



CONSERVING ENDANGERED RHINOS IN SOUTH AFRICA



2018 briefing begins on page 23.

DEAR EARTHWATCHER,

Welcome to a unique opportunity to be involved with research that aims to help to conserve rhinos in South Africa.

The current extent of poaching and consequential declines in rhino populations throughout Africa is shocking. On average more 3 rhinos are illegally killed every day in Africa and at the current rate this species may go extinct in the next 10-20 years. Our project aims to help conserve rhino population by providing evidence of the impacts of different management on the behavior of rhinos and investigating how they are essential to support other biodiversity.

As part of this Earthwatch team, you will be involved in monitoring the rhino movements and recording their behavior as well as assessing bird, mammal and invertebrate biodiversity associated with rhinos and their habitats. Helping to collect evidence to protect and value these animals for the future.

As volunteers you will be involved in many different aspects of the project survey work and education side. But for all of our hard work, there will also be exciting opportunities to experience and learn more about other wildlife, enjoy the local cuisine and traditional activities, and to relax and take in the African sunset.

We are looking forward to welcoming you to South Africa!

Yours faithfully,

Lynne MacTavish
Dawn Scott, Ph.D.
Angelo Pernetta, Ph.D.
Anja Rott, Ph.D.,
Rachel White, Ph.D.



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GENERAL INFORMATION

CONSERVING ENDANGERED RHINOS IN SOUTH AFRICA



EARTHWATCH SCIENTISTS

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RESEARCH SITE

Private Wildlife Reserves and National Parks in the Northwest Province, South Africa.

EXPEDITION DATE

Team 1: Jan. 4–15, 2017

Team 2g (school group): Feb. 14–25, 2017

Team 3: May 30–Jun. 10, 2017

Team 4: Oct. 10–21, 2017

Team 5: Nov. 7–18, 2017

Complete travel information is not available in this version of the briefing.

Please contact Earthwatch with any questions.



TRIP PLANNER

CONSERVING ENDANGERED RHINOS IN SOUTH AFRICA

TRIP PLANNER

IMMEDIATELY

- Make sure you understand and agree to Earthwatch's **Terms and Conditions** and the **Participant Code of Conduct**.
- If you plan to purchase additional travel insurance, note that some policies require purchase when your expedition is booked.

90 DAYS PRIOR TO EXPEDITION

- Log in at earthwatch.org to complete your volunteer forms.
- Pay any outstanding balance for your expedition.
- Book travel arrangements (see the Travel Planning section for details).
- If traveling internationally, make sure your passport is current and, if necessary, obtain a visa for your destination country.
- Teen volunteers must bring copy of birth certificate and travel affidavit to enter South Africa; refer to embassy guidelines online.

60 DAYS PRIOR TO EXPEDITION

- Make sure you have all the necessary vaccinations for your project site.
- Review the Packing Checklist to make sure you have all the clothing, personal supplies and equipment needed.

30 DAYS PRIOR TO EXPEDITION

- Leave the Earthwatch 24-hour helpline number with a relative or friend.
- Leave copies of your passport, visa, and airline tickets with a relative or friend.

Read this expedition briefing thoroughly. It provides the most accurate information available at the time of your Earthwatch scientist's project planning, and will likely answer any questions you have about the project. However, please also keep in mind that research requires improvisation, and you may need to be flexible. Research plans evolve in response to new findings, as well as to unpredictable factors such as weather, equipment failure, and travel challenges. To enjoy your expedition to the fullest, remember to expect the unexpected, be tolerant of repetitive tasks, and try to find humor in difficult situations. If there are any major changes in the research plan or field logistics, Earthwatch will make every effort to keep you well informed before you go into the field



THE RESEARCH

CONSERVING ENDANGERED RHINOS IN SOUTH AFRICA



THE STORY

Rhino populations are in crisis due to the high value of rhino horn combined with widespread poaching. There has been an exponential increase in poaching of both white rhinos and black rhinos in South Africa (Pernetta, 2014), which contains 74% of the world's remaining rhino population. In the last 6 years, 2,650 rhinos have been poached in South Africa, with 1,116 deaths in 2014 alone. This amounts to an average of three individuals per day (Pernetta, 2014). It is estimated at the current rates of poaching rhinos in South Africa may be extinct within the next 10-20 years. Poaching is predominantly driven by illegal trade of rhino horn in South East Asia; on the black markets of Southeast Asia rhino horn is reported to be worth more than gold (Milliken & Shaw, 2012).

This situation requires immediate action not only to reduce the levels of poaching but also to investigate 1) the impacts of anti-poaching management land and animal management (such as de-horning rhinos) on the animals themselves and to 2) determine the impacts of the loss of this megaherbivore on ecosystems to help quantify their functional role and alternative economic value for conservation initiatives.

The goal of the project is to provide information that will help to conserve and manage rhinos in South Africa. We share information with rhino owners on the behavioral and welfare implications of de-horning and provide supporting evidence on land management practices that may help to identify and reduce poaching risk. In addition we will demonstrate how rhinos support biodiversity and ecosystem functions, and in so doing, provide further evidence of their inherent value in ecosystem support.



RESEARCH AIMS

The research has the following objectives and will address these research questions:

1. To determine the consequences of de-horning on the behavior of white rhinoceros.
 - What are the consequences of de-horning of white rhino on its vigilance, social interaction, habitat use, foraging behavior, and stress levels?
2. To investigate bird species and assemblages indirectly supported by rhinos, in order to evaluate the potential impact of localized loss of this megaherbivore on avian communities.
 - What are the species-species associations between birds and white and black rhinos?
 - What are the avian-habitat associations of short grass grazing lawns created by white rhinos?
 - Are avian species associated with white and black rhinos at risk of decline if rhinos became absent?
3. To determine what behavioral and environmental factors determine the spatial distribution of white rhinos in game reserves.
 - How does habitat availability and management through prescribed burning influence veld utilization and spatial distribution of white rhino?
 - What are the key features that explain spatial distribution and movement of white rhino and can this be utilized to develop agent-based models to predict rhino distribution in different areas?
 - Can agent-based models to determine spatial distribution be used to predict distribution of rhinos in areas with different management and therefore determine hotspots of poaching risk?
4. Evaluate the impact of changes in megaherbivores (white & black rhino) in structuring the dung beetle community diversity.
 - How unique are dung beetle communities associated with rhino dung compare to other herbivore dung.
 - How does dung beetle communities associated with rhino dung differ between black and white rhinos?
 - Do dung beetle communities differ between horned and dehorned white rhinos as a consequence of change in behavior?

5. Raise community awareness of the impacts of the decline in rhinos to raise community support in its protection.

- How does engagement influence knowledge, awareness, and attitude towards rhino conservation?

HOW YOU WILL HELP

Research tasks volunteers will be involved with:

- Finding and recording locations of individual rhinos every day for group composition, spatial distribution and habitat use assessment.
- Behavioral observations of rhinos on foot and from vehicles; Observe and record their behavior over set periods to time to determine habitat use, foraging activity, interactions between individuals of different ages and genders, and determine extent of behavior to indicate vigilance in relation to threat.
- Recording foraging signs of rhinos and assessing foraging behavior from visual, observational and vegetation surveys.
- Collecting rhino dung samples for diet and cortisol analysis.
- Undertaking dung beetle experiments and determining community analysis. Identify and observe different species of dung beetle, insects that can indicate the health of mammal populations in an area.
- Bird and mammal transects and point counts. Determine Rhino species associations by surveying birds and mammals to assess their species richness and populations in areas where rhinos are and are not present.
- Conduction vegetation surveys: When the animals move off of foraging sites, record the vegetation in the area to assess habitat use
- Walk-over surveys for habitat mapping.
- Behavioral analysis of rhinos at inaccessible sites from camera trap videos.



DAILY LIFE IN THE FIELD

PLANS FOR YOUR TEAM

You'll have one or two days of training in field and survey techniques, behavioral methods, use of GPS and field equipment, and identification of mammals and birds. Other educational opportunities will happen throughout the expedition, covering topics such as the history of the project; health and safety on site and during fieldwork; rhino ecology and conservation; rhino conservation and management in South Africa; methodological theory and practice; bird and mammal identification with qualified staff; game reserve management; research methodology; basic field skills, distance estimation, use of GPS, species identification, and more.



ITINERARY

Weather and research needs can lead to changes in the daily schedule. We appreciate your cooperation and understanding.

Project activities will also vary seasonally. Below is an outline of what is likely to happen on each team, but the exact schedule will depend on the project's current needs and will be set at the start of each expedition.

		JAN	FEB	MAY-JUNE	OCT	NOV
RHINOS	Monitoring movements	x	x	x	x	x
	Behavioral observations/analysis	x	x	x	x	x
	Dung collection	x	x	x	x	x
	Foraging behavior	x	x	x	x	
VEGETATION	Habitat mapping and surveys	x	x			
	Vegetation assessment	x	x			
COMMUNITY	School Visits*	x	x	x	x	x
	Fire management			x		
	Anti-poaching tasks	x	x	x	x	x
DUNG BEETLES	Pitfall trapping and identification					x
BIRDS		x	x	x	x	
MAMMALS	Transects	x	x			



ITINERARY & DAILY SCHEDULE

TYPICAL ITINERARY

DAY 1

Meet and travel to field site, introduction and orientation drive, downtime in the evening.

DAY 2

Orientation, field training in methodology, identification of mammals/birds, group activities, downtime in the evening

DAYS 3-7

Rhino monitoring, behavioral observations, habitat mapping/surveys, biodiversity assessments.

DAY 8

Recreational day with an excursion to Pilanesberg National Park in the morning or afternoon and evening and other team activities (park entry fees are covered; meals and snacks are at your own expense)

DAYS 9-10

Rhino monitoring, behavioral observations, habitat mapping/surveys, biodiversity assessments.

DAY 11

Data collation, project summary, and sundowner evening at field site.

DAY 12

A transfer company will pick up the team at 12 p.m. and take you to the airport for departure.

TYPICAL RESEARCH DAY

You'll typically have a midday break, during which we encourage you to rest in the shade. The team will also have a full recreational day, usually in the middle of the expedition.

