University of Florida

GEO 6408 (Section: PP64)

Parks and People

Associate Professor: Brian Child

Department of Geography
Centre for African Studies

GEO 6408	26402	PP64
GEO 4938	13874	13874
AFS 6905	20428	
AFS 4935	20427	19FH

Classroom:	NRN3035
Office:	Turlington 3038
Office Hours:	(M/F 2-3; appointment best)
Time:	W | Period 6 - 8 (12:50 PM - 3:50 PM)

Dr Brian A. Child
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(Attendance is departmentally controlled and capped at 20)

Fall 2021 Covid Accommodations

FACE TO FACE OR SYNCHRONOUS ONLINE [ALL TESTS AND EXAMS WILL BE HELD ON CAMPUS]

This course will be face-to-face as scheduled.

Given the circumstances, I am adding a hyflex option by providing a zoom link in canvas, and students can log in and view the lecture synchronously e.g. if they are in quarantine or sick etc.

I will also provide a recording of the class.

However, I will be prioritizing FACE TO FACE learning and dialogue/discussion and, in emphasising classroom learning, note that there may be a loss of quality in hyflex /recorded learning.

Course Description

Parks are invaluable to humankind, yet are under-funded, under supplied and poorly managed the world over. The hypothesis underlying this class is that the underperformance of parks stems from a lack of clarity of who and what they are for, and how to measure this. The first third of the class analyses the history of parks, and their biological goals, corresponding to the park model that we are taught in school, "exclusionary conservation," and a knee-jerk association with public funding and public management.

However, the world is at a tipping point where we need "inclusive conservation" if we are ever to reach the emerging global goals of "30% by 3030" or Half Earth. Therefore, we look at new and innovative models including private conservation and community based natural resource governance and management (CBNRM).

This class looks at parks economically. It emphasizes that the gap between the enormous values that parks provide to society and the wholly inadequate funding and management of most parks stems from a misunderstand of the difference between financial signals and economic values. The class uses private and community conserved areas to introduce concepts of wildlife and land use economics, institutional economics, and community governance that are necessary for inclusive conservation.

To combine conceptual thinking with practical management, and to emphasise that effective conservation requires effective management and monitoring systems, learning will be built around student case studies in the form of a situation analysis and policy document for a public, private or community park or conservation area.

Key themes:

1. What are parks, who are they for, what are they for?
    a. The emergence of the exclusionary model for protected areas ("Yellowstone Model), and a brief contrast with ancient systems like the Arabian *hema's*
    b. The changing science of ecology and biodiversity conservation, setting park goals, and measuring the effectiveness of protected areas.
2. The financial and economic values of parks, and how to measure them
3. Private conservation, wildlife economics and the sustainable governance approach
4. The practice and principles of community conservation
5. Project management as a framework for your assignments.

Grading:

Attendance and Participation	10%
Presentations of class readings	15%
Essay 1 (park situation analysis)	25%
Essay 2 (park finances and economics)	25%
Final presentation (park plan/project)	25%

Grade Legend

A	4.0		90+
A-	3.67	Excellent	85-89
B+	3.33		80-84
B	3.0	Good	75-79
B-	2.67		70-74
C+	2.33		66-69
C	2.0	Barely adequate	63-65
C-	1.67		60-62
D+	1.33		56-59
D	1.0	Not good enough	53-55
D-	.67		50-52
S	0		

Basis for Grading

The grade for this class will be based on participation in class, and a project to write a situation analysis and policy document for you case study park / conservation area.

Basis for Grading	Points (100)	Due Dates
1. Class participation and presentations	20	
2. Assignment 1 – 2 page presentation of case study	5	8 Sept
3. Assignment 2 – Situation analysis: park background and biodiversity	25	22 Sept - Present PPT to class 29 Sept – Submit document peer review 6 Oct – Submit document
4. Assignment 3: Situation analysis: • economics and finances; • infrastructure; • management and human resource; • landscape issues, economic	25	20 Oct - Present PPT to class 27 Oct – Submit document peer review 3 Nov – Submit document

growth, community, public		
5. Assignment 4: Write a park policy document (5-10 pages).	25	17 Nov – Present logframe to class with 3-5 page policy statement 1 Dec – submit policy and log-frame

1. Attendance, Participation and Presentations (20% of final grade)

Students will be expected to be in the classroom on time. The class will break for 10 minutes at an appropriate mid-point. Being consistently late will count against a student in the final grade. Active participation in class discussions is critical to this class, and could make a difference in the final grade.

Students will be expected to work in pairs to give one, or possibly two, 10-20 minute presentations related to the readings and topics of the week.

2. Project (75% of final grade)

During the semester you develop a case study in which you will do a situation analysis of a case study that you choose, capping this off by writing a short policy document for this park. A park can be any public, private or community conservation area. We will go through this in four stages. For each stage you will:

1. Give a short presentation to class. This in many ways also acts as an essay plan
2. Write up the required section of the park document as an essay
3. Share this with three other class members for peer review (because you will learn a lot from sharing ideas)
4. Submit it to me for grading.

In brief:

- Paper 1, which is the longest (6,000 words) will provide a "situation analysis" of the area including its geography, history, and key biodiversity attributes.
- Paper 2.1 is shorter and more analytical (3,000 words). You will analyse the park financially and economically, and comment critically on the differences between these analyses, and the implications for park sustainability and management.
- Paper 2.2. This wraps up what is needed to understand you park. It requires you to do a very brief assessment of park infrastructure and management, just to give you a comprehensive view of park management. In slightly more detail, I would also like you to assess the geographical and social landscape in which the park is situated.

- Paper 2.3 is a park policy document comprising a one-page log frame and about 4 pages of narrative describing the log-frame. This should set out a vision, define key findings and barriers, and then summarise your judgment in the form of a 5-page park policy document that outlines key performance areas and how to measure them.

Papers will be properly referenced, and will demonstrate that you can contextualize your case study within the principles developed through classes and readings. Good papers will demonstrate that you have extended yourself beyond these readings, displayed critical thinking, and are able to structure and communicate your findings.

I have laid out detailed instructions for how to write you park plan/policy document below.

- The first part (p 19-21) describes the template for a park plan and policy document.
- The second part (p 22 – 25) describes how we are going to complete this through a series of four assignment.

Please note that writing a park plan is a big job. I am not expecting you to do this in full detail. I want to take you through the broad process of how to do this. Please keep your document short. To get an idea of performance management, please make a good effort to define 3-4 indicators for each area of park management. I don't expect this to be easy, so we will be discussing it in class, where we will also continually reflect on the process.

This is the first time I have taken this approach in class, so we will be working on it together and learning from each other how best to do it.

