

Attitudes Toward and Participation in Women's Conservation Programs in Belize

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Deforestation

- **15-20% of the released CO₂ each year** (Buis and Cole 2011)
- **Occurring most heavily in developing countries**
- **Forests store large amounts of CO₂**
- **Trees capture already released CO₂**



Community-Based Conservation (CBC)

- Empowerment of Locals
- Relationship between the biodiversity of the area and the livelihood of the locals should provide an incentive for conservation (Brown 2002)



Community-Based Conservation

- **Benefits**

- **sense of pride**
- **ownership of the forest**
- **augment incomes**
- **strengthen local governments**
- **empower the poor**
- **reduce local conflicts**
- **influence people to conserve rather than overexploit the resources**
- **reduces deforestation rates compared to government run programs**



(Thompson 2013, Porter-Bolland, Ellis et al. 2012, Getz, Fortmann et al. 1999, Berkes 2004)



Women

- **Have a special relationship with nature**
 - Largely overlooked in conservation efforts
- **Their participation is lacking in CBC**
- **Environmental degradation hits poor women the hardest**

(Steady 1998, Jackson 1993, Davidson 1989)



Women's CBC

- **Show greater improvement in forest condition on all indicators**
- **Improve rule compliance**
- **Improve forest protection**
- **Better collaboration**
- **More solidarity**
- **Better conflict resolution**

(Agarwal 2009, Westermann, Ashby et al. 2005, Molinas 1998)

