Problem

- Efforts to conserve important ecosystems AND protect human livelihoods often result in **conflict**
  - Conservation efforts may generate economic benefits & sustain critical ecosystem services in impoverished communities (Balmford et al. 2002; Brockington et al. 2006; Kruger 2005)
  - BUT… conservation efforts may also lead to restricted resource access, negative attitudes, and distrust of program goals & objectives (Coria & Calfucura 2012; Naughton-Treves et al. 2005; Stern 2008)

- Growing need to understand factors that influence community-based conservation & associated potential for conflict, particularly in developing countries
Sierra Leone

- Ranked 180/187 HDI
- Life expectancy: 47.8
- High infant mortality
- Majority population living on <$2/day
- Recovering from 11 year civil war
Methods: Study Area

- Tiwai Island Wildlife Sanctuary (TIWS), Sierra Leone
  - Part of West Africa’s Upper Guinea Forests, a global biodiversity hotspot
  - Owned by 8 host communities who share annual profits from research/tourism
  - Location of targeted outreach efforts (in 2009) related to local research & conservation projects
Methods: Study Area

Legend
- ▲ Host Villages
- ● Other Villages
- ■ Tiwai Island
- ○ Other Islands
- □ Moa River

Sierra Leone
- Northern Province
- Eastern Province
- Southern Province
- Tiwai Island

Kambui Hills
- Serabu
- Njagbema
- Bogboabu
- Baoma-Koya
- Gola Forest

Jenee
- Ngeima
- Segbema
- Mapuma
Methods: Data Collection

- During 2010, systematically surveyed people in 18 villages within 10km of TIWS, including 8 host communities (n = 364)
  - Surveys conducted in local language (Mende) with trained interpreters

- Questions focused on 3 areas (Scale: -1=disagree, 0=unsure, 1=agree):
  - Resource use/extraction within TIWS
  - Benefits associated with conservation at TIWS
  - Overall support for protection of TIWS
Methods: Data Analysis

- Data were analyzed using SPSS v 22.0
  - Non-parametric tests for discrete choice data, parametric tests for continuous scalar data, OLS and logistic regression models to evaluate the influence of multiple predictors on attitudes.

- Potential for conflict measured using PCI$^2$, which uses a variable’s central tendency & dispersion to provide insight into stakeholder consensus or disagreement (Vaske et al. 2010).
Results: Demographics

- Overall survey sample was similar to other parts of rural Sierra Leone where most people are farmers with large families and relatively low levels of education.

- Demographics of respondents in the host and non-host villages were also similar.

- Participation rates were comparable across all villages (ranging from 12 to 30 participants per site).
Results: Resource Use

KEY: Host Villages  Non-host Villages

Should resource use be allowed at TIWS?

- Hunting
- Farming
- Diamond Mining
- Logging
Results: Benefits

KEY: Host Villages  Non-host Villages

Conservation at TIWS
Benefits Local Villages
TIWS Should
Be Protected
Results: Benefits

Benefits EFA Provides to Local Villages

- Building infrastructure: 16.5%
- Giving money: 72.8%
- Attracting visitors: 53.6%
- Creating jobs: 32.0%
- Providing skills training: 23.2%
- Managing TWS: 34.4%
- Providing env. education: 0.0%
- Protecting forests: 2.5%
- Benefits provided to host villages: 5.6%
- Benefits provided to non-host villages: 1.2%
- Nothing: 9.1%
Summary of Results

- Most respondents believed that:
  - TIWS should be protected
  - Resource use/extraction within TIWS should be restricted (logging generated the most controversy)

- However, perceptions regarding conservation benefits of TIWS varied significantly between host and non-host communities, producing a high potential for conflict.
Discussion

• **Perceptions of Conservation-related Benefits**
  • *Community status* was best predictor of *positive* conservation benefit perceptions.
  • Other predictors included *occupation* (farmers less likely to perceive benefits) and *resident status* (native to area more likely to perceive benefits).

• **Attitudes toward Resource Use**
  • While respondents were generally opposed to resource use, individuals living in *host communities* were significantly *more likely to support* TIWS protection and *less likely to support* resource use than those in non-host communities.
Discussion

• **Differences between Host and Non-host Communities**
  • Demographics do **not** explain the observed differences between communities.
  • Differential income and resource allocation may play large role.
  • Although difference in spatial proximity to TIWS were trivial, geography could be a factor – natural barriers to information exchange.
  • **Community cohesion**, demonstrated by overall consensus, was **stronger** in host communities.
  • Sense of ownership in host communities may also impact attitudes.
Implications

➢ Need to explicitly account for stakeholder input in conservation projects & extend assessments beyond PA boundaries.

➢ Need to directly assess and address conflicts that arise around PAs

➢ Non-financial benefits should be considered to help non-host communities feel connected/responsible.

➢ Communication and outreach efforts in local communities could be used to increase support for & reduce conflict associated with conservation projects.
Future Research Questions

1. What spatial, ecological & sociocultural factors contribute to community-based conservation conflicts? How do these conflicts emerge and how can they be resolved?

2. What specific types of communication/messaging & outreach programs are effective in building support for conservation & conflict mitigation in similar contexts? What types of management structures may be required to enhance conservation success?

2. What effect (if any) are specific interventions (targeted education and information campaigns) having on conservation oriented conflict?
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