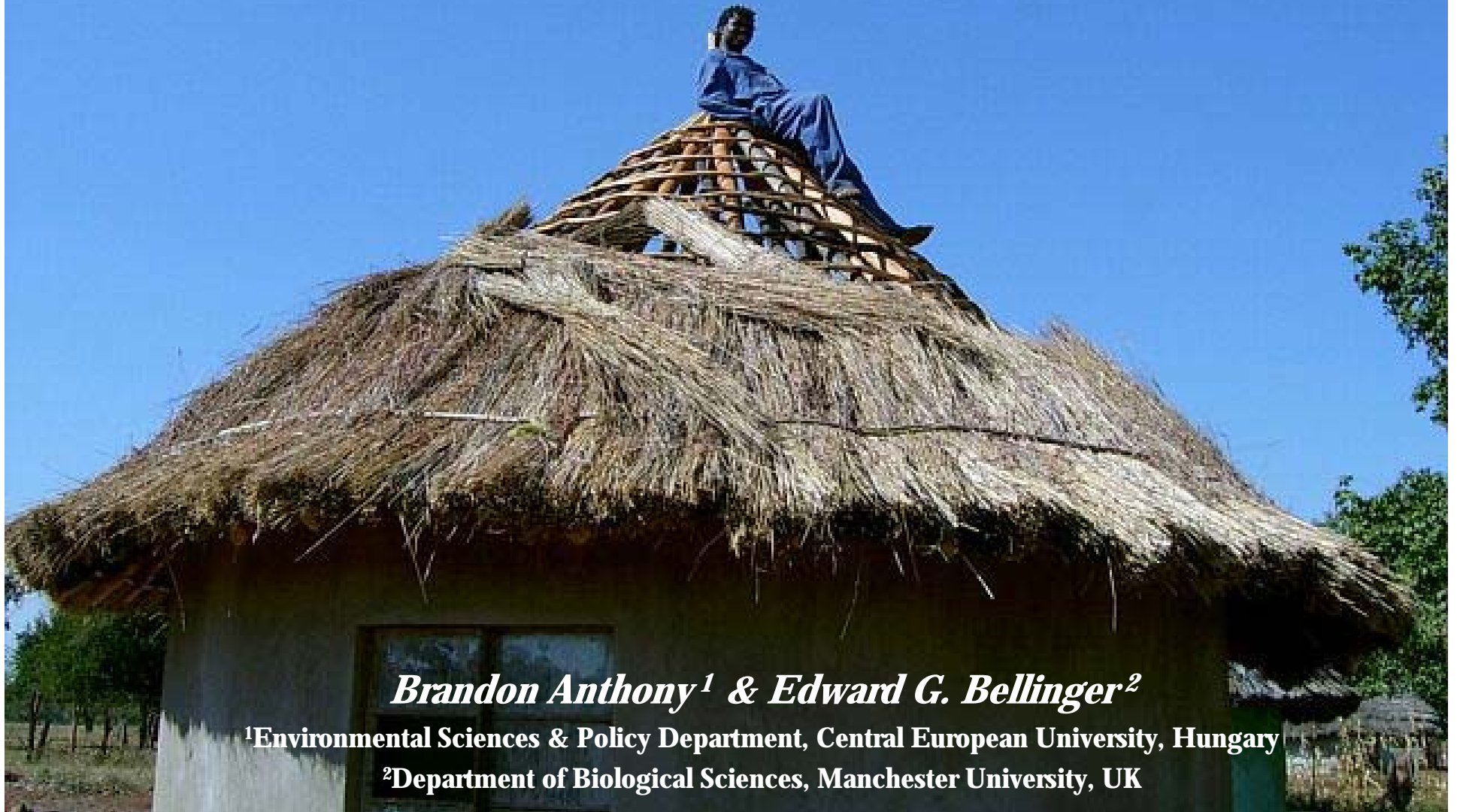


Use and value of landscapes, flora and fauna by Tsonga communities in the rural areas of Limpopo Province



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Background

- adjacent land use important for KNP
- CBC initiatives envisioned for area
- knowledge on formal legislation poor
- enforcement of LEMA minimal in study area
- transition in land tenure and institutional responsibilities
- no research to date in study area

Study Area



- still relatively large bushland areas south of Shingwedzi River
- mopane / bushwillow woodlands
- Thulamela: 104.0 persons/km²
- Greater Giyani: 39.5 persons/km²
- employment rate: 7-14.4%
- males: 47.5% of population
- ~50% of population is ≤ 19 yrs
- ~90% of households < 1000ZAR/month
- subsistence farming
- largely dependent on local resources

