

Institutions, Governance, and the Economic Performance of Protected Areas in Southern Africa



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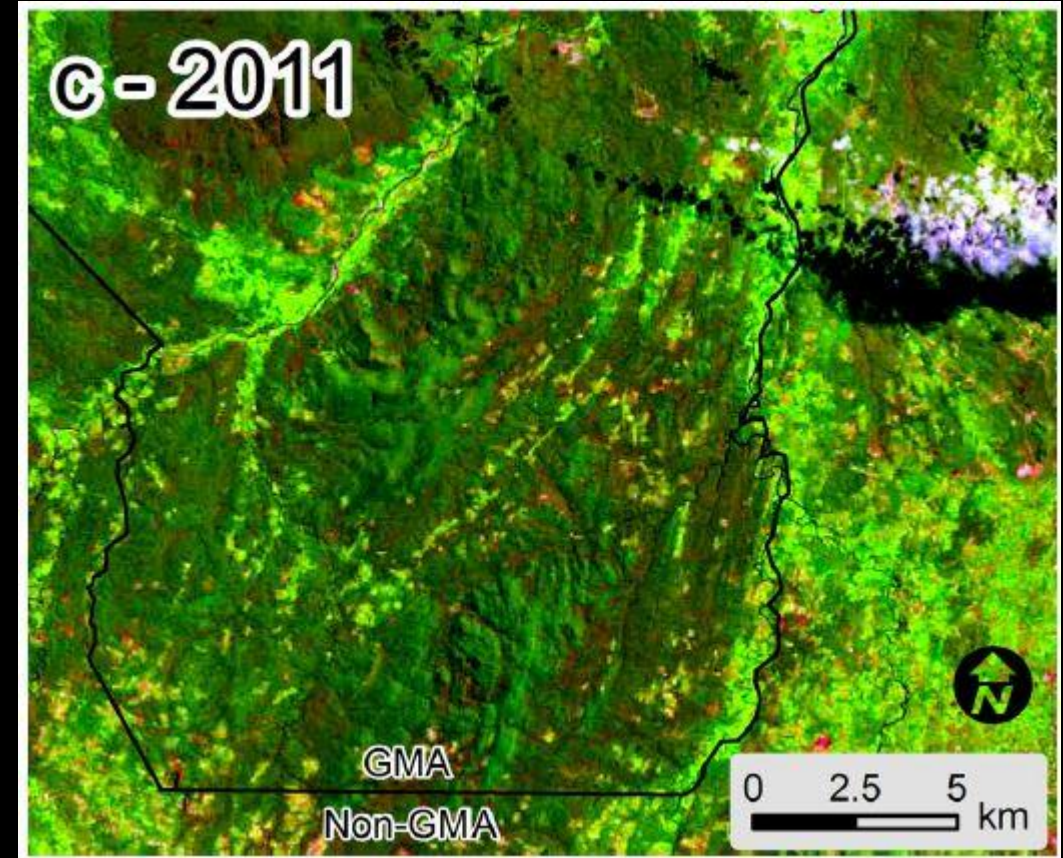
Problematizing Protected Area Performance

Performance dimensions:

- Ecological
 - Wildlife populations
 - Habitat quality/extent
 - Connectivity
- Financial
 - profitability
- Social and economic
 - Local income
 - Resource provision/access
 - Human-wildlife conflict

Questions:

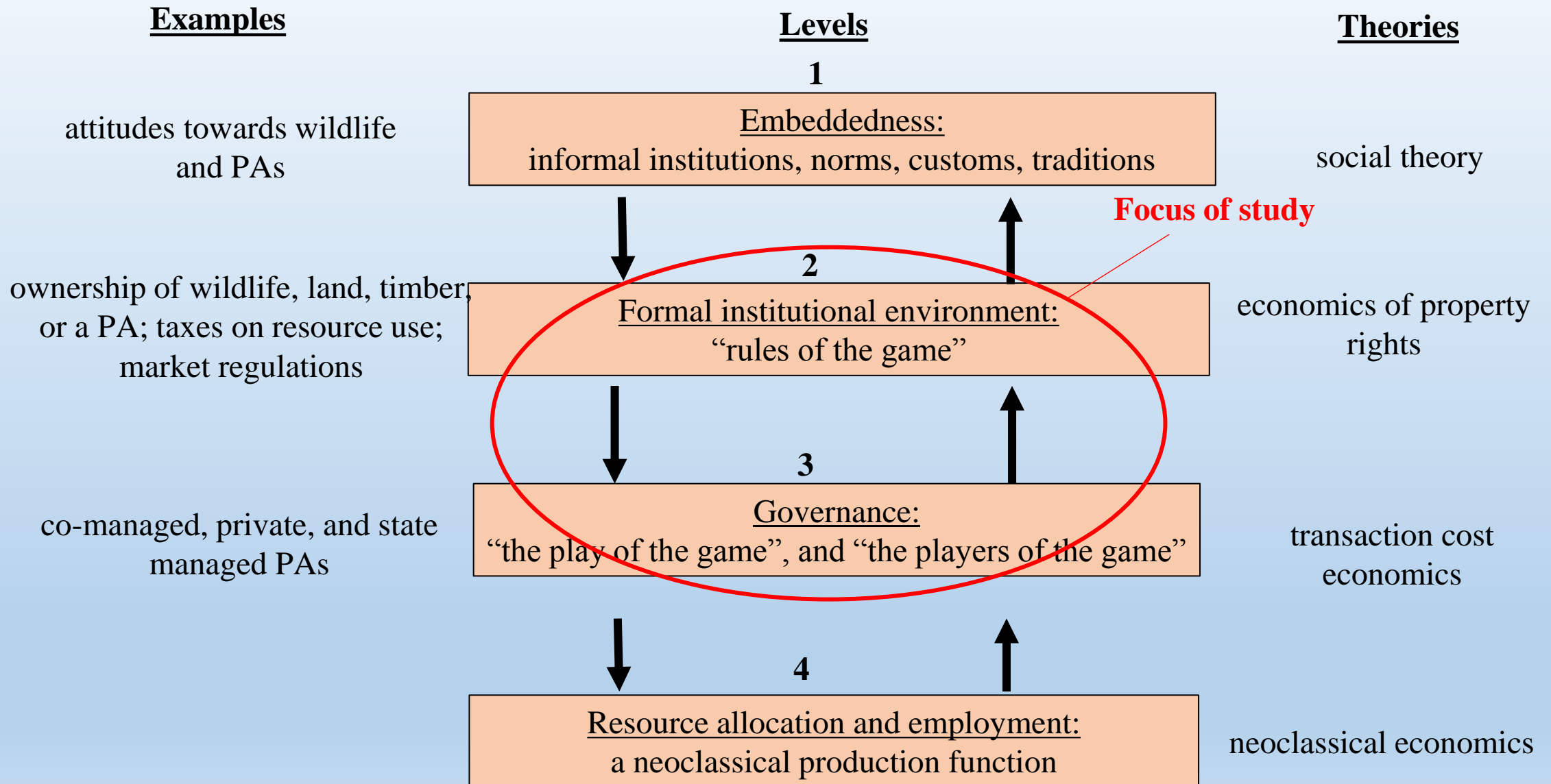
- Under what institutional conditions do formal parks achieve integration with the surrounding landscape?
- What are the implications for the economic welfare of surrounding human populations? How does the governance structure of the PA effect economic performance?



Encroachment in Lupande GMA, Zambia

Watson, F. G. R., et al. (2014). "Human encroachment into protected area networks in Zambia: implications for large carnivore conservation." [Regional Environmental Change](#).