TIME	ACTIVITY
6:00 a.m.	Rise, quick breakfast
6:30 a.m.	Begin early morning fieldwork
9:00 a.m.	Breakfast
10:00 a.m.	Morning fieldwork
12:00 p.m.	Lunch and midday break, daily briefing, data collection talks
2:00 p.m.	Continue fieldwork
6:00 p.m.	Dinner
7:00 p.m.	Evening data check, summary/discussion

RECREATIONAL DAY

For safety reasons, the team will spend the recreational day as a group. You will have the option to stay at the accommodations to rest, but you CANNOT leave camp or go off on your own if you choose this option. Following is a typical schedule for the recreational day (schedule may change for reasons beyond our control).

TIME	ACTIVITY
8:00 a.m.	Rise, eat breakfast
9:30 a.m.	Depart field site
10:00 a.m.	Visit local curios market
11:00 a.m.	Visit KwaMaritane Lodge (game hide and swimming pool)
1:00 p.m.	Lunch (at your own expense, approximately R150/US\$16 per person)
3:00 p.m.	Game drive in Pilanesberg National Park
7:00 p.m.	Return to field site for dinner
8:00 p.m.	Evening around campfire



ACCOMMODATIONS AND FOOD

ABOUT YOUR HOME IN THE FIELD



SLEEPING

During the expedition, your team will be based at campsite in the heart of a Private Wildlife Reserve at a scenic spot overlooking a dammed lake. You may sleep in a two-room brick house, a wooden cabin, or a walk-in safari tent, depending on the number of team members. The house sleeps up to eight people in two separate bedrooms. There are three tents, each of which sleep two to four people and have an en suite bathroom with flush toilet, sink, and shower. There are also two wooden cabins with en suite bathroom; the cabins can accommodate up to four volunteers, but are generally kept to two when possible. Most people will share a sleeping area with one or two others of the same gender, where possible. It may also be possible to accommodate couples or single room requests, depending on group size, on a first-come, first-served basis—please inform Earthwatch if you would like to request either of these options. Beds, pillows, duvets, and sheets are provided, but you must bring your own warm sleeping bag during the winter months (June, July, and August). Sleeping bags are not necessary for teams during the South African summer (October - January teams). A camp attendant will sweep up and clean bathroom facilities.



BATHROOMS

Bathroom facilities include hot showers and flush toilets. Hot water is supplied by a wood-fired or gas boiler.

ELECTRICITY

Electric lighting is provided by solar power. The campsite has electrical outlets, so cameras, cell phones, iPods, etc. may be charged during the day. However, appliances such as hairdryers and hair straighteners will drain the system, so they are not allowed. This will help preserve energy for other camp necessities. Some equipment (e.g., rechargeable batteries) can be charged at the Wildlife Reserve with the permission of Operations Manager Lynne MacTavish. We advise, though, that you make sure to bring all batteries required for camera equipment, etc. as it can be very hard to find them locally. Please also bring the correct adaptors for South African plugs.



PERSONAL COMMUNICATIONS

The cellphone reception at the camp has greatly improved, so volunteers can use smartphones to gain access to the Internet. Please ensure that you register for international roaming in your own country. SIM cards may be purchased at the Johannesburg airport upon arrival. MTN service provider has the strongest reception in our area. The Internet connection is very slow, so it is impossible to Skype at the reserve. On the recreational day, you can use the Internet at Kwa Maritane Lodge for about R50 (US\$5.40). You can't connect your own computer to the Internet at camp; in the case of an emergency, Lynne will bring her laptop with Internet connection to the camp. It may be possible for project staff to download photos onto a computer if you bring appropriate cables, etc. If you'd like a copy of photos taken during the expedition, we suggest you bring a memory stick.

FACILITIES AND AMENITIES

The camp has a wooden dining area, including a sink, refrigerator, and cooking utensils, and a washing area with clotheslines. There are two barbeque areas with fire pits and a communal teaching hut with a field library and equipment, as well as two covered study areas outside. There is also a small shop on site where you can purchase snacks, project clothing/souvenirs and on adult standard teams only, some alcoholic refreshments. (Alcohol is not permitted on teams with minors.) The shop accepts USD, GBP (British Pounds), and South African Rands. All proceeds go towards the anti-poaching efforts on the reserve.

DISTANCE TO THE FIELD SITE

The reserve is about a 15-minute drive from Pilanesberg National Park's entrance and about 40 minutes from Kgaswane Mountain Reserve. The team will be transported around the Wildlife Reserve in open-topped vehicles, but closed vehicles will be used at all other sites and on public roads.

SERVICES AND RESTAURANTS IN WALKING DISTANCE

There are no services in walking distance. The nearest town is Mogwase, a 15-minute drive from camp.

POLICIES

Alcohol consumption is not permitted by minors or on teen teams regardless of local law. It is permitted on adult teams, and available for purchase at the camp.

FOOD AND WATER

A local chef will prepare breakfast, lunch, and dinner. Lunch and dinner will be a mix of international and local cuisine, including traditional South African meals such as potjiekos (game stews) and braais (barbeques), using free-range game from the game reserve. Unless you want to, you don't need to assist in shopping, food preparation, or clean up. In the occasional event that the team wishes to bring a picnic or braai on a day trip, you may be asked to help prepare your own lunch. Most meals will be eaten communally on site in the eating area. When we are working in the Pilanesberg National Park, a picnic dinner will be eaten at one of the game-viewing hides in the park.

Lynne runs an on-site shop that sells snacks, drinks, postcards, and project merchandise, such as T-shirts and hats. To make purchases at the shop, place your order in the order book provided, and Lynne will bring the requested items that evening or the following day. Your shop bill will be calculated at the end of your stay. Lynne takes Great Britain Pounds, U.S. Dollars, and South African Rand; shop accounts may not be paid by traveler's checks or credit cards.

Below are examples of the foods you might expect in the field. Please bear in mind that variety depends on availability. This list is intended to provide a general idea of food types, but it is very important that volunteers be flexible.

TYPICAL MEALS

BREAKFAST	Cereal, fruit, toast/bread, jam, tea, coffee, occasionally hot breakfast
LUNCH	Salad, quiche, soups, bread rolls
DINNER	Braais, stews, pasta, potatoes, vegetables, vegetarian options, dessert
SNACKS	Fruit, biscuits, crisps (potato chips), chocolate, etc. may be purchased from the on-site shop at your own expense
BEVERAGES	Clean drinking water available on site

SPECIAL DIETARY REQUIREMENTS

Please alert Earthwatch to any special dietary requirements (e.g., diabetes, lactose intolerance, nut or other food allergies, vegetarian or vegan diets) as soon as possible, and note them in the space provided on your volunteer forms.

Accommodating special diets is not guaranteed and can be very difficult due to availability of food, location of field sites, and other local conditions.

PROJECT CONDITIONS

THE FIELD ENVIRONMENT

GENERAL CONDITIONS

The information that follows is as accurate as possible, but please keep in mind that conditions may change.

The climate of the area is sub arid, with an annual rainfall of approximately 650 millimeters (25 inches), mostly falling during summer thunderstorms between October and March. Remember that seasons in the Northern and Southern Hemispheres are reversed.

GENERAL CONDITIONS

This weather is expected to vary within the limits below:

HUMIDITY: 20%–50%

TEMPERATURE RANGE: 42° F–95° F (0° C–35° C)

October/November temperature: Average is 86° F (30° C) in the day and 50° F–55° F (10° C–13° C) at night.

January/February temperature: Daytime temperatures can reach over 95° F (35° C) but average 79° F (26° C) in the day and 50° F–60° F (10° C–15° C) at night.

June/July/August temperature: Temperatures can drop below freezing at night and be up to 79° F (28° C) in the day.



ESSENTIAL ELIGIBILITY REQUIREMENTS:

All participants must be able, independently or with the assistance of a companion, to:

- Consistently and immediately comply with instructions from all staff field rangers, and guides.
- See clearly (with or without corrective lenses) to a distance of 500 meters (1,640 feet), and see close up to read research instruments. We may go out in the evening or for a night drive, so the ability to see in low light is also a must.
- Enjoy being outdoors all day in all types of weather, often exposed to the sun for long periods of time or highly variable weather conditions, which may include large temperature differences between night and day and sudden storms or drops in temperature
- Enjoy being outdoors in the potential presence of wild, dangerous animals, including snakes and insects.
- Walk over rough, uneven terrain with areas of dense, thorny vegetation, animal holes that can be hard to spot, or rocky and steep slopes for up to five kilometers (3.0 miles) per day and generally up to three hours per day an average rate of one kilometer (0.6 miles) in 15 minutes, with minimal fatigue.
- Tolerate long periods of time in the field; days can be long.
- Without assistance, get up into and down out of project vehicles, which may include vans, trucks with high beds, and open-topped safari vehicles.
- Sit or ride in project vehicles with seat belt fastened and in close proximity to other team members while traveling over rough and bumpy roads or have to sit still during behavioral observations for up to approximately five hours per day. Although the team will take regular breaks, in some research areas you will not be permitted to get out of the vehicle and walk around due to the presence of dangerous animals.
- Get low enough to access and collect samples and identify plants on the ground and in the brush and to access or set up camera traps.
- Keep as quiet and still as possible while observing animals and working in the bush.
- Tolerate some smoke in the air if participating in the controlled- burn monitoring. Those who choose to participate will be placed in areas unlikely to be affected by smoke—but winds can change and it is impossible to guarantee a smoke-free zone (only applicable to May-August teams).
- Tolerate not having a reliable source of electricity throughout the night for the length of the project.



