Wildlife conservancies and pastoral livelihoods in the Maasai Mara, Kenya

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The study

- How do conservancies contribute to pastoral livelihoods?
  - Participation in conservancies
  - Comparison of livelihood income sources
  - Impact of conservancies on wealth
- How do conservancies alter land use activities?
  - Impact on livestock grazing
  - Impact on Maasai settlements

Methods

- Household questionnaire (258hhs)
- Semi-structured interviews (60)
- Participant observation
- Analysis of SPOT 5 satellite images for settlements

How do conservancies contribute to pastoral livelihoods?

1. Participation in conservancies

- Most households (80%) own some land
- Half of households sampled were a member of at least one conservancy (Table 1)
- A few households members of 2 or 3 different conservancies
- Gender: <1% of members were female
- Status: Those in a leadership position more commonly conservancy members (Table 2)

Table 1

Household conservancy membership status	Number of households (n=258)	Percentage of households
Conservancy members	133	52%
Conservancy non-members	125	48%
Member of 1 conservancy	111	43%
Member of 2 conservancies	21	8%
Member of 3 conservancies	1	<1%

Table 2

Leadership position (n=258)	Households with a conservancy member
Major (25)	88% (n=22)
Minor (29)	55% (n=16)
None (209)	47% (n=95)

How do conservancies contribute to pastoral livelihoods?

2. Income

- Conservancies contribute 14% of total income to all households sampled. Livestock most important (Figure 1).
- Conservancies provide 21% of income for those involved (Figure 2).
- Level of income has doubled since 2004 (Thompson et al., 2009).

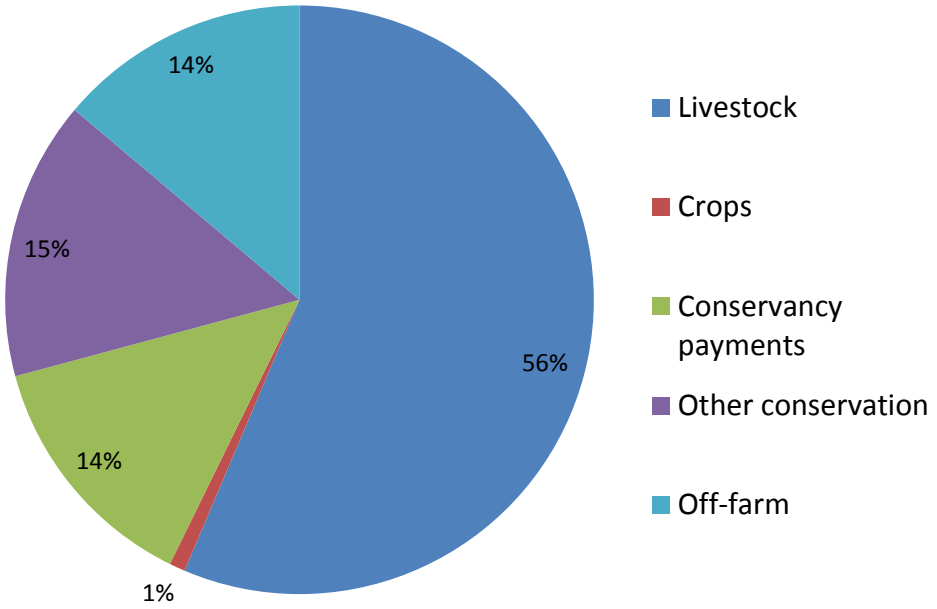


Figure 1: Contribution of livelihood activities to total annual household income (n=258)

