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Linking research on social and ecological systems to evaluate & improve conservation strategies

Metrics for Conservation Success

- Effectiveness
 - Maximizing conservation results-ecologists
 - Protected area planning
 - Representation and persistence
 - Institutions and governance
- Efficiency
 - Maximizing human welfare while providing efficient conservation outcomes
 - Economists
- Equity and Accountability (many disciplines)
- Feasibility
 - Practitioners, law and policy analysts

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Framework for Environmental Policy Evaluation

Outputs

- Choice, design, implementation of instruments: laws, policies, conservation easements
- Bucks (\$) n acres

Outcomes

- Changing behavior
- Land use, management

Impacts

- Changing environmental conditions
- Species, habitat representation & persistence

Trends in Environmental Governance

- Devolution of authority
- The “hollow state”
- Role of nonprofit and for-profit entities

at the same time...

- Globalization
- Global impacts, global policy

Purposes, Restrictions

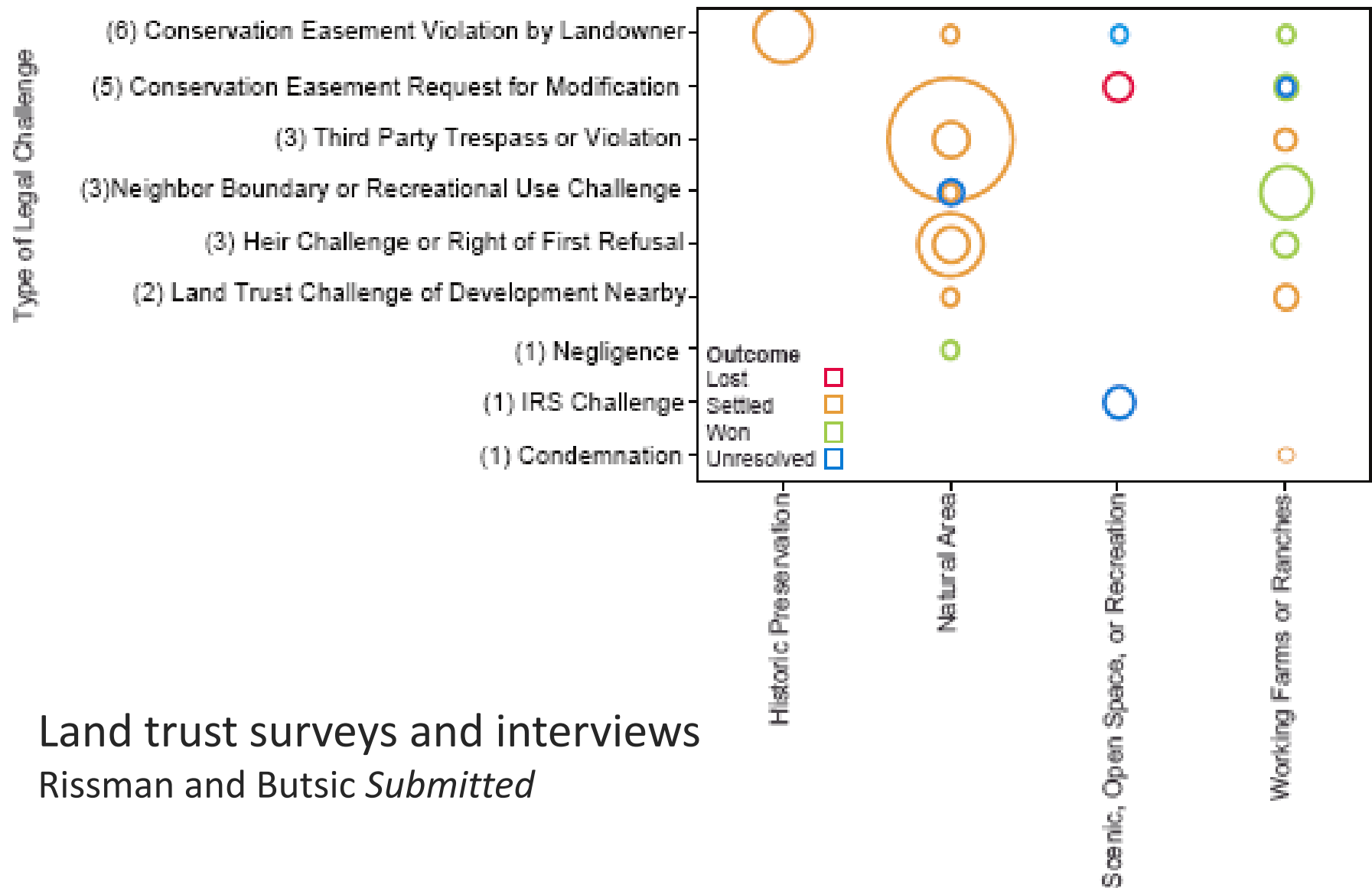
Document Analysis of Conservation Easement Agreements 52 California rangeland conservation easements held by TNC

