The Impact Of Wildlife Conservation Policies On Rural Welfare In Zambia

Natural Resource Management
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OUTLINE

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Zambia National Parks &
Game Management Areas
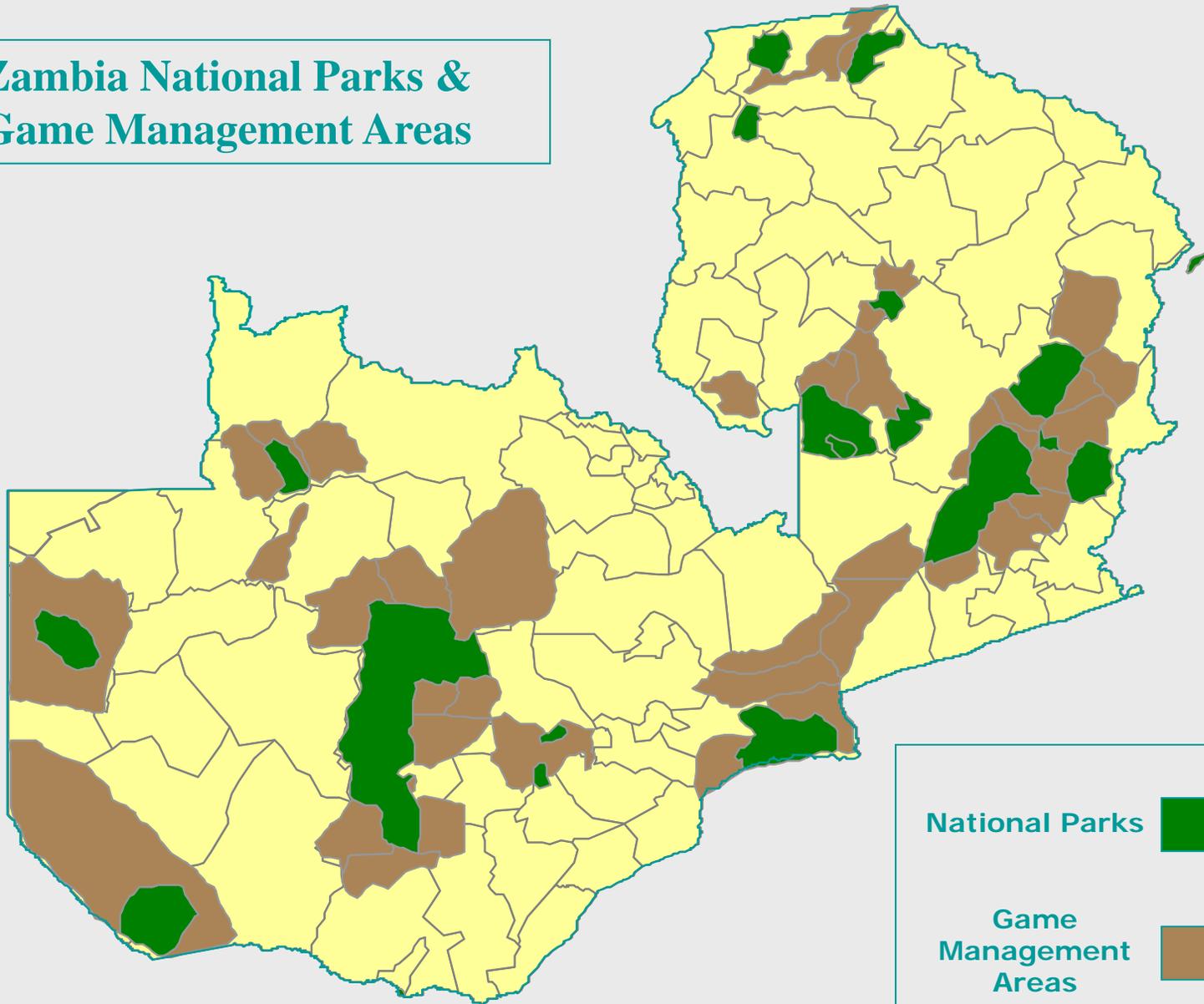
National Parks

Game
Management
Areas

Game Management Areas

- Zambia Wildlife Authority (ZAWA)
- Shares hunting license revenues and wildlife management responsibilities with communities
  - Community Resource Boards (CRBs)
  - Village Action Groups (VAGs)
- CBNRM: dual objectives of wildlife conservation and rural development
  - Employment of village scouts
 - Development projects

Impact of Game Management Areas

◆ Benefits
  – Rural employment
  – Revenue sharing
  – Meat distributed after hunting
  – Development projects
◆ Crop damage
◆ Opportunity cost of alternative land uses