POTENTIAL HAZARDS

CONSERVING ENDANGERED RHINOS IN SOUTH AFRICA

HAZARD TYPE	ASSOCIATED RISKS AND PRECAUTIONS
Transportation	Hazards include fast and reckless drivers, livestock and wildlife in the road, rain, poor lighting, banditry, tire punctures due to thorny brush, and vehicle breakdowns. Traffic moves on the left side of the road. South African road conditions are considered good, particularly in urban areas; however, roads at the study sites can be poor: dirt, gravel, or corrugated and very bumpy and either dusty or muddy and slippery depending on weather conditions. Wear seat belts whenever they are available and remain seated when the vehicle is in motion. Speeds will be kept at 50-km/ hr. (30 mph) or below, and will usually be around 30 km/hr. (20 mph). Only authorized, insured, experienced staff will drive. Volunteers are not permitted to drive. We will avoid night transportation (some night drives are part of the research).
Walking/Hiking/ Climbing	Terrain can be rocky, steep, and uneven with thick vegetation, especially in the wet season. There may be animal holes in the ground, covered by grasses and hard to spot. Some areas have dense, thorny acacia scrub. There is a possibility of sprains, bruises, and strains when walking. Walk carefully and attentively, and be aware of your surroundings at all times. We will walk on tracks and paths where possible. Appropriate clothing and footwear (e.g., long trousers, hat, socks, and well-broken-in hiking boots with ankle support) are required for fieldwork. Closed-toe shoes must be worn at night.
Animals at Accommodations	Two domesticated cats live at the Wildlife Reserve. Those with allergies should note this on their participation forms and bring medication as appropriate.
Perimeter Fence	The reserve perimeter fence is electrified because of wildlife. Do not touch this fence to avoid shock.
Project Location	The reserve has been on land leased from the AEL Mining Services Company for over 20 years. Next to the reserve, AEL runs a factory that produces detonators for mining operations, which poses a risk of accident. However, AEL has over 100 years of experience and extensive risk management practices.
Biting insects (ticks, mosquitoes, flies and wasps) and vector-borne diseases	Trypanosomiasis, leishmaniasis, chikungunya, tick bite fever, dengue, and West Nile virus are present in this region. Participants are advised to use insect repellent (20 – 30% DEET) and wear neutral-colored field attire, including long pants tucked into socks. Participants with potential for allergic reactions to insect bites should bring appropriate medications (antihistamines, at least two Epi-pens as necessary). Volunteers will be informed about where ticks may be more prevalent in the field and how to avoid them. Participants and staff will be reminded to thoroughly check their skin and clothes for ticks daily. If a tick is found, participants will be instructed how to remove it properly (it will be removed using fine-point tweezers, grasping the tick as close to its mouth as possible, slowly pulling the tick straight out. The area will be immediately washed with soapy water).
Plants	Some plants may be poisonous if eaten or if they come into close contact with open wounds. Several plants, such as acacias, have large thorns that can cause injury. Staff will help you identify harmful plants. Certain plants and pollens may cause allergic reactions (e.g., hay fever) in some volunteers. Those with allergies should bring and carry medication as appropriate and identify themselves to staff.
Large Animals	Many large, potentially dangerous mammals, including lions, rhinos, and elephants, live in the region. All wild animals can be dangerous. Do not approach, antagonize, or tease any animal. Because of wildlife, you may not leave the research camp (as defined by the lawns surrounding the camp, beyond which is tall grass). Teams may travel in open vehicles at sites with no large predators. When traveling between sites or in Pilanesberg National Park, where dangerous wildlife is present, the team will ride in closed vehicles. In Pilanesberg, you are strictly forbidden to lean or climb out of the vehicle windows. You may only exit the vehicle at tourist hides and at the Pilanesberg Visitors Centre. Field rangers will accompany groups in areas with large, dangerous animals and will carry weapons for your protection. Rangers are well trained in weapon use. Volunteers will NOT be permitted to handle weapons at any time. Weapons are kept unloaded unless the teams are walking transects. When with armed rangers, walk in single file and always stay behind the guide. Keep within five meters of the person in front of you, be as quiet as possible, and wear earth-toned clothing. Always obey the guide and be aware of your surroundings.
Monitoring for Evidence of Poaching	While this optional task is scheduled for times when poachers are not typically active, encountering a poacher is always possible. Those who take part in this activity should heed the instruction of the project staff, scouts, and/or trackers at all times. Do not engage with a poacher should one be encountered.
Animal Handling	You may participate in animal handling. Potential risks are bites or scratches. If you do participate, you'll receive instructions and a safety briefing, and be supervised or assisted at all times. You may not handle animals unless under the direct supervision of trained project staff. Protective equipment (e.g., gloves) will be provided. Always wash your hands after handling an animal.
Firearms	Field staff may carry firearms during research and non-research activities. The firearms are mainly for firing warning shots in the event of an animal encounter. This is standard practice in a bush environment. Only trained field staff will handle firearms. Volunteers will not hold or use firearms while on this project.



SAFETY

HEALTH INFORMATION

EMERGENCIES IN THE FIELD

Minor injuries can be treated onsite. If medical advice is required a local doctor is situated 20 minutes away from the campsite and from Pilanesberg National Park in Mogwase.

There is also a private hospital with an emergency room in Rustenberg, approximately a 45-minute drive from the reserve and Pilanesberg. If medical evacuation is necessary, Pilanesberg Airport, approximately a 30-minute drive from the reserve, has the nearest airstrip. The reserve also has landing permission for an airlift anywhere on site in case of emergency.

If there's an emergency at home for which a volunteer must leave the expedition early, he or she will be transported by vehicle to the Sun City bus terminal to catch a bus to the Johannesburg International Airport. The bus company runs a private shuttle to the airport with three departures a day for approximately R1800 (US\$150, €140, £100 as of July 2015) per person one way.

For emergency assistance in the field, please contact Earthwatch's 24-hour emergency hotline number on the last page of this briefing. Earthwatch is available to assist you 24 hours a day, 7 days a week; someone is always on call to respond to messages that come into our live answering service.

IMMUNIZATIONS

Please be sure your routine immunizations are up-to-date (for example: diphtheria, pertussis, tetanus, polio, measles, mumps, rubella and varicella). Medical decisions are the responsibility of each volunteer and his or her doctor, and the following are recommendations only. Visit the Healix Travel Oracle website through the "Travel Assistance and Advice" page in your Earthwatch portal, cdc.gov or who.int for guidance on immunizations.

PROJECT VACCINATIONS

REQUIRED: If traveling from countries or region where yellow fever is endemic, you must have a certificate of vaccination.

RECOMMENDED FOR HEALTH REASONS: Hepatitis A and B

ADVICE REGARDING DISEASES

Diseases found in South Africa include malaria, dengue fever, filariasis, leishmaniasis, onchocerciasis, African tick bite fever, trypanosomiasis, schistosomiasis, tuberculosis, and HIV. Traveler's diarrhea also affects many international travelers. Please see the U.S. Centers for Disease Control and Prevention (cdc.gov) or the World Health Organization (who.int/) websites for more information on these conditions and how to avoid them.

A few notes on vaccinations and treatment:

- **MALARIA** is not present at the research site; however, it is found elsewhere in the country. Chloroquine-resistant malaria is prevalent in some of the popular tourist areas of the Limpopo (Northern) Province, Mpumalanga (including Kruger National Park), and parts of KwaZulu-Natal. The risk can be greatly reduced by using malaria prophylactics and taking precautions against mosquito bites (using insect repellent and wearing long-sleeved shirts and trousers in the evening). Speak with your doctor about prophylactics.
- **RABIES:** A rabies vaccination is not compulsory for this expedition; you will not handle any rabies-carrying wildlife. However, you may wish to consult with their healthcare providers about the vaccine given the prevalence of loose and stray dogs in the region. Avoid stray dogs at all times. The rabies pre-exposure vaccination consists of three doses over a 28-day period. Please be sure to consult your physician or travel health clinic well before your expedition to ensure that you have time for the full vaccination series. If you have previously been vaccinated, a booster shot may be required. The pre-exposure vaccination does not eliminate the need for post-exposure medical attention and treatment, but it does provide additional protection against the disease in event of a delay in treatment. In addition, bites or scratches should be immediately and thoroughly washed with soap, clean water, and a topical povidone-iodine solution or ethanol.
- **TUBERCULOSIS:** Volunteers returning from developing countries may wish to have a (PPD)-tuberculin skin-test to screen for potential infection.



TRAVEL TIPS

SUGGESTIONS FOR THE ROAD

YOUR DESTINATION

LANGUAGE: Afrikaans, English, and various local tribal and regional languages. All project activities and instruction will be conducted in English.

TIME ZONE: GMT + 2 hours.

CULTURAL CONSIDERATIONS: In general, you should not wear skimpy or revealing clothing and particularly when not at camp. If you would like to contribute to the local schools, stationery, pens, pencils, etc. are always welcome as they are perennially undersupplied.

ELECTRICITY: The electricity at the site is generated by solar power. 220/230 volts AC, 50 Hz. Most plugs are Type M (three round pins—see image) but some plugs with two smaller pins are also found on appliances. U.S.-made appliances may need a transformer. Please do not bring unnecessary electrical equipment, as the system at the campsite is easily overloaded and charging capabilities will be limited.

MONEY MATTERS

LOCAL CURRENCY: South African Rand (ZAR; symbol R) = 100 cents. Notes are in denominations of R200, 100, 50, 20, and 10. Coins are in denominations of R5, 2, and 1, and 50, 20, 10 and 5 cents.

PERSONAL FUNDS: You will need money to cover any additional snacks or drinks you wish to purchase, along with any souvenirs. Operations Manager Lynne MacTavish can accept and change common currencies, and there are also currency exchange counters at international airports. Cash machines/ATMs can be accessed at Mogwase (the closest village) and Rustenberg. Be cautious when withdrawing money from an ATM. If you see someone who looks suspicious, don't withdraw money; instead, look for another ATM. If anyone asks you for help, do not help him or her or engage in conservation.

Again, if you feel suspicious or uncomfortable, just leave the ATM. Keep your cash out of sight and in a safe place.

TIPPING: Most restaurants do not add a service charge to bills, and it is customary to leave a 10% to 15% tip. Parking and gas station attendants may be given whatever small change you have available; this is always appreciated, even though it may seem like a small amount. **NOTE:** Gratuities for the kitchen and camp staff at the Wildlife Reserve are completely voluntary but much appreciated.

PASSPORTS AND VISAS

Passport and visa requirements are subject to change. Check with your travel advisor, embassy or consulate in your home country for requirements specific to your circumstances. Generally, passports must be valid for at least six months from the date of entry and a return ticket is required.

CITIZENSHIP	PASSPORT REQUIRED?	VISA REQUIRED?
United States	Yes	No
United Kingdom	Yes	No
Europe	Yes	No
Australia	Yes	No
Japan	Yes	No

If a visa is required, participants should apply for a TOURIST visa. Please note that obtaining a visa can take weeks or even months. We strongly recommend using a visa agency, which can both expedite and simplify the process.

