Land Use Alternatives and Livelihood Viability in Ecosystems at Risk of Emergent Animal Disease

WCS- AHEAD Seed Grant:
Mid- Term Progress Report

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1 Introduction

This a report outlining the progress made by the University of Florida team on the "Land Use Alternatives and Livelihood Viability in Ecosystems at Risk of Emergent Animal Disease" research project. The objectives of the project are to;
1) Evaluate economic trade offs between agro-extractive (i.e. livestock and agriculture) and bio-experience (i.e. tourism and hunting) land-use enterprises; and
 2) Assess the influence of institutional policy (i.e. resource use restrictions, and especially rights to use and benefit from resources) on the magnitude and adaptability of enterprises and livelihood systems; and
3) Assessing the vulnerability of land-use enterprise to disease emergence.

Our aim is to collect data to build robust financial and economic models of livelihood options in dry woodland biomes of southern Africa.

2 Activities completed to date

- Study methodology finalized in December 2008
  Split into two separate, but linked studies: 1) Community portion focusing on establishing livelihood dynamics of areas bordering Kruger led by Greg Parent and; 2) Private land portion focusing on assessing the profitability and management of game reserves and cattle farms led by Jessica Musengezi.
- Begin SANPark project registration process for both portions of the study (03/2009)
- Project given official status by SANParks (05/2009)

2.1 Community Portion

Activities completed to date:

    1) Community portion focusing on establishing livelihood dynamics of areas bordering Kruger
- Establish tourism linkages to communities and;
- Impact of animal disease shocks on rural livelihood

- Complete version 1 of community survey questions (02/2009)
- Travel to Mozambique for AHEAD workshop
- Establish formal linkages with Kruger National Park (03/2009)

- Begin community survey site selection and establishing community contacts (03/2009)
- Begin the process of gaining local permission (03/2009)
- Test community survey instrument (03/2009)
- Revise instrument (04 - 05/2009)
  - Questions fixed to aid in the understanding of community members
  - Eliminate variables on valid to the South African system, add other
  - Incorporate additional questions to aid SANPark social scientists understanding of certain community issues of interest to them
- Finalize selection of communities to be included in the study (05/2009)
- Attain local permission for 6 communities in Vhembe to be included in the study (early 06/2009)
- Train local enumerators to aid in the interview process (early 06/2009)
- Data collection begins (10/06/2009)
- To date: 210 households interviewed (22/06/2009)
- 79% of total interviews for the northern study area

2.1.1   Narrative: Community land portion

Questionnaire Design

Much of the fall was spent in the construction of the two main survey instruments to be utilized in this project. For the community portion, the final questionnaire consists of 5 modules: household demographics; Water, market and health services access; a detailed income module that looks at both the household production of products and formal and non-formal employment; a comprehensive consumption module that over the course of 6 pages asks question on household food, non-food, and durable good consumption; and an extensive module on shocks and copping strategies. Each module within the final instrument has been adapted from instruments previously utilized and tested within the African region. The questionnaire was tested again in March in the village of Bende Mutale to ensure the validity of specific variables and question comprehension. The questionnaire was adjusted accordingly and the final version was completed in mid-May.

Site Selection

It was the original intent for the community portion to select five communities along the boarder of Kruger with the goal to have one from each region. However, this was altered after consultation with SANPark scientists from the Social, Economic and Tourism division. The study now includes a focus on the Mutale area in the north near the Pafuri Gate of Kruger and two communities near the Numbi Gate in the south. This was done for 4 main reasons:

- To aid Kruger Park in research objectives;

- generate community economic data in the northern area to aid planned future projects in the region;
- Gain a more in depth understanding of the two community areas;
- Fill in larger gaps in knowledge gaps in the communities surrounding Kruger.

Often there is a tradeoff of depth versus breadth. In the case of this project, the move to gain greater depth by clustering communities comes at the expense of north to south community resolution. By maintaining a northern and southern cluster, the study does maintain its ability to highlight coarse regional differences (north versus south) in household livelihood structure and the impact that animal diseases and other shocks has on livelihoods. But, it will not capture the differences that may exist between all seven village forums that boarder Kruger.