Methodology & analyses



- **Pebble Distribution Method (Sheil *et al.* 2002)**
 - weighted ranking exercise
 - versatile and low-cost
 - relaxed atmosphere
 - high face validity
- **participants jointly distribute beans according to ‘importance’ of landscape unit, resource use, and taxa**



- **Local User Values (LUVct) generated for taxa**
- **access gained through local Tribal Authorities**
- **three focus groups per village:
high school mixed / men 35+ / women 35+**
- **SPSS (13.0):
ANOVA; Tukey post hoc tests; linear regression**

Sheil, D., Puri, R.K., Basuki, I., Van Heist, M., Syaefuddin, Rukmiyati, Sardjono, M.A., Samsuedin, I., Sidiyasa, K., Chrisandini, Permana, E., Angi, E.M., Gatzweiler, F., Johnson, B. and Wijaya, A. 2002. *Exploring biological diversity, environment and local people's perspectives in forest landscapes: methods for a multidisciplinary landscape assessment*. Jakarta, Indonesia: Center for International Forestry Research.

- 1) Forest / bush
- 2) Grazing land
- 3) Cultivated fields
- 4) Swamp / marsh
- 5) Lake / dam
- 6) River / stream
- 7) Household garden
- 8) Village

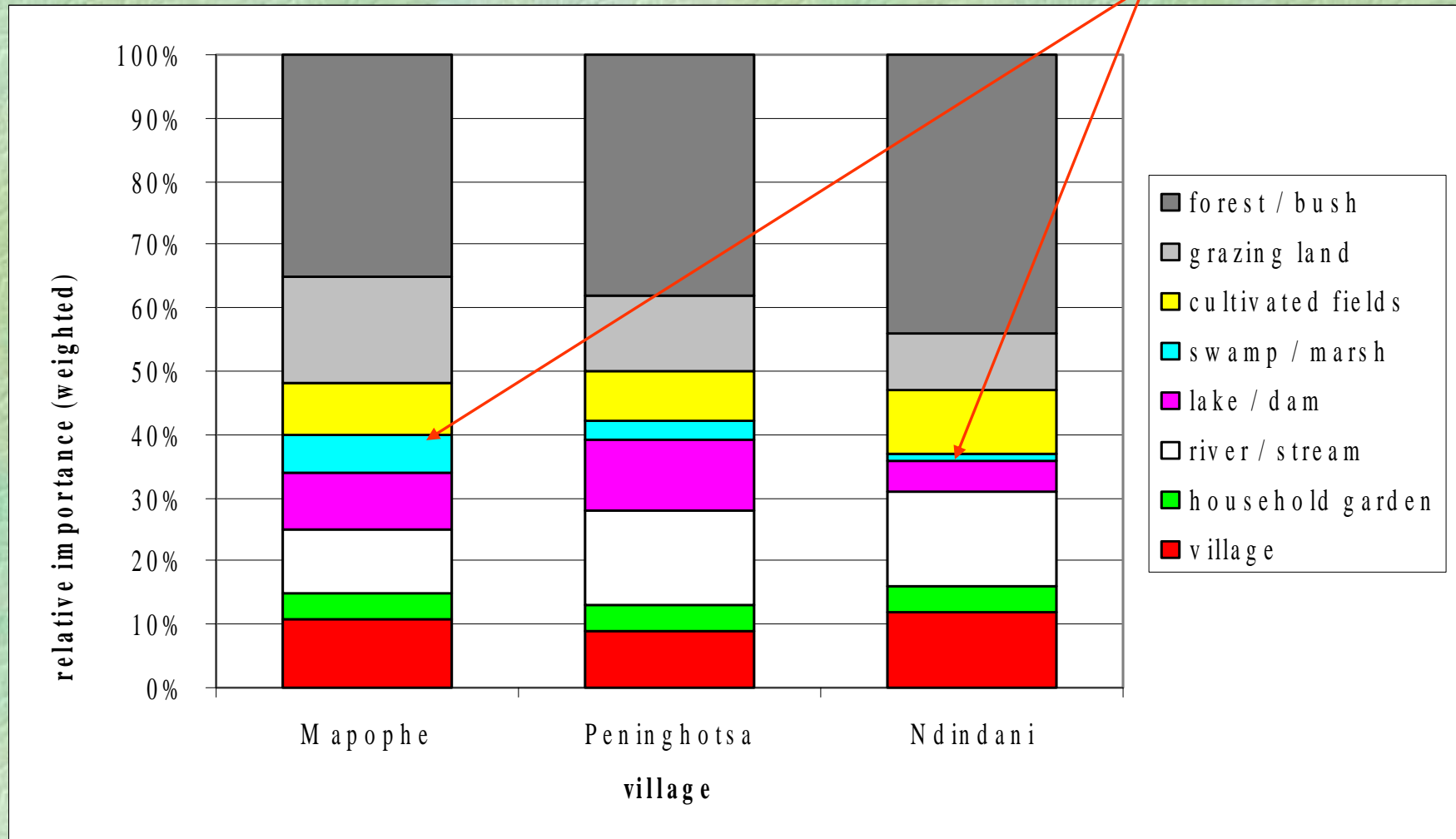


- 1) Food
- 2) Drink
- 3) Fuelwood
- 4) Medicine
- 5) Construction
- 6) Utensils & tools
- 7) Ornamental & religious
- 8) Recreation