Three Research Questions

1. What is the effect of GMAs on household income?

2. What are the *sources* of income that generate the GMA effect?

3. What are the effects of GMAs on crop losses from wildlife damage?
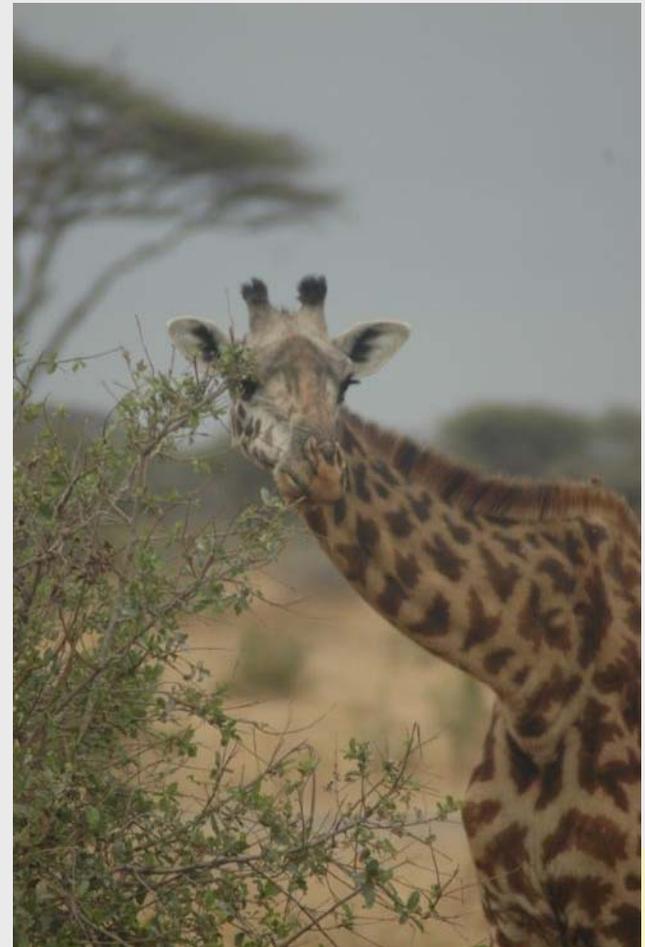
Data and Methods

◆ Rural household survey

◆ 139 statistical enumeration areas (SEAs) adjacent to four national park systems

◆ 2,800 households selected
  – About half GMA and non-GMA (control)
  – Only about 32 non-response (1.1%)

◆ Two statistical methods
  1. Ordinary least squares (OLS) regression (determinants of household income)
  2. Double-hurdle regression (probability and value of employment, crop losses)

1. GMA Effect on Income

◆ What is the effect of GMAs on household income?

◆ Ordinary least squares regression to estimate the determinants of household income

– Function of household and community characteristics (such as education, size of household, assets, infrastructure)

– Included a variable representing whether the household lives in a GMA

1. GMA Effect on Income
(continued)

◆ GMA households have lower average income
- – Also more remote, less education, fewer assets

◆ Households in prime GMAs have 17% higher income than households in other rural areas, controlling for other factors
- – The presence of a tourist lodge in the SEA contributes another 18% of household income

◆ Gains from living in a prime GMA accrue to wealthiest 40% of the population

2. Sources of Income

◆ What are the *sources* of income that generate the GMA effect?

◆ Double-hurdle regression to estimate

1. the probability of earning income from wage employment

2. the determinants of wage income

◆ Same approach for self-employment income

2. Sources of Income
(continued)

◆ Households in prime GMAs are 7.8% more likely to be employed

– Households in secondary or specialized GMAs are 7.4% more likely to report wage income

– Households in communities where there is a tourist lodge are 6.6% more likely

◆ Households in prime GMAs can be expected to earn 116% more on average from wage employment

2. Sources of Income
(continued)

◆ Households in prime GMAs are 6.9% more likely to report income from self employment

  – Effect is less than for wage income

  – Household size (number of children and adults) and infrastructure also contribute to self-employment income

3. GMA Effect on Crop Losses

◆ What are the effects of GMAs on crop losses from wildlife damage?

◆ Double-hurdle regression to estimate

1. the probability of incurring crop losses from wildlife damages

2. the determinants of the value of crop losses

3. GMA Effect on Crop Losses
(continued)

◆ Households in prime GMAs are 16.1% more likely to experience crop damages

- – Households in secondary or specialized GMAs are 12.2% more likely to report crop damages

◆ Households in GMAs are expected to incur greater losses from crop damage (average = Kw 30,079)

- – Effect is greater in prime GMAs

Conclusions

◆ Prime GMAs and tourist lodges contribute positively to rural household income

– Gains accrue primarily to non-poor households

– GMA effect is positively associated with income from wage and self employment

– Policies to build capacity for participation by poor households?

◆ Households in prime GMAs are positively associated with both probability and value of crop damage losses

– Suggests broader role for village scouts to curb crop damage

– Mechanism for compensating farmers for losses?

Next Steps

◆ From ADMADE lessons-learned paper "CBNRM Institutions in Zambia: Building on a Decade of Experience (2000)"...lack of evidence of success of CBNRM programs because:

  – Policies constrain resource benefits and use rights for local land owners

  – Poverty and food security not adequately addressed

  – Institutional organizations limit household participation

(African College for CBNRM, 2000)