

# Implementing Conservation Plans Through Municipal Land Use Planning



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Conservation science does not necessarily lead to conservation action, especially if implementation depends on privately-held land and municipal planning and regulation. This study addresses the research-implementation gap by developing a framework for understanding the relationship between science-based conservation plans, local and regional government planning capacity, and municipal government policy actions. A case study of two landscape linkage areas, located in New York and Vermont, part of the federally funded Staying Connected Initiative (SCI), forms the basis for recommendations.

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# Project Summary



This research addresses the conservation research-implementation gap by developing a framework relating science-based conservation plans, local and regional government planning capacity, and municipal government policy actions. Two landscape linkage areas in New York and Vermont, part of the federally funded Staying Connected Initiative (SCI), are investigated using a case study approach. Researchers describe and categorize different approaches to implementation carried out by SCI partners in Vermont and New York, evaluate the planning environment in the two regions (Tug Hill to Adirondacks and Adirondacks to Green Mountains), and develop recommendations for bridging the conservation science-land use planning gap.

Researchers review and evaluate municipal plans and interview SCI staff partners, regional planners, and local government representatives in communities with adopted plans that address landscape conservation and wildlife habitat. Results inform conservation efforts in general, and, in particular, other linkage projects conducted in the New York to Maine region, now part of the Two Countries, One Forest organization. This research benefits the Northern Forest region as a whole because it addresses a growing need to implement biological conservation that extends well beyond a single project like SCI, especially as climate change concerns prompt greater demand for landscape corridors for wildlife movement.