Theoretical framework

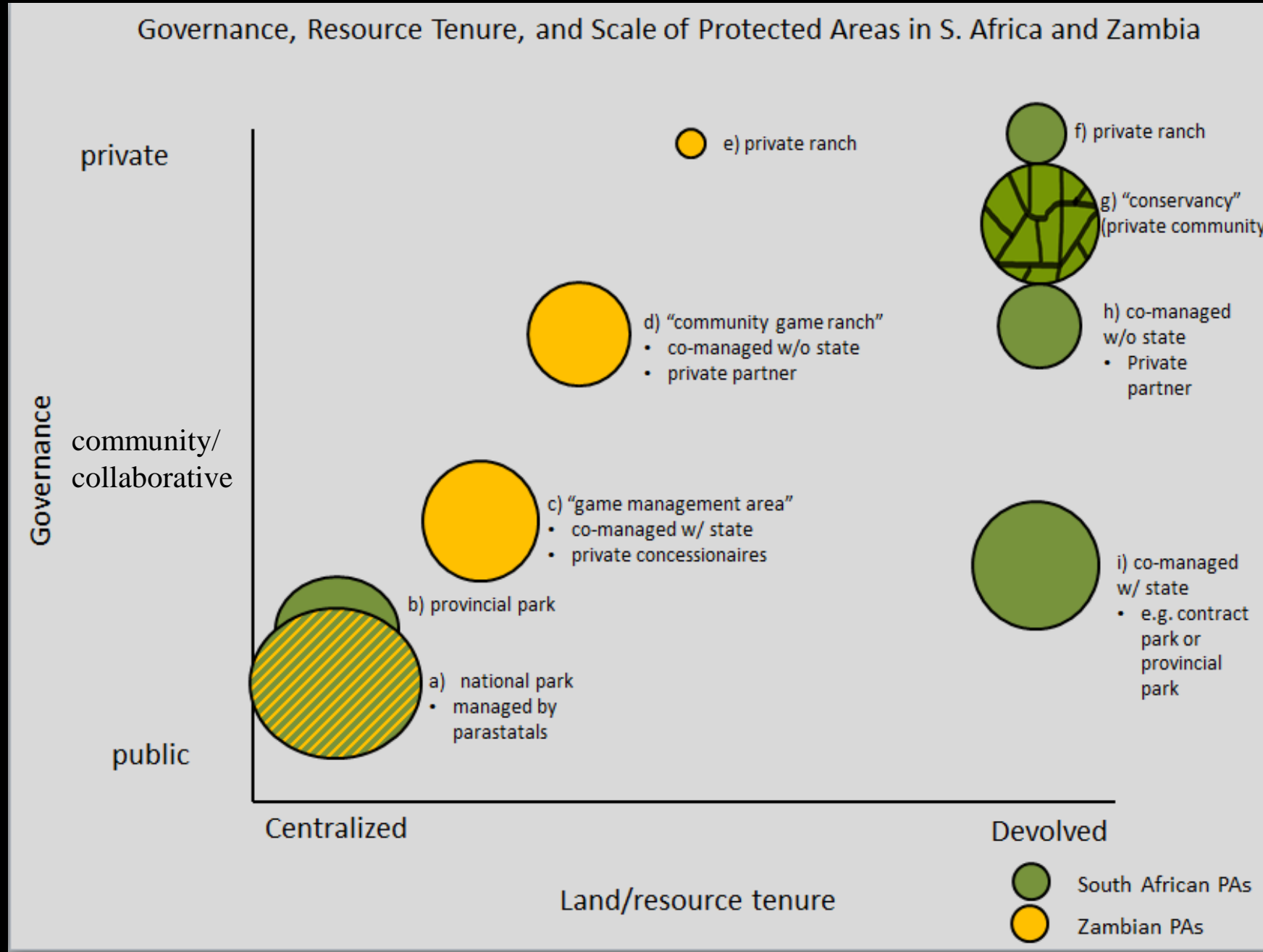


Adapted from: Williamson, O. E. (2000). The new institutional economics: taking stock, looking ahead. *Journal of Economic Literature*, 595-613.

The Broader Study Area: National Parks and Surrounding PAs

Zambia

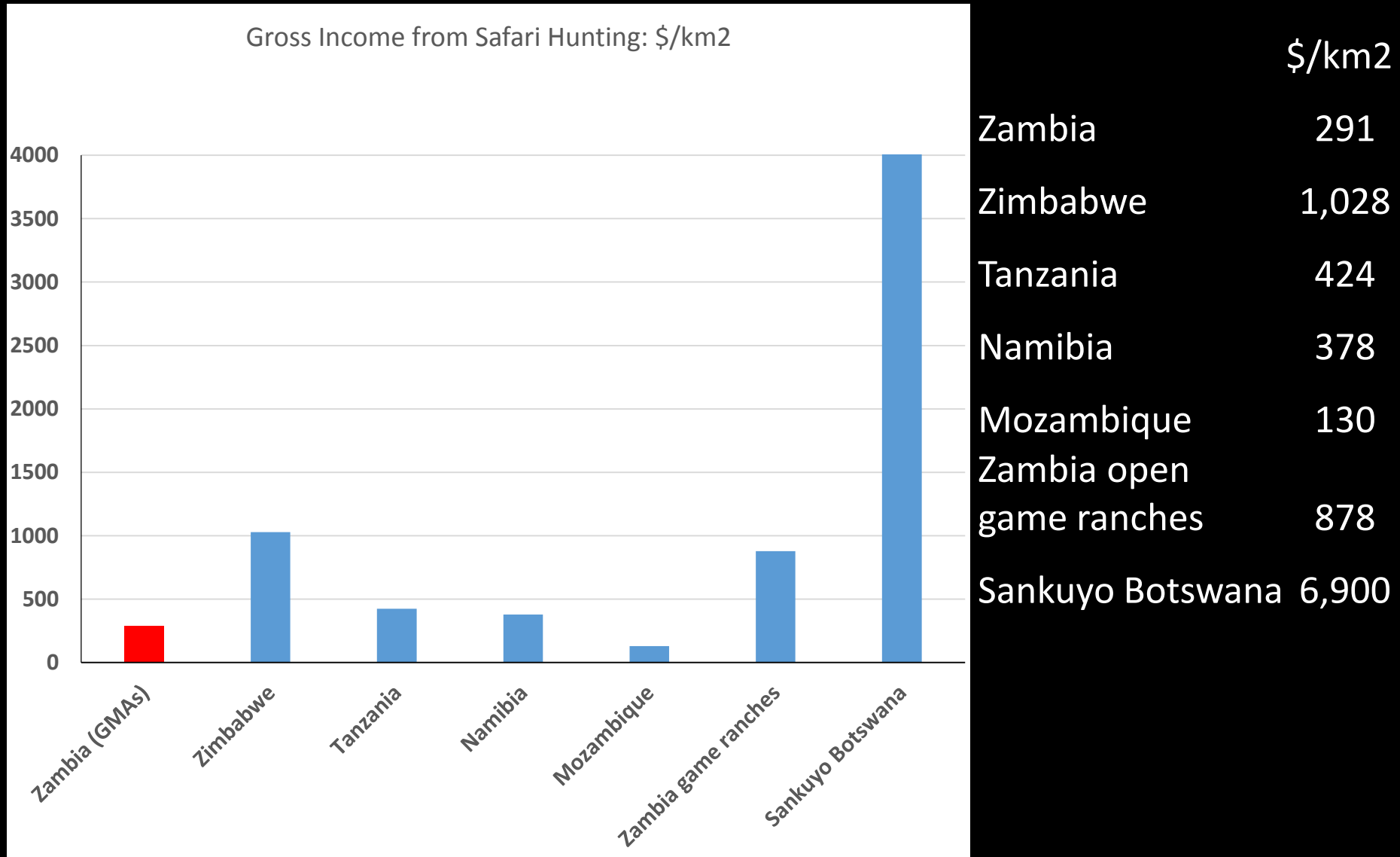
- All wildlife owned by the state
- Wildlife use heavily taxed and regulated
- All land owned by the state
- De facto differentiation between communal and leased land wrt wildlife policy
- Low scale! (~100 game ranches)