In the north, households will be surveyed in 7 communities: Bende Mutale, Nkotswi, Tshikuyu, Dovho, Dulu Thulu, Beleni, and Tshiawelo. In total, these villages have 417 households. Using a confidence interval of R121 on yearly consumption, equates to sample sizes of: 90 households in Bende Mutale; 18 households in Nkotswi; 51 households in Tshikuyu; 71 household in Dovho and Dulu Thulu; 22 households in Beleni; and 13 households in Tshiawelo, for a total of 265 households. The sample was drawn randomly from village household lists.

In the south, the two communities of Mokoko and Phamani, two communities near the Numbi Gate, will be surveyed. Arrangements are still being finalized in these villages with surveying to start in mid July. It is currently unclear if these communities have comprehensive village lists from which to draw a sample. Local community members estimate household populations of Mokoko and Phamani to be 550 and 250 respectively. Using the same confidence interval from the northern communities, this would roughly work out to a sample of about 136 and 105 households. A household list would greatly facilitate the establishment of a sampling frame, however if they are not in existence, spatial random sampling technique will be employed.

Data Collection

Data collection began in early June in the community of Tshiawelo. Three local assistants were recruited and trained to help interview the households. Each questionnaire takes approximately one hour to complete. As a thank you to the households who participate, I offered to take a photograph. These photographs will be distributed at the first round of feedback sessions scheduled for late August. After a bumpy first few days when the interviewers were become aquatinted to the instrument, data collection has gone quite smoothly. After three and a half weeks with only one day off, we have successfully competed 210 interviews. Households have been very receptive to the study with only four households thus far refusing to participate. The northern area should be finished in the next few weeks.

2.2 Private land portion

Private land portion focusing on wildlife based land uses taking place on private farms surrounding Kruger in both Mpumalanga and Limpopo provinces. Identify different wildlife based land uses taking place and their associated costs and revenues.

Activities Completed to Date:

- Establish the impact of agricultural and conservation policy on the profitability of activities undertaken
- Completion of version 1 of the private land survey questionnaire (02/2009)
- Begin establishing contacts within the game ranching community of Limpopo and Mpumalalnga. (04/2009)
- Test survey questionnaire private land (05/2009)
- Revise survey questionnaire (05/2009)
  - o Removal of aspects available from local secondary data sources (stocking rate and vegetation variables)
  - o Adjusting question language for ease of understanding by commercial farmers
  - o Adjusting questionnaire so that it can be self completed.
- Identify key informants in game ranching sector (05/2009)

- Obtain assistance from local organization. Agricultural Research Center which has close relationship with game ranchers in Lowveld area of South Africa. (06/2009)

- Contact 20 game reserve land owners and managers requesting cooperation in survey process(late 06/2009)

- Email of questionnaire sent out to list of 20 game farmers surrounding Kruger in Lowveld area for completion and return. (early 07/2009)

To date:
- 4 game ranchers interviews completed including consumptive and non-consumptive uses
- Identified 20 game reserves owners and managers for survey questionnaire
- Emailed questionnaire to 20 private game reserve owners and managers in Lowveld area.
- 3 key personnel interviews conducted
  - o Director wildlife management institute University of Pretoria (wildlife producer concerns)
  - o Manger Wildlife Ranching South Africa (policy environment, location of farmers)
  - o Conservation manager &Beyond(costs and benefits of non consumptive wildlife use, engaging local communities in private enterprise, policy concerns)

- o Limpopo Department of Environment and tourism (number, size and location of registered game farms in province)

2.2.1 Narrative: Private land portion

Questionnaire design

The survey targets game ranch and commercial cattle ranch owners/managers. The questionnaire is designed to capture information to assess the profitability and management of game ranches. The bulk of the questionnaire is dedicated to collecting financial information on farm enterprises. Survey questions were complied by reviewing survey instruments used in analysis of game farms and livestock farms. The questionnaire includes sections on the following topics;

- Demographic information,
- General land unit and land use information,
- Livestock enterprise costs and revenues,
- Wildlife enterprise costs and revenues,
- Conservation and management activities, and
- Enterprise threats and opportunities

Pretesting

The questionnaire was pretested on two game ranchers and a combined cattle and game farmer in Limpopo province who provided feedback on content and feasibility of collecting sensitive financial data. The Instrument received favorable review and it was indicated that ranchers should be forthcoming with financial information. The review also provided some perspective on the concerns of ranchers, and issues that are foremost in their concerns. Issues raised include costs of land reclamation, the effect of land redistribution claims on farms, and lack of recognition by government officials of the contribution and potential of wildlife-based land uses. The questionnaire was revised accordingly to improve question comprehension and allow for ease of self completion.