Section Title and Methods	Learning objectives and readings
Week 1. **Introduction and Expectations** **What are parks, and who are they for?** • Power point outlining course • Participatory introduction exercises. • PowerPoint and discussion about what parks are and who they are for • Power point presentation about park planning	**Introduction to course (PowerPoint 1)** • Outlines the course • Clarify expectations of students, assignments, grading, etc. Describe the class project (case study) in terms of making a park plan/project document • Introduce each other **Conceptual question for course (Power Point):** • What are parks, and who and what are they for? • Why are parks, which are so valuable, being neglected or disappearing? **Before class please read Phillips and skim through the Living Planet report** **Required readings** Phillips, A. (2003). "Turning Ideas on Their Head: The New Paradigm For Protected Areas." The George Wright Forum , June 2003, **20**(2): 8-32. WWF/ZSL 2020 Living Planet Report, https://livingplanet.panda.org/en-us/
Section 2 **The history of parks** • Student presentation of readings • Lecture • Seminar/discussion	• Describes the emergence of exclusive conservation and protected areas • Assess 'fit' of this model given different priorities and capabilities of developing countries. • Asks of protected areas are important as engines of economic growth because they tap into new products – the tourism and bio-experience economy. **Required readings:** Phillips, A. (2007). A Short History of the International System of Protected Areas Management Categories. Andalusia, Spain, IUCN World Commission on Protected Areas Task Force: IUCN Protected Area Categories. Murphree, M., W. (2002). "Protected Areas and the Commons." The Common Property Resource Digest **60**(March 2002): 1-3. Calef, W. (1980). "Book review. National Parks: The American Experience." Annals of the Association of American Geographers **70**(3): 425-426.

	Shelhaus, J. (2001). "The USA national parks in international perspective: have we learned the wrong lesson?" Environmental Conservation **28**(4): 300-304. Grainger, J. and O. Llewellyn (undated). Sustainable use: lessons from a cultural tradition in Saudi Arabia. **Required to look through (don't read the whole thing)** Grazia Borrini-Feyerabend, et al. (2013). Governance of Protected Areas. From understanding to action. Gland, Switzerland, IUCN. UNEP-WCMC Protected Planet Report 2020. Tracking progress towards global targets for protected areas. Cambridge, UK, United Nations Environment Programme World Conservation Monitoring Centre (UNEP-WCMC). **Additional materials:** Runte, A. (1977). "The National Park Idea: Origins and Paradox of the American Experience." Forest & Conservation History **21**(2): 64-75 Pouliquen-Young, O. 1997 Evolution of the system of protected areas in Western Australia, Environmental Conservation 24 (2) : 168-181. Mittermeier, R.A., Do Fonesca, G.A.B., Rylands, A.B. and Brandon, K. 2005 A Brief History of Biodiversity Conservation in Brazil, Conservation Biology 19 (3): 601-607.
Section 3 **Ecological principles – the emergence of a science of nature and its management** • Student presentation of readings • Lecture • Seminar/discussion	Uses the history of ecological thought to introduce basic theories of ecology, including sustainable yields, ending with the need to manage complexity: • The "balance of nature" and simple Clemenisan succession • Trophic / energy levels – producers, consumers, competition, niches, diseases, predators, prey, etc. • Limiting factors (forest ecology and savanna ecology) • Maximum sustainable yield • Disturbance and dis-equilibrium, non-linear complex systems • Adaptive management • Conservation biology • Biodiversity conservation prioritization • New Conservation **Required readings:** Borgerhoff Mulder, M. and P. Coppolillo (2005). Conservation. Linking Ecology, Economics, and Culture. Princeton, Princeton University Press. Chapter 3, Walker, B., et al. (2004). "Resilience, Adaptability and

	transformability in Social-ecological Systems." Ecology and Society **9**(2): 2-10. Wallington, t. J., et al. (2005). "Implications of Current Ecological Thinking for Biodiversity Conservation: a Review of the Salient Issues." Ecology and Society **10**(1): 1-15. Holmes, G., C. Sandbrook, et al. (2017). "Understanding conservationists' perspectives on the new-conservation debate." Conservation Biology **31**(2): 353-363. **Additional materials:** Grumbine, E. R. (1997). "Reflections on "What is Ecosystem Management?"." Conservation Biology **11**(1): 41-47. MacKinnon, J., K. MacKinnon, et al. (1986). Managing Protected Areas in the Tropics. Gland, Switzerland, International Union for the Conservation of Nature and Natural Resources. (read chapter 3 "Basis for Selection of Sites for Protected Areas: 27-54)
Section 4. Setting conservation goals for parks: what should we conserve?	• Discuss how conservation goals have changed including park coverage, biodiversity hotspots and new goals like Half Earth and 30% by 3030 Please read MacKinnon chapter 3 for solid background on establishing national protected area systems, then read Taylor for an assessment of the application of these ideas in Zimbabwe. Compare this to the emerging ideas about biodiversity hotspots (Myers et al, 2000), and then read Buscher for an introduction to to the most recent suggestions that "nature needs half" or "30%by 3030" MacKinnon, J., K. MacKinnon, G. Child and J. Thorsell (1986). Managing Protected Areas in the Tropics. Gland, Switzerland, International Union for the Conservation of Nature and Natural Resources. Taylor, R. (1990). Zimbabwe. International Handbook of National Parks and Nature Reserves. . C. W. Allin. New York, London, Greenwood Press. Myers, N., R. A. Mittermeier, C. G. Mittermeier, G. A. B. da Fonseca and J. Kent (2000). "Biodiversity hotspots for conservation priorities." Nature **403**(6772): 853-858. Büscher, B., R. Fletcher, D. Brockington, C. Sandbrook, W. M. Adams, L. Campbell, C. Corson, W. Dressler, R. Duffy, N. Gray, G. Holmes, A. Kelly, E. Lunstrum, M. Ramutsindela and K. Shanker (2017). "Half-Earth or Whole Earth? Radical ideas for conservation, and their implications." Oryx **51**(3): 407-410. **Additional materials:** Myers, N. (2003). "Biodiversity Hotspots Revisited." BioScience **53**(10): 916-917.