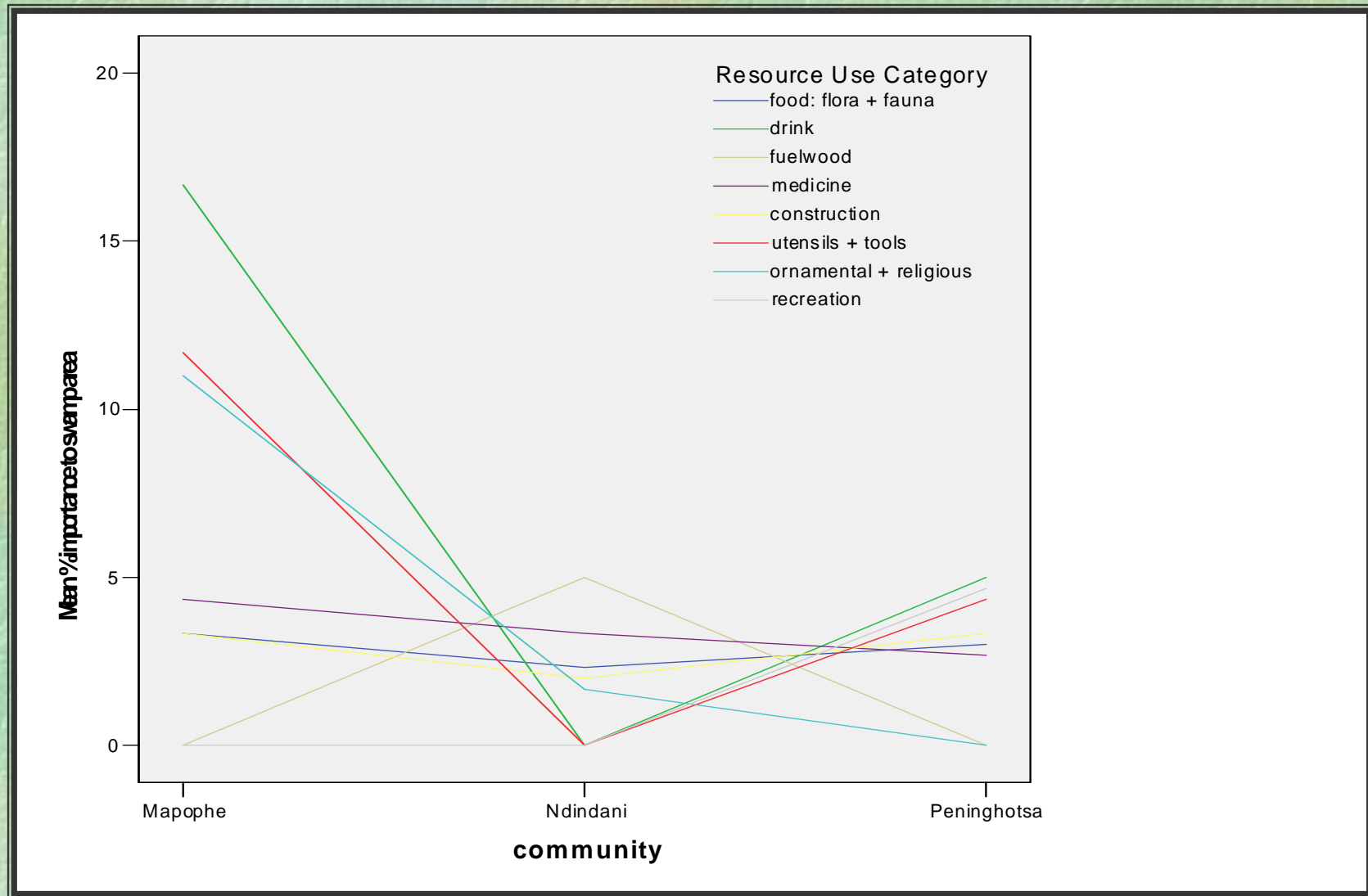


Weighted relative importance of various landscape units to community livelihood per village group

