue: Olifants river remote site. Stars, hippos, hyenas!</p>	
10. Saturday May 24	<p>Bushriver Lodge remote campsite, Black Mambas anti-poaching unit.</p> <p>GPS -24.224285, 30.818934</p>	<p>TRAVEL AND CONSOLIDATION DAY</p> <p><u>6am</u>: breakfast and bags to trailer. Groups drive to collect cameras at 4 sites. Drive Olifants to Satara, and exit Kruger at Orpen Gate.</p> <p>***2 SANParks game guards needed</p> <p>Arrive Bushriver 2pm. Set up tents.</p> <p>4pm: Guest Lecture 5 and introduction: Paul Allin (Research Manager, Olifants West Private Nature Reserve)</p> <p>Camera trap installation.</p> <p>Short hike on property.</p>	
11. Sunday May 25	Bushriver Lodge, Black Mambas	<p><u>8am</u>: breakfast</p> <p><u>9am-11</u>: snare sweep with Black Mambas APU</p> <p>11-1pm: visit Black Mambas compound and operations room (presentations by Mambas, and Paul Allin, on training, protocols, gender and anti-poaching)</p> <p><u>2pm</u>: Mambas training obstacle course</p> <p><u>7pm</u>: dinner, and fireside discussion – Lecture 6: Race and conservation: my life as a black game ranger (Thomas Ngobeni)</p>	Theme: Neo-liberalism and the rise of green militarism
12. Monday May 26	Bushriver Lodge, Black Mambas	<p>8am to 3pm: visit to <i>Bush Babies</i> environmental education project and Mhalthamhala elementary school.</p> <p>Assist BB in data capturing in the communities (use of natural resources, signs of pollution)</p>	Assignments – Reflection, Write in journals;

		Environmental education centre. Presentation by Lewyn (manager of Bush Babies) 3pm: free time	
13. Tuesday May 27	Timbavati Safari Lodge	TRAVEL DAY <u>6.30am</u> : breakfast. [*packed lunch] Bags to trailer by 7.30am <u>8am to 10am</u> : Group 1: Life History interviews, Black Mambas; Group 2, 3, 4. Camera trap recovery. <u>2pm</u> : arrive Timbavati. [Lorien to Hoedpruit airport; Melissa Arrives HDS] Briefing, and set up camera traps (animals in proximity to human settlements) 2-7pm: Free time	Assignment: Reflection, write in journals Reading —Robins et al, “Model Tribes? the Makuleke”
SA Week 3 14. Wed May 28	Timbavati Safari Lodge	<u>7am</u> : breakfast <u>9am</u> : to Wits Rural Facility <u>10.30am</u> : drive to Wits Rural Facility. Bush walk (savanna biome, granitic soils, catenal sequences). Field skills: how to take compass bearings, pace out transect lines, measure tree height and canopy width using a laser rangefinder; field safety protocols; GEDI plot survey methods (Melissa, David, Logan).	
15. Thurs May 29	Timbavati Safari Lodge	<u>7am</u> : breakfast <u>8-3pm</u> : Thornybush Nature Reserve. Field Data collection: DBH and damage to <i>Senegalia nigrescens</i> ; GEDI plot surveys 4pm Lecture: Dr Melissa McHale. Rural Ecosystem Services	
16. Friday May 30	Timbavati Safari Lodge	CONSOLIDATION DAY <u>8am</u> : breakfast <u>9am</u> : collect camera traps, download and categorize images <u>3-7pm</u> : CONSOLIDATION work in camp	*Group project 1 due: Camera Traps