Belize, Central America





Belize

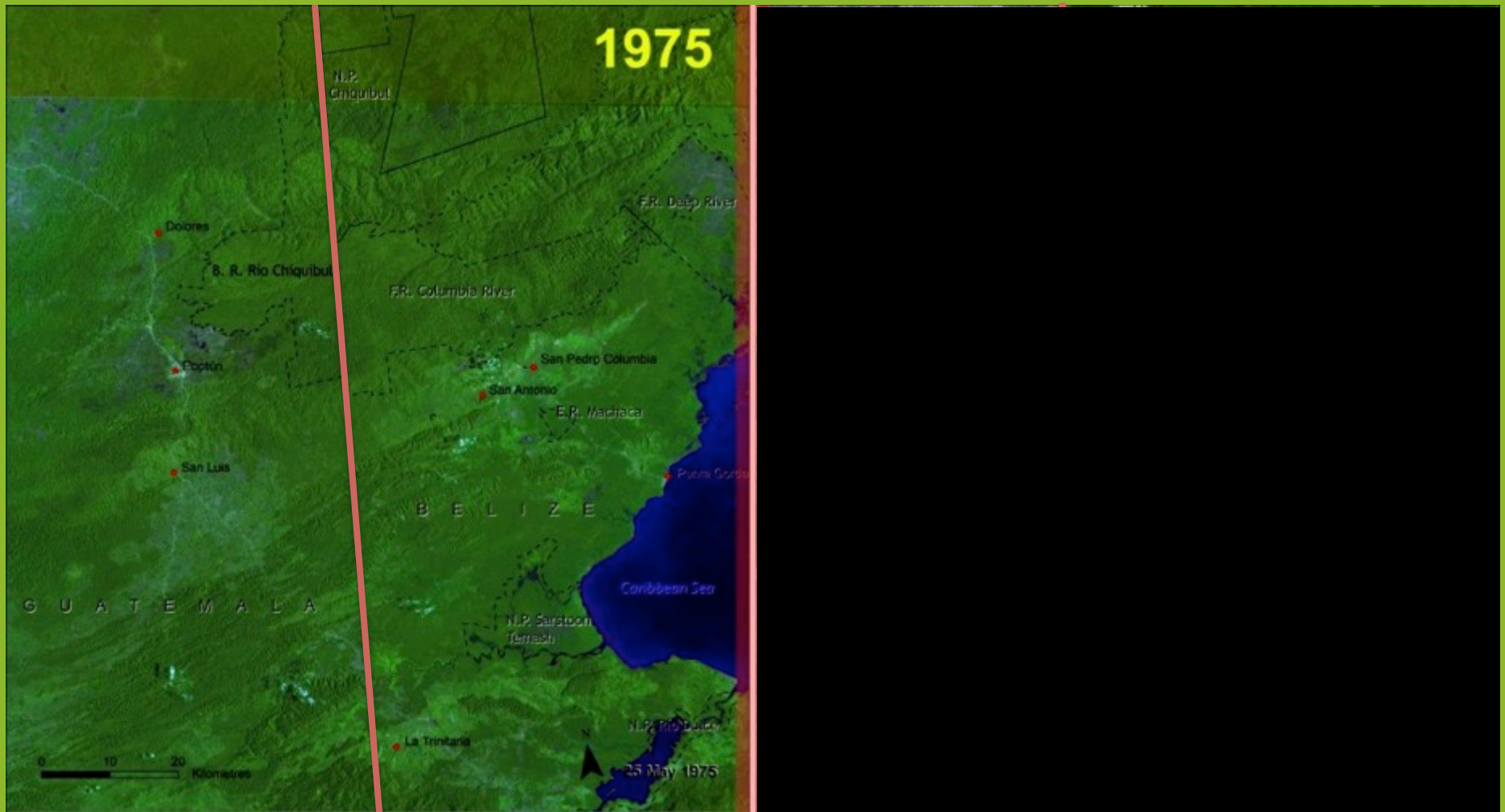


- ~63% Forested
- Lost 477,000 acres in the last 20 years
 - Change to agricultural land
 - Illegal logging
- Many **threatened** and **endangered** tropical and migratory species
- **55 endemic** species

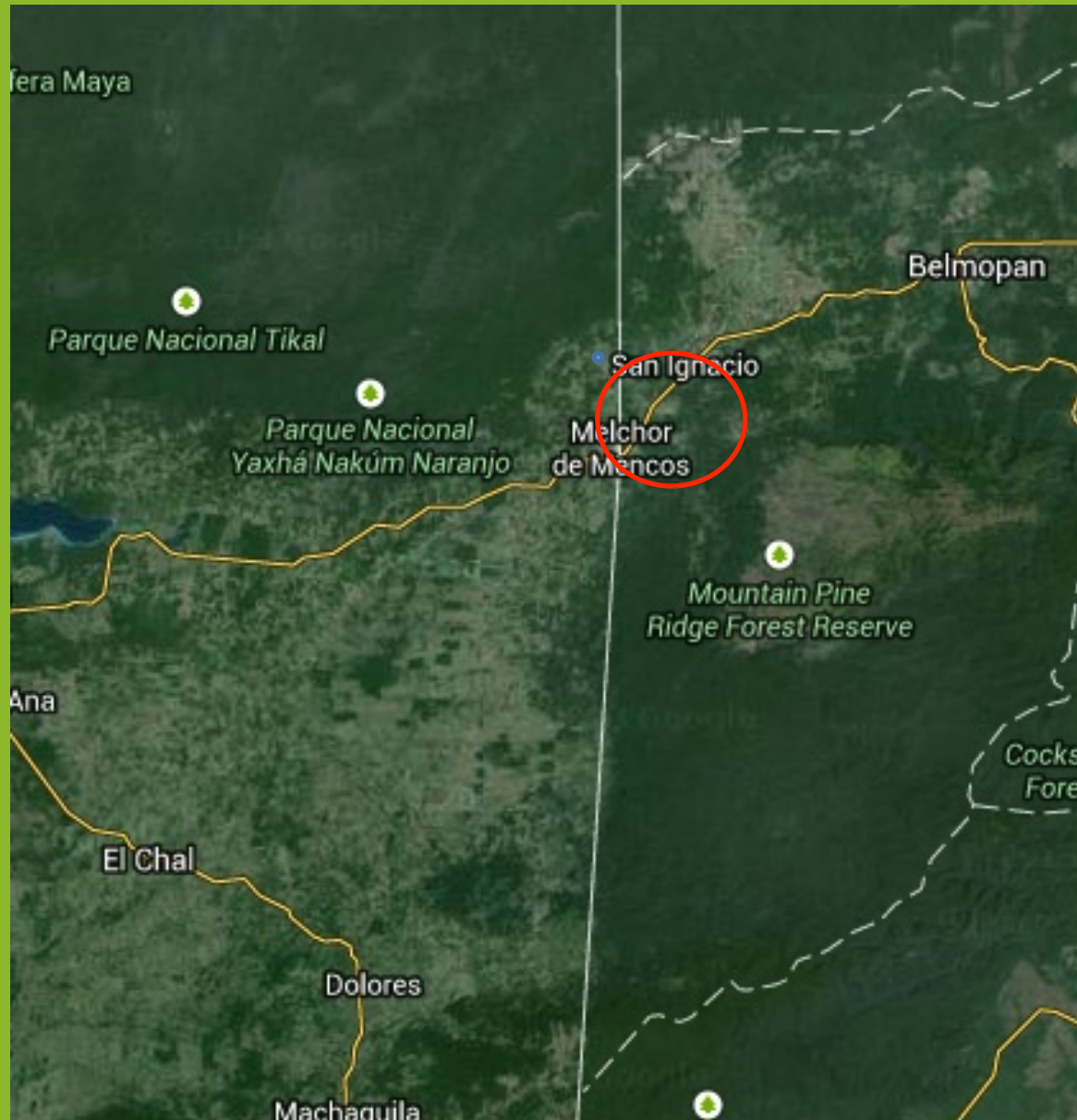
(FAO 2011, Arevalo and Chan 2012)