mean. diff. = 4.510, S.E. = 1.431, $p < 0.01$

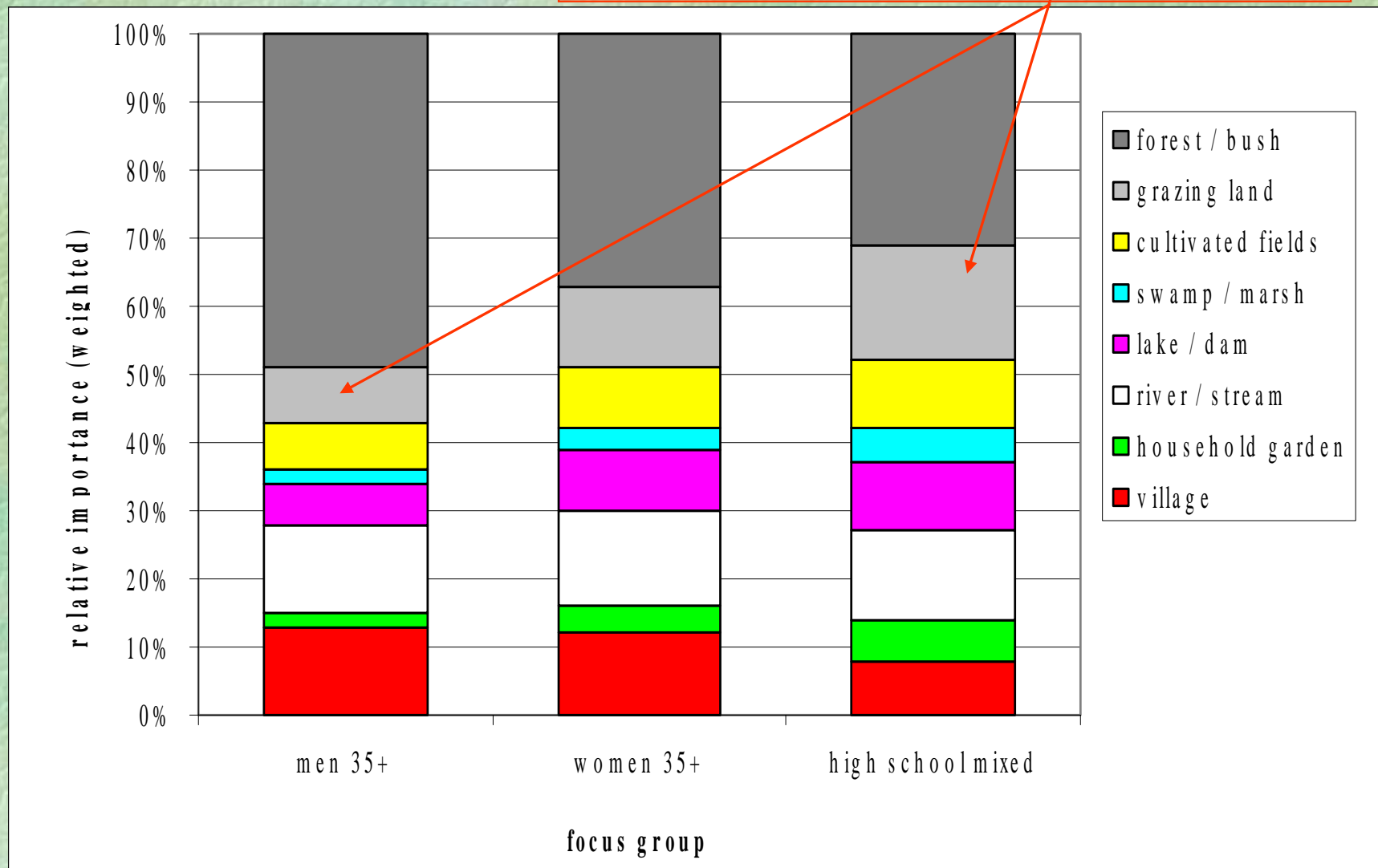


Mean percent importance by community of various resource use categories fulfilled by the swamp/marsh landscape unit