S. Africa

- Wildlife owned by landowner
- Few wildlife use regulations
- Conservancy formation (CBNRM on private land)
- Large scale (~14,000 game ranches)

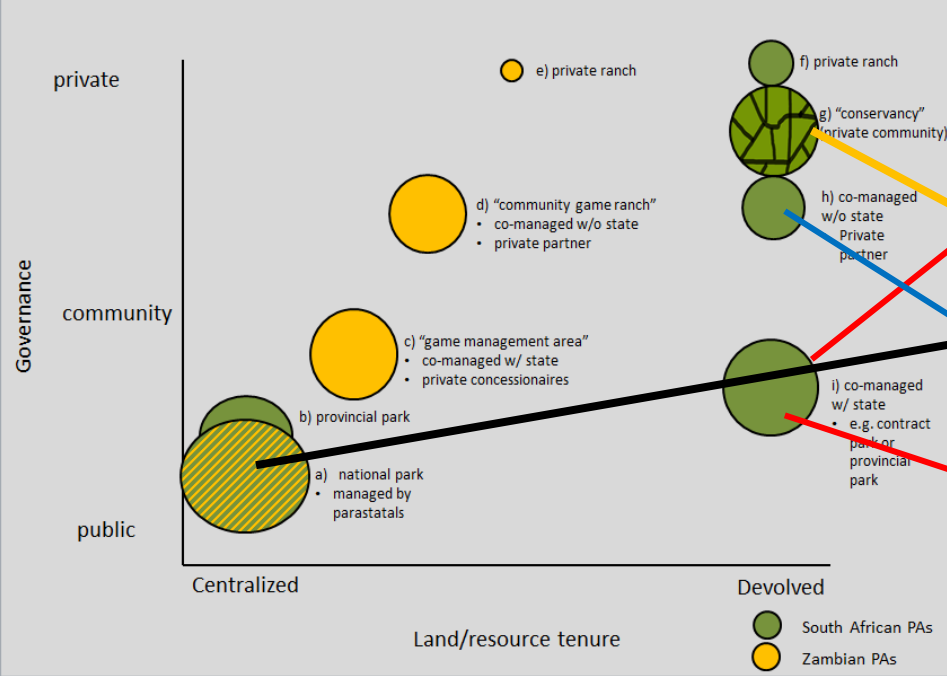
Zambia's relative financial performance from GMAs and trophy hunting



Data from Lindsey et al, 2014

The South African Study Area: The Kruger System

Governance, Resource Tenure, and Scale of Protected Areas in S. Africa and Zambia



South Africa

Kruger NP

- 19,500 sq. km
- Buffered by joint protection zone (~2,000 sq. km) of private and provincial reserves



Makuleke Contractual Park

Timbavati Private Game Reserve

Manyeleti Provincial Game Reserve

Malamala private reserve

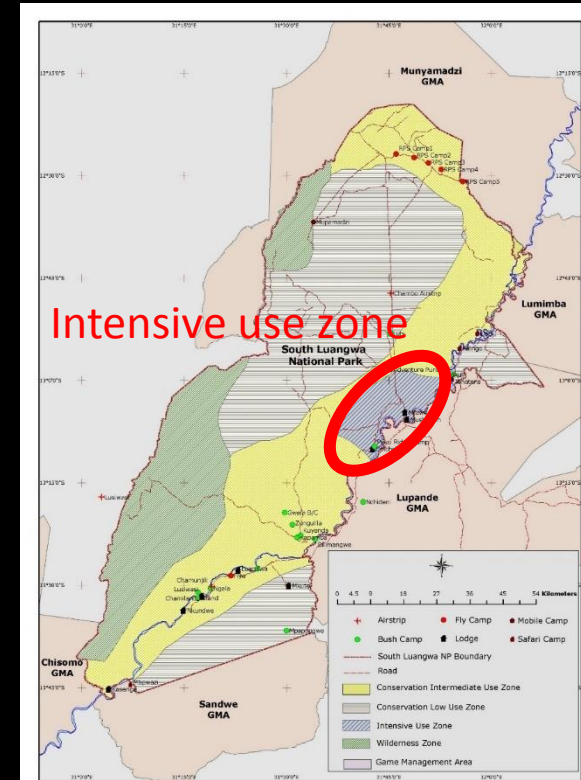
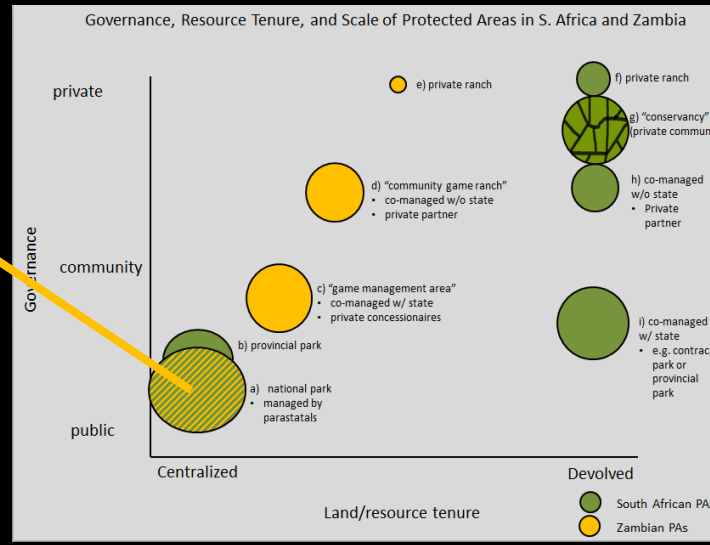
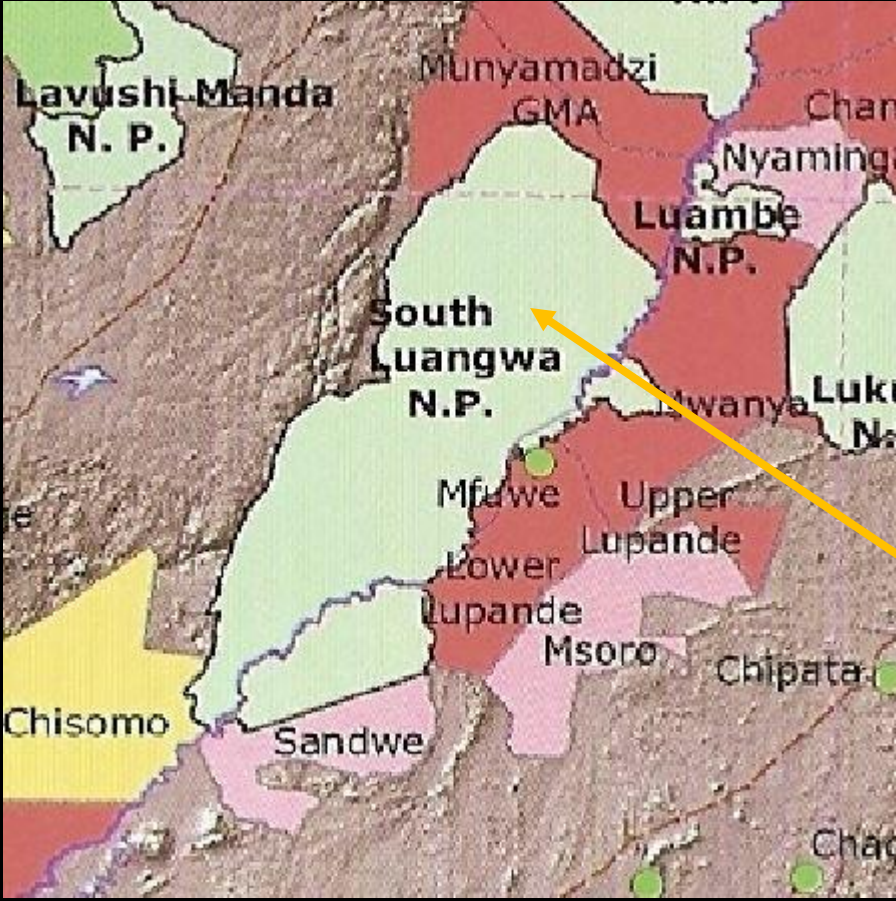
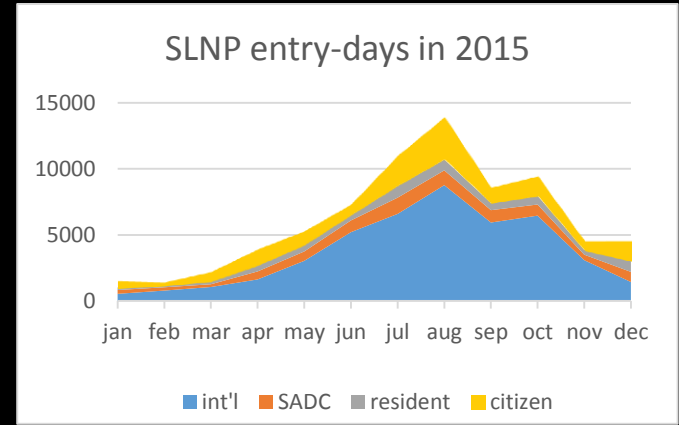
The Zambian Study Area