CONTACT INFORMATION

You may be required to list the following contact information on your visa application and immigration form, or if your luggage does not make it to baggage claim at your destination:

Lynne MacTavish
P.O. Box 20784
Protea Park 0305
Northwest Province, South Africa
+27 (083) 453-3133



EXPEDITION PACKING LIST

WHAT TO BRING

EXPEDITION PACKING CHECKLIST

GENERAL

- This expedition briefing
- Your travel plans, rendezvous details, and Earthwatch's emergency contact information
- Photocopies of your passport, flight itinerary, and credit cards in case the originals are lost or stolen; the copies should be packed separately from the original documents
- Passport and/or visa (if necessary)
- Certification of vaccination (if necessary)
- Documentation for travel by minors (if necessary)

CLOTHING/FOOTWEAR FOR FIELDWORK

NOTE: Field clothing must be khaki, earth-toned, or dark colors; white and bright colors will scare animals away.

- Earthwatch T-shirt
- Long-Sleeved shirts
- Pants
- Fleece/jumper/sweater or other warm clothes for night work
- Well broken-in hiking boots
- Wide-brimmed hat to protect face, neck, and head from the strong sun

ADDITIONAL CLOTHING/FOOTWEAR FOR FIELDWORK: NOVEMBER TEAM

- Lightweight waterproof jacket
- Waterproof footwear

ADDITIONAL CLOTHING/FOOTWEAR FOR FIELDWORK: JUNE, JULY & AUGUST TEAMS

- Warm windbreaker or jacket
- Several layers of warm clothing, including thermal under-layers
- Warm hat and gloves

CLOTHING/FOOTWEAR FOR LEISURE

- At least one set of clothing to keep clean for end of expedition.
- Shorts
- T-shirts
- Comfortable pants
- Lightweight long-sleeved shirts for sun protection
- Comfortable closed-toe shoes to wear around camp

FIELD SUPPLIES

- Small daypack to keep your personal items together and dry
- Insect repellent spray
- Two one-liter water bottles
- Flashlight/torch or headlamp with extra batteries and extra bulb this is used for walking around camp at night.
- Compass
- Whistle
- Notebook
- Pens or pencils
- Binoculars—We have just a few pairs of project binoculars to lend

BEDDING AND BATHING

NOTE: A pillow, duvet, and bed sheet will be provided.

- Four-season sleeping bag (for June, July, and August teams only)
- Towel
- Mosquito net if you are sensitive to insects or insect bites

PERSONAL SUPPLIES

- Personal toiletries (biodegradable soaps and shampoos are encouraged)
- Antibacterial wipes or lotion (good for cleaning hands while in the field)
- Personal first aid kit (e.g., anti-diarrhea pills, antibiotics, antiseptic, itch-relief, pain reliever, bandages, blister covers, etc.) and medications
- Spending money



EXPEDITION PACKING CHECKLIST

OPTIONAL ITEMS

- Camera, film or memory card(s), extra camera battery
- Hardware for sharing digital photographs at the end of the expedition
- Books, games, etc. for free time
- Earplugs for light sleepers
- Comfortable shoes to change into after conducting field work
- Bathing suit for recreation day (If warm enough)
- Dry bag or plastic sealable bags (e.g. Ziploc) to protect equipment like cameras from dust, humidity, and water
- Travel guide
- Field guide(s)
- Mosquito net
- Money belt
- A small amount of biodegradable laundry soap to wash clothing
- Flip-flops or sandals for the shower
- Favorite snacks, if you have specific dietary requirements (**NOTE:** Please store these in the kitchen tent cabinets when you arrive to avoid attracting small mammals to your sleeping tent)

NOTE: Do not bring more luggage than you can carry and handle on your own. If traveling by air and checking your luggage, we advise you to pack an extra set of field clothing and personal essentials in your carry-on bag in case your luggage is lost or delayed.



PROJECT STAFF

YOUR RESOURCES IN THE FIELD



EARTHWATCH SCIENTIST DR. DAWN SCOTT, a principal lecturer at the University of Brighton (U.K.), specializes in mammalian predator and prey ecology. In 2000, she completed her Ph.D. on aspects of the ecology of desert rodents in Jordan. Dr. Scott has over ten years of research experience and expertise in mammal ecology, biodiversity, and behavior. She has worked on research projects on human-wildlife conflict in Jordan, Chile, Zambia, South Africa, Indonesia, and the U.K. **Schedule: Team 3 and Team 4**



EARTHWATCH SCIENTIST LYNNE MACTAVISH has served as the operations manager at the Wildlife Reserve since 1999. She has worked in the tourist industry for more than eighteen years and is an experienced field guide. She received the UBS African Scientist Programme fellowship award for training in principal investigator responsibilities, scientific training, and support. She has been fundamental in developing this project and its success, and leads the field training, safety assessment, data collection, and field logistics. **Schedule: All teams**



EARTHWATCH SCIENTIST DR. ANJA ROTT is a principal lecturer at the University of Brighton. She earned her Ph.D. researching parasitoid food webs at Imperial College (U.K.). She has more than fifteen years of experience in academic research with expertise in community, population and chemical ecology, and entomological ecology (namely in multi-trophic insect plant interactions and pollination and dung beetle ecology). She has conducted fieldwork in South Africa, India, and Europe. **Schedule: Team and Team 5**



EARTHWATCH SCIENTIST DR. RACHEL WHITE is a senior lecturer at the University of Brighton. She has a PhD in Biodiversity Management on the Global biogeography of traits and extinction risk in birds from Durrell Institute of Conservation and Ecology (DICE), University of Kent. She also has an MSc in Conservation Science and has undertaken research on the impact of tourist development on birds of conservation concern. She has conducted fieldwork in South Africa, St Lucia, Ascension Island and Europe. **Schedule: Team 1**



EARTHWATCH SCIENTIST DR. ANGELO PERNETTA is a principal lecturer at the University of Brighton. He earned his Ph.D. researching the impact of habitat fragmentation on smooth snake populations at University of Southampton (U.K.). His research interests are focused on the consequences of anthropogenic impacts on ecological communities and populations. He has conducted fieldwork in South Africa for over 5 years. **Schedule: Team 2**



EARTHWATCH SCIENTIST NIALL WALDEN is a postgraduate student at the University of Brighton. He has a BSc in Ecology and has been working with Earthwatch teams at the field site since 2012. His PhD is investigating ecosystem services and human attitudes towards wildlife. **Schedule: Teams 3-4**

EARTHWATCH SCIENTIST SAMUEL PENNY is a postgraduate student at the University of Brighton. He has a BSc in Biology and MSc by research from Bristol University, UK. He has an interest in behavioral ecology having previously researched acoustic behavior of amphibians in Madagascar and gibbons in Thailand. **Schedule: Teams All**

NOTE: All staff schedules are subject to change.



RECOMMENDED READING

YOUR RESOURCES AT HOME

RESOURCES

ARTICLES

- Du Toit, R. & Anderson A., [2013]. Dehorning rhinos. *Wildlife Ranching*. Autumn: 82-85
- Milner-Gulland, E.J., Leader-Williams, N., Beddington, J.R. (1993) Is dehorning African rhinos worthwhile?. *Pachyderm* 17: 52-58.
- Waldrom, M.S., Bond, W.J. & Stock, W.D. (2008) Ecological engineering by a mega-grazer: White rhino impacts on a South African savannah. *Ecosystems*, 11, 101-1
- Hempson, G.P., Archibald, S., Bond, W.J., Ellis, R.P., Grant, C.C., Kruger, F.J., Kruger, L.M., Moxley, C., Owen-Smith, N., Peel, M.J.S., Smit, I.P.J. & Vickers, K.J. (2014) Ecology of grazing lawns in Africa. *Biological Reviews*. doi:10.1111/brv.12145
- Pernetta, A (2014) A disappearing drylands icon? White rhinoceros conservation and the need for public private Partnerships. *BIODIVERSITY*, 2014 Vol. 15, Nos. 2 , <http://dx.doi.org/10.1080/14888386.2014.931248>

BOOKS

- Anthony, L. & Spence, G. *The Last Rhinos*. 2013 Pan Publisher.
- Rademeyer, J. *Killing for a profit: Exposing the illegal rhino horn trade*. 2012. Zebra Press.

FIELD GUIDES

- Estes, R. *The Behavior Guide to African Mammals*. Berkeley, CA: University of California Press, 1991. **NOTE:** Excellent for large mammal behavior.
- Sinclair, I., Hockey, P., and Tarboton, W. *Guide to the Birds of Southern Africa*. 2nd ed. Cape Town: Struik Publishers, 1998. **NOTE:** Essential for birdwatchers.
- Stuart, C. and Stuart, T. *Field Guide to Mammals of Southern Africa*. Cape Town: Struik Publishers, 2000. **NOTE:** Good photos for animal identification.

PROJECT-RELATED WEBSITE

- **PILANESBERG NATIONAL PARK:** tourismnorthwest.co.za/pilanesberg/index.html
- **PUBLICITY FILM:** [youtube.com/user/EarthwatchInstitute](https://www.youtube.com/user/EarthwatchInstitute)
- **SAVE THE RHINOS:** www.savetherhino.org/rhino_info/issues_for_debate/de-horning.

EARTHWATCH SOCIAL MEDIA

- **FACEBOOK:** [facebook.com/Earthwatch](https://www.facebook.com/Earthwatch)
- **TWITTER:** twitter.com/earthwatch_org
- **INSTAGRAM:** [instagram.com/earthwatch](https://www.instagram.com/earthwatch)
- **BLOG:** earthwatchunlocked.wordpress.com
- **YOUTUBE:** [youtube.com/earthwatchinstitute](https://www.youtube.com/earthwatchinstitute)

LITERATURE CITED

LITERATURE CITED

- Pernetta, A (2014) A disappearing drylands icon? White rhinoceros conservation and the need for public private Partnerships. *BIODIVERSITY*, 2014 Vol. 15, Nos. 2 , <http://dx.doi.org/10.1080/14888386.2014.931248>
- Milliken T & Shaw, J, 2012. The South Africa-Vietnam rhino horn trade nexus: A deadly combination of institutional lapses, corrupt wildlife industry professionals and Asian crime syndicates. *TRAFFIC*, Johannesburg.



EMERGENCY NUMBERS

AROUND-THE-CLOCK SUPPORT



EARTHWATCH'S 24-HOUR EMERGENCY HOTLINE

Call Earthwatch's 24-hour on-call duty officer in the U.S.:

+1 (978) 461.0081

+1 (800) 776.0188 (toll-free for calls placed from within the U.S.)

After business hours, leave a message with our living answering service. State that you have an emergency and give the name of your expedition, your name, the location from which you are calling, and if possible, a phone number where you can be reached. An Earthwatch staff member will respond to your call within one hour.