Table 2. Stepwise ordinal logistic regression of a complexity metric for conservation easement land management terms ($\chi^2=40.92$, $p<0.001$, $-\text{LogLikelihood}=99.98$, $n=52$).

Parameter	Estimate	χ^2	p-value
Year Established (centered around 1990)	-0.1646	13.34	0.0003
Easement Size (Log ha)	-0.7571	6.09	0.0136
Purchased on Private Land	-0.7403	6.18	0.0129



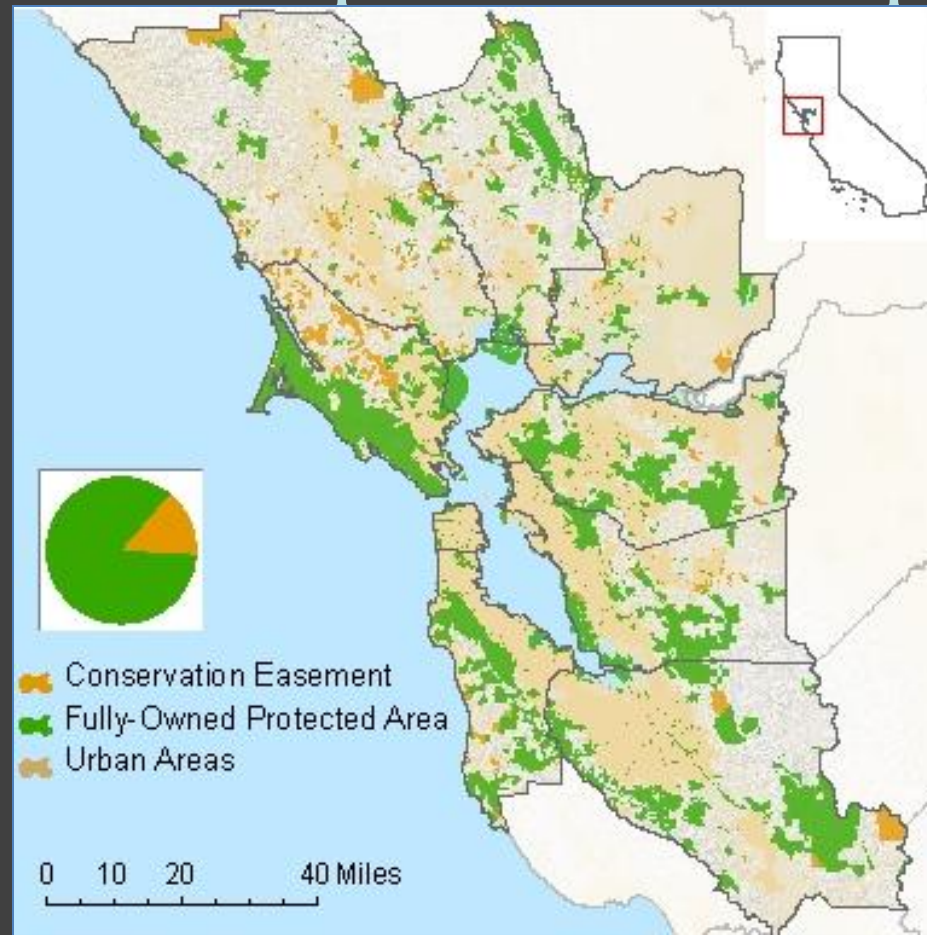
Land Trust Enforcement



Land trust surveys and interviews
Rissman and Butsic *Submitted*

San Francisco Bay Area: Easement Analysis