South Luangwa National Park



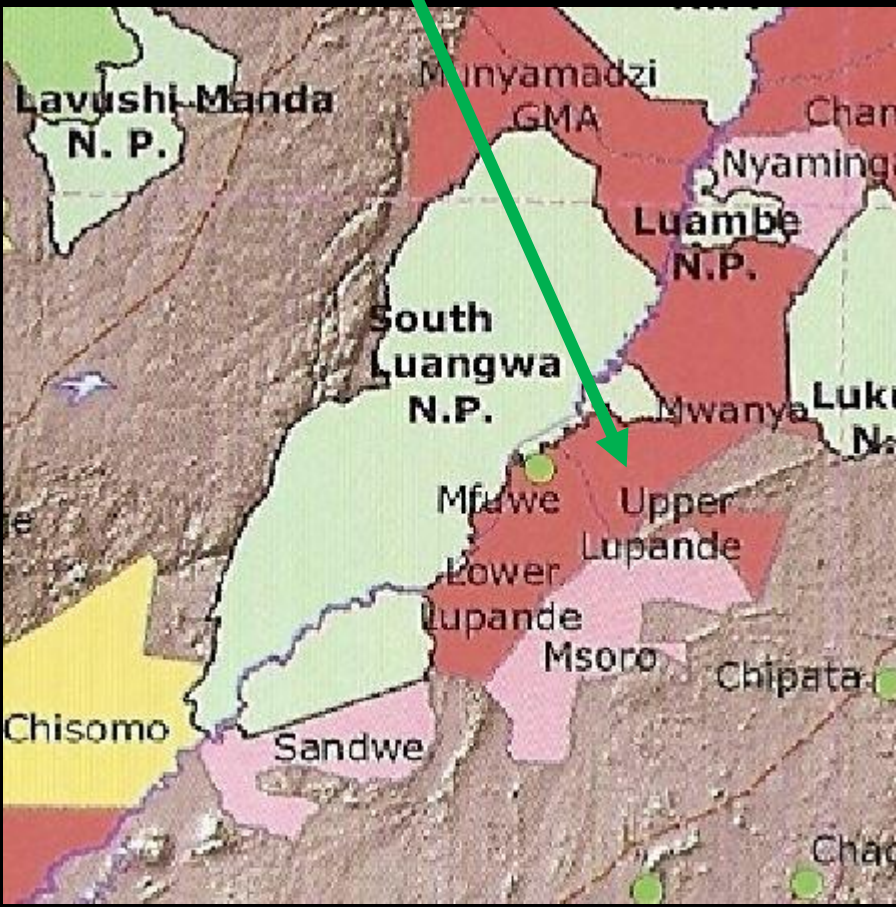
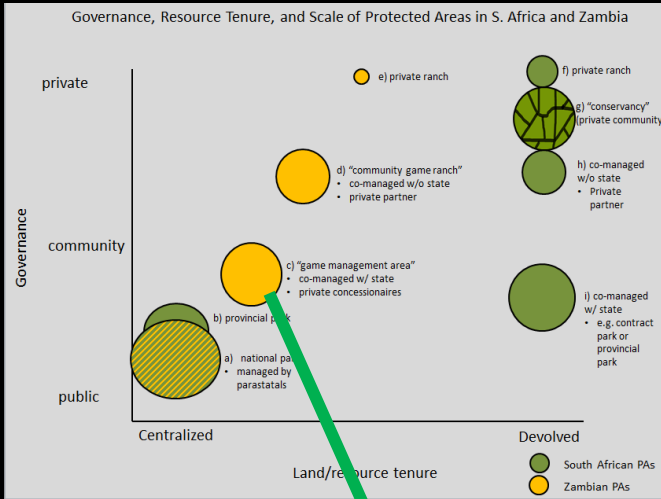
The park at a glance

- 9,050 sq. km.
- Premier national park in Zambia
- Biomass at 16% of carrying capacity
- Only ~10% of park utilized for tourism
- ~500 beds
- Many camps close for 6 month rainy season when much of park inaccessible
- Buffered by game management areas (GMAs)
- Mambwe district population: ~86,000 on 5,294 km² (16.3/km²), growing at 4%/year



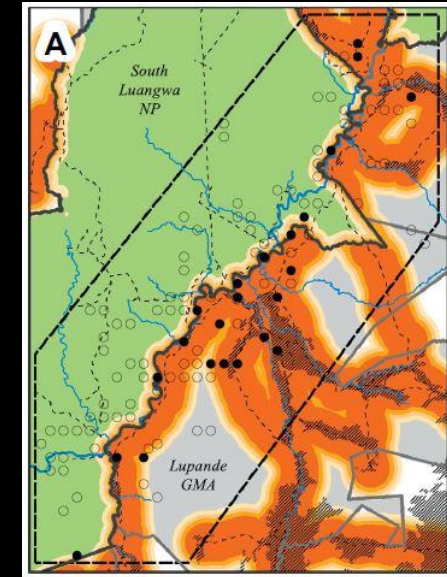
The Zambian Study Area

Game Management Areas



At a glance

- Communal, inhabited land, open to park
- 6 GMAs (21,340 km²) surround the park
- Half of the tourist lodges are in the GMAs, but on titled land = no leverage
- Co-management of wildlife (Govt.--Community--Private hunting concessionaire)
 - Community representation and benefit distribution through community resource boards (CRBs)
 - Anti-poaching by CRB "village scouts"
- Opaque bidding process for concessions
- Hunting banned from end of 2012 through 2014