	https://www.biodiversitya-z.org/content/biodiversity-hotspots.pdf#
Section 5: **Measuring the effectiveness of parks: what should we conserve? How well are we measuring this?** • Student presentation on literature for measuring park performance • Seminar on development planning • Discussion of how to use these methods for parks	• Discuss the literature on the performance of parks, illustrating different methods of measuring performance (mainly biological performance). • Propose a simple system and logic for measuring the performance of savanna parks • Compare this by development assistance projects of a logical framework for designing and tracking the performance of projects and operationalizing a theory of change (in juxtaposition to the 'casualness's of park performance management). • Suggest clearer mechanisms for planning and measuring parks. Note: Watson et al provide a good synopsis of the status of parks, Lawrence et al provide methods for assessing forest parks, and Bruner provides the first large scale analysis. The file labelled METT includes the key tool used by World Bank, Global Environmental Facility (GEF), etc. for tracking park performance and assessments of the tool. Drucker, P. 1973 Management: Tasks, Responsibilities, Practices, p 58-73, 131-166 Cumming, D. 2004 Performance and Parks in a Century of Change, In: Child, B. (editor) Parks in transition. Biodiversity, Rural Development and the Bottom Line : 105-124. Watson, J. E. M., N. Dudley, D. B. Segan and M. Hockings (2014). "The performance and potential of protected areas." Nature **515** (7525): 67-73. Laurance at al (2012). "Averting biodiversity collapse in tropical forest protected areas." Nature **489**: 290. Aaron G. Bruner, Raymond E. Gullison, Richard E. Rice and G. A. B. d. Fonseca (2001). "Effectiveness of Parks in Protecting Tropical Biodiversity." Science: 125-128. Geldmann, J., L. Coad, M. Barnes, I. D. Craigie, M. Hockings, K. Knights, F. Leverington, I. C. Cuadros, C. Zamora, S. Woodley and N. D. Burgess (2015). "Changes in protected area management effectiveness over time: A global analysis." Biological Conservation **191**: 692-699. Child (notes) Example of performance monitoring from South Luangwa National Park, Zambia
Section 6 **Institutional economics and the**	• Introduces the concept of institutional economics

changing paradigms of public and private conservation • Student presentation on readings • Lecture • Discussion	• Describes four phases of conservation: pre-colonial, frontier economy, public, and sustainable governance approach (private and community) • Using the economic history of the Western World as a backdrop, describes the importance of economics and political institutions for human prosperity, and suggests that these same rules apply to ungoverned wild species and spaces. **Required readings:** NORTH, D. C. 1990. *Institutions, Institutional Change and Economic Performance,* Cambridge, Cambridge University Press. Chapter 1 or Menard, C. and M. M. Shirley (2011). "The Contribution of Douglass North to New Institutional Economics." STROUP, R. & BADEN, J. 1983. *Natural Resource Economics. Bureaucratic myths and environmental management,* Cambridge, Massachusetts, Ballinger Publishing Company. Chapter 1-3 Child 2018 Institutions and ungoverned spaces, Chapter 4 Child, 2018 Institutional history of wildlife, chapter 7 **Additional readings:** NORTH, D. C. 2005. *Understanding the Process of Economic Change,* Princeton, New Jersey, Princetone University Press. ACEMOGLU, D. & ROBINSON, J. 2012. *Why Nations Fail: The Origins of Power, Prosperity, and Poverty*, Crown Business. Child B 2018: The emergence of Humans, governance and rules, Chapter 2 MENARD, C. & SHIRLEY, M. M. 2011. The Contribution of Douglass North to New Institutional Economics. *halshs-00624297*.
Section 7 **Assessing the socio-economic performance of parks** • Seminar and lecture about economics • Presentation on methods for evaluating socio-economic impact of parks • Linked to student's assignment to apply these methods to their case studies Brief students on what they	• A brief introduction to classical economics and its failures (Beinhocker), and how these principle apply to protected areas, private and community conservation, including wildlife trade. • Introduce students to economic principles including creation of wealth, exchange/trade, market failure and the difference between financial and economic analysis, multiple values and ecosystem services Describe methods developed by myself for the Global Development Facility for Estimating the socio economic impacts of protected area, including: • Estimating total economic value and economic multipliers • Social Assessment of Protected Areas • Livelihood Surveys

need to do for the following weeks on community conservation	**Required readings:** Beinhocker, E. D. (2006). The origin of wealth. Evolution, complexity and the radical remaking of economics. Boston, Harvard Business School Press. Chapter 2, 3 Stynes, D. 2005. Economic significance of recreational uses of National Parks and other public lands. *Social Science Research Review,* 5**,** 36. Child et al 2018 Assessing the Socio-Economic Impacts of GEF-Supported Terrestrial Protected TEMPA tools Chidakel and Child (in review) Economics of South Luangwa National Park Chidakel and Child (2019) Policy brief on the economics of South Luangwa National Park **Methods and manuals:** Stynes, D., D. Propst, W. Chang and Y. Sun (2000). Estimating national protected area visitor spending and economic impacts; the MGM2 Model, Michigan State University. Souza, T., A. Chidakel, et al. (in review). Tourism Economic Model for Protected Areas, TEMPA. Estimating the Economic Impact of Visitor Spending In Developing Country Protected Areas, Scientific and Technical Advisory Panel, Global Environmental Facility, Washington, D.C. Franks, P. and R. Small (2016). Social Assessment for Protected Areas (SAPA). Methodology Manual for SAPA Facilitators. London, IIED. **Additional readings:** Krutilla, J. V. (1967). "Conservation Reconsidered." The American Economic Review **57**(4): 777-786. Reed, T. 1999 The Function And Structure Of Protected Area Authorities Considerations for Financial and Organizational Management, Summer Internship Program World Bank 1999. Jansen, Bond, Child, B. 1992. Cattle, wildlife, both or neither? A survey of commercial ranches in the semi-arid regions of Zimbabwe. Harare: WWF Multispecies Animal Production Project. Emerton, L. 1999. The Nature of Benefits and the Benefits of Nature: Why Wildlife Conservation Has Not Economically Benefitted Communities in Africa. *Community Conservation Research in Africa: Principles and Comparative Practice.* Manchester: Institute for Development Policy and Management, University of Manchester.
Section 8 **Private conservation, simple**	• Describes the largely undocumented emergence of private conservation areas using the southern African case study • Introduces methods for assessing if wildlife is viable or has an