		7pm boma barbecue	
17. Saturday May 31	To Skukuza Science Leadership Initiative [SSLI]research base, Kruger National Park	<p>TRAVEL DAY Kruger National Park, via Orpen Gate, Satara, and Nwanedzi to Skukuza</p> <p><u>4pm</u>: Arrival in Skukuza. Orienting visit to tourist camp and shop, then settle into SSLI accommodation.</p> <p><u>5pm</u>: SSLI library. Introduction to base and protocols: Laurence Kruger [LK], David Bunn [DB], Melissa McHale [MM].</p> <p><u>6pm</u>: Sundowners, Lake Panic</p> <p><u>7pm</u>: dinner. Stars and night sounds.</p>	
18. Sunday June 1	SSLI	<p><u>6-9am</u> game drive.</p> <p><u>10am</u> breakfast</p> <p><u>11-12 midday</u>: install cameras, Skukuza staff village and golf course</p> <p>1pm-3pm: Guest Lecture 7: field walk with Dr. Laurence Kruger. “Top-down drivers II: herbivory and megaherbivores.”</p> <p>3-5pm: GEDI plot surveys, Stevenson Hamilton waterhole area</p> <p><u>5-7pm</u>: free time</p> <p>***2 SANParks game guards needed</p>	Theme: Drivers of Savanna Biodiversity I (Megaherbivores)
17. Monday June 2	SSLI	<p><u>*8am</u>: breakfast.</p> <p><u>8.30-10am</u>: Guest Lecture 8 Dr. Navashni Govender: top-down drivers I: fire ecology</p> <p><u>10-1pm</u>: GEDI plot surveys, Pretoriuskop region.</p> <p><u>1-2pm</u>: lunch</p> <p><u>2pm to 7.30 pm</u>: FREE TIME</p> <p>***2 SANParks game guards</p>	<p>Theme: Drivers of Savanna Biodiversity II (Fire)</p> <p>Reading: Wrigley-Coetsee et al 2022 “Long Term Exclosures in the Kruger National Park”</p> <p>Assignments: Blog 2 due and posted</p>

		<i>needed.</i>	
18. Tuesday June 3	SSLI	<u>6-9am</u> : game drive <u>10am</u> : late breakfast <u>11am-1pm</u> : consultations, final projects 2-4pm: Photovoice presentations	Assignment due: Group Photovoice project
19. Wednesday June 4	SSLI	CONSOLIDATION DAY <u>6-9am</u> game drive <u>10am</u> : late breakfast <u>11-3pm</u> : work on projects <u>4-5.30pm</u> : Sundowners, Lake Panic 7pm: dinner	Assignments – Reflection, Write in journals Group project 2 due: GEDI plot surveys Reading: Bunn et al 2023 “Golden Wildebeest Days”
20. Thursday June 5	SSLI	<u>6am</u> : game drive <u>10am</u> : late breakfast 11am: Guest Lecture 9: Dr. Jody Vogeler [NASA/CSU], “Remote Sensing of Savannas from Space” 1pm: lunch FREE TIME <u>4.30 pm to 9pm</u> : Group reflections, thanks and farewells. Bush Barbecue, “10 Minutes” site	*Assignment due: hand in field journals
23. Friday June 6	To Johannesburg, and Canada	<u>6am</u> breakfast <u>7am</u> : shuttle bus arrives. 5 hour drive via Nelspruit and Lydenburg to OR Tambo airport, Johannesburg, arriving 2 pm. Evening return flights to Europe and Canada	
June 8, forward	TBD - Students and Professors will schedule 8 hours of online consulting time over the next weeks		
June 18			Final project due

6. Course website

All the updated and official information relevant to the course will be available via the course's website, hosted by the Canvas system.

7. Learning materials

7.1 Supplies

Many interactive activities during lecture time will require the use of a **smartphone, tablet or laptop** with wireless data connection. Students must have access to computers with Word and Excel installed, as well as Acrobat Reader or equivalent for viewing lecture presentations. Students must bring their own laptop to South Africa.

7.2 Textbooks and Course Reading Material

Scientific papers

Scientific papers are assigned for most lectures, and pdfs will be shared online using Canvas and Google Drive. Students should try to read as many of these papers as possible before going to South Africa. They should also bring a hard drive with all of the pdfs, so that they can review the appropriate literature before the lectures.

Books and Field Manuals

Please read the three novels before coming to South Africa. (We will refer to them in our pre-trip lectures in Vancouver.) In addition, please purchase a hard copy of the *Thomas and Grant field guide to trees and bring it with you to South Africa.

Required text (to be brought with you on the trip) Val Thomas and Rina Grant, *SAPPI Tree Spotting: Lowveld, Including Kruger National Park*. (Johannesburg: Jacana, 2022)

One of the following two texts:

Tsitsi Dangarembga, *Nervous Conditions*,. This novel is set in Zimbabwe, and it addresses the complex stresses one rural family feels as they have more access to education, achieve higher socio-economic status, and experience cultural change. The Zimbabwean author uniquely captures gender asymmetries in society and the persistent role of colonialism and racial injustice in Africa.