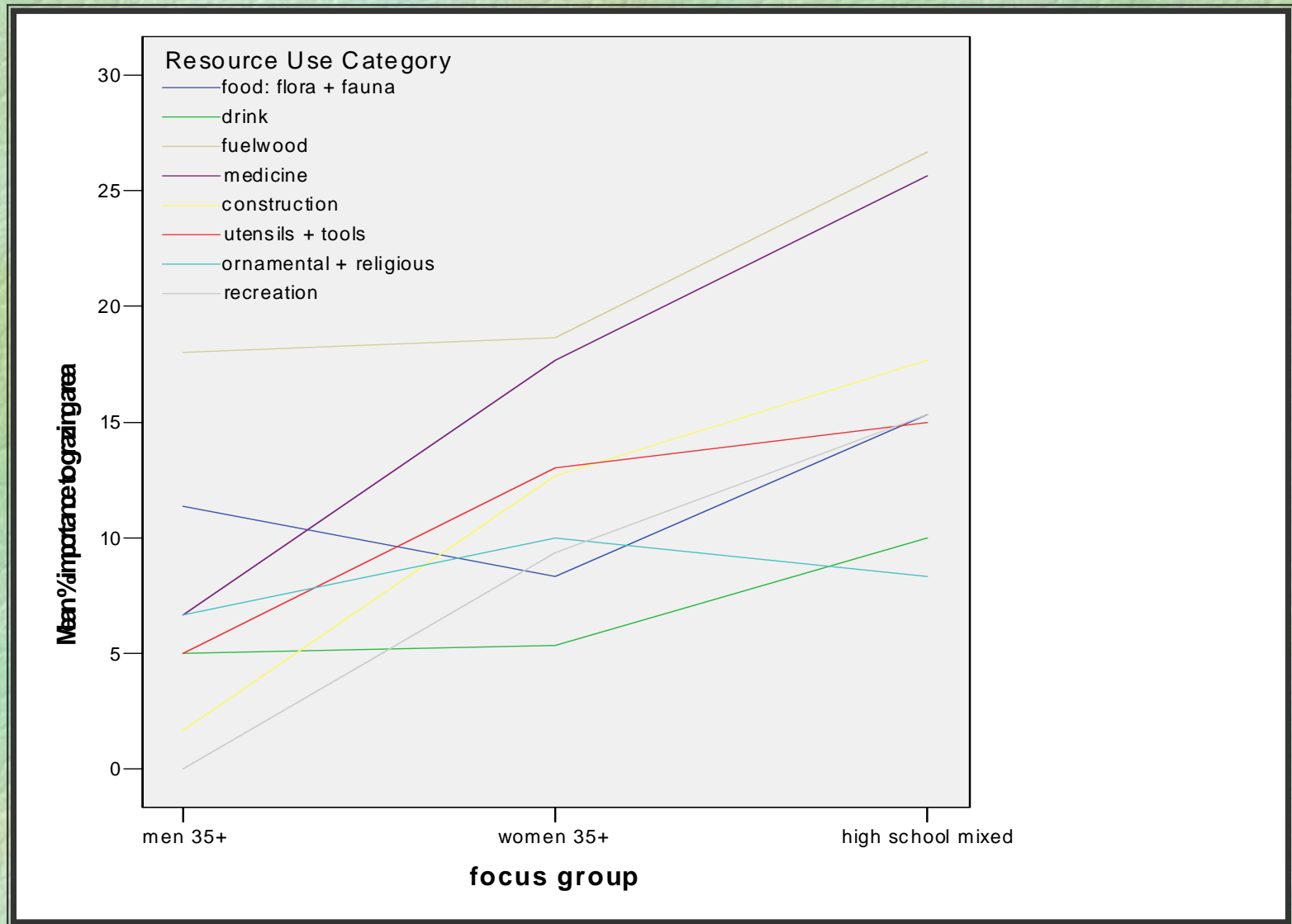


Weighted relative importance of various landscape units to community livelihood per age/gender group.