economic tools, and the sustainable governance approach • Student presentation of what literature has to say about private conservation • Film about private conservation • Lecture and seminar	economic comparative advantage • Introduces an alternative paradigm to public conservation, the sustainable governance approach, and its four elements: proprietorship, price, subsidiarity, and collaborative adaptive management. **Required readings for Private Conservation:** Film. *Save Valley Conservancy, 2002. Directed by TAYLOR, S. Zimbabwe* Child, B. (2015). "Wildlife policy in southern Africa: Why not crop the game?" WRSA Rhino Supplement: 21-24. Child, B. 2018 Changing the game. Chapter 8. Martin, G. 2012. *Game Changer. Animal Rights and the Fate of Africa's Wildlife*, University of California Press. Chapter 1-3 Benedikt Hora, C. Marchant and A. Borsdorf (2018). "Private Protected Areas in Latin America: Between conservation, sustainability goals and economic interests. A review. Management & Policy Issue **10**(1). Krug, W. (2001). Private Supply of Protected Land in Southern Africa: A Review of Markets, Approaches, Barriers and Issues. World Bank / OECD International Workshop on Market Creation for Biodiversity Products and Services, Paris, Centre for Social and Economic Research on the Global Environment (CSERGE), University College London. Child, B 2018 The Sustainable Governance Approach, Chapter 10 **Additional readings for private conservation:** Sue Stolton, K. H. Redford and Nigel Dudley (2014). The Future of Privately Protected Areas. Protected Area Technical Report Series No.1, IUCN WCPA with the CBD and UNEP-WCMC. The Economist 2010 Game conservation in Africa Horns, claws and the bottom line Parks, Volume 15 (2) – a set of articles on private conservation Martin, R. 2009a. From Sustainable Use to Sustainable Development. Evolving Concepts of Natural Resource Management. IUCN - Southern African Sustainable Use Specialist Group. Child B 2018 Price, markets and exchange, Chapter 6 Child B 2018 Assessing the economics of wildlife, chapter 9 Child, B., J. Musengezi, G. Parent and G. Child (2012). "The economics and institutional economics of wildlife on private land in Africa." Pastoralism Journal **2**(18). Child, G. 1995. *Wildlife and People: the Zimbabwean Success. How the Conflict between Animals and People became Progress for Both,* Harare, Wisdom Foundation. Chapter 3, p 49-80 SASUSG 1996. Sustainable use issues and principles. Southern Africa Sustainable Use Specialist Group, IUCN Species

	Survival Commission. Suich, H. & Child, B. (eds.) 2009. *Evolution & Innovation in Wildlife Conservation. Parks and Game Ranches to Transfrontier Conservation Areas,* London: Earthscan. Riney, T. 1967. *Conservation and Management of African Wildlife,* Rome, FAO.
Section 10 **The emergence of community conservation** • Lectures on CAMPFIRE, Luangwa • Films on Mahenye community film • Brief student pairs to find examples of community conservation globally, and literature on underlying principles	• Use case studies to illustrate the emergence of CBNRM in southern Africa • Describe CBNRM principles as developed in this region **Required readings:** Hulme, D. and M. Murphree (2001). Community Conservation in Africa. An Introduction. African Wildlife & Livelihoods. The Promise and Performance of Community Conservation. D. Hulme and M. Murphree. Oxford, James Currey**:** 1-37. Child, B 2018 Chapters 11-12 on CAMPFIRE and Luangwa and Chapter 14 on principles
Section 10 Theory – property, common property and scale	• Introduce property and common property theory • Debate if wildlife (or forests, etc.) is a public good or not • Look at scale and the design of community institutions **Required readings** Ostrom, E. (2009). Design principles of robust property-rights institutions: what have we learned? Property rights and land policies. E. Ostrom, K. G. Ingram and Y.-H. Hong. Cambridge Massachusetts, Lincoln Institute of Land Policy. Ostrom, E. and C. Hess (2007). Private and common property rights. Workshop in Political Theory and Policy Analysis,. Bloomington, Indiana University. Murphree, M. (2000). Constituting the Commons: Crafting Sustainable Commons in the New Millennium. Multiple Boundaries, Borders and Scale" at the Eighth Biennial Conference of the International Association for the Study of Common Property (IASCP). Bloomington, Indiana, U.S.A Child 2019 Chapter 14 CBNRM theory **Additional readings:** Hardin, G. J. (1968). "The Tragedy of the Commons." Science **162**: 1243-1248. de Soto, Hernando The Mystery of Capital, 21st Annual Morgenthau Memorial Lecture on Ethics and Foreign Policy Child 2019 Chapter 5 Proprietorship
Section 11 **Examples of CBNRM**	• Student led comparative analysis of community conservation

principles and practice globally • Seminar based around student presentations on CBNRM case studies and principles	**Recommended readings** Murphree, M., W. (2004) Communal approaches to natural resource management in Africa: from whence to where? In: Breslauer Symposium on Natural resource Issues in Africa, University of California, Berkeley. Grazia Borrini-Feyerabend, Nigel Dudley, et al. (2013). Governance of Protected Areas. From understanding to action. Gland, Switzerland, IUCN. Gruber, J. S. (2010). "Key Principles of Community-Based Natural Resource Management: A Synthesis and Interpretation of Identified Effective Approaches for Managing the Commons." Environmental Management **45**(1): 52-66. Reid, H. (2016). "Ecosystem- and community-based adaptation: learning from community-based natural resource management." Climate and Development **8**(1): 4-9.
Section 12. **Implementing CBNRM in practice** • Powerpoint and seminar on how to operationalize CBNRM principles	• Having learned that there is a big gap between theory and operationalization of this theory, describe process of implementing CBNRM in practice Readings Child B (2019) Chapters 15 and 16 (manuals of implementation)
Week 14+ **Final presentations**	• 20 minute presentations on cases studies on protected area management, covering situation analysis, financial and economic viability, governance and community

Policies and Links:

Policy on Late Papers

Papers not handed in on time will not be marked without prior agreement with me. In the case of unexpected events, I expect the student to contact me within 24 hours to explain their reasons.

Attendance/Participation:

Attendance is mandatory for all students, and is the easiest way to do well in this class. To encourage uninterrupted participation in class, it is expected that cell phone and pagers be SILENCED prior to entering the classroom.

Absences may be excused if they are documentable. For expected absences, students must provide at least two business days advance notice of the absence. Acceptable reasons for absences include but are not limited to personal or family illness or emergency, religious holidays, official university events, etc. Oversleeping, missing the bus, etc., are not excusable excuses. Students may be required to provide written documentation in order to receive an excused absence. For more details on UF attendance policy, please refer to: https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/

If absence is excused, students are responsible for material missed during any class session (lab or lecture). S/he should obtain notes from a peer for the material covered in class. If the absence is unexcused, assignments not turned in at the assigned time will be considered late and a penalty applied.

Policy on make-up work:

Students are allowed to make up assignments and exams ONLY as the results of official university events, religious holidays, illness, or other unanticipated circumstances warranting a medical excuse and resulting in the student missing a homework or exam. Documentation from a health care provider is required. Assignments and exams missed for any other reason will receive a grade of zero.

UF's honesty policy:

UF students are bound by The Honor Pledge, which states, "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment." The Honor Code (http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obliged to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor of TAs in this class.