# Project Summary

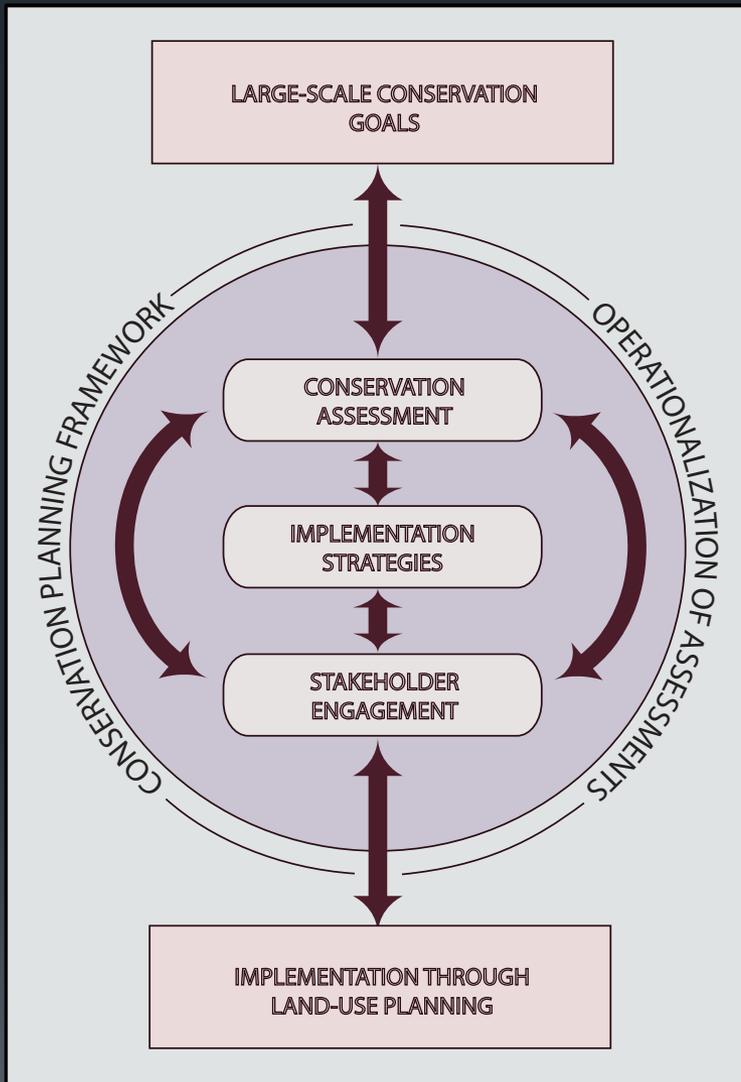


Some findings of this study echo previously conducted research: (1) conservation implementation through land use planning requires coordination between multiple agencies, organizations, and levels of government; (2) the size of the community affects planning capacity, with small communities like those in the Northern Forest having the greatest need for planning support; and (3) sustained funding over time is a critical factor in conservation success. Unique to this study are insights into how conservation plans can be implemented through local land use planning, in spite of commonly recognized limitations. These findings include: (1) building a set of strong relationships over time is key to realizing conservation goals both incrementally and during shorter bursts of activity, such as when a large grant is received like the SCI funding; (2) the history of relationships between the different organizations is critical, and previous experiences with conservation programs, initiatives, and educational sessions matter to the success of new initiatives; and (3) even without outside influence, some communities (including small communities with reduced planning capacity) willingly incorporate wildlife provisions in land use plans, and these communities provide opportunities for the conservation community to learn about how conservation values mesh with other community values.

# Background and Justification

- ① There is a divide between assessment and action in large-scale conservation planning
  - Many challenges exist during both the assessment and implementation phases of large-scale conservation
  - Linking conservation assessments to action under a broader planning framework is commonly suggested
  
- ② There is a need for alternative approaches in conservation planning for the implementation of large-scale conservation goals
  - Planning frameworks developed in previous studies address implementation on a theoretical basis
  - Adaptive planning concepts are suggested to address challenges with implementation
  - Studies also emphasize linking the process with local land use planning efforts

# Background and Justification



Conceptual framework for the operationalization of conservation assessments through land-use planning

- ③ Implementation of conservation objectives through land use planning efforts is influenced by multiple variables
- Local governments express natural resource values in comprehensive land use plans
  - The extent of natural resource considerations exhibits considerable variation between municipalities
  - Variables that influence success with implementation can be categorized as:
    - ✧ Local planning capacity
    - ✧ Regional planning environment
    - ✧ Land-use planning process
    - ✧ Community characteristics

# Background and Justification

- THE STAYING CONNECTED INITIATIVE (SCI) case study
  - The Staying Connected Initiative (SCI) grew out of a trans-boundary conservation initiative, Two Countries-One Forest (2C1F)
  - An unusual 21-member, four-state partnership awarded a federal grant of nearly \$1 million in 2008
  - SCI was specifically aimed at implementation of wildlife corridors from New York to Maine
  - Eight high priority linkage areas identified for conservation action
  - Implementation through land use planning was an approach used in NY and VT. This offered an opportunity for comparison between these two Northern Forest region states

# Research Goals and Objectives

- ① Determine the extent of wildlife considerations in comprehensive plans of linkage town
  - Describe and compare the land use planning framework of the two states
  - Collect local land use/comprehensive plans in the two linkage areas
  - Evaluate the plans to assess wildlife language and policies
  - Identify plans for detailed analysis
- ② Identify factors and circumstances that led to the incorporation of wildlife language
  - Describe community characteristics and the land use planning process
  - Identify the influence of the regional planning context, the land use planning process and, community characteristics
- ③ Identify opportunities for improvements to link conservation science to implementation
  - Examine implementation process and perceptions of conservation scientists
  - Identify potential points of disconnection in the process
  - Develop an organizational framework/recommendations

# Methods

The research design is a multiple case study with nested levels of analysis. The research is carried out in three phases; exploratory phase, explanatory phase and descriptive phase, which also correspond to the three study goals.

## Phase 3. Descriptive Phase

**Study Goal 3:** Identify opportunities for improvements to link conservation science to implementation through local land use plans