Comparing conservation easements and fee-simple ownership



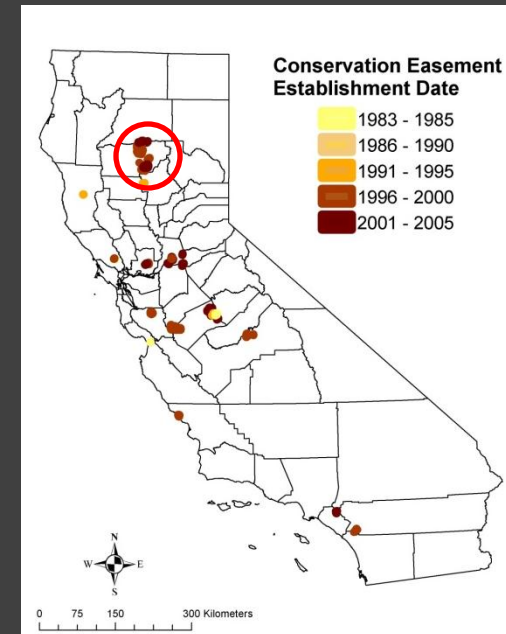
Rissman and
Merenlender. 2008.
Ecology and Society.

Easement Effects on Development



Do conservation easements alter development patterns?

- Evaluated scenarios with and without conservation easements for habitat alteration and fire as an ecosystem process
- Build-out model to 2050
- Remote sensing of vegetation and development



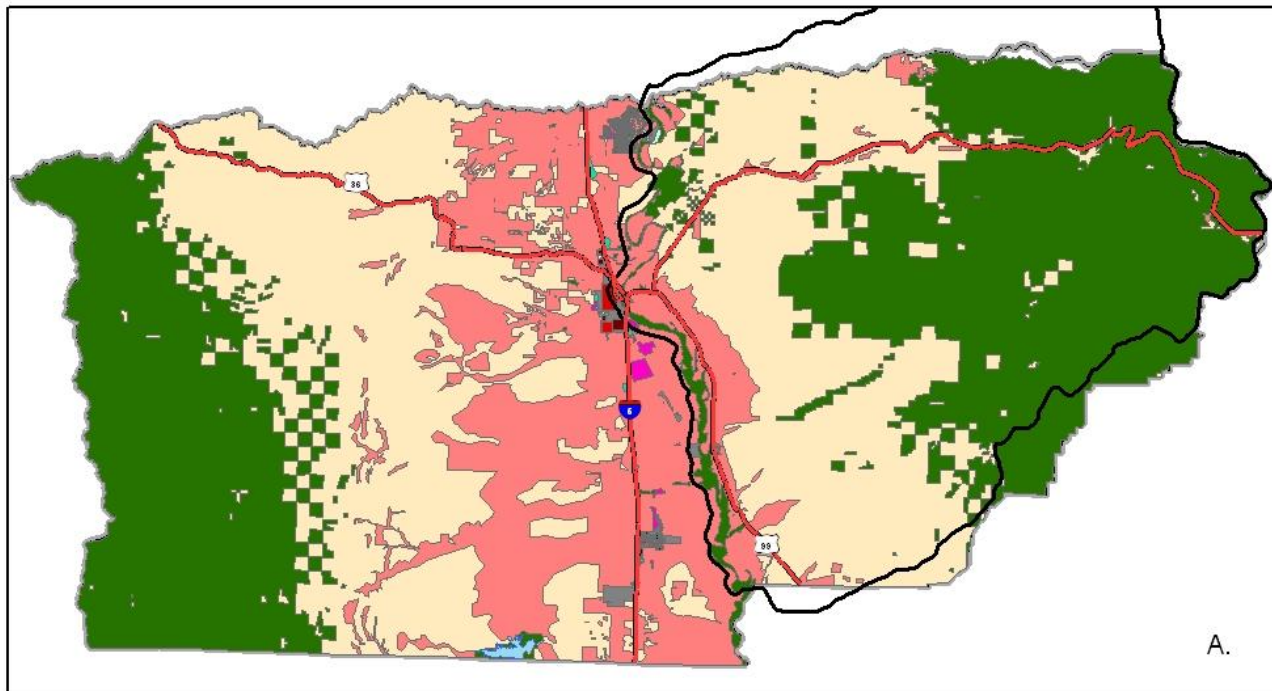
Byrd, Rissman, and Merenlender. 2009.
Landscape and Urban Planning.

- Major roads
- Lassen Foothills Project Area

Figure A.