Cheating and Plagiarism

All students should observe the University of Florida's standards of academic honesty. Progress in the social sciences is predicated on the principle of open access to theories and results produced by other scholars. We staunchly seek to guard our peers' intellectual property because that is the only way we can make sure that science as we know it survives. You are expected to participate fully in our efforts. In the event that a student is found cheating or plagiarizing, the student will automatically fail the course and will be reported to Student Judicial Affairs.

Acts of Cheating and Plagiarism include:

- Turning in a paper or any other assignment that was written by someone else (i.e. another student, a research service, a scholar, downloaded off the internet).
- Copying, verbatim, a sentence or a paragraph of text from the work of another author without properly acknowledging the source through a commonly accepted citation style and using quotation marks.
- Paraphrasing (i.e. restating in your own words) text written by another author without citing that author.
- Using a unique idea or concept, which you discovered in a specific reading without citing the author.

Accommodations for Students with Disabilities:
Students requiring accommodations must first register with the Dean of Students' Office. The Dean of Students' Office will provide documentation to the student, who must then provide this documentation to the faculty member when requesting accommodation. If students experience personal, academic, and social issues, please consider either of the following assistances:

University Counseling Services (P301 Peabody Hall – 392-1575)
http://www.counsel.ufl.edu/base.asp?include=counselingServices.inc
Student Mental Health Services in the Student Health Care Center (Room 245, Infirmary Bldg. – 392-1171)
http://www.health.ufl.edu/shcc

Instructor Evaluation Policy:
Students are expected to provide feedback on the quality of instruction in this course based on 10 criteria. These evaluations are conducted online at https://evaluations.ufl.edu. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at https://evaluations.ufl.edu.

Peer Review Sheet

Date: Number of Paper:
Name of reviewer:

Paper Structure and Content

Beginning: The subject was introduced well:	☹☹ ☹ 😐 ☺ ☺☺
Middle: The paper showed a good general understanding of the topic:	☹☹ ☹ 😐 ☺ ☺☺
End: The topic was drawn to a conclusion with clarity:	☹☹ ☹ 😐 ☺ ☺☺
For Excellent: Knowledge was extended beyond the basics:	☹☹ ☹ 😐 ☺ ☺☺

Basics:

Proper referencing	☹☹ ☹ 😐 ☺ ☺☺
Spelling and Grammar	☹☹ ☹ 😐 ☺ ☺☺
Use of subtitles to organize text	☹☹ ☹ 😐 ☺ ☺☺

What was the best thing about this paper?:

What key improvements would you suggest?:

Out of ten, I would give this paper:

Horrible→ 1 2 3 4 5 6 7 8 9 10 ← Perfect

Assignment Description 2021

Overall goal:

Write a policy document for your case study conservation area, setting overall goals in ways that can be measured.

A template for a park policy document is provided below, followed by the strategy we will be following to write it. We will discuss this in detail in class.

Template for Park Project Document

Section I. Situation analysis

Background

A. History of Park

B. Socio-economic, demographic and cultural environment

C. What are the goals for the park at the moment? (What does the park plan say?)

D. What are the key risks to the park?

Section II: Key performance areas[1]

E. Biophysical environment (park design, ecology, importance, threats, management)

- Briefly assess the reserve and its design within the greater national parks system against the theory of protected areas system design outlined in (MacKinnon, MacKinnon et al. 1986p 27-52) as abbreviated in (MacKinnon and MacKinnon 1986p6 - 10))
- Describe park ecology, importance, threats, and management priorities (think about how to measure these)
- Greater landscape (what is outside the park)

F. Economic value of park and commercial operations

G. Financial viability of park

H. Infrastructure and equipment

I. Park management, systems and human resources

J. Landscape conservation, community conservation and public benefit

Section III: Park Policy and Long Term Visions (measurable)

[1] The purpose of this section is to provide background on "key performance areas" including maps, descriptions, analyses, etc. Later on in the park policy section, you will be setting goals for these areas. Therefore, all description and analysis should be included in this section. While you are working on this section, you should also be drafting assignment 4, especially Sections E and F – i.e. the goals are for these KPAs, how you would measure of you achieve them, and the key management activities to get there.

1. **Introduction**
2. **Barriers and Opportunities**
3. **Vision and Indicators (20 years)**
4. **Purpose and Indicators (5 year goal) (and risks/assumptions)**

Example log frame policy format

<table>
<tr><th>Results Chain / Theory of Change</th><th>Indicators</th><th>Assumptions and Risks (external to the Project)</th></tr>
<tr><td>Vision (development objective)</td><td>1.
2.
3.</td><td></td></tr>
<tr><td>Purpose (medium term objective)</td><td>1.
2.
3.</td><td></td></tr>
<tr><td colspan="3">KEY PERFORMANCE AREAS (Outcomes)</td></tr>
<tr><td>1. Ecosystem health and diversity</td><td>1.
2.
3.
<table><tr><th>Ecosystem component or trophic layer</th><th>Indicators and targets</th><th>Means of verification</th></tr><tr><td>1. Landscape integrity</td><td>1.</td><td>•</td></tr><tr><td>2. Soils systems</td><td></td><td>•</td></tr><tr><td>3. Vegetation status and trends</td><td>1.</td><td>•</td></tr><tr><td>4. Abundance and diversity of large mammals
• General abundance;
• Big five;
• Endemic species;
• Rare species.</td><td>1.</td><td>-</td></tr><tr><td>Other species – birds, reptiles, etc.</td><td></td><td></td></tr><tr><td>Aquatic systems</td><td></td><td></td></tr></table></td><td></td></tr>
<tr><td>2. Resource protection</td><td>1.
2.
3.</td><td></td></tr>
<tr><td>3. Wild life economy, tourism, etc.</td><td>1.
2.
3.</td><td></td></tr>
<tr><td>4. Community Development Programme</td><td>1.
2.
3.</td><td></td></tr>
<tr><td>5. Infrastructure and equipment</td><td>1.
2.
3.</td><td></td></tr>
<tr><td>6. Management systems and staff development</td><td>1.
2.
3.</td><td></td></tr>
</table>

5. Park Zoning and utilization

Provide a simple map to illustrate key zones (don't spend too much time on this)

6. Key performance areas[2]

a. **Resource management, protection and monitoring**
b. **Commercial operations and economic impact**
c. **Impacts in greater landscape and local communities (community conservation, outreach and CBNRM**
d. **Park infrastructure and equipment**
e. **Park management, systems and personnel development**

[2] For the park's key performance areas (F-J) go through an iterative process between writing a short narrative statement in your text and define the goal, indicators, risks/assumptions in your logframe table. Provide:

- A brief summary of the issue (remembering that most of this should be covered in the situation analysis above)
- Define the key goals for each outcome/KPA in one sentence, which should match you log-frame goal (you can briefly elaborate below this sentence if need be)
- Provide SMART indicators for each outcome
- Describe risks/assumptions
- Very briefly state what key activities will need to be done and what they cost (in a park operational budget table – we might not complete this, but just start it as an exercise)

Assignment 1. Presentation of case study (2 page PowerPoint)

In this assignment, you need to do the following:

1. Find a conservation area that you are interested in such as a national park, community area, state or urban park, seashore, etc.