TRAVEL ASSISTANCE PROVIDER: HEALIX INTERNATIONAL

+44.20.3667.8991 (collect calls and reverse charges accepted)

U.S. TOLL FREE: +1.877.759.3917

U.K. FREE PHONE: 0.800.19.5180

E-MAIL: earthwatch@healix.com

You may contact Healix International at any time. They can assist in the event of a medical or evacuation emergency or for routine medical and travel advice, such as advice on visas and vaccine requirements.

FOR VOLUNTEERS BOOKED THROUGH THE EARTHWATCH AUSTRALIA OFFICE:

Earthwatch Australia 24-Hour Emergency Helpline

+61.0.3.8508.5537



MESSAGE FROM EARTHWATCH

DEAR EARTHWATCHER,

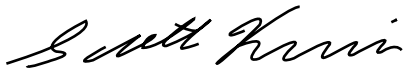
Thank you for joining this expedition! We greatly appreciate your decision to contribute to hands-on environmental science and conservation. It is volunteers like you who fuel our mission and inspire our work.

While at Earthwatch, I've had the opportunity to field on a few expeditions, most recently in Kenya with one of my daughters. Each expedition has touched me deeply, and made me proud to be able to roll up my sleeves alongside my fellow volunteers and contribute to such meaningful work.

As an Earthwatch volunteer, you have the opportunity to create positive change. And while you're out in the field working toward that change, we are committed to caring for your safety. Although risk is an inherent part of the environments in which we work, we've been providing volunteer field experiences with careful risk management and diligent planning for nearly 45 years. You're in good hands.

If you have questions as you prepare for your expedition, we encourage you to contact your Earthwatch office. Thank you for your support, and enjoy your expedition!

Sincerely,

A handwritten signature in black ink that reads "Scott Kania". The signature is written in a cursive, flowing style.

Scott Kania
President and CEO, Earthwatch



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earthwatch.org

Phone: 81-0-3-6686-0300
Fax: 81-0-3-6686-0477

PLANNING CHECKLIST

PLANNING CHECKLIST

IMMEDIATELY

- Make sure you understand and agree to Earthwatch's [Terms and Conditions](#) and the [Participant Code of Conduct](#).
- If you plan to purchase additional travel insurance, note that some policies require purchase at the time your expedition is booked.

6 MONTHS PRIOR TO EXPEDITION

- Log in at earthwatch.org to complete your participant forms.
- If traveling internationally, make sure your passport is current and, if necessary, obtain a visa for your destination country.
- Bring your level of fitness up to the standards required (see the Project Conditions section).

90 DAYS PRIOR TO EXPEDITION

- Pay any outstanding balance for your expedition.
- Book travel arrangements (see the Travel Planning section for details).
- Make sure you have all the necessary vaccinations for your project site.

60 DAYS PRIOR TO EXPEDITION

- Review the packing list to make sure you have all the clothing, personal supplies, and equipment needed.

30 DAYS PRIOR TO EXPEDITION

- Leave the Earthwatch 24-hour helpline number with a parent, relative, or friend.
- Leave copies of your photo ID and flight reservation number with a parent, relative, or friend.

READ THIS EXPEDITION BRIEFING THOROUGHLY. It provides the most accurate information available at the time of your Earthwatch scientist's project planning, and will likely answer any questions you have about the project. However, please also keep in mind that research requires improvisation, and you may need to be flexible. Research plans evolve in response to new findings, as well as to unpredictable factors such as weather, equipment failure, and travel challenges. To enjoy your expedition to the fullest, remember to expect the unexpected, be tolerant of repetitive tasks, and try to find humor in difficult situations. If there are any major changes in the research plan or field logistics, Earthwatch will make every effort to keep you well informed before you go into the field.

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NOTE FROM THE PI

DEAR EARTHWATCHER

Welcome to a unique opportunity to be involved with research that aims to help to conserve rhinos in South Africa.

The current extent of poaching and consequential declines in rhino populations throughout Africa is shocking. On average more 3 rhinos are illegally killed every day in Africa and at the current rate this species may go extinct in the next 10–20 years. Our project aims to help conserve rhino population by providing evidence of the impacts of different management on the behavior of rhinos and investigating how they are essential to support other biodiversity.

As part of this Earthwatch team, you will be involved in monitoring the rhino movements and recording their behavior as well as assessing bird, mammal and invertebrate biodiversity associated with rhinos and their habitats. Helping to collect evidence to protect and value these animals for the future.

As volunteers you will be involved in many different aspects of the project survey work and education side. But for all of our hard work, there will also be exciting opportunities to experience and learn more about other wildlife, enjoy the local cuisine and traditional activities, and to relax and take in the African sunset.

We are looking forward to welcoming you to South Africa!

Yours faithfully,

Lynne MacTavish
Dawn Scott, Ph.D.
Angelo Pernetta, Ph.D.
Anja Rott, Ph.D.,
Rachel White, Ph.D.
Maureen Berg, Ph.D.





THE RESEARCH

CONSERVING ENDANGERED RHINOS IN SOUTH AFRICA



THE STORY

Rhino populations are in crisis due to the high value of rhino horn combined with widespread poaching. There has been an exponential increase in poaching of both white rhinos and black rhinos in South Africa (Pernetta, 2014), which contains 74% of the world's remaining rhino population. Between 2010 and 2015 4,843 rhinos have been poached in South Africa, with 1,175 deaths in 2015 alone. This amounts to an average of three individuals per day (Pernetta, 2014). It is estimated at the current rates of poaching rhinos in South Africa may be extinct within the next 10–20 years. Poaching is predominantly driven by illegal trade of rhino horn in South East Asia; on the black markets of Southeast Asia rhino horn is reported to be worth more than gold (Milliken & Shaw, 2012).

This situation requires immediate action not only to reduce the levels of poaching but also to investigate 1) the impacts of anti-poaching management land and animal management (such as de-horning rhinos) on the animals themselves and to 2) determine the impacts of the loss of this megaherbivore on ecosystems to help quantify their functional role and alternative economic value for conservation initiatives.

The goal of the project is to provide information that will help to conserve and manage rhinos in South Africa. We share information with rhino owners on the behavioral and welfare implications of de-horning and provide supporting evidence on land management practices that may help to identify and reduce poaching risk. In addition we will demonstrate how rhinos support biodiversity and ecosystem functions, and in so doing, provide further evidence of their inherent value in ecosystem support.



RESEARCH AIMS

The research has the following objectives and will address these research questions:

- 1) To determine the consequences of de-horning on the behavior of white rhinoceros.
- 2) To investigate bird species and assemblages indirectly supported by rhinos, in order to evaluate the potential impact of localized loss of this megaherbivore on avian communities.
- 3) To determine what behavioral and environmental factors determine the spatial distribution of white rhinos in game reserves.
- 4) Evaluate the impact of changes in megaherbivores (white & black rhino) in structuring the dung beetle community diversity.
- 5) Raise community awareness of the impacts of the decline in rhinos to raise community support in its protection.



HOW YOU WILL HELP

Research tasks volunteers will be involved with:

- Finding and recording locations of individual rhinos every day for group composition, spatial distribution and habitat use assessment.
- Behavioral observations of rhinos on foot and from vehicles; Observe and record their behavior over set periods to time to determine habitat use, foraging activity, interactions between individuals of different ages and genders, and determine extent of behavior to indicate vigilance in relation to threat.
- Recording foraging signs of rhinos and assessing foraging behavior from visual, observational and vegetation surveys.
- Collecting rhino dung samples for analysis.
- Undertaking dung beetle experiments and determining community analysis. Identify and observe different species of dung beetle, insects that can indicate the health of mammal populations in an area.
- Bird and mammal transects and point counts. Determine Rhino species associations by surveying birds and mammals to assess their species richness and populations in areas where rhinos are and are not present.
- Conduction vegetation surveys: When the animals move off of foraging sites, record the vegetation in the area to assess habitat use
- Walkover surveys for habitat mapping.
- Behavioral analysis of rhinos at inaccessible sites from camera trap videos.



DAILY LIFE IN THE FIELD

PLANS FOR YOUR TEAM



You'll have one or two days of training in field and survey techniques, behavioral methods, use of GPS and field equipment, and identification of mammals and birds. Other educational opportunities will happen throughout the expedition, covering topics such as the history of the project; health and safety on site and during fieldwork; rhino ecology and conservation; rhino conservation and management in South Africa; methodological theory and practice; bird and mammal identification with qualified staff; game reserve management; research methodology; basic field skills, distance estimation, use of GPS, species identification, and more.

ITINERARY

Weather and research needs can lead to changes in the daily schedule. We appreciate your cooperation and understanding.

Project activities will also vary seasonally. Below is an outline of what is likely to happen on each team, but the exact schedule will depend on the project's current needs and will be set at the start of each expedition.

ALL TEAMS

Rhino monitoring, behavioral studies, mammals and bird surveys.

RAINY SEASON (DEC-MAR.—WEATHER DEPENDENT)

Habitat mapping and vegetation assessment foraging studies & dung beetle surveys.

WHEN POSSIBLE:

Local school visit



ITINERARY AND DAILY SCHEDULE

TYPICAL ITINERARY

DAY 1

Meet and travel to field site, introduction and orientation drive, downtime in the evening.

DAY 2

Orientation, field training in methodology, identification of mammals/birds, group activities, downtime in the evening

DAYS 3–7

Rhino monitoring, behavioral observations, habitat mapping/surveys, biodiversity assessments.

DAY 8

Recreational day with an excursion to Pilanesberg National Park in the morning or afternoon and evening and other team activities (park entry fees are covered; meals and snacks are at your own expense)

DAYS 9–10

Rhino monitoring, behavioral observations, habitat mapping/surveys, biodiversity assessments.

DAY 11

Data collation, project summary, and sundowner evening at field site.

DAY 12

A transfer company will pick up the team at 12:00 p.m. and take you to the airport for departure.

TYPICAL RESEARCH DAY

You'll typically have a midday break, during which we encourage you to rest in the shade. The team will also have a full recreational day, usually in the middle of the expedition.

TIME	ACTIVITY
6:00 a.m.	Rise, quick breakfast
6:30 a.m.	Begin early morning fieldwork
9:00 a.m.	Breakfast
10:00 a.m.	Morning fieldwork
12:00 p.m.	Lunch and midday break, daily briefing, data collection talks
2:00 p.m.	Continue fieldwork
6:00 p.m.	Dinner
7:00 p.m.	Evening data check, summary/discussion

RECREATIONAL DAY

For safety reasons, the team will spend the recreational day as a group. You will have the option to stay at the accommodations to rest, but you CANNOT leave camp or go off on your own if you choose this option. Following is a typical schedule for the recreational day (schedule may change for reasons beyond our control).