OR

Trevor Noah, *Born a Crime*. This is a personal documentation of what it was like to grow up colored (not black or white) during apartheid. The challenges that Trevor Noah experiences are difficult to even comprehend, yet his approach is light-hearted.

Cellphone Apps

iNaturalist—this free app is the most widely used species-identification guide in the world, and it works reasonably well in South Africa. **Install it on your phone.**

Cybertracker---the free app was originally designed for use by rural trackers uncomfortable with the conservative scientific languages of conservation biology. It is widely used to record field data about animal movement, occupancy, and spoor. **Install it on your phone.**

Hello South Africa App – a language phrasebook for all 11 official languages of South Africa. You can purchase them all (1.99 each) or just the Venda Phrasebook alone. Venda is the language of the community in which you will participate in homestays. The other languages you will hear often in the region we will be staying are: sisSwati, isiZulu, xiTsonga, and Afrikaans.

Stuarts Field Guide to the Mammals of Southern Africa. Not required but recommended. You may wish to purchase and install this app on your smartphone before the trip.

SASOL Birds of South Africa. Not required but recommended. You may wish to purchase and install the app on your smartphone before the trip.

Websites

Many of the programs and organizations we will be visiting with have websites. It is a good idea to review these websites and take notes on the different goals and features that are expressed online before arriving in South Africa.

AWARD - <http://www.award.org.za/>
Buffelshoek Trust - <http://www.buffelshoektrust.co.za/>
Kruger to Canyons Biosphere Reserve - <http://www.kruger2canyons.org/>
Lekgalameetse - http://www.sa-venues.com/game-reserves/np_lekgalameetse.htm
Letaba Camp, Kruger National Park: <https://www.sanparks.org/parks/kruger/camps/letaba/>
Moholoholo - <http://www.moholoholo.co.za/>
Nsasani Trust/Skukuza Science Leadership Initiative: <http://www.nsasani.co.za/the-ssli-concept>
Organization for Tropical Studies, Kruger National Park: <https://tropicalstudies.org/portfolio/skukuza-research-station/>
Pivotal Places: <https://www.pivotalplaces.org/>
Punda Maria Camp, Kruger National Park: <https://www.sanparks.org/parks/kruger/camps/punda/>
South African National Parks Scientific Services: <https://www.sanparks.org/scientific-services/>
The IMAGINE Program - <https://imaginesouthafrica.wordpress.com/>
Tangala Safari Camp: <https://tangalasafaricamp.co.za/>
Timbavati Safari Lodge: <https://timbavatisafarilodge.com/>
Transfrontier Africa - <http://www.transfrontierafrica.org/>
Tshulu Trust – <http://www.tshulutrust.org/>
Wits Rural Facility - <https://www.wits.ac.za/campus-life/arts-and-culture/wits-rural-facility/>

Film and Video:

Students should please watch the films below before traveling to South Africa. There is often not enough bandwidth to watch these videos while we are on the ground in South Africa. As we will be discussing these videos as part of the lectures, students should take extensive notes on the videos in their journals, and be prepared to discuss the relevant information provided in the documentaries.

Beast (2022) Idris Elba stars in this revealing and clichéd Hollywood film about a rogue lion and its revenge on poachers. Filmed in the areas we will be visiting.

Blood Lions (2015). A documentary about the illegal breeding of carnivores for the “canned lion” hunting industry in South Africa.

Werner Herzog (Dir.) *Grizzly Man*. A documentary exploring the life of a bear enthusiast who was killed and eaten by a Grizzly Bear. This film highlights complex relationships between humans and dangerous animals. In South Africa there are many places that offer tourism experiences that advertise close proximity to dangerous animals. How these kinds of experiences impact conservation efforts in the region will be a theme throughout the course.

The Ivory Game (2016). A BBC documentary following the trail of poached ivory back into the complex local economies of China.