2. Make sure you can find enough information to assess your park holistically including its

- biophysical aspects and goals,
- its finances (don't work too much here)
- its economic values including tourism, hunting, ecosystem services, etc.
- something about how the park is managed
- something about the landscape in which the park sits, including people, risks, etc.

3. Give a 2-page Power-point to class to introduce your park, and discuss data availability.

Assignment 2. Situation analysis: park background and biodiversity status and goals (5-10 pages)

1. Describe sections A-E of the Park Plan on 7-8 powerpoint slides. Set biodiversity goals (1 page table)

2. Write up sections A to E of the Park Policy Document.

2. Set you biodiversity conservation goals. Describe what parts of the ecosystem you need to conserve and why, define SMART indicators for these targets, and briefly describe how you will undertake these measurements and what it will cost (roughly). If you go about 5-10% of the park budget, your monitoring expectations are unrealistic.

Assignment 3. Situation analysis: economics and finances; infrastructure; management (6-10 pages)

This assignment can be quite short in length (preferably), but may take you out of your comfort zone. To fill in Sections F and G, and H and I, please do the following:

- F. Estimate the value of the park to society. There are two major components of this analysis:
    - If the park supports tourism, or could support tourism, please use the TEMPA tool to assess the total economic value of tourism as best you can
    - Provide a description of the ecosystem services associated with the park, and a rough idea of their magnitude. I am not asking for a dollar estimate of ecosystem service values because this tends to be complex with many assumptions that are not always trusted (we will talk about this in class)

- G. If possible, find the park budget. Summarise the park budget. If possible categorize costs according to the KPAs and/or using categories like salaries/wages, operation, other. I suspect you will all find it quite difficult to get this data If you cannot, as is often the case, try and find a way to estimate park costs (e.g. from the number of staff, wages, etc.). Use you critical thinking skills to try and get a handle on (1) what it costs to run the park and/or (2) how much money is provided to the park and from where. This is likely to be revealing so comment on it.

- After writing section F and G write a brief commentary of the following issues:
    - Describe the park's revenue collection and management systems. How functional/ dysfunctional is this system? How is money collected, and what happens to it?
    - why it is so hard to get park financial data? What does this imply?
    - how do park finances stack up against park economics? This is a critical conceptual issue. Coment on your thoughts.

- H. Take a quick stab at describing park infrastructure. I put this in mainly because it is often a big/huge part of park costs, and to get you to think about it

- I. Describe how the park is managed, how many staff they are, are they trained, where do they come from etc. Do you think the park is using its resources efficiently> Is it investing in human capacity?

Thinking inclusively about the park (landscape issues, economic growth, community, public, etc.) (2-6 pages)

Write Sections J of the park situation analysis. This assignment encourages you, as the "park planner" to think about the park much more broadly, in the following ways:

- What risks do off-park land uses and social policies/actions impose on the park?
- Can the park provide the seed for building a "wildlife economy" in the greater landscape?
- What is the potential to use the park as an engine for local economic growth?
- Do you need a community conservation programme and how would you approach it?
- How does the park relate to local and/or national public?

<u>Assignment 4. Write a park policy document (5-10 pages).</u>

Step 1 - fill in a 3x3 "logical framework" matrix:

- Column 1 - summarize the overall goals and objectives of the park as a results chain for the park
    - Vision
    - Purpose
    - 4-7 Outcomes (Park Key Performance Areas)
- Column 2 - Provide 3-5 SMART indicator for the above:
    - long term goal (Park vision),
    - medium term goal (purpose)
    - 4-7 (outcomes).
- Column 3 - list briefly any risks and/or assumptions that affect your plan

Step 2 - Once you have drafted the log-frame, write a succinctly narrative to introduce the reader to this "plan" under headings A-J in Section II of the document. You are likely to find that this is an iterative process.

Step 3 - To give you the experience of converting this into a Park Operational Plan and Budget, go through each of the KPAs and fill in 2-4 of the major activities in the Workplan and Budget Table in Section III

Example of the format for a Park Operational Plan and Budget

Annual/Period Workplan and Budget

Strategic Activities	Sub-activities	Milestone (SMART)	Responsibility	When	Personnel required	Resources required	Budget
Resource protection	1						
	2						
	3						
Resource monitoring	1						
	2						
	3						
Commercial operations and economic impact	1						
	2						
	3						
Social impacts and programmes	1						
	2						
	3						
Infrastructure	1						
	2						
Equipment	1						
	2						
Park management systems and capacities	1						
	2						
	3						

Example Log Frame

This is an example of an early draft of a log-frame policy for Niassa Special Reserve in Mozambique – in general, there are far too many indicators, and they are not yet refined.

Results Chain / Theory of Change	Indicators	Assumptions and Risks (external to the Project)
Vision (development objective) ***NSR is an engine for sustainable economic growth based on intact, wild ecosystems.*** Sub objectives: • financial self-viability • sustainable economic growth in remote rural landscapes • wildlife and habitat conservation • globally recognised community conservation	• NSR generates $7 million in park fees, of which 80% is reinvested locally so that the park is 75% financially self-sustaining • Niassa is a $30 million wildlife economy, providing over 4,000 local jobs and $3-5 million in taxes through vibrant private sector investment, • NSR is a thriving world-class wilderness that harbours sustained long-term populations of large mammals. This includes: o securing and expanding 40,000 km2 of intact landscapes as demonstrated by remote sensing and field transects o quadrupling wildlife numbers from 80,000 to 240,000 animals while maintaining wildlife species diversity and without soil and habitat health and diversity • A globally recognised community conservation programme based on sound community rights and governance that, together with private sector investment: o doubles household o reduces food insecurity by 90%, o improves education and health indicators by xx% and xx%, and o trebles measures of social and associational capital and security compared to baseline. o Public health and in-migration measures will prevent gains being overwhelmed by population growth.	Political instability does not severely impact NSR
Purpose (medium term objective) ***Financial and technical systems in***	NSR managed as a cost center with authority acquired through GMP and annual workplan and targets. 1. Management policies, systems and standard operating systems in place for park management, wildlife businesses, CBNRM, resource protection, and	ANAC is willing to establish NSR as an independent cost centre through a single reporting structure.