Deforestation

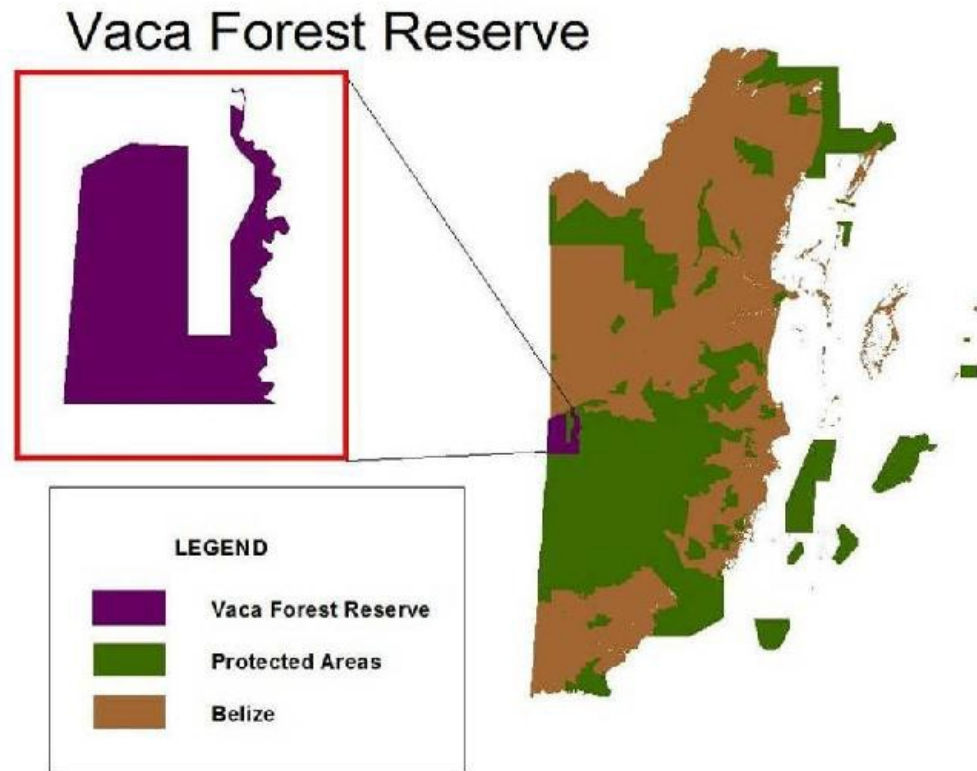


Research Area



The Vaca Forest Reserve (The Vaca)

35,701 Acres



“to maintain adequate stock of renewable natural resources for sustainable use by the local communities and contribute to the national economy”

(Manzanero and Melendez 2013)



The Vaca

- **Deforestation**
 - Illegal logging by Guatemalans
 - Six million board feet
 - 9.5 million dollars
 - Habitat loss
- **Mahogany and Cedar Trees**

(Arevalo and Chan 2012)



Friends of the Vaca Forest Reserve (FVFR)

- Local CBC
- Apiculture
- Agro-ecological methods of farming
- Reforestation
- Composting
- Soil conservation technique

(Manzanero and Melendez 2013)



Women and FVFR

- **Only 3 women currently involved**
- **Research suggests more positive outcomes with women's involvement**
- **CBC aimed at women needed in the Vaca**



Goal

Identify specific projects the women could develop to help the local CBC program.