Probability distribution of snares (Watson et al, 2013)

Methodological Approach

- Financial Viability Analysis
 - Is the protected area privately profitable?
- Economic Impact Analysis
 - Measures of value: production, jobs, personal income, value added, social investment
 - How much value is generated by the protected area? How much value is captured locally? How is the value distributed geographically and socially?
 - Levels of analysis: direct (tourist→business), indirect (business→supplier), and induced impacts (from spending of tourism wages)

	Number of Respondents	Description
Tourist Survey	151 groups (8 non-responses)	Representing 368 individuals (including overlanders, campers, budget, mid-market, and high end travelers)
Tourism Business Survey	12 (7 non-responses)	4 high end operations, 4 mid-market, 2 budget, 2 souvenir shops. Operations supplying data represent appx. 55% of total park occupancy for 2015.
Supplier Survey	7	Sellers of beverages, hardware, food, produce, etc.
Local business Survey	190	Of an estimated 210 local businesses
Employee Survey	161	Managers, skilled, and unskilled workers, including govt. and CRB scouts
Community Resource Boards	4	Current and historic income sources and expenditures
Conservation NGOs	2	Income from local donations and expenditures

Financial Viability Analysis

Is the protected area privately profitable?



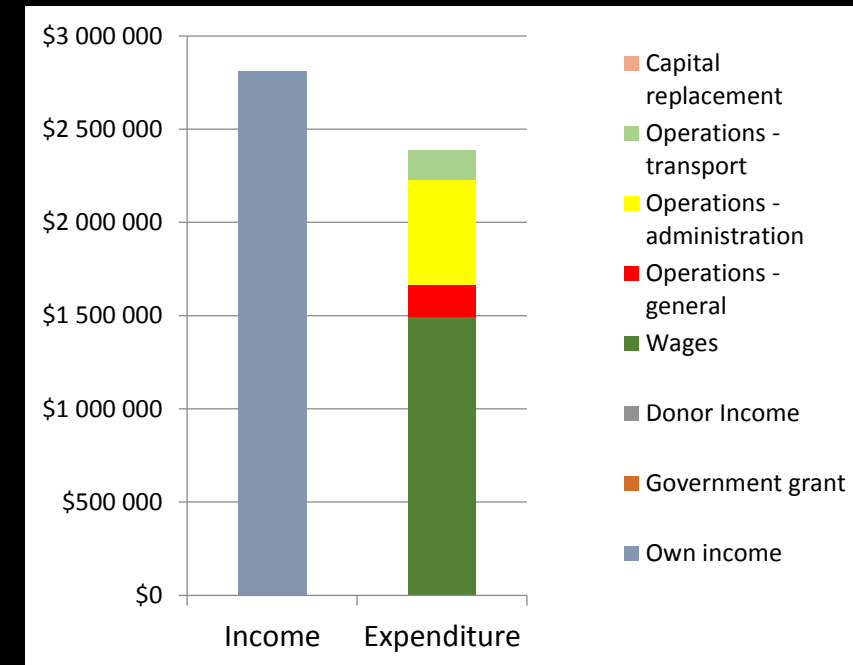
Yes:

- average net profit after tax for lodges = 10.7% of turnover
(9.4% weighted by turnover; n = 7)

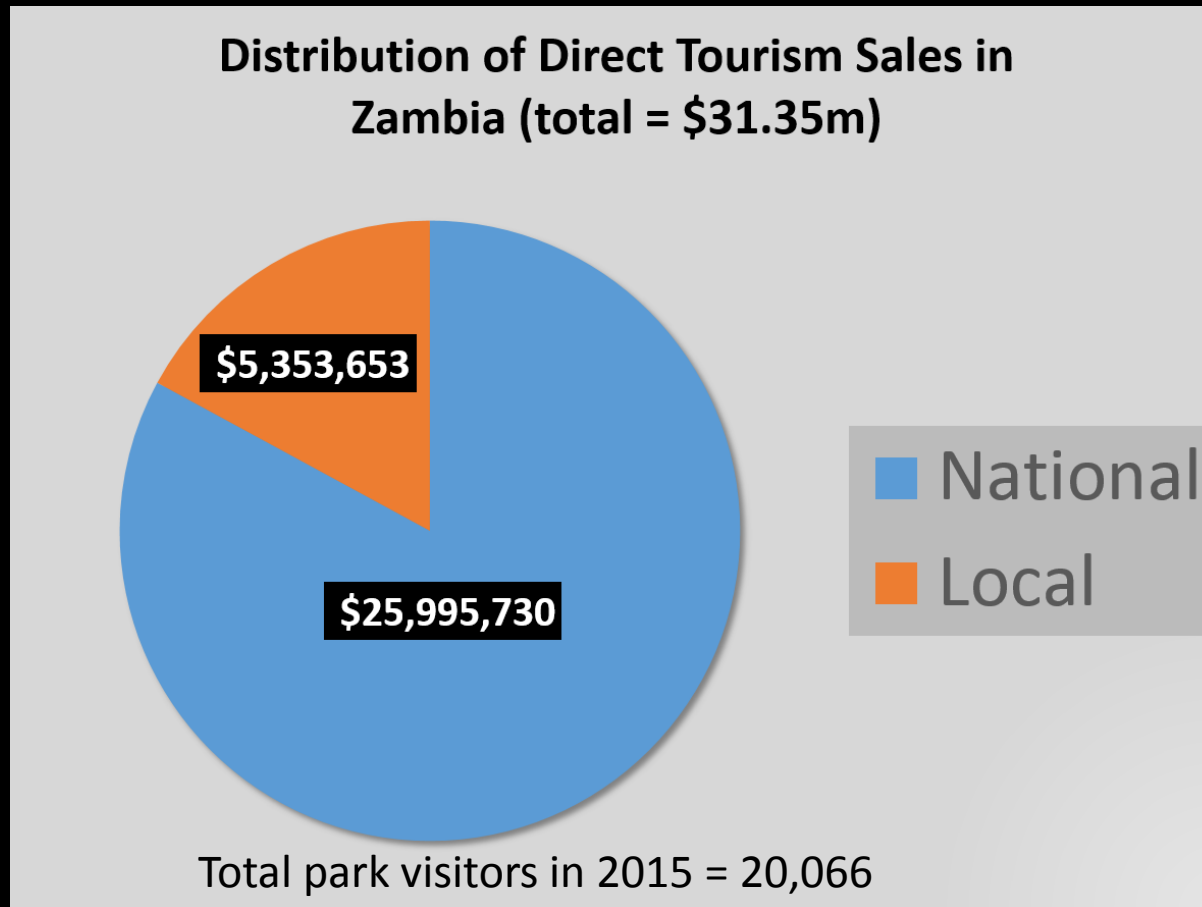
This despite:

- High import duties, maintenance of roads (avg. maintenance cost on park roads = \$10,116, n = 6)
- Low and highly variable occupancy rates (avg. = 45%, n = 47)
- Recently imposed 16% VAT on activities
- **Income to DNPW exceeds management costs**
 - ~\$275/km

