# Evaluating the impact of Tanzania's Wildlife Management Areas

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# Tanzania
Background to the study

**Tanzania's natural resources**
- High biodiversity, iconic wildlife populations
- Widespread poverty, esp. rural areas
- ~30% of GDP, esp. agriculture and tourism
- …but GDP misses most pastoral production
- 75% of population dependent
- High tourism potential

**Challenges**
- Poor governance
- Low resource management capacity
- Inequitable access and income sharing
- High levels of poaching

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# Tanzania
Conservation policy

**Conservation in Tanzania**
- Currently 16 National Parks
- ~35-40% of country under some form of protection
- Land seizure and forced resettlement
- 1974 Wildlife Conservation Act: State control
- 1998 Wildlife Policy of Tanzania (rev. 2007): Local community participation
- 2002 WMA regulations developed
- 2003 Implementation started
- 2006-7 First pilot WMAs registered

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# Wildlife Management Areas
Process and current status
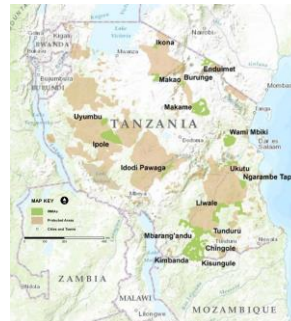


**WMA process:**
- Villages set aside land for wildlife
- Elect community management organisation
- Land use plans; Bylaws & regulations; Resource Zone Management Plan
- Director of Wildlife approval and granting user rights

**Status:**
- 19 WMAs in operation
- 148 villages
- >450,000 people
- 38 planned in total
- Will cover 7% of land area

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# The PIMA Project
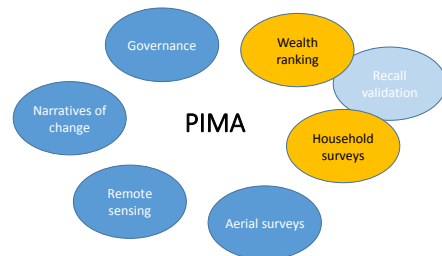Evaluating Tanzania's WMAs

**WMA objectives:**

*"increase participation of local communities in management of wildlife resources; enable local communities to derive benefits from wildlife resources; and enhance conservation of wildlife resources"*

**PIMA research question:**

*What are the social and ecological outcomes of WMAs?*

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# Data collection approaches
Mixed methods



PIMA
- Governance
- Wealth ranking
- Recall validation
- Narratives of change
- Household surveys
- Remote sensing
- Aerial surveys

## Impact Evaluation
### Common challenges for conservation

**Why is it hard to evaluate conservation?**
- Experiments are rarely possible
- Interventions cannot always be replicated
- Many interventions occurring together
- Complex histories
- Lack of baselines
- Lack of "controls"…
- Multiple outcomes of interest
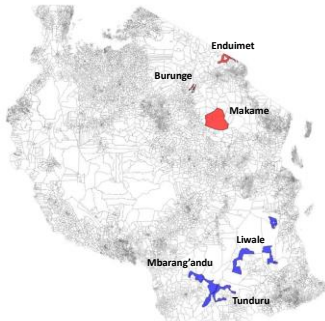- Some outcomes multidimensional (e.g. wellbeing)



## Impact Evaluation
### BACI comparison
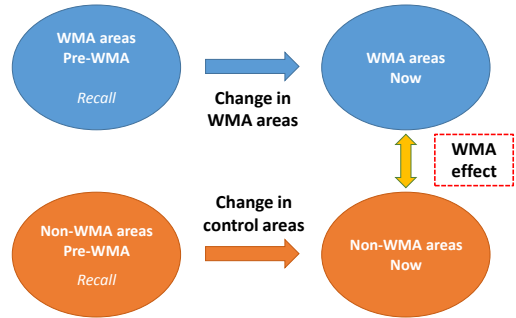


## Study areas



**6 WMAs selected:**
- North vs. South
- Existing data
- (+ Familiarity)

**8 villages per WMA:**
- 4 inside
- 4 outside
- Sampling frame: EAs from 2002 census
- Matched controls

## Wealth data and analysis

**Wealth ranking dataset**
- 13,573 households, 42 villages
- Participatory wealth ranking
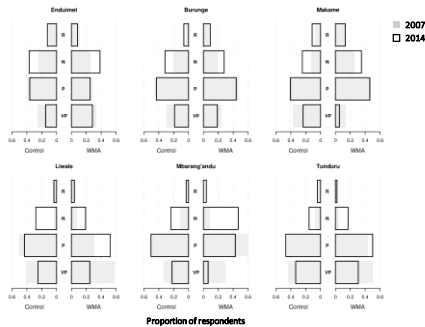- Recall relative to anchor events (e.g. Ol Doinyo Lengai)