TIME	ACTIVITY
8:00 a.m.	Rise, eat breakfast
9:30 a.m.	Depart field site
10:00 a.m.	Visit local curios market
11:00 a.m.	Visit Kwa Maritane Lodge (game hide and swimming pool)
1:00 p.m.	Lunch (at your own expense, approximately R150/US\$16 per person)
3:00 p.m.	Game drive in Pilanesberg National Park
7:00 p.m.	Return to field site for dinner
8:00 p.m.	Evening around campfire



ACCOMMODATIONS AND FOOD

ABOUT YOUR HOME IN THE FIELD



During the expedition, your team will be based at campsite in the heart of a Private Wildlife Reserve at a scenic spot overlooking a dammed lake.

SLEEPING

There are three different accommodations at the reserve. You may sleep in a two-room brick house, a wooden cabin, or a walk-in safari tent, depending on the number of team members and the gender make up of the team. The house sleeps up to eight people in two separate bedrooms. There are three tents that sleep two to four people and have an en suite bathroom with flush toilet, sink, and shower. The two wooden cabins have an en suite bathroom, and can accommodate up to four volunteers, but are generally kept to two when possible. Most people will share a sleeping area with one or two others of the same gender. Although not guaranteed, it may be possible to accommodate couples or single room requests, depending on group size, on a first-come, first-served basis—please inform Earthwatch if you would like to request either of these options. Beds, pillows, duvets, and sheets are provided, but you must bring your own warm sleeping bag during the winter months (June, July, and August). Sleeping bags are not necessary for teams during the South African summer (October–January teams). A camp attendant will sweep up and clean bathroom facilities.



BATHROOMS

Bathroom facilities include hot showers and flush toilets. Hot water is supplied by a wood-fired or gas boiler.

ELECTRICITY

The electricity at the site is generated by solar power. It is 220/230 volts AC, 50 Hz. Most plugs are Type M (three round pins) but some plugs with two smaller pins are also found on appliances. U.S.-made appliances may need a transformer. The campsite has electrical outlets, so cameras, cell phones, iPods, etc. may be charged during the day. Please do not bring unnecessary electrical equipment, as the system at the campsite is easily overloaded and charging capabilities will be limited. This will help preserve energy for other camp necessities. Some equipment (e.g., rechargeable batteries) can be charged at the Wildlife Reserve with the permission of Operations Manager Lynne MacTavish. We advise, though, that you make sure to bring all batteries required for camera equipment, etc. as it can be very hard to find them locally. Please also bring the correct adaptors for South African plugs.



PERSONAL COMMUNICATIONS

The cellphone reception at the camp has greatly improved, so volunteers can use smartphones to gain access to the Internet. Please ensure that you register for international roaming in your own country. SIM cards may be purchased at the Johannesburg airport upon arrival. MTN service provider has the strongest reception in our area. The Internet connection is very slow, so it is impossible to Skype at the reserve. On the recreational day, you can use the Internet at Kwa Maritane Lodge for about R50 (US\$5.40). You can't connect your own computer to the Internet at camp; in the case of an emergency, Lynne will bring her laptop with Internet connection to the camp. It may be possible for project staff to download photos onto a computer if you bring appropriate cables, etc. If you'd like a copy of photos taken during the expedition, we suggest you bring a memory stick.

FACILITIES AND AMENITIES

The camp has a wooden dining area, including a sink, refrigerator, and cooking utensils, and a washing area with clotheslines. There are two barbeque areas with fire pits and a communal teaching hut with a field library and equipment, as well as two covered study areas outside. There is also a small shop on site where you can purchase snacks, project clothing/souvenirs and on adult standard teams only, some alcoholic refreshments. (Alcohol is not permitted on teams with minors.) The shop accepts USD, GBP (British Pounds), and South African Rands. All proceeds go towards the anti-poaching efforts on the reserve.

DISTANCE TO THE FIELD SITE

The reserve is about a 15-minute drive from Pilanesberg National Park's entrance and about 40 minutes from Kgaswane Mountain Reserve. The team will be transported around the Wildlife Reserve in open-topped vehicles, but closed vehicles will be used at all other sites and on public roads. There are no services in walking distance. The nearest town is Mogwase, a 15-minute drive from camp.

FOOD AND WATER

A local chef will prepare breakfast, lunch, and dinner. Lunch and dinner will be a mix of international and local cuisine, including traditional South African meals such as potjiekos (game stews) and braais (barbeques), using free-range game from the game reserve. You don't need to assist in shopping, food preparation, or clean up, unless you want to. In the occasional event that the team wishes to bring a picnic or braai on a day trip, you may be asked to help prepare your own lunch.

Most meals will be eaten communally on site in the eating area. When we are working in the Pilanesberg National Park, a picnic dinner will be eaten at one of the game-viewing hides in the park.

Lynne runs an on-site shop that sells snacks, drinks, postcards, and project merchandise, such as T-shirts and hats. To make purchases at the shop, place your order in the order book provided, and Lynne will bring the requested items that evening or the following day. Your shop bill will be calculated at the end of your stay. Lynne takes Great Britain Pounds, U.S. Dollars, and South African Rand; shop accounts may not be paid by traveler's checks or credit cards.

Alcohol consumption is not permitted by minors or on teen teams regardless of local law. It is permitted on adult teams, and available for purchase at the camp.

The following are examples of foods you may find in the field. Variety depends on availability. We appreciate your flexibility.

TYPICAL MEALS

BREAKFAST	Cereal, fruit, toast/bread, jam, tea, coffee, occasionally hot breakfast
LUNCH	Salad, quiche, soups, bread rolls
DINNER	Braais, stews, pasta, potatoes, vegetables, vegetarian options, dessert
SNACKS	Fruit, biscuits, crisps (potato chips); chocolate, etc. may be purchased from the on-site shop at your own expense
BEVERAGES	Clean drinking water available on site

SPECIAL DIETARY REQUIREMENTS

Please alert Earthwatch to any special dietary requirements (e.g., diabetes, lactose intolerance, nut or other food allergies, vegetarian or vegan diets) as soon as possible, and note them in the space provided on your volunteer forms.

We can accommodate vegetarian, vegan, gluten free, nut free and lactose free diets but very specialized diet accommodation is not guaranteed and can be very difficult due to availability of food, location of field sites, and other local conditions. You have special dietary needs; it is recommended that you bring supplemental snacks.

PROJECT CONDITIONS

THE FIELD ENVIRONMENT

The climate of the area is sub arid, with an annual rainfall of approximately 650 millimeters (25 inches), mostly falling during summer thunderstorms between October and March. Remember that seasons in the Northern and Southern Hemispheres are reversed.

GENERAL CONDITIONS

The following are averages. Please check weather resources for your team dates for more accurate weather predictions. Projects have experienced unseasonable weather at all times of year.

HUMIDITY: 20%–50%

TEMPERATURE RANGE: 42° F–95° F (0° C–35° C)

October/November temperature: Average is 86° F (30° C) in the day and 50° F–55° F (10° C–13° C) at night.

January/February temperature: Daytime temperatures can reach over 95° F (35° C) but average 79° F (26° C) in the day and 50° F–60° F (10° C–15° C) at night.

June/July/August temperature: Temperatures can drop below freezing at night and be up to 79° F (28° C) in the day.



ESSENTIAL ELIGIBILITY REQUIREMENTS:

All participants must be able, independently or with the assistance of a companion, to:

- Consistently and immediately comply with instructions from all staff field rangers, and guides.
- See clearly (with or without corrective lenses) to a distance of 500 meters (1,640 feet), and see close up to read research instruments. We may go out in the evening or for a night drive, so the ability to see in low light is also a must.
- Enjoy being outdoors all day in all types of weather, often exposed to the sun for long periods of time or highly variable weather conditions, which may include large temperature differences between night and day and sudden storms or drops in temperature
- Enjoy being outdoors in the potential presence of wild, dangerous animals, including snakes and insects.
- Walk over rough, uneven terrain with areas of dense, thorny vegetation, animal holes that can be hard to spot, or rocky and steep slopes for up to five kilometers (3.0 miles) per day and generally up to three hours per day an average rate of one kilometer (0.6 miles) in 15 minutes, with minimal fatigue.
- Tolerate long periods of time in the field; days can be long.
- Without assistance, get up into and down out of project vehicles, which may include vans, trucks with high beds, and open-topped safari vehicles.
- Sit or ride in project vehicles with seat belt fastened and in close proximity to other team members while traveling over rough and bumpy roads or have to sit still during behavioral observations for up to approximately five hours per day. Although the team will take regular breaks, in some research areas you will not be permitted to get out of the vehicle and walk around due to the presence of dangerous animals.
- Get low enough to access and collect samples and identify plants on the ground and in the brush and to access or set up camera traps.
- Keep as quiet and still as possible while observing animals and working in the bush.
- Tolerate some smoke in the air if participating in the controlled- burn monitoring. Those who choose to participate will be placed in areas unlikely to be affected by smoke—but winds can change and it is impossible to guarantee a smoke-free zone (only applicable to May–August teams).
- Tolerate not having a reliable source of electricity throughout the night for the length of the project.