Sampling and Participant Selection

The target populations are; wildlife based farms and cattle farms. The study targets farms in Enhlazeni district of Mpumalanga and Mopani and Vhemebe districts of Limpopo province. The aim is to capture the diversity with in the wildlife sector by including consumptive (hunting) and non-consumptive (tourism and species breeding) wildlife farms by capturing representative operations in each type rather than attempting to maximize the number of respondents. This will facilitate collection of in depth detailed information on the each type of operation.

There are provincial data bases of 'exempted farms' that is farms that have demonstrated that their land in suitably enclosed for purposes of keeping wildlife for hunting. Relying on these databases alone for a sampling frame will bias the results towards operations that engage in hunting while properties that engage in non-consumptive may be excluded from the sample. In the absence

of comprehensive data on the population i.e. a complete list of all cattle farmers game ranches and eco tourism operations in the study area, referral sampling provides the best option to identify those respondents best suited for the needs of the study. Referral sampling also identifies respondents who may be unknown to the researcher. This method of sampling is also suited to the Policy Analysis Matrix methodology which requires data that is representative of the typical production system under study.

With regards to sample selection the project has received considerable assistance from Dr. Mike Peel of the Agricultural Research Center (ARC) in identifying and contacting private game reserve owners for recruitment into the survey process. The ARC rangeland management institute has long established close relationships with game reserve owners in areas bordering Kruger National Park. Their assistance has been invaluable in establishing contacts in the game ranching industry.

Data Collection
Data collection thus far has focused on wildlife based land use. A combination of self completion and face to face interviews are being used to collect the data. Questionnaires have been emailed to 20 private game reserve owners and managers in the greater Kruger area of Mopani and Enhlazeni districts and I am currently awaiting responses. Non- responses will be followed up with face to face interviews to complete the questionnaire. It is hoped that this combination of approaches will ensure a high response rate. So far face to face interviews completed went well with farmers being very forthcoming with financial and management information and all farmers providing referrals to peers.

Many of the private farms in eastern areas of Mpumalanga and Limpopo province have been converted from cattle farms to game farms. This has created some difficulty in locating commercial cattle farmers as those that were previously identified as cattle farms have since been converted to wildlife. At this stage in the project cattle farms are yet to be surveyed. This part of the data collection will begin in mid July.

3 Financial report

The Following budget covers expenditures from the beginning of the year 2009 through the current data collection period that is in progress (Jan 2008 – August 2009). Current expenditure is US $28,952.

Budget expenditures Jan 2009 to August 2009

Category/ Budget item		Cost	Total	
Accommodation	4 months, Wits Rural Facility	$400/month	$	1,600
	10 nights Wits Rural Facility	$30 / night	$	300
	10 nights, Johannesburg and Pretoria (x 2)	$50 / night	$	1,000
	4 nights, Johannesburg and Pretoria	$50 / night	$	200
	10 weeks lodging with families in Communities	$10 / week	$	100
	Subtotal		**$**	**3,200**
Food (Per Diem)				
Jessica	110 days	$38 per day	$	4,180
Brian	14 days	$38 per day	$	532
Greg	90 days	$38 per day	$	3,420
	Subtotal		**$**	**8,132**
Airfare	1 trip Florida to South Africa (05-09)	$1700/trip	$	1,700
	1 trip Florida to South Africa (06-09)	$1800/trip	$	1,800
	1 trip Florida to South Africa (03-09)	$1300/trip	$	1,300
	1 trip South Africa to Mozambique (03-09)	$380/trip	$	380
Airport Transfers	2 transfers (x 3)	$25/transfer	$	150
	1 South African Visa		$	90
	Subtotal		**$**	**5,420**
Local enumerators				
	150 people days	$20 / day	$	3,000
	Subtotal		**$**	**3,000**
In country travel (vehicle rental)	10 days vehicle rental	$30/day	$	300
	4 months vehicle rental	$900/ month	$	3,600
	2 months vehicle rental	$900/month	$	1,800
Fuel Vehicle service, repair and supplies			$	3,000
	Subtotal		**$**	**8,700**
Printing / communication / Survey Supplies			$	500
	Grand Total		**$**	**28,952**