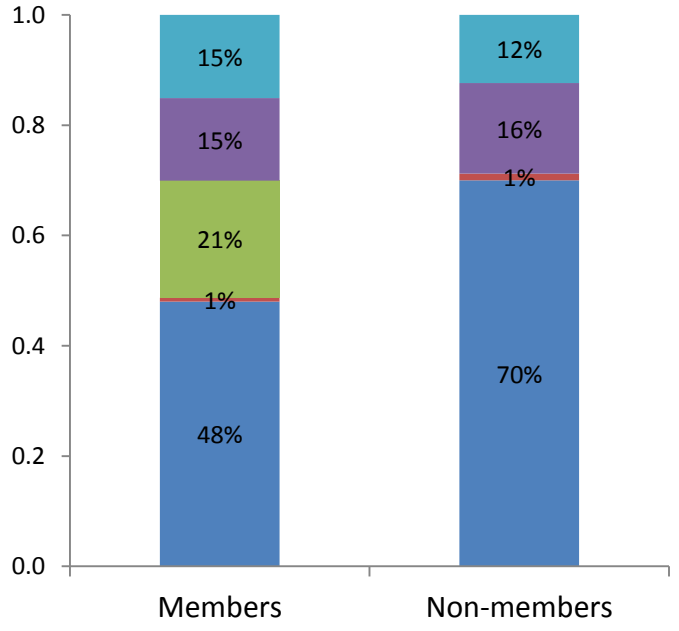


Figure 2: Proportion of annual household income from different activities disaggregated to conservancy members and non-member households

How do conservancies contribute to pastoral livelihoods?

3. Impact of participation on wealth

- To assess the impact of conservancies on household wealth it's important to control for confounding factors.
- 'Matching' selects households on the basis of similar characteristics to compare members and non-members in terms of income, assets and expenditure

- Household characteristics used in matching:
  - Total land size owned - Size of household
  - Household head age - Distance to town
  - Household head year of education - Distance to reserve
  - Household head leadership status - Distance to conservancy

How do conservancies contribute to pastoral livelihoods?

3. Impact of participation on wealth

Wealth variables	Before matching			Matched pairs		
	Members	Non-members	t-test	Members	Non-members	t-test
No. of livestock, TLUs	76.6	71.8	0.494	70.3	96.4	**-1.807***
Total income	427389	317041	**2.285****	414546	413775	0.012
Livestock income	195997	216574	-0.550	193442	285533	-1.429
Cultivation income	2860	4355	-0.619	2920	3588	0.237
Off-farm income	125980	80423	**2.773****	120538	105411	0.651
Off-farm conservation income	63110	40192	**2.135****	57174	59530	-0.167
Off-farm non-conservation income	62871	40231	**1.735***	63364	45881	0.932
Number of off-farm activities	1.58	1.49	0.525	1.54	1.91	**-1.854***
Household monthly expenditure	27186	19107	**2.573****	26592	21541	1.100
Asset Index	0.96	0.82	**1.751***	0.95	0.90	0.518
Housing Quality Index	3.05	2.03	**1.949***	3.09	2.27	1.182

* Significant at 10% level ** Significant at 5% level

How do conservancies contribute to pastoral livelihoods?

3. Impact of participation on wealth

- Comparing households without prior matching suggests significant differences in wealth between conservancy member and non-member households.
- Using matched pairs, most of these differences fall away.
- Some of the original effect was due to confounding influences, not to conservancy membership

How do conservancies alter land use?

Conservancy restrictions on livestock grazing and settlements

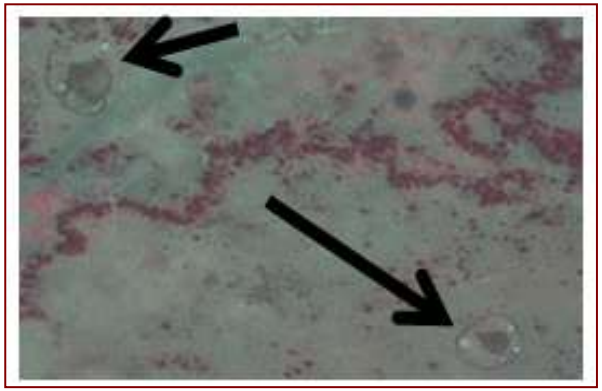
How do conservancies alter land use?