<table>
<tr>
<td>place to ensure that Niassa Special Reserve is on a pathway towards becoming a financially sustainable world class wilderness area and an engine for economic growth and poverty reduction.</td>
<td>
ecosystems management
2. NSR achieving 80% of targets in GMP, work plans and budgets (section 8)
3. Career enhancement system in place, demonstrating steady enhancement of capacity of Mozambican staff developed to manage and lead these systems
4. NSR business unit authorised and capacitated to increase financial viability and economic impact increase (and to retain revenues) as follows:
<table>
<tr><td></td><td>NSR Income</td><td>Self-sustainable</td><td>Concession turnover</td><td>Jobs created</td></tr>
<tr><td>Baseline</td><td>$750.000</td><td>8%</td><td>3m</td><td>729</td></tr>
<tr><td>2027</td><td>$1.2 m</td><td>15%</td><td>6m</td><td>1,500</td></tr>
<tr><td>2032</td><td>$2.6m</td><td>35%</td><td>12m</td><td>3,000</td></tr>
<tr><td>2042</td><td>$7.5m</td><td>90%</td><td>28m</td><td>7,000</td></tr>
</table>
5. NSR has an effective community conservation / CBNRM system in place, capacitating staff and achieving component targets.
6. Law enforcement system is effective and financially efficient through a combination of adaptive monitoring (and reallocating resources between ground coverage, investigations, prosecution training, aircraft etc. accordingly), and contributions by concessions and village scouts.
7. Simple, repeatable affordable wildlife and habitat monitoring system in place
</td>
<td>
ANAC authorises NSR to establish a commercial sub-office that is empowered to set and control quotas and manage commercial concessions as a sub-office of ANAC’s Business and PPP Development Service.

NSR retains 80% (or more) of income including all concession, hunting/abate tickets and tourism fees

NSR has funding and capacity to support investment in a staff development strategy.

System in place for generating and retaining wildlife income for communities from communities areas in addition to NSR 20%

In-migration following successfully economic development is strictly controlled and does not overwhelm gains

High cost of doing business in the tourism sector in Mozambique
</td>
</tr>
</table>

		due to unfriendly customer permits and other systems (e.g. visas)
KEY PERFORMANCE AREAS (Outcomes)		
7. Co-management ***NSR managed as an independent cost-center with technical and financial authority, systems and capacity to implement agreed goals and targets***	1. NSR established as unitary governance structure with authority to act through GMP, 5-year plan (Working capital programme), annual workplans and budget, and ANAC-NSR co-management agreement 2. NSR staffing in place by 2022 with clear job descriptions and career enhancement plans 3. NSR workflow system in place by 2022, and demonstrating rapid improvement in performance 4. Staff proficiency system/s in place, showing measurable improvements in staff capacity including professionalization through education, training, and attainment of annual performance targets 5. Objective-oriented performance-based management systems in place (roles, measurable goals) by 2021 demonstrating that 80% of targets are reached each year 6. The combination of decentralised management within Niassa, quarterly peer-review performance meetings, and activity-based budgeting, shows a substantial (4-fold) improvement in the efficiency of delivery by Y5 by all management sections compared to baseline (e.g. patrol days/scout) 7. Increasing buy-in of "shareholders" (i.e. ANAC, communities, concession-holders) to management plan and performance indicators, and increasing participation of communities in this process. 8. Niassa models adapted elsewhere, and professional and para-professional staff sought by other projects after (we need indicators to reflect quality of the model, and investment in capacity of staff)	ANAC will manage the hunting sector and its governance well enough to ensure unrestricted importation of trophies into the USA, and also to apply for increased CITES quotas for leopards, hippos, other species because current CITES quotas will soon limit recovery/growth of the sector including NSR
8. Wild life economy and concession management Rapidly expanding NSR wild life economy in NSR through effective PPPs and other measures	1. Decentralised ANAC Business and PPP Development Service Unit in NSR capable of managing internal aspects (see below) and working with ANAC to optimise governance systems for concessions, quotas, access to international markets, CITES, etc. 2. All 17 concessions allocated (including sub-divisions) with standard and effective contracts 3. Compliance of concessions managed, and providing accurate data on performance (financial, economic, law enforcement, wildlife use, communities, etc.)(See monitoring table) 4. Quarterly and annual commercial reports provide standardised visual comparisons of the performance of concessions(i.e. wildlife utilization and sustainability, financial and economic performance, law enforcement	• Decentralised ANAC Business and PPP Development Service Unit in NSR with authority to manage quotas and concessions and collect income as a sub-unit of ANAC • Concessions are split up into manageable units • ANAC develops differential fee

	effort and effect, community support, etc.) 5. Levels of economic activity and park fees doubling every five years (based on effective concession management and quota setting)(see Purpose level targets) 6. Adaptive quota management system strengthened with timely analysis. Used to quadruple sustainable quotas by Y5 with similar improvement in private sector economic impact (job creation) and park fees	structure, allowing for non-trophy animals, and for a non-fee community quota. • High cost of doing business in the tourism sector in Mozambique due to unfriendly customer permits and other systems (e.g. visas)
9. Community Development Programme Well-governed villages formally established, governing substantial wildlife benefits equitably and effectively, providing a foundation for wildlife protection and sustainable, wildlife-based poverty reduction and economic growth	1) Enabling policy environment agreed with ANAC for community conservation and CBNRM including: a) Community quotas and generation of own revenues b) Community revenue retention, including 100% of benefits from community quotas/areas, and 20% from NSR c) Principles of participatory governance agreed in ways that can be monitored and enforced 2) NSR CBNRM Unit capacitated, with clear policies, SOPs, work plans and budgets, and monitoring tools for all aspects of CBNRM 3) Baseline surveys conducted by 2024 4) All Village Action Groups (+- 50) formalised by Y2 following "rules of the money" as encapsulated in constitutions and bills of rights, 5) Village wildlife income quadruples by Y5, and allocated to communities following formulas that link wildlife benefits to the communities in or near where benefits were generated, and maximise livelihoods at household levels 6) Governance compliance monitoring shows that all communities following "rules of the money," constitutions and bills of rights, (i.e. allocating income through participatory, activity based budgeting and using 95% as agreed by community budgets) 7) NRM systems in place by Y2, and showing measured improvements including: a) participatory quota setting, b) village scouts, c) HWC monitoring and measures, d) fishing groups, e) etc. 8) Village land use and development planning initiated by year 5 including land consolidation with solar drip irrigation, conservation farming, social services (see below), and so on. 9) Social monitoring shows rapidly gains in social capital from baseline of xx to yy by Y5, improving attitudes	ANAC sets community quotas with 100% community revenue retention