## Phase 2. Explanatory Phase

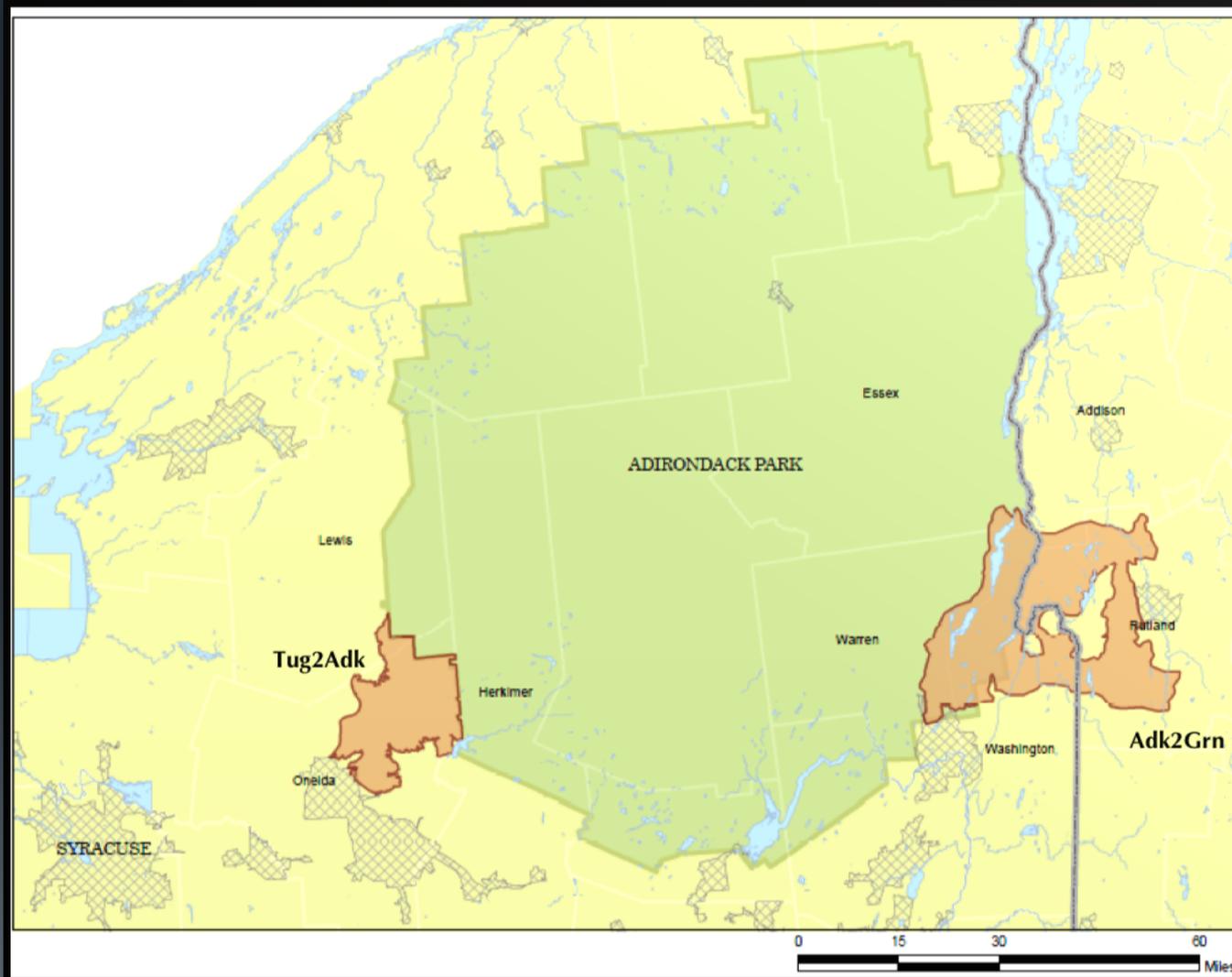
**Study Goal 2:** Identify factors and circumstances that led to the incorporation of wildlife values into land use plans with case study towns that showed greater success

## Phase 1. Exploratory Phase

**Study Goal 1:** Determine the extent of wildlife considerations in the comprehensive plans of linkage area towns

The research sequence in relation to the study goals with a nested research design

Implementation studied in two landscape linkages: the Tug Hill Plateau, NY to Adirondack Mountains, NY (Tug2Adk) linkage and the Adirondack Mountains, NY to Green Mountains, VT (Adk2Grn) linkage.



# Methods

## ■ PHASE 1: EXPLORATORY PHASE

- “To what extent are wildlife values expressed in local land use plans in the two SCI landscape linkage areas?”
- Existing land use plans adopted after 2002 from 27 towns
- Data collection using two plan review methods: content analysis and plan evaluation
- Evaluation criteria for the content analysis adapted from a study carried out by the VT FWD in 2011

Wildlife and  
Habitat Data

Plan  
Recommendations

Non-regulatory  
Policies

Regulatory  
Policies

Evaluation categories used for the content analysis to measure the extent of wildlife language in land use plans (Implementation)

- Content analysis by two reviewers (Inter reliability score was estimated as 0.88)