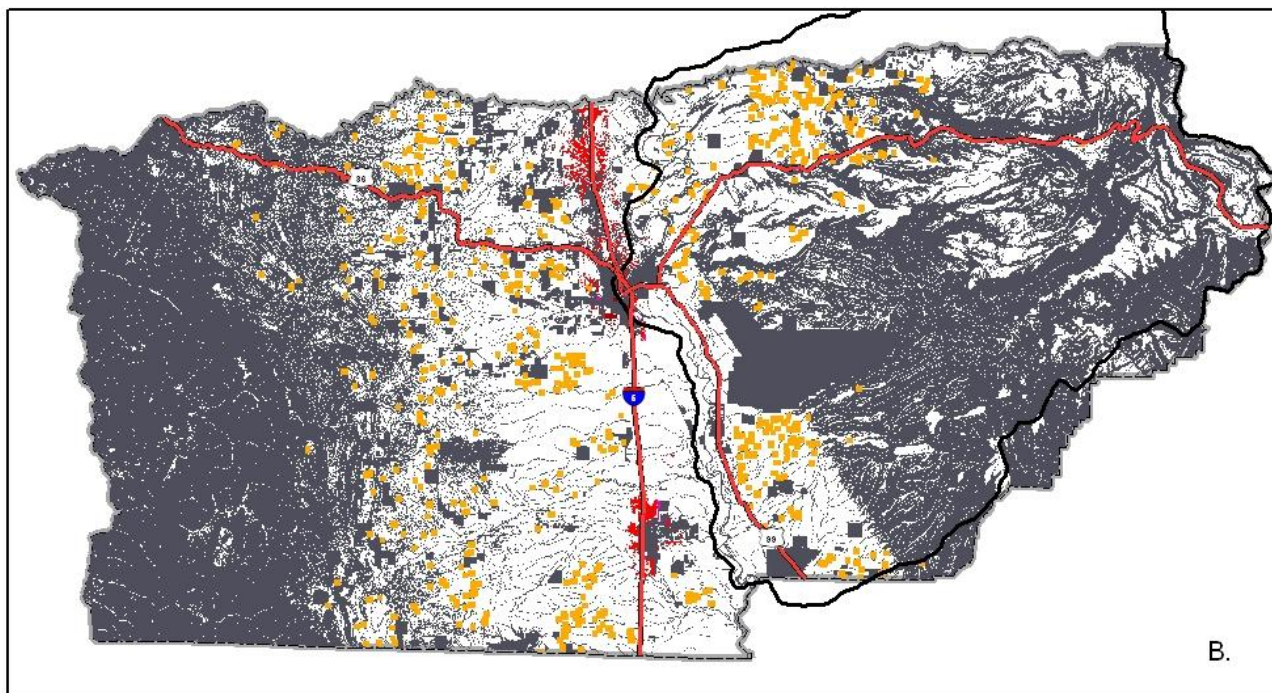
Tehama County General Plan,
Upland Land Use Classes

- Industry
- High density commercial
- Low density commercial
- High density residential
- Medium density residential
- Low density residential
- Very low density residential
- Public lands and open space
- Water

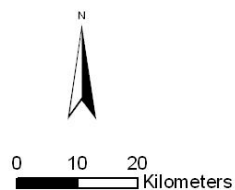


A.

- Very low density residential
- Masks (minus easements)