	towards wildlife, wildlife officials and law enforcement (see IIED, GAPA tool5), and participatory governance as a way of life 10) Support of soccer, sport and theatre groups shows measurable improvement in meaningfulness of life to youth, including a future allied to wildlife conservation 11) Community conservation / education strategy developed for local urban centres by 2022 12) Other services and support is sources, especially for women's health and education, and for health, education and water and sanitation generally	
10. Law enforcement Effective law enforcement provides security to local people and resources while reducing criminality focused on wildlife and other natural resources	1. NSR and private and community partners legally empowered to undertake resource protection activities, including use of firearms, powers of apprehension and arrest (subject to training standards). 2. Scout management and career advancement system in place by 2022 including job descriptions, performance evaluation systems, career competency tracking systems, and training and mentoring requirements and commitments 3. Training standards, curriculum, and certification for all patrol scout operations throughout NNR established and implemented 4. Centralised firearm management system established and adopted by all operators 5. Monitoring systems in place by 2022 with monthly analytic reports on scout performance, ground coverage, incidents, catch-effort, prosecutions, investigations, cost effectiveness, etc. 6. Monitoring used to adjust investment in and balance between patrol coverage, investigations, aircraft use, etc. 7. At least 40,000 patrol days conducted annually in NSR, with effective coverage and less than 1 serious poaching incident per 100 patrol days 8. Concession contracts renewed to require ground coverage at the rate of 1,200 patrol days per concession by year 3, and 1,200 days per 100,000 hectares by year 5 (assuming concessions are split up) 9. Establish a cadre of village scouts primarily accountable to communities but integrating law enforcement operations with NSR management information systems, authority, training etc 10. Forum established to coordinate law enforcement efforts between NSR, law enforcement agencies, concessions and communities. 11. Number of poachers apprehended will increase from 25% of known incidents/poachers (baseline) to 80% by Year 5 12. 80% of prosecutions effective (following effective training in evidence collecting, prosecutions, and liaison with judiciary) 13. System of graduated sanctions agreed with local judiciary 14. Regular community surveys show that wildlife policies	ANAC/GoM empowers NSR and private and community partners to legally undertake resource protection activities, including use of firearms, powers of apprehension and arrest (subject to training standards). ANAC establishes a system for scout training and accreditation Contract renegotiations and reliable quotas enable concession holders to provide reliable law enforcement coverage in their areas Effective community programme in place and preconditions met (see under community) Judiciary supports NSR in combatting wildlife crime (and differentiates between local livelihoods and

<table>
<tr><td></td><td>and wildlife scouts are respected by villagers and level of abuses is negligible.
15. Transfrontier collaboration established and monitored, including joint law enforcement and reporting</td><td>commercial trafficking)</td></tr>
<tr><td>11. Ecosystem health and diversity
Monitor landscapes to ensure that 85% of the reserve in an undisturbed state (circa 1900), and monitor the health and diversity of soils, vegetation , wildlife and fish populations to ensure that they are within the limits to acceptable change as defined by Table **, and that action is taken where this status is at risk (Table **)</td><td>• Wildlife and habitat monitoring office established to coordinate and implement indicators 2 and 3
• Basic, area-wide ecosystem monitoring programme in place for landscape integrity, soil, vegetation, wildlife, and other selected key habitats and species (Table **) and included as a standard agenda and reporting item in Stakeholder and Management meetings
• Problems arising flagged in an action table (table **) which is also a standard agenda and reporting item in Stakeholder and Management meetings
<table>
<tr><th>Ecosystem component or trophic layer</th><th>Indicators and targets</th><th>Means of verification</th></tr>
<tr><td>1. Landscape integrity</td><td>2. By 2022, no settlement takes place outside agreed zones
3. By 2027, internal settlements are consolidating (at village level) to reduce their negative footprint on wildlife
4. By 2032, impact of buffer zone communities reduced by xxx as they also adopt wildlife-based land uses</td><td>• Five year remote sensing analysis of land use and land use change
• Anti-poaching reports show 50% reduction in impact by Y5 and 90% by Y10</td></tr>
<tr><td>2. Soils systems</td><td>2.1 No man-made erosion from roads, etc.

2.2 Accelerated erosion (from fires, over-grazing, etc.) does not exceed 0.2% of the Park and gullying is prevented;

2.3 Present erosion (e.g. caused by poor roads) is recovered within five years.</td><td>• Five year remote sensing analysis of bare soil
• Annual road inspection
• Annual quadrat/ belted transects</td></tr>
<tr><td>3. Vegetation status and trends and tree-grass relationships</td><td>2. Loss of trees in any sizeable area or ecotype must not exceed 1% annually;
3. Cover of perennial</td><td>• Annual rapid assessment of 10 vegetation transects in each concession on a 10 year cycle (i.e.</td></tr>
</table></td><td>Minimal funding available for natural resource monitoring and management</td></tr>
</table>

			grass maintained or increased above current levels with less than 10% of plots with declining ecological status	100 sites/concession). Using Walker (1976) methodology to measure status and trends of herbaceous and woody vegetation (or simplification by Greg Stuart Hill, Namibia). • Annual fire map (be careful of costs)	
		4. Abundance and diversity of large mammals • General abundance; • Big five; • Endemic species; • Rare species.	2. Using concept of acceptable limits to change the upper limits are set by status/trend of soils and vegetation (grass trees) as in 3. 3. Lower limits are minimal acceptable populations. Elephant 5,000; buffalo 10,000; hippo 2,500; wildebeeste 250; waterbuck, hartebeeste, roan, eland 1,000; etc. 4. Other indicators – e.g. don't allow the proportion of sensitive species in key zones (e.g. floodplains) to decline by more than (e.g. 20%) from present levels.	• Aerial survey (elephants) • Road counts on floodplain (grazing species) • Walking counts (huntable species) • River counts for hippo and crocs, • Data collection on lions, leopards, hyaenas and rarer herbivores (hunters, camera traps). • Specific studies on uncommon species Rules – use simple, standard methods - Favour cheap methods (cost of whole programme not to exceed $350,000/annual	
		Other species – birds, reptiles, etc.			
		Aquatic systems		Participatory monitoring of fish catch	
12. Infrastructure and equipment					

CITATIONS

MacKinnon, J. and C. MacKinnon (1986). Review of the Protected Areas System In the Afrotropical Realm. Gland, Switzerland, International Union for Conservation Of Nature and Natural Resources,

Commission on National Parks and Protected Areas, in collaboration with the United Nations Environment Programme.

MacKinnon, J., K. MacKinnon, G. Child and J. Thorsell (1986). Managing Protected Areas in the Tropics. Gland, Switzerland, International Union for the Conservation of Nature and Natural Resources.