The Poacher's Pipeline (2017). An Aljazeera TV documentary about rhino horn trafficking and local corruption

Nyempere: Charlie Nkuna and the Making of the Kruger National Park [YouTube]

Water Sustainability Balancing Act, Megan Pendell and Malia Moscatello. A 20-minute documentary on a social-ecological approach to water resources research in HaMakuya, South Africa.
<https://www.youtube.com/watch?v=6wPoYtf5poA>

Water Realities, Mary Amron Lee – A 7-minute abstract meditation on water resources in HaMakuya, South Africa
<https://www.youtube.com/watch?v=05c9uQP9lrk>

7.3 Learning analytics

Learning analytics includes the collection and analysis of data about learners to improve teaching and learning. Many of these tools capture data about your activity and provide information that can be used to improve the quality of teaching and learning. This course will use **Canvas** as the main learning analytics resource.

8 Assessment of learning

The course is evaluated through the following deliverables:

8.1 Journals: Students will keep **an extensive field journal** to record all aspects of their South Africa experience. Journals must include pre-trip plans, summaries of readings and research on organizations, notes on lectures, and daily reflections. This will also be a critical record of your learning about new and emerging models of post-apartheid community conservation.

All journals should have a broad range of entries with a minimum of 30 formal and dated reflections. Each student should include at least: 2 detailed entries covering field observations of animal or bird behavior; 2 detailed entries of social-ecological processes; 2 entries with ethnographic field notes (family structure, household metabolism, organizational and kin structures); 1 interview with a ranger or community conservation member; 10 personal reflections and narratives; quotations and records of sensory experience.

8.2 Blogs

Students will write **two publicly available blogs** to be posted on our Canvas website. Each student will write these two blogs at differing times along their learning journey. These are to be thoughtful reflections on specific learning experiences *related to major themes of the course*. Each blog should be submitted with two pictures. Each student will have blogs peer-edited before submitting the final drafts.

8.3 Social Media Posting: Each student will be required to produce 10 social media postings to the platform of their choice (Twitter/X, Instagram, Facebook, and so on).

8.4 Field Data Collection and Analysis: As part of this program we collectively contribute to the gathering of social and ecological datasets. All students will participate in interviews (and sometimes surveys) with the communities and partners we work with on the border of Kruger. We also focus on group data collection in our travels. In the past we have focused specifically on water and ecosystem services – and students learn about these data and their analysis and impacts in this program. Now, however, our focus is on new models of conservation and human-wildlife interactions along an urbanization gradient. Our group will be divided into teams, working on methods and experiments using three technologies: i) field camera traps, along an urban to rural gradient; ii) vegetation surveys to ground truth GEDI LiDAR waveform data; and iii) ethnographic Photovoice projects.

8.4.1 Field Camera Trap Data. We will be collecting data in support of a wider NASA research program being led by David Bunn and Melissa McHale. Camera traps will be used to assess presence and absence of indicator species, in specific guilds. For the field camera experiments, we will divide the group into three groups of 5 students and one of 4. Each group will be assigned 2 cameras. In the first week of the course, each group will get to know the technology and experiment with different experimental setups using the two assigned cameras. (See the detailed project Field Camera project rubric.) Working with your instructors, each group will devise an elementary experiment, with hypotheses, based on a simple installation design using two cameras. (Essentially, you'll have to decide on what you want to capture, the best location for the installation, and the method of installation with respect to camera height, distance, proximity to known trails or habitats, and so on.) Each group will analyze the results of the experiment and write a short report on what has been learned about the merits and limits of the technology

There will also be additional work with maintenance, installation, and data analysis of some of the main camera arrays for the broader NASA Ecological Forecasting project. This will involve teams working with installation of cameras near waterholes and dams in the field, supported by armed guards.

8.4.2 NASA GEDI Vegetation Plot Surveys. We will be doing simple vegetation plot surveys to ground truth data from NASA's GEDI satellite on the International Space Station. Students will be expected to contribute to the collection of these data, the recording and cleaning of these datasets, and to participate in the analyses.

Here again you will be working in the same groups of 4 or 5. In the initial part of the program, you will get to know the basic protocols for collection of the NASA data and the templates for data recording. Later on, you will do actual surveys in areas associated with known GEDI footprints. This is an exciting project in which you will learn (or refresh) field skills:

use of a compass, laser rangefinder, Trimble GPS unit; the design of vegetation plot surveys, and the like. In addition, you will gain some basic understanding of the common trees and shrubs associated with different parts of the savanna landscape. Each group will then write a short report, focusing on specific difficulties associated with the process of collecting this kind of data.