Research Objectives

- 1. Identify the attitudes and barriers to the participation of women in CBC efforts in the area. (Qualitative)**
- 2. Quantify the attitudes and barriers to women's participation. (Quantitative)**
- 3. Complete a cost/benefit analysis of the proposed product to be sustainably harvested.**



Methods

2. Quantify the attitudes and barriers to women's participation.

- I. Quantitative Surveys
- II. Created from the interview data
- III. Collected on iPads using the iSurvey program
- IV. Stratified block samples
- V. 1 women from house



Methods

3. Complete a cost/benefit analysis of the proposed product to be sustainably harvested.



- **Determine**
 - Harvest time/difficulty
 - Processing time
 - Sell price



Analysis

1. Identify the attitudes and barriers (Interview data)

- Code data
- Determine emergent themes
- Summarize themes and select exemplary quotes

2. Quantify the attitudes and barriers (Survey data)

- Exploratory factor analysis and Cronbach's alpha to assess reliability of attitude and other scales
- ANOVA and Likelihood ratio among communities
- Multiple linear regression to predict women's intent to participate in selected CBC activities

Outreach and Broader Impacts

Help the local governments, NGO's, and locals design a successful program for women's participation in the local CBC program.



References

- Manzanero, R. and A. Melendez (2013). "Evolution of a new management alternative in the Vaca Forest Reserve." Arevalo, B. and D. Chan (2012). "Mitigating and Controlling Illegal Logging in the Chiquibul Forest." FAO, U. (2011). "FAOSTAT database." Website UN FAO.
- Thompson, P. M. (2013). "Sustainability of community-based organizations in Bangladesh." Society & Natural Resources 26(7): 778-794.
- Porter-Bolland, L., et al. (2012). "Community managed forests and forest protected areas: An assessment of their conservation effectiveness across the tropics." Forest Ecology and Management 268: 6-17.
- Getz, W. M., et al. (1999). "Sustaining natural and human capital: villagers and scientists." Science(Washington) 283(5409): 1855-1856.
- Berkes, F. (2004). "Rethinking community-based conservation." Conservation Biology 18(3): 621-630.
- Agarwal, B. (2009). "Gender and forest conservation: The impact of women's participation in community forest governance." Ecological Economics 68(11): 2785-2799.
- Westermann, O., et al. (2005). "Gender and social capital: the importance of gender differences for the maturity and effectiveness of natural resource management groups." World development 33(11): 1783-1799.
- Molinas, J. (1998). "The impact of inequality, gender, external assistance and social capital on local-level cooperation." World development 26(3): 413-431.
- Buis, A. and S. Cole (2011). "New NASA Map Reveals Tropical Forest Carbon Storage." Putz, F. E., et al. (2001). "Tropical forest management and conservation of biodiversity: an overview." Conservation Biology: 7-20.
- Brown, K. (2002). "Innovations for conservation and development." The Geographical Journal 168(1): 6-17.
- Steady, F. C. (1998). "Gender equality and ecosystem balance: Women and sustainable development in developing countries." Race, Gender & Class: 13-32.
- Jackson, C. (1993). "Doing what comes naturally? Women and environment in development." World development 21(12): 1947-1963.
- Davidson, J. (1989). "Restoring womens link with nature." Earthwatch(37): 2-3.

Pictures

<http://www.telegraph.co.uk/news/science/science-news/10837146/Climate-change-science-has-become-blind-to-green-bias.html>

<http://followgreenliving.com/deforestation-uttarakhand-disaster-rtr/>

<http://dapa.ciat.cgiar.org/tracking-forest-loss-on-the-guatemala-belize-border/>

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Questions?