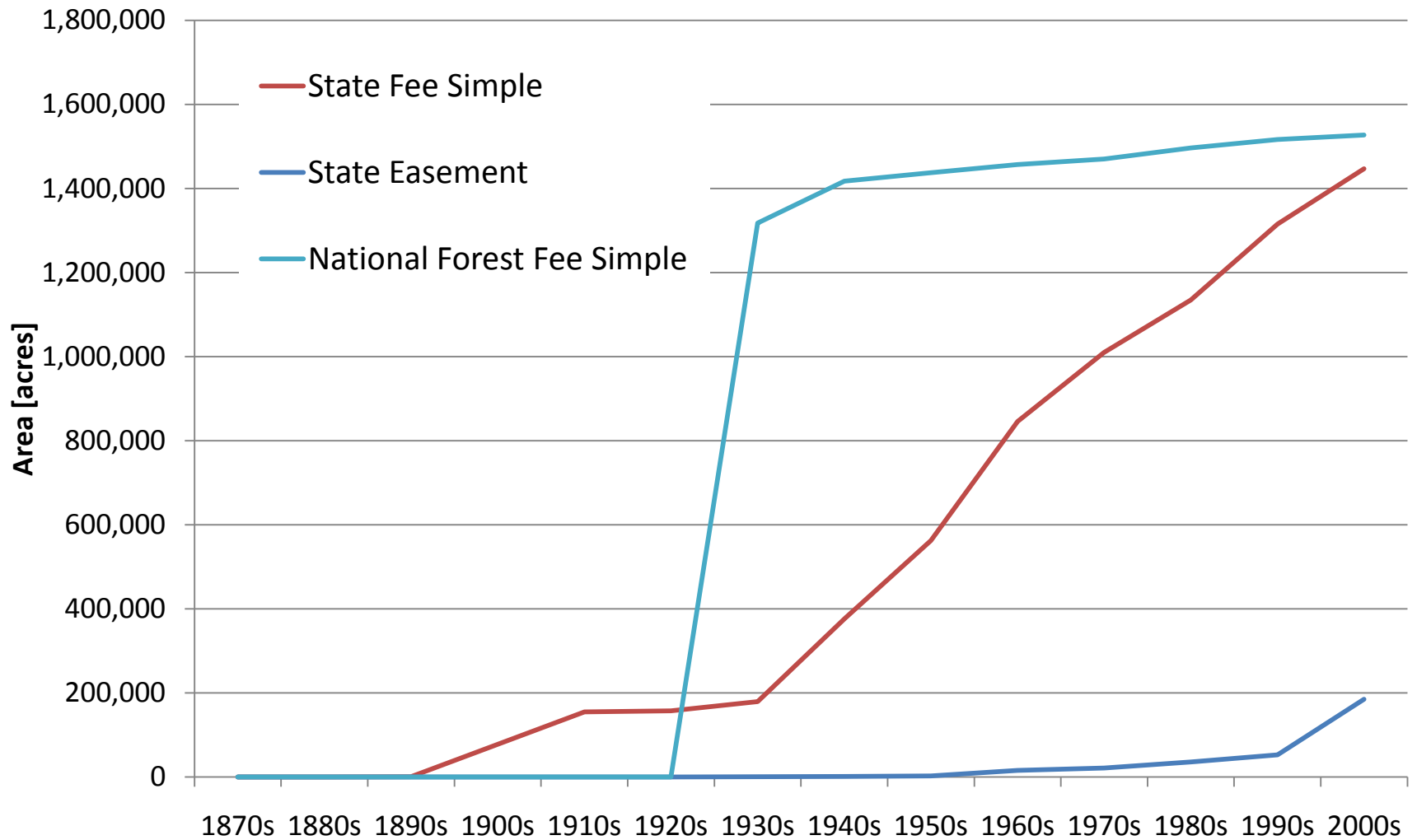
B.



Shift to privatization in resource conservation?

- H1) Owners and purposes of protected areas are shifting over time
- H2) The role of nonprofit organizations in land conservation is increasing over time
- H3) Shifts in conservation owners and purposes have important implications for biodiversity conservation, public recreation, timber production, and perhaps water quality

Federal and State Land Acquisition in WI 1870 - 2010



Conservation and Protected Areas: Dane County and Yahara Watershed

- Yahara Watershed
- Watershed
- Cropland Reserve Program
- Parks

Public Land by Manager

- Federal
- State
- County
- Tribal
- TNC, Other

MFL/FCL Enrollment

- 1959-1986
- 1987-1990
- 1991-1995
- 1996-2000
- 2001-2005
- 2006-2008

MFL/FCL Withdrawal

- 1999-2000
- 2001-2005
- 2006-2010



Methods

- Select focal areas
- Obtain acquisition dates
- Evaluate shifts in acquisitions
- Purposes, restrictions, and uses
- Governance structures and social relations
- Ecological outcomes and services
- Impact over do-nothing scenarios?
- Long term: mapping strategies beyond acquisition

Adapting Conservation to Climate Change

Conservation as Mitigation

- 1) Private Land Conservation and Climate Change
 - Distributed Graduate Seminar, Spring 2011
 - Social, legal, and ecological vulnerability of private land conservation tools
- 2) Adaptation and Mitigation Strategies, WI Forests
 - WICCI project
- 3) Landowner Survey
 - Comparing landowner and agency perspectives on climate impacts and adaptation