8.4.3 Photovoice paper: (6-8 pages) Learning how to communicate across cultural norms and overcome language barriers is a main component of this field experience. Before leaving for South Africa, each student will choose one person from “home” and ask them to take pictures of the significant aspects of their daily life, including especially interactions with animals, wildlife, and rural environments. Students will practice sharing someone else’s story in writing, based on these images. They will present these stories to the homestay families, in South Africa. Then someone in the homestay family will also take pictures (we provide the cameras), focusing on household activities, animals, and objects and events of local interest. These families will then present a story for the students to write about. The final assignment to be graded will include both stories and a reflection on the photovoice project. You will work in teams of 4 or 5, with your homestay group members

8.5 Final Project. You will choose one of the following topics:

1. Videography. Based on your experience of the various sites you visited and different models of conservation governance you observed, make a short promotional or documentary video about your encounters.
2. Working closely with PhD researcher Derek Fedak, assist in the identification and classification of actual camera trap images for the NASA Ecological Forecasting project
3. Working closely with PhD researcher Steve Filippelli and Dr. Melissa McHale, examine the relationship between field survey data from 3 NASA GEDI sites and their corresponding LiDAR waveforms. Try to explain correspondences and/or discrepancies.
4. Working closely with Dr. David Bunn, design either a survey for potential visitors exploring what they might value most from a community-based ecotourism project in Makuya Park OR for residents of Hamakuya, exploring what expectations they might have for the benefits of such a project.
5. Work closely with Natalie Miller and the *Pivotal Places* non-profit, either on the design of a fundraising program for any aspect of community-based conservation in the regions we visited, or on the development of publicity and web-based materials for the non-profit.
6. Working closely with Dr. David Bunn, produce a *life history* report on one member of the Black Mambas anti-poaching group.
7. Working closely with Dr. David Bunn, write a short report on the habits, movements, and preferences of safari tourists in the Kruger National Park. (Your report will be based on an analytical survey of postings on the *Latest Sightings* app.)
8. A community-conservation focused lesson plan for the elementary school in the Bush Babies group

EVALUATION AND GRADING

Assignment	Percentage
Individual Assignments	
Field Journal	10%
Blogs X 2	20%
Media project (10 social media postings)	10%
Final Project	15%
Team Assignments	
Photovoice Project	15%
Camera Trap Project	15%
GEDI Surveys	15%

9 University policies

9.3 Code of conduct

The academic enterprise is founded on honesty, civility, and integrity. As members of this enterprise, all students are expected to know, understand, and follow the codes of conduct regarding academic integrity. At the most basic level, this means submitting only original work done by you and acknowledging all sources of information or ideas and attributing them to others as required. This also means you should not cheat, copy, or mislead others about what is your work.

Violations of academic integrity lead to the breakdown of the academic enterprise, and therefore serious consequences arise and harsh sanctions are imposed. For example, incidences of plagiarism or cheating may result in total loss of points in an assignment, exam or entire course, and will be referred to the President's Advisory Committee on Student Discipline. Careful records are kept in order to monitor and prevent recurrences.

To fully understand what plagiarism means and avoid it please visit:

<http://learningcommons.ubc.ca/resource-guides/avoid-plagiarism/>

For a broader guide on general student conduct, go to:

<https://students.ubc.ca/campus-life/student-code-conduct>

9.4 Support

UBC provides resources to support student learning and to maintain healthy lifestyles but recognizes that sometimes crises arise, so there are additional resources to access including those for survivors of sexual violence. UBC values respect for the person and ideas of all members of the academic community.

Harassment and discrimination are not tolerated nor is suppression of academic freedom. UBC provides appropriate accommodation for students with disabilities and for religious observances. UBC values academic honesty and students are expected to acknowledge the ideas generated by others and to uphold the highest academic standards in all of their actions.

Details of the policies and how to access support are available on the UBC Senate website:

<https://senate.ubc.ca/policies-resources-support-student-success>

9.5 Copyright

All materials of this course (course handouts, lecture slides, assessments, course readings, etc.) are the intellectual property of the Course Instructors or licensed to be used in this course by the copyright owner. Redistribution of these materials by any means without permission of the copyright holder(s) constitutes a breach of copyright and may lead to academic discipline. Recording of any event within our class or field activities is not allowed without the consent of the instructors.