Identifying pastoral settlements using satellite imagery

With Zipporah Musyimi and Jan de Leeuw

- Innovative technique
- eCognition software identifies settlements
  - 2.5m resolution SPOT 5 satellite images
  - Mara, 2006 and 2011.
- object based image analysis, two step process:
  - 1) Identifying livestock enclosure (boma) through presence of dung
  - 2) Identifying iron-roofed surrounding houses

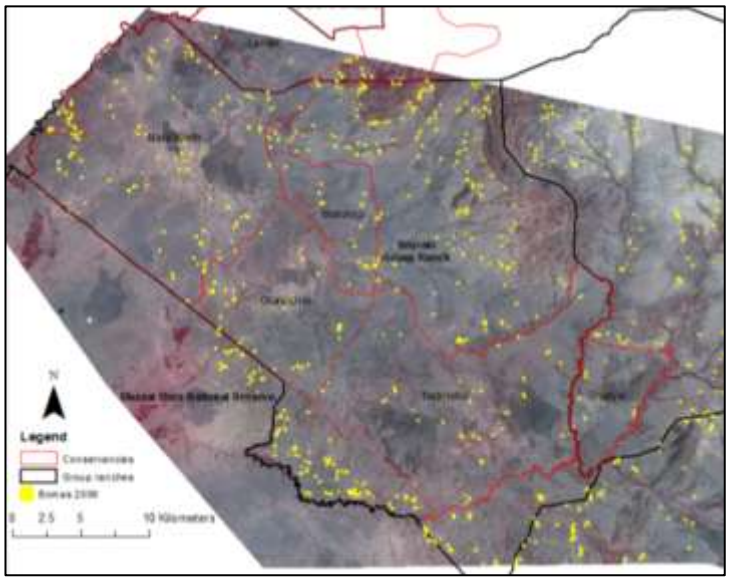
Typical Maasai settlement



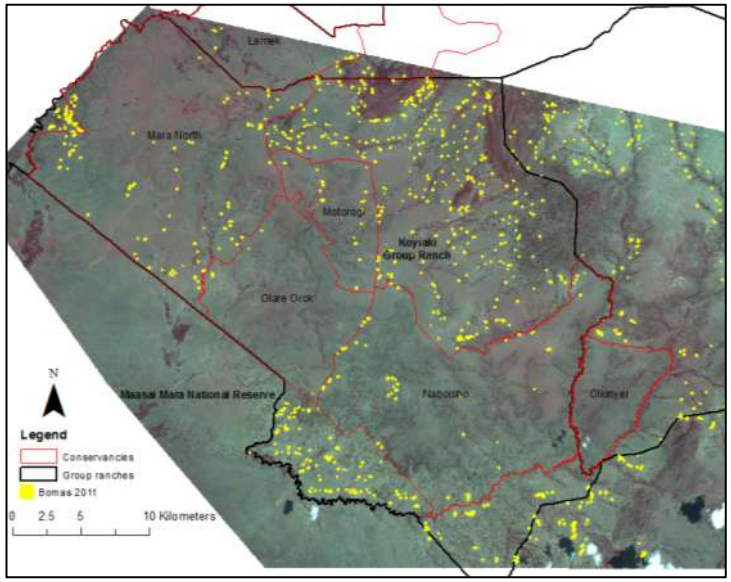
Settlement as seen from 2.5m SPOT 5 image

How do conservancies affect distribution and density of Maasai bomas inside and outside conservancies, before and after conservancy set up

With Zipporah Musyimi and Jan de Leeuw



2006 - 'before'



2011 – 'after'

Table: Difference in bomas from 2006-2011 inside and outside of conservancies in Koyiaki Group Ranch

Total area analysed (Koyiaki GR)	2006 Bomas (%)	Density (Bomas/km2)	2011 Bomas (%)	Density (Bomas/km2)	% change in density
Total area	580 (100)	0.591	800 (100)	0.815	+37.9%
Bomas in a conservancy	229 (39)	0.383	188 (23)	0.315	-17.9%
Bomas out of a conservancy	351 (61)	0.915	612 (77)	1.595	+74.4%

Discussion

Positives

- Higher incomes
- Guaranteed rent - buffers tourism shocks, droughts
- More equitable sharing of revenues
- Land sales decrease -reducing fragmentation

VS.

Negatives

- Non-participants
- Land-based
- Loss of access and use for grazing
- Enforcement and fines
- Settlement displacement
- Wider knock-on environmental impacts

➡ Livelihood trade-offs

➡ Evaluation suggests underlying differences between conservancy members and non-members.

➡ How replicable?

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UCL

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