**Analysis:**
- Bayesian hierarchical cumulative logit
- Response = wealth category (ordered: Very poor < Poor < Normal < Rich)
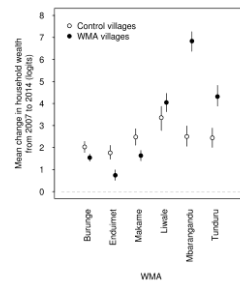- Village-varying coefficients
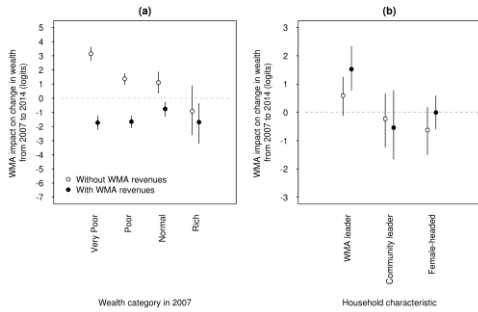


## Wealth change
### Raw wealth ranking data



## Wealth change
### Comparison between WMAs and controls
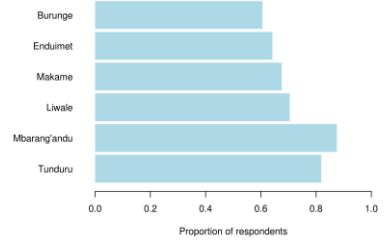
## Wealth change
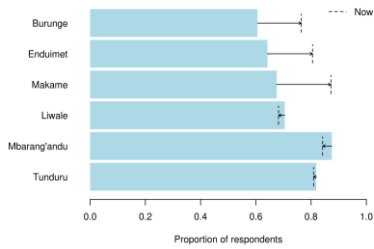Household-level WMA effects



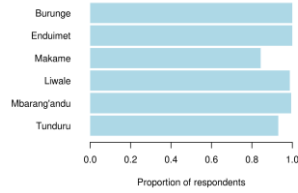## Acceptance of WMAs
Initially…



## Acceptance of WMAs
…and Now



## Community benefits
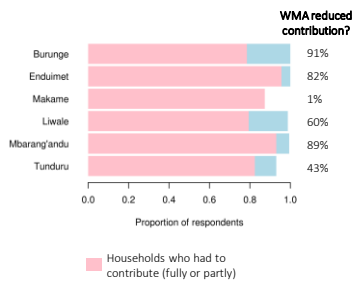Public development projects



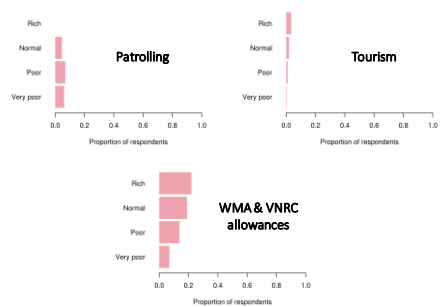Primary or secondary school built
or repaired since 2007?

## Community benefits
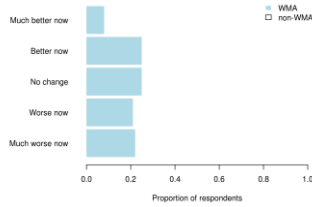Public development projects



Households who had to
contribute (fully or partly)

## Direct household income
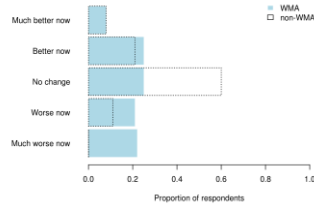Frequency and distribution by wealth
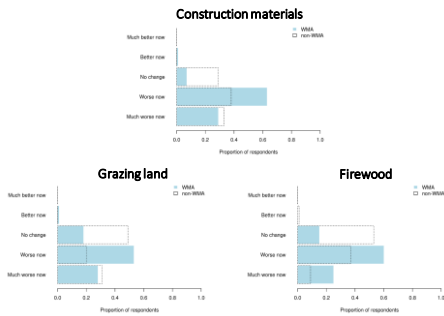
## Costs: Burunge
Change in crop damage



## Costs: Burunge
Change in crop damage



## Costs: Burunge
Change in access to natural resources



## Discussion
What does this all mean?

**WMA objectives:**

*"increase participation of local communities in management of wildlife resources; enable local communities to derive benefits from wildlife resources; and enhance conservation of wildlife resources"*

**PIMA research question:**

*What are the social and ecological outcomes of WMAs?*

## Discussion
What does this all mean?

**Have WMAs helped people?**
- Mixed: 3 Worse, 1 No change, 2 Better
- Also village-by-village variation
- Differences btw. revenue/not and age

**With tourism revenue**
- Generally worse-off: loss of opportunities not fully compensated
- WMA leadership have benefitted
- Elite capture?

**Without tourism revenue**
- Generally better-off
- Philanthropy?
- Unlikely to be sustainable

## Discussion
What does this all mean?

**Benefits of WMAs?**
- Community-level projects
- Secure dry-season grazing
- Regulate access/use of resources
- Secure land tenure

**Room for improvement**
- High costs
- Excessively technical process
- Lack of proper participation: really **C**BNRM?
- Favours government and investors over local communities

# Next steps

**Continuing analysis**
- Qualitative narratives
- Linking wealth analysis to household-level samples
- …and exploring governance further
- Exploring gender differences
- Linking to social to ecological outcomes