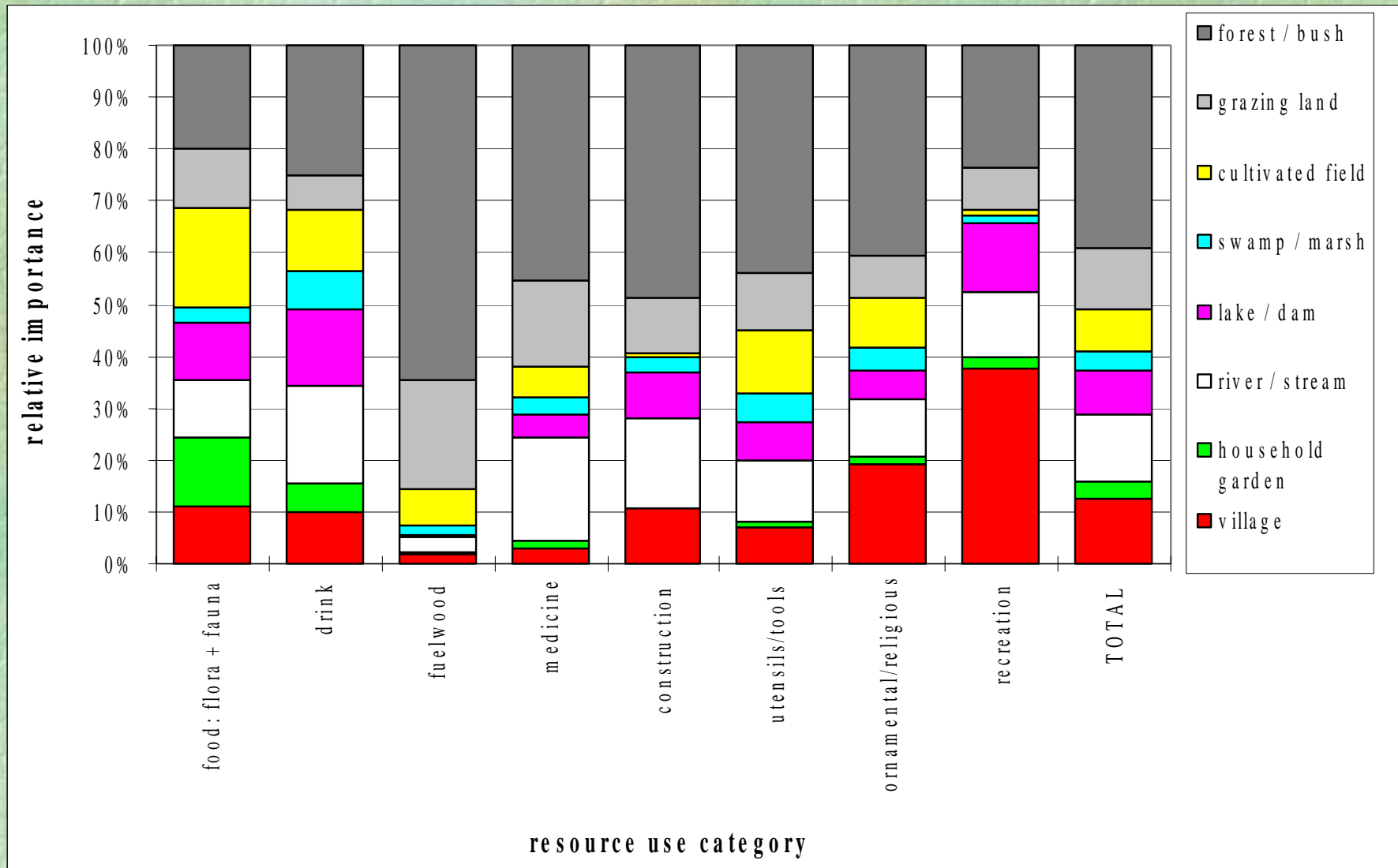
mean. diff. = 9.730, S.E. = 3.446, $p < 0.05$



Mean percent importance by age/gender group of various resource use categories fulfilled by the grazing area landscape unit



Relative importance assigned to landscape units per resource use category for Maphophe, Peninghotsa and Ndindani villages