POTENTIAL HAZARDS

CONSERVING ENDANGERED RHINOS IN SOUTH AFRICA

HAZARD TYPE	ASSOCIATED RISKS AND PRECAUTIONS
Transportation	Hazards include fast and reckless drivers, livestock and wildlife in the road, rain, poor lighting, banditry, tire punctures due to thorny brush, and vehicle breakdowns. Traffic moves on the left side of the road. South African road conditions are considered good, particularly in urban areas; however, roads at the study sites can be poor: dirt, gravel, or corrugated and very bumpy and either dusty or muddy and slippery depending on weather conditions. Wear seat belts whenever they are available and remain seated when the vehicle is in motion. Speeds will be kept at 50-km/ hr. (30 mph) or below, and will usually be around 30 km/hr. (20 mph). Only authorized, insured, experienced staff will drive. Volunteers are not permitted to drive. We will avoid night transportation (some night drives are part of the research).
Walking/Hiking/ Climbing	Terrain can be rocky, steep, and uneven with thick vegetation, especially in the wet season. There may be animal holes in the ground, covered by grasses and hard to spot. Some areas have dense, thorny acacia scrub. There is a possibility of sprains, bruises, and strains when walking. Walk carefully and attentively, and be aware of your surroundings at all times. We will walk on tracks and paths where possible. Appropriate clothing and footwear (e.g., long trousers, hat, socks, and well-broken-in hiking boots with ankle support) are required for fieldwork. Closed-toe shoes must be worn at night.
Animals at Accommodations	Two domesticated cats live at the Wildlife Reserve. Those with allergies should note this on their participation forms and bring medication as appropriate.
Perimeter Fence	The reserve perimeter fence is electrified because of wildlife. Do not touch this fence to avoid shock.
Project Location	The reserve has been on land leased from the AEL Mining Services Company for over 20 years. Next to the reserve, AEL runs a factory that produces detonators for mining operations, which poses a risk of accident. However, AEL has over 100 years of experience and extensive risk management practices.
Biting insects (ticks, mosquitoes, flies and wasps) and vector-borne diseases	Trypanosomiasis, leishmaniasis, chikungunya, tick bite fever, dengue, and West Nile virus are present in this region. Participants are advised to use insect repellent (20–30% DEET) and wear neutral-colored field attire with long sleeves and long pants tucked into socks. Participants with potential for allergic reactions to insect bites should bring appropriate medications (antihistamines, at least two Epi-Pens as necessary). Volunteers will be informed about where ticks may be more prevalent in the field and how to avoid them. Participants and staff will be reminded to thoroughly check their skin and clothes for ticks daily. If a tick is found, participants will be instructed how to remove it properly (it will be removed using fine-point tweezers, grasping the tick as close to its mouth as possible, slowly pulling the tick straight out. The area will be immediately washed with soapy water). Malaria is not present at the research site; however, it is found elsewhere in the country, including chloroquine-resistant malaria.
Plants	Some plants may be poisonous if eaten or if they come into close contact with open wounds. Several plants, such as acacias, have large thorns that can cause injury. Staff will help you identify harmful plants. Certain plants and pollens may cause allergic reactions (e.g., hay fever) in some volunteers. Those with allergies should bring and carry medication as appropriate and identify themselves to staff.
Large Animals	Many large, potentially dangerous mammals, including lions, rhinos, buffalo, and elephants, live in the region. All wild animals can be dangerous. Do not approach, antagonize, or tease any animal. Because of wildlife, you may not leave the research camp (as defined by the lawns surrounding the camp, beyond which is tall grass). Teams may travel in open vehicles at sites with no large predators. When traveling between sites or in Pilanesberg National Park, where dangerous wildlife is present, the team will ride in closed vehicles. In Pilanesberg, you are strictly forbidden to lean or climb out of the vehicle windows. You may only exit the vehicle at tourist hides and at the Pilanesberg Visitors Centre. Field rangers will accompany groups in areas with large, dangerous animals and will carry weapons for your protection. Rangers are well trained in weapon use. Volunteers will NOT be permitted to handle weapons at any time. Weapons are kept unloaded unless the teams are walking transects. When with armed rangers, walk in single file and always stay behind the guide. Keep within five meters of the person in front of you, be as quiet as possible, and wear earth-toned clothing. Always obey the guide and be aware of your surroundings.
Monitoring for Evidence of Poaching	While this optional task is scheduled for times when poachers are not typically active, encountering a poacher is always possible. Those who take part in this activity should heed the instruction of the project staff, scouts, and/or trackers at all times. Do not engage with a poacher should one be encountered.
Animal Handling and Rabies	You may participate in animal handling. Potential risks are bites or scratches. If you do participate, you'll receive instructions and a safety briefing, and be supervised or assisted at all times. You may not handle animals unless under the direct supervision of trained project staff. Protective equipment (e.g., gloves) will be provided. Always wash your hands after handling an animal. Animals known to carry Rabies will not be handled, however, you may wish to consult with their healthcare providers about the vaccine given the prevalence of loose and stray dogs in the region. Avoid stray dogs at all times.
Firearms	Field staff may carry firearms during research and non-research activities. The firearms are mainly for firing warning shots in the event of an animal encounter. This is standard practice in a bush environment. Only trained field staff will handle firearms. Volunteers will not hold or use firearms while on this project.



HEALTH & SAFETY

CONSERVING ENDANGERED RHINOS IN SOUTH AFRICA



EMERGENCIES IN THE FIELD

Project staff members are not medical professionals. Minor injuries can be treated onsite. If medical advice is required a local doctor is located 20 minutes away by vehicle from the campsite and from Pilanesberg National Park in Mogwase.

There is also a private hospital with an emergency room in Rustenberg, approximately a 45-minute drive from the reserve and Pilanesberg. If medical evacuation is necessary, Pilanesberg Airport, approximately a 30-minute drive from the reserve, has the nearest airstrip. The reserve also has landing permission for an airlift anywhere on site in case of emergency.

If there's an emergency at home for which a volunteer must leave the expedition early, he or she will be transported by vehicle to the Sun City bus terminal to catch a bus to the Johannesburg International Airport. The bus company runs a private shuttle to the airport with three departures a day.

For emergency assistance in the field, please contact Earthwatch's 24-hour emergency hotline number on the last page of this briefing. Earthwatch is available to assist you 24 hours a day, 7 days a week; someone is always on call to respond to messages that come into our live answering service.

IMMUNIZATIONS & TRAVEL VACCINATIONS

Please be sure your routine immunizations are up-to-date (for example: diphtheria, pertussis, tetanus, polio, measles, mumps, rubella and varicella) and you have the appropriate vaccinations for your travel destination. Medical decisions are the responsibility of each volunteer and his or her doctor, and the following are recommendations only. Visit the Healix Travel Oracle website through the "Travel Assistance and Advice" page in your Earthwatch portal, cdc.gov or who.int for guidance on immunizations.

If traveling from countries or region where yellow fever is endemic, you must have a certificate of vaccination.

ADVICE REGARDING DISEASES

Diseases found in South Africa include malaria, dengue fever, filariasis, leishmaniasis, onchocerciasis, African tick bite fever, trypanosomiasis, schistosomiasis, tuberculosis, and HIV. Traveler's diarrhea also affects many international travelers. Please see the U.S. Centers for Disease Control and Prevention (cdc.gov) or the World Health Organization (who.int/) websites for more information on these conditions and how to avoid them.



TRAVEL TRIPS

SUGGESTIONS FOR THE ROAD



YOUR DESTINATION

LANGUAGE: Afrikaans, English, and various local tribal and regional languages. All project activities and instruction will be conducted in English.

TIME ZONE: GMT + 2 hours.

CULTURAL CONSIDERATIONS: In general, you should not wear skimpy or revealing clothing and particularly when not at camp. If you would like to contribute to the local schools, stationery, pens, pencils, etc. are always welcome as they are perennially undersupplied. Most restaurants do not add a service charge to bills, and it is customary to leave a 10% to 15% tip. Parking and gas station attendants may be given whatever small change you have available; this is always appreciated, even though it may seem like a small amount. **NOTE:** Gratuities for the kitchen and camp staff at the Wildlife Reserve are completely voluntary but much appreciated.

LOCAL CURRENCY: South African Rand (ZAR; symbol R) = 100 cents. There are currency exchange counters at Johannesburg airport. Cash machines/ATMs can be accessed at Mogwase and Rustenberg (communities close to the research site). You will need money to cover additional snacks, drinks, and your souvenirs. Operations Manager Lynne MacTavish can often accept and change common currencies.

COUNTRY AND PROJECT ENTRY REQUIREMENTS

Entry visa requirements differ by country of origin, layover, and destination, and do change unexpectedly. For this reason, please confirm your visa requirements at the time of booking and, again, 90 days prior to travel. Please apply early for your visa (we recommend starting 6 months prior to the start of your expedition). Refunds will not be made for volunteers cancelling due to not obtaining their visa in time to meet the team at the rendezvous. You can find up to date visa requirements via one of the following sites:

www.passportsandvisas.com
www.travisa.com

If a visa is required, participants should apply for a TOURIST visa. Please note that obtaining a visa can take weeks or even months. We strongly recommend using a visa agency, which can both expedite and simplify the process.

Generally, passports must be valid for at least six months from the date of entry and a return ticket is required.

Minors have special entry requirements for South Africa. Details can be found at:

<http://www.dha.gov.za/index.php/statements-speeches/621-advisory-new-requirements-for-children-travelling-through-south-african-ports-of-entry-effective-1-june-2015>

CONTACT INFORMATION

You may be required to list the following contact information on your visa application and immigration form, or if your luggage does not make it to baggage claim at your destination:

Lynne MacTavish
P.O. Box 20784
Protea Park 0305
Northwest Province, South Africa
+27 (083) 453-3133



EXPEDITION PACKING CHECKLIST

WHAT TO BRING

EXPEDITION PACKING CHECKLIST

GENERAL

- This expedition briefing
- Your travel plans, rendezvous details, and Earthwatch's emergency contact information
- Photocopies of your passport, flight itinerary, and credit cards in case the originals are lost or stolen; the copies should be packed separately from the original documents
- Passport and/or visa (if necessary)
- Certification of vaccination (if necessary)
- Documentation for travel by minors (if necessary)

CLOTHING/FOOTWEAR FOR FIELDWORK

NOTE: Field clothing must be khaki, earth-toned, or dark colors; white and bright colors will scare animals away.

- Earthwatch T-shirt
- Long-Sleeved shirts
- Pants
- Fleece/jumper/sweater or other warm clothes for night work
- Well broken-in hiking boots
- Wide-brimmed hat to protect face, neck, and head from the strong sun

ADDITIONAL CLOTHING/FOOTWEAR FOR FIELDWORK: NOVEMBER TEAM

- Lightweight waterproof jacket
- Waterproof footwear

ADDITIONAL CLOTHING/FOOTWEAR FOR FIELDWORK: JUNE, JULY & AUGUST TEAMS

- Warm windbreaker or jacket
- Several layers of warm clothing, including thermal under-layers
- Warm hat and gloves

CLOTHING/FOOTWEAR FOR LEISURE

- At least one set of clothing to keep clean for end of expedition.
- Shorts
- T-shirts
- Comfortable pants
- Lightweight long-sleeved shirts for sun protection
- Comfortable closed-toe shoes to wear around camp

FIELD SUPPLIES

- Small daypack to keep your personal items together and dry
- Insect repellent spray
- Two one-liter water bottles
- Flashlight/torch or headlamp with extra batteries and extra bulb this is used for walking around camp at night.
- Whistle
- Notebook
- Pens or pencils
- Binoculars—We have just a few pairs of project binoculars to lend

BEDDING AND BATHING

NOTE: A pillow, duvet, and bed sheet will be provided.