Park mgmt. income and expenditure, 2012



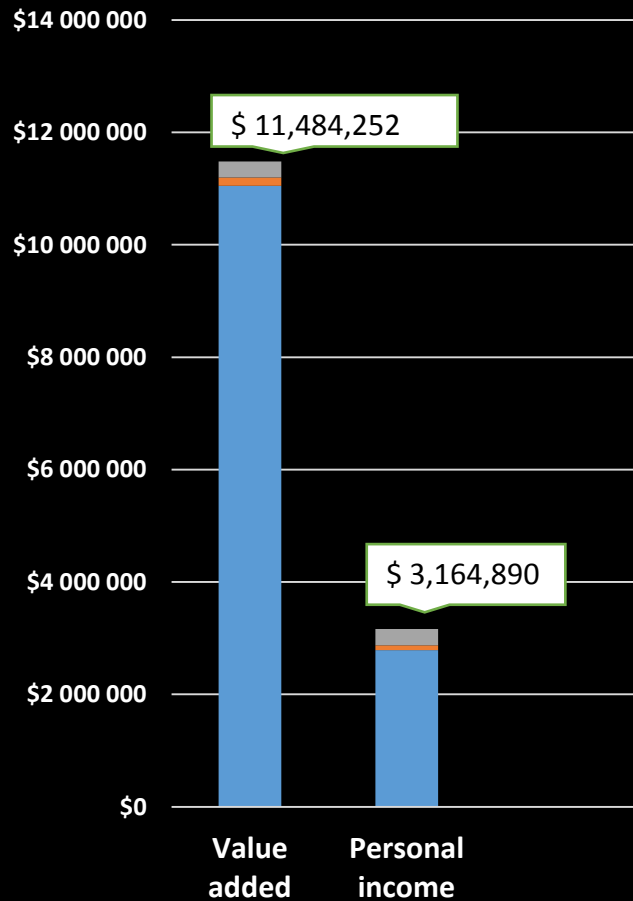
How much economic value is generated by South Luangwa NP?



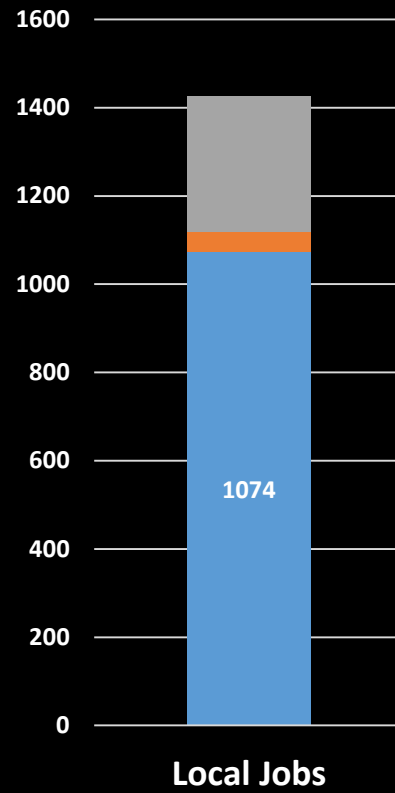
- Excluding international tour operator commission and international travel fare
- However, much of what is included is still leakage

How much economic value is generated by South Luangwa NP?

Local value added and personal income (wages + tips)



Number of jobs for locals from tourism (Total = 1425)



Local tourism employee descriptives

% of local tourism employees originating from local area	73.10%
average monthly income	\$216.45
average number of household dependents	5.8
remittances as % of income	21.9%
savings as % of income	6.0%
% of households in 3 closest chiefdoms with member employed in tourism	10.8%



■ Direct ■ Indirect ■ Induced

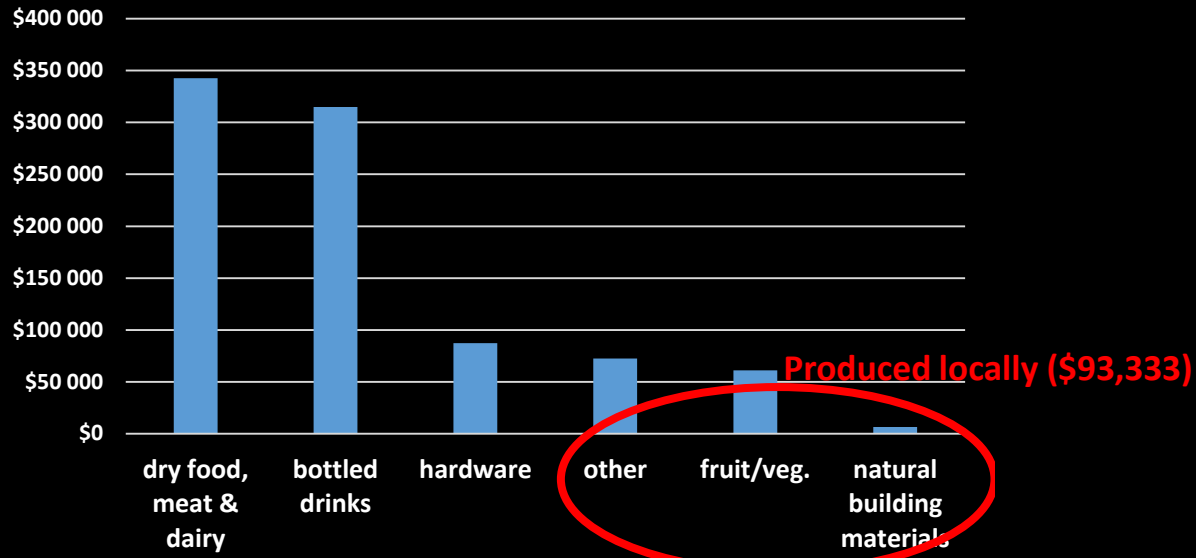
■ Direct ■ Indirect

■ Induced

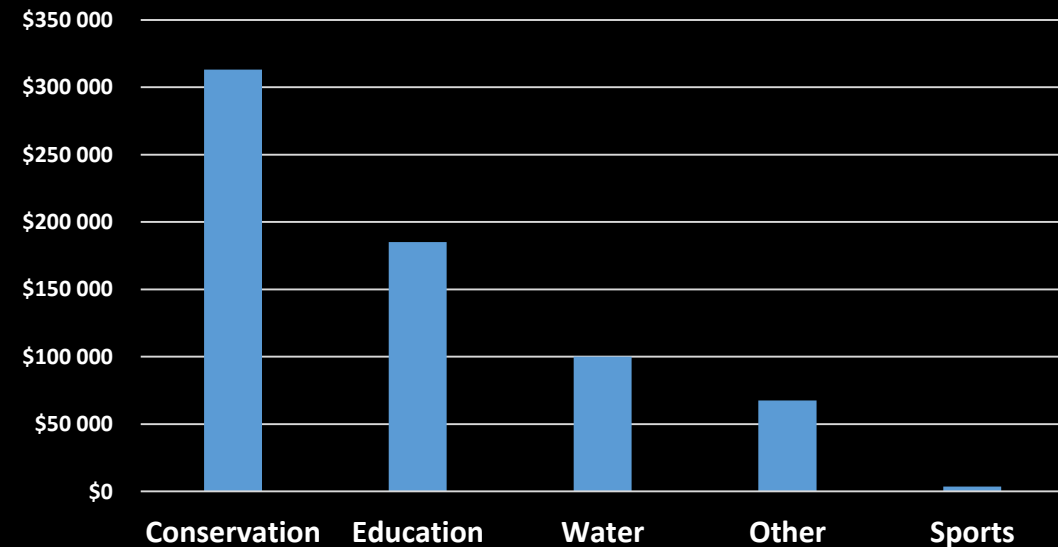
*Non-local jobs in tourism = 97

Local suppliers and social investment

Local procurement by lodges in 2015 (not including fuel; total = \$990,546)