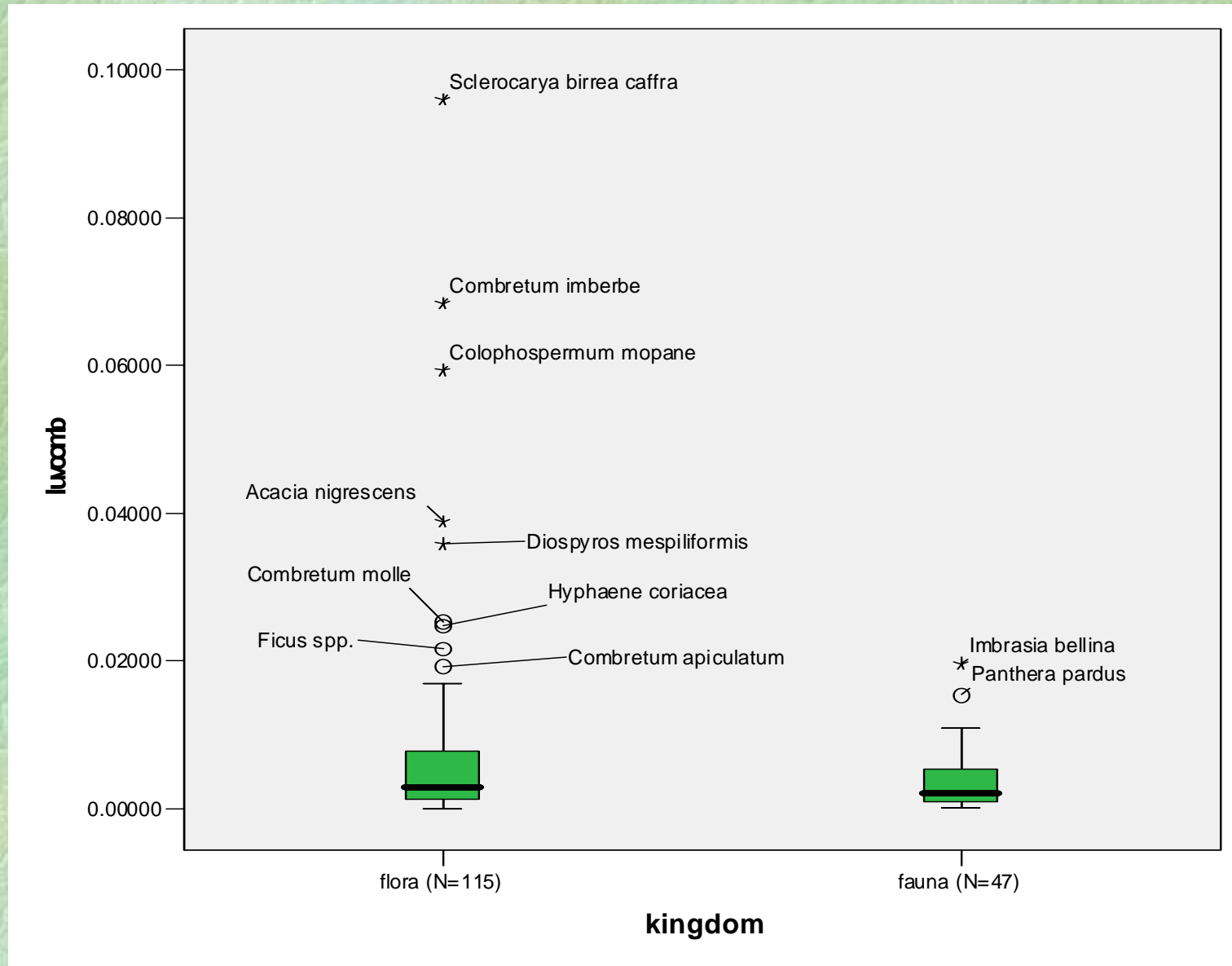


Taxa

- 162 taxa identified (115 flora + 47 fauna)
- 94 taxa used in one resource category
- marula (*Sclerocarya birrea caffra*) and fig (*Ficus* spp.) used in up to seven categories
- marula, leadwood (*Combretum imberbe*), and mopane (*Colophospermum mopane*) most highly valued species, contributing 22.4% to the overall value of local biodiversity
- >50% of local biodiversity value tied up in only 18 taxa
- although being utilised in only one resource use category, mopane caterpillar (*Imbrasia bellina*) and blue buffalo grass (*Cenchrus ciliarus*) are particularly highly valued

Local User's Value (LUVct) of flora and fauna taxon identified in PDMs

Relationship between LUVct & ResCat: $r=0.734$, $p<0.001$, $N=162$





marula / nkanyi / *Sclerocarya birrea caffra*: LUVct = 0.09591; ResCat = 7



Species collected/utilised by local communities and under enhanced protection according to IUCN and/or national legislation