- Four-season sleeping bag
(for June, July, and August teams only)
- Towel
- Mosquito net if you are sensitive to insects or insect bites



EXPEDITION PACKING CHECKLIST

PERSONAL SUPPLIES

- Personal toiletries (biodegradable soaps and shampoos are encouraged)
- Antibacterial wipes or lotion (good for cleaning hands while in the field)
- Personal first aid kit (e.g., anti-diarrhea pills, antibiotics, antiseptic, itch-relief, pain reliever, bandages, blister covers, etc.) and medications
- Spending money

OPTIONAL ITEMS

- Camera, film or memory card(s), extra camera battery
- Hardware for sharing digital photographs at the end of the expedition
- Books, games, etc. for free time
- Earplugs for light sleepers
- Comfortable shoes to change into after conducting fieldwork
- Bathing suit for recreation day (If warm enough)
- Dry bag or plastic sealable bags (e.g. Ziploc) to protect equipment like cameras from dust, humidity, and water
- Travel guide
- Field guide(s)
- Mosquito net
- Money belt
- A small amount of biodegradable laundry soap to wash clothing
- Flip-flops or sandals for the shower
- Favorite snacks, if you have specific dietary requirements (**NOTE:** Please store these in the kitchen tent cabinets when you arrive to avoid attracting small mammals to your sleeping tent)

NOTE: Do not bring more luggage than you can carry and handle on your own. If traveling by air and checking your luggage, we advise you to pack an extra set of field clothing and personal essentials in your carry-on bag in case your luggage is lost or delayed.



PROJECT STAFF

YOUR RESOURCES IN THE FIELD



NOTE: The specific staff scheduled to run your team is subject to change.

EARTHWATCH SCIENTIST DR. DAWN SCOTT, a principal lecturer at the University of Brighton (U.K.), specializes in mammalian predator and prey ecology. In 2000, she completed her Ph.D. on aspects of the ecology of desert rodents in Jordan. Dr. Scott has over ten years of research experience and expertise in mammal ecology, biodiversity, and behavior. She has worked on research projects on human-wildlife conflict in Jordan, Chile, Zambia, South Africa, Indonesia, and the U.K.



EARTHWATCH SCIENTIST LYNNE MACTAVISH has served as the operations manager at the Wildlife Reserve since 1999. She has worked in the tourist industry for more than eighteen years and is an experienced field guide. She received the UBS African Scientist Programme fellowship award for training in principal investigator responsibilities, scientific training, and support. She has been fundamental in developing this project and its success, and leads the field training, safety assessment, data collection, and field logistics. **Schedule: All teams**



EARTHWATCH SCIENTIST DR. ANJA ROTT is a principal lecturer at the University of Brighton. She earned her Ph.D. researching parasitoid food webs at Imperial College (U.K.). She has more than fifteen years of experience in academic research with expertise in community, population and chemical ecology, and entomological ecology (namely in multi-trophic insect plant interactions and pollination and dung beetle ecology). She has conducted fieldwork in South Africa, India, and Europe.



EARTHWATCH SCIENTIST DR. RACHEL WHITE is a senior lecturer at the University of Brighton. She has a PhD in Biodiversity Management on the Global biogeography of traits and extinction risk in birds from Durrell Institute of Conservation and Ecology (DICE), University of Kent. She also has an MSc in Conservation Science and has undertaken research on the impact of tourist development on birds of conservation concern. She has conducted fieldwork in South Africa, St Lucia, Ascension Island and Europe.



EARTHWATCH SCIENTIST DR. ANGELO PERNETTA is a principal lecturer at the University of Brighton. He earned his Ph.D. researching the impact of habitat fragmentation on smooth snake populations at University of Southampton (U.K.). His research interests are focused on the consequences of anthropogenic impacts on ecological communities and populations. He has conducted fieldwork in South Africa for over 5 years.



EARTHWATCH SCIENTIST NIALL WALDEN is a postgraduate student at the University of Brighton. He has a BSc in Ecology and has been working with Earthwatch teams at the field site since 2012. His PhD is investigating ecosystem services and human attitudes towards wildlife.



EARTHWATCH SCIENTIST SAMUEL PENNY is a postgraduate student at the University of Brighton. He has a BSc in Biology and MSc by research from Bristol University, UK. He has an interest in behavioral ecology having previously researched acoustic behavior of amphibians in Madagascar and gibbons in Thailand. **Schedule: Teams All**



RECOMMENDED READING

YOUR RESOURCES AT HOME

RESOURCES

ARTICLES

- Du Toit, R. & Anderson A., (2013). Dehorning rhinos. *Wildlife Ranching*. Autumn: 82-85
- Milner-Gulland, E.J., Leader-Williams, N., Beddington, J.R. (1993) Is dehorning African rhinos worthwhile?. *Pachyderm* 17: 52-58.
- Waldrom, M.S., Bond, W.J. & Stock, W.D. (2008) Ecological engineering by a mega-grazer: White rhino impacts on a South African savannah. *Ecosystems*, 11, 101-1
- Hempson, G.P., Archibald, S., Bond, W.J., Ellis, R.P., Grant, C.C., Kruger, F.J., Kruger, L.M., Moxley, C., Owen-Smith, N., Peel, M.J.S., Smit, I.P.J. & Vickers, K.J. (2014) Ecology of grazing lawns in Africa. *Biological Reviews*. doi:10.1111/brv.12145
- Pernetta, A (2014) A disappearing drylands icon? White rhinoceros conservation and the need for public private Partnerships. *BIODIVERSITY*, 2014 Vol. 15, Nos. 2 , <http://dx.doi.org/10.1080/14888386.2014.931248>

BOOKS

- Anthony, L. & Spence, G. *The Last Rhinos*. 2013 Pan Publisher.
- Rademeyer, J. *Killing for a profit: Exposing the illegal rhino horn trade*. 2012. Zebra Press.

FIELD GUIDES

- Estes, R. *The Behavior Guide to African Mammals*. Berkeley, CA: University of California Press, 1991. **NOTE:** Excellent for large mammal behavior.
- Sinclair, I., Hockey, P., and Tarboton, W. *Guide to the Birds of Southern Africa*. 2nd ed. Cape Town: Struik Publishers, 1998. **NOTE:** Essential for birdwatchers.
- Stuart, C. and Stuart, T. *Field Guide to Mammals of Southern Africa*. Cape Town: Struik Publishers, 2000. **NOTE:** Good photos for animal identification.

PROJECT-RELATED WEBSITE

- **PILANESBERG NATIONAL PARK:** tourismnorthwest.co.za/pilanesberg/index.html
- **PUBLICITY FILM:** [youtube.com/user/EarthwatchInstitute](https://www.youtube.com/user/EarthwatchInstitute)
- **SAVE THE RHINOS:** www.savetherhino.org/rhino_info/issues_for_debate/de-horning.

EARTHWATCH SOCIAL MEDIA

- **FACEBOOK:** [facebook.com/Earthwatch](https://www.facebook.com/Earthwatch)
- **TWITTER:** twitter.com/earthwatch_org
- **INSTAGRAM:** [instagram.com/earthwatch](https://www.instagram.com/earthwatch)
- **BLOG:** earthwatchunlocked.wordpress.com
- **YOUTUBE:** [youtube.com/earthwatchinstitute](https://www.youtube.com/earthwatchinstitute)

LITERATURE CITED

- Pernetta, A (2014) A disappearing drylands icon? White rhinoceros conservation and the need for public private Partnerships. *BIODIVERSITY*, 2014 Vol. 15, Nos. 2 , <http://dx.doi.org/10.1080/14888386.2014.931248>
- Milliken T & Shaw, J, 2012. The South Africa-Vietnam rhino horn trade nexus: A deadly combination of institutional lapses, corrupt wildlife industry professionals and Asian crime syndicates. *TRAFFIC*, Johannesburg.



EMERGENCY NUMBERS

AROUND-THE-CLOCK SUPPORT



EARTHWATCH'S 24-HOUR EMERGENCY HOTLINE

Call Earthwatch's 24-hour on-call duty officer in the U.S.:

+1 (978) 461.0081

+1 (800) 776.0188 (toll-free for calls placed from within the U.S.)

After business hours, leave a message with our live answering service. State that you have an emergency and give the name of your expedition, your name, the location from which you are calling, and if possible, a phone number where you can be reached. An Earthwatch staff member will respond to your call within one hour.

TRAVEL ASSISTANCE PROVIDER: HEALIX INTERNATIONAL

+44.20.3667.8991 (collect calls and reverse charges accepted)

U.S. TOLL FREE: +1.877.759.3917

U.K. FREE PHONE: 0.800.19.5180

E-MAIL: earthwatch@healix.com

You may contact Healix International at any time. They can assist in the event of a medical or evacuation emergency or for routine medical and travel advice, such as advice on visas and vaccine requirements.

FOR VOLUNTEERS BOOKED THROUGH THE EARTHWATCH AUSTRALIA OFFICE:

Earthwatch Australia 24-Hour Emergency Helpline

+61.0.3.8508.5537



MESSAGE FROM EARTHWATCH

DEAR EARTHWATCHER,


Thank you for joining this expedition! We greatly appreciate your decision to contribute to hands-on environmental science and conservation. It is volunteers like you who fuel our mission and inspire our work.

While at Earthwatch, I've had the opportunity to field on a few expeditions, most recently in Kenya with one of my daughters. Each expedition has touched me deeply, and made me proud to be able to roll up my sleeves alongside my fellow volunteers and contribute to such meaningful work.

As an Earthwatch volunteer, you have the opportunity to create positive change. And while you're out in the field working toward that change, we are committed to caring for your safety. Although risk is an inherent part of the environments in which we work, we've been providing volunteer field experiences with careful risk management and diligent planning for nearly 45 years. You're in good hands.

If you have questions as you prepare for your expedition, we encourage you to contact your Earthwatch office. Thank you for your support, and enjoy your expedition!

Sincerely,



Scott Kania
President and CEO, Earthwatch





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