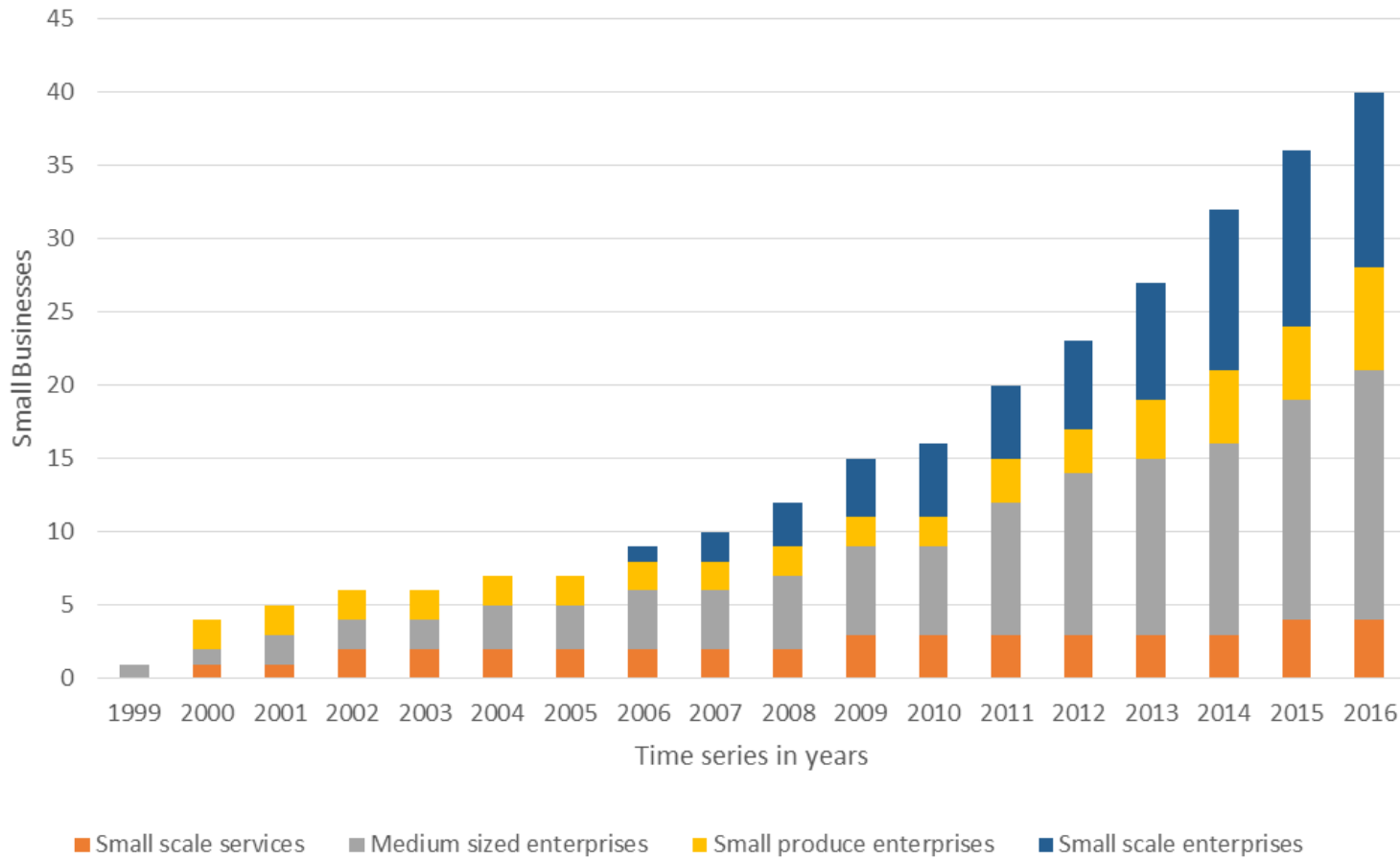


Local largesse in 2015 (total = \$952,536)



The Local Business Economy

Growth of Small Businesses in Mfuwe



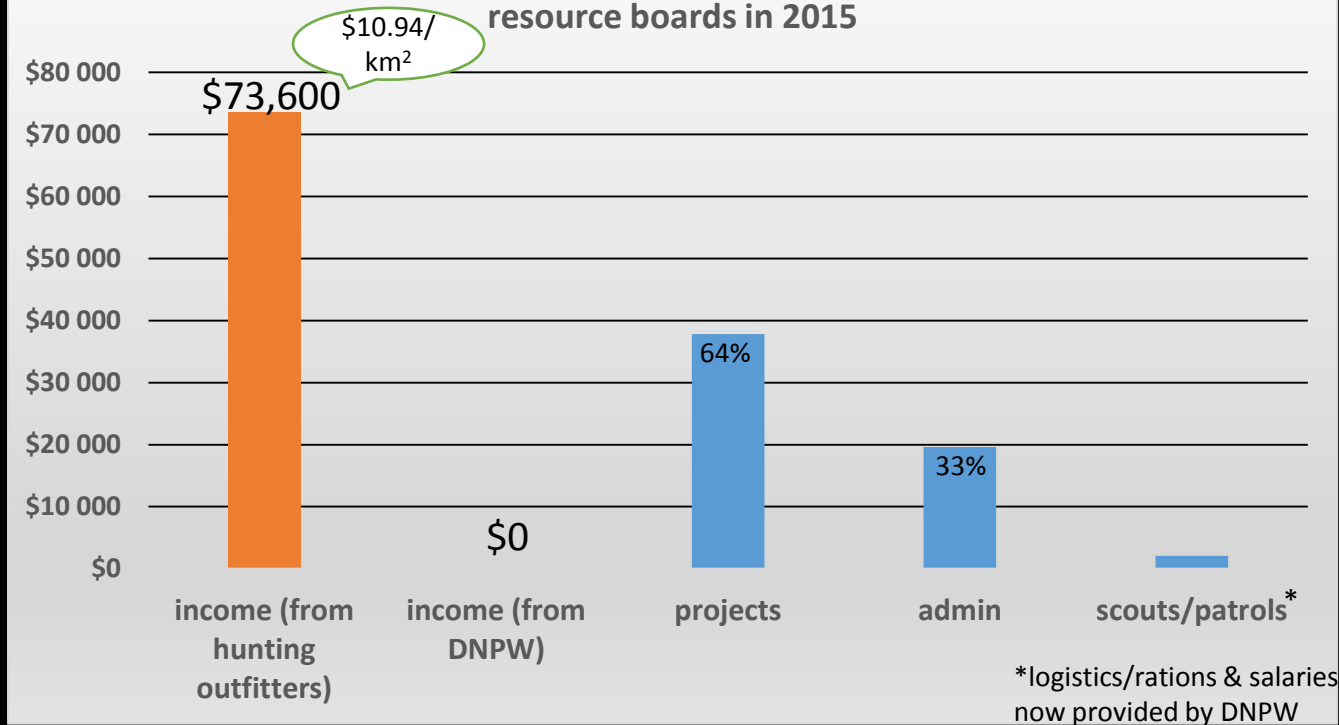
Total number of local businesses (Mfuwe area)	~210
Total annual sales	\$3.12m
Sales to tourism businesses or employees	\$1.77m (53%)
% originating non-locally	33.1%