FLORA						
English	Latin	National Forests Act 1998 ^a	IUCN Classification ^b	LEMA 2003 Classification ^c	LUVct Score	
baobab	<i>Adansonia digitata</i>	protected		protected	0.00102	
pod mahogany	<i>Azelia quanzensis</i>	protected			0.00640	
green thorn / torchwood	<i>Balanites maughamii</i>	protected			0.00093	
yellow peeling plane	<i>Brackenridgea zanguebarica</i>			protected	0.00480	
variable bushwillow	<i>Combretum collinum taborense</i>			protected	0.00448	
leadwood	<i>Combretum imberbe</i>	protected			0.06836	
zebra-wood	<i>Dalbergia melanoxylon</i>		lower risk; near threatened (1994)		0.01002	
marula	<i>Sclerocarya birrea caffra</i>	protected			0.09591	
tamboti	<i>Spirostachys africanus</i>			protected	0.00531	
pepper-bark tree	<i>Warburgia salutaris</i>	protected	endangered (1994)	protected	0.00280	
Sub-total					0.20003	
FAUNA						
English	Latin	IUCN Classification ^d	IUCN Classification ^b	LEMA 2003 Classification ^c	DEAT 2005 Draft List ^e	LUVct Score
Mammalia						
cheetah	<i>Acinonyx jubatus</i>	vulnerable	vulnerable (2001)	protected	vulnerable	0.00102
impala	<i>Aepyceros melampus</i>	least concern	lower risk; conservation dependant (1994)	game		0.01102
side-striped jackal	<i>Canis adustus</i>	near threatened	least concern (2001)	protected		0.00027
caracal	<i>Caracal caracal</i>	least concern	least concern (2001)	game	protected	0.00152
African civet	<i>Civettictis civetta</i>	least concern	lower risk; least concern (1994)	protected		0.00033
spotted hyena	<i>Crocuta crocuta</i>	near threatened	lower risk; conservation dependant (1994)	protected	protected	0.00464
plains zebra	<i>Equus burchelli</i>	least concern	least concern (2001)	game		0.00399
African wild cat	<i>Felis silvestris</i>	least concern	least concern (2001)	protected		0.00056
sable antelope	<i>Hippotragus niger niger</i>	vulnerable	lower risk; conservation dependant (1994)	protected		0.00320
serval cat	<i>Leptailurus serval</i>	near threatened	least concern (2001)	protected	protected	0.00098
scrub hare	<i>Lepus saxatilis</i>	least concern	lower risk; least concern (1994)	game		0.00556
African elephant	<i>Loxodonta africana</i>	least concern	vulnerable (2001)	pecially protected		0.00705
honey badger	<i>Mellivora capensis</i>	near threatened	lower risk; least concern (1994)	protected	protected	0.00139
lion	<i>Panthera leo</i>	vulnerable	vulnerable (2001)	protected	vulnerable	0.00328
leopard	<i>Panthera pardus</i>	least concern	least concern (2001)	protected	vulnerable	0.01544
steenbok	<i>Raphicerus campestris</i>	least concern	lower risk; least concern (1994)	protected		0.01095
common duiker	<i>Sylvicapra grimmia</i>	least concern	lower risk; least concern (1994)	game	protected	0.00785
Cape buffalo	<i>Syncerus caffer</i>	least concern	lower risk; conservation dependant (1994)	protected		0.01073
bushbuck	<i>Tragelaphus scriptus</i>	least concern	lower risk; least concern (1994)	game		0.00149
kudu	<i>Tragelaphus strepsiceros</i>	least concern	lower risk; conservation dependant (1994)	game		0.00891
Sub-total					0.10018	

...cont'd

English	Latin	IUCN Classification ^d	IUCN Classification ^b	LEMA 2003 Classification ^c	DEAT 2005 Draft List ^e	LUVct Score
Aves						
korhaans	<i>Eupodotis spp.</i>			various levels depending on species		0.00093
falcons / hawks	<i>Falconidae / Accipitridae</i>			various levels depending on species		0.00060
francolins	<i>Francolinus spp.</i>			game		0.00155
helmeted guinea-fowl	<i>Numida meleagris</i>		least concern (2001)	game		0.00490
hornbills	<i>Tockus spp.</i>			protected		0.00217
Sub-total						0.01015
Amphibia / Reptilia						
African rock python	<i>Python sebae</i>			protected		0.00391
African bull frog	<i>Pyxicephalusadspersus</i>		least concern (2001)	protected	protected	0.00108
leopard tortoise	<i>Testudo pardalis</i>			protected		0.00167
Sub-total						0.00666
TOTAL						0.31702

^a Govt. Gazette Notice 1012 of 27 August 2004, National Forests Act no 84 of 1998.

^b IUCN. 2004. 2004 IUCN Red List of Threatened Species. [on-line] accessed 4 January 2005 at <http://www.redlist.org>

^c Limpopo Environmental Management Act No. 7 of 2003

^d Friedmann, Yolán (chief editor). 2004. Red data book of the mammals of South Africa: a conservation assessment. Endangered Wildlife Trust and CBSG (IUCN/SSC), 716pp.

^e DEAT. 2005. Draft lists of threatened and protected species issued in terms of Section 56(1) of National Environmental Management: Biodiversity Act 2004. Published 18/02/2005.

Implications

Landscapes

- 1) need to recognize widespread use of landscapes in sustaining local livelihoods
- 2) need to acknowledge community heterogeneity with respect to resource access and use
- 3) relative importance of forest/bush and river/stream habitats

Flora & fauna

- 1) local realities and externally defined priorities often differ with respect to value and use of natural resources
- 2) conflicts over resource users and 'protectors' inevitable and enhanced by poor understanding
- 3) resource exploitation must be understood in wider context

Thank you !!!



Research Partners

- ❖ Environmental Sciences & Policy Dept., Central European University
- ❖ People and Conservation Department, KNP
- ❖ Traditional Authorities in Mapophe, Peninghotsa and Ndindani villages
- ❖ Hlanganani Forum (Section 21 Company)