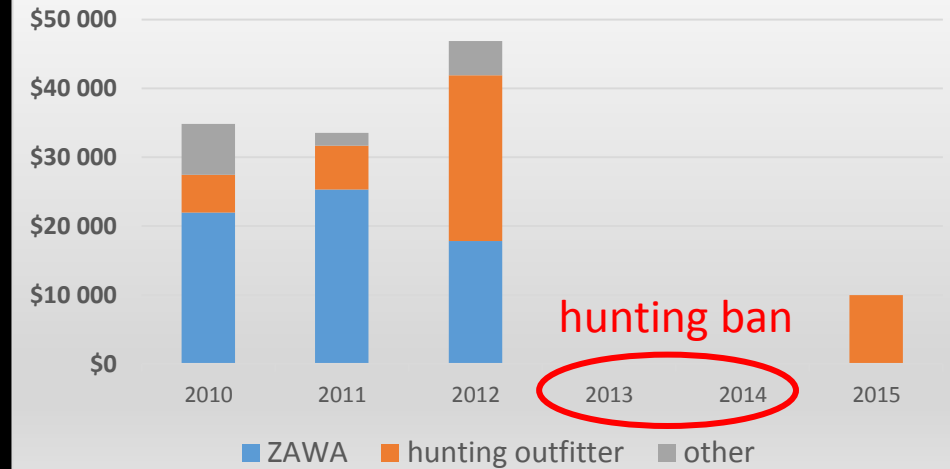
Business growth has mirrored growth in tourism

Economic Performance of GMAs

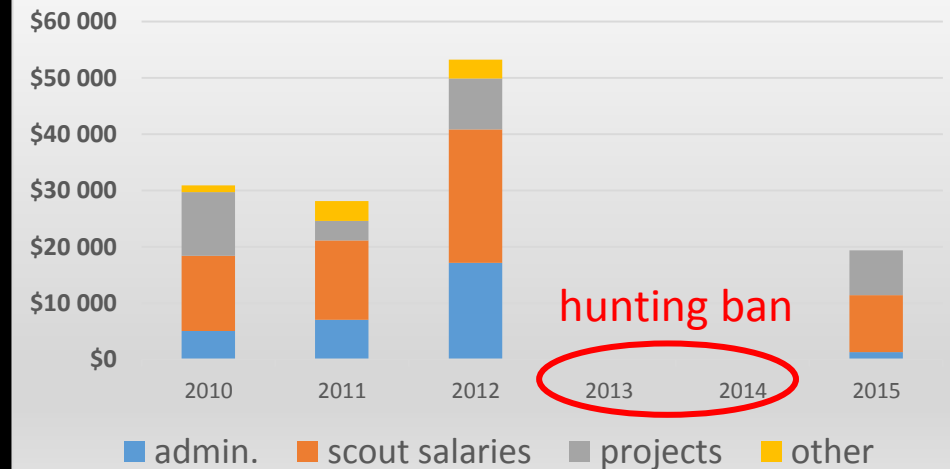
Total income and expenditures for 6 South Luangwa community resource boards in 2015



Mkhanya CRB Income by Source



Mkhanya CRB Expenditures



Lack of transparency with community

Total local employment from 2 hunting camps	56
Total hunting sales in 2015	?
Total meat distribution in 2015	?
Total local direct income from hunting in 2015	?
Quota utilization in 2015	?




Anti-poaching and park management

Number of scouts by employer and funding source with average monthly income

Employer	Funding source				Km ² per scout
	DNPW	CSL (a local NGO)	Hunting outfitters	Total	
CRBs	74 (\$64.3/month)	65 (\$163.5/month)	11	150	45 (over 2 GMAs)
DNPW	68 (\$331.4/month)	n/a	n/a	68	133 (entire park)



Organizations with management responsibilities for SLNP and expenditures

	Responsibilities	2015 expenditures
 DNPW	General park management	\$2.3m
 ZCP	Large carnivore research/snare removal	\$104,663 (9.1% of income from tourism)
 CSL	Anti-poaching, HWC mitigation, snare removal	\$245,674 (33.3% of income from tourism)



Bringing it together

- The lure of park-related opportunities and services is strong and has contributed to growth in the scale of economic activity in the surrounding GMAs
 - This growth is unmanaged
 - This growth is not tightly coupled to the underlying resources
- With weak institutions in Zambia, community benefits from wildlife utilization in the GMAs are few and the signal of declining potential is also weak
- An incentive for organizing around resource/land use planning ahead of further growth is absent, threatening the long term performance of the PA system.

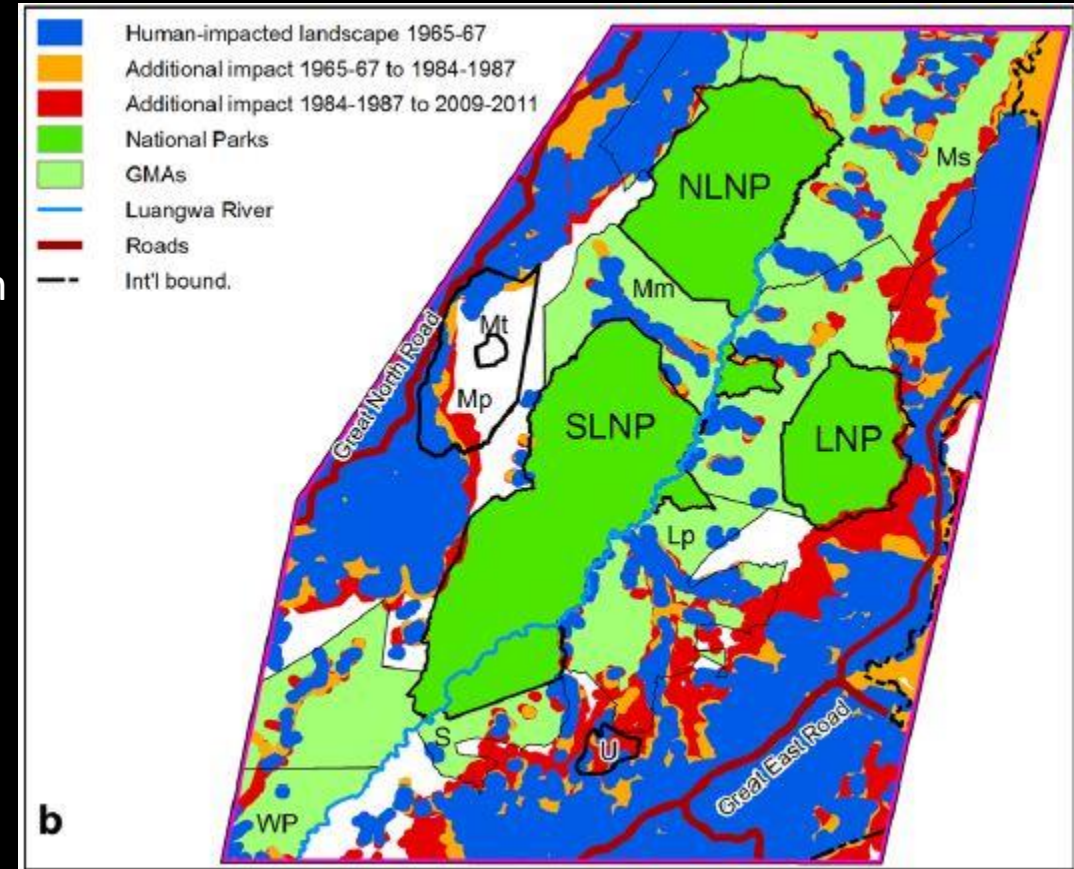
Remaining work:

Zambia

- Evaluation of community wildlife ranches

South Africa

- Economic impact analysis of Kruger NP and surrounding reserves, focusing on joint protection zone



Watson, F. G. R., et al. (2014). "Human encroachment into protected area networks in Zambia: implications for large carnivore conservation." [Regional Environmental Change](#).