## Six land use plans for further investigation in Phase 2.

Name of Town	Linkage	County	Regulatory Framework	Plan Year	Population <sup>1</sup>	Bachelor's or higher % <sup>1</sup>	Wildlife Score <sup>2</sup>
Ava	Tug2Adk, NY	Oneida	Home Rule	2012	676	3.0	23
Trenton	Tug2Adk, NY	Oneida	Home Rule	2011	4,498	29.5	31
Bolton	Adk2Grn, NY	Warren	APA land use approval	2003	2,326	33.2	25
Queensbury	Adk2Grn, NY	Warren	APA land use approval (partial)	2007	2,7901	32.3	25
Tinmouth	Adk2Grn, VT	Rutland	VT Planning and Development Act	2007	613	40.6	36
Poultney	Adk2Grn, VT	Rutland	VT Planning and Development Act	2011	3,432	31.0	37

Six local communities selected for a multiple case study research

- Two case studies from three planning environments
- Towns that had scored equal to the or higher than the median wildlife scores of each landscape linkage
- Variables such as population, education and income

# Methods

## ■ PHASE 2: EXPLANATORY PHASE

- “Which circumstances and factors have influenced the motivation for and success of incorporating wildlife values into local land use plans?”
- Semi-structured interviews for data collection; Key informants are local government representatives identified through purposive sampling
- Authorization from SU Institutional Review Board with an ‘exempt from federal regulations’ status

## ■ PHASE 3: DESCRIPTIVE PHASE

- "Are there opportunities for improvement in implementing conservation corridors through land use planning?"
- Additional interviews with SCI partners and regional organizations
- Purposive and snowball sampling for the selection of participants

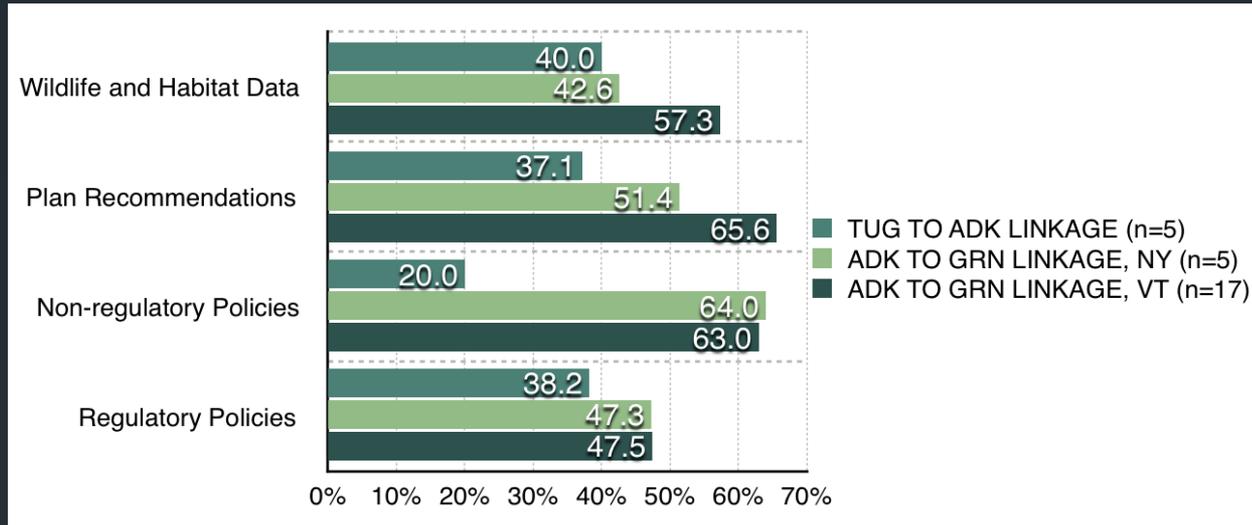
# Results: Phase 1



- ◆ Differences between the two states' planning environments
  - 'Environmental Review Act' and the 'Agriculture and Markets Law' in New York
  - 'Act 200' and 'Act 250' in Vermont
- ◆ Nearly all towns (95.5%) in Vermont, and 71% of the towns in New York had an adopted land use plan
- ◆ Percentages dropped with zoning regulations in Vermont (82%) and it did not change in New York (71%).
- ◆ Within the landscape linkages, all towns in Vermont (n=17), and only 67% of the towns in New York (n=16) had a land use plan
- ◆ Content analysis results also showed variation across three distinct planning environments
- ◆ The comprehensive plans in the Adk2Grn-VT, Adk2Grn-NY and Tug2Adk landscape linkages fulfilled 56.8%, 47.4% and 37% of the evaluation criteria, respectively.

# Results: Phase 1

- ◆ Categorical results showed that Adk2Grn-VT did not show significant difference with the categories on non-regulatory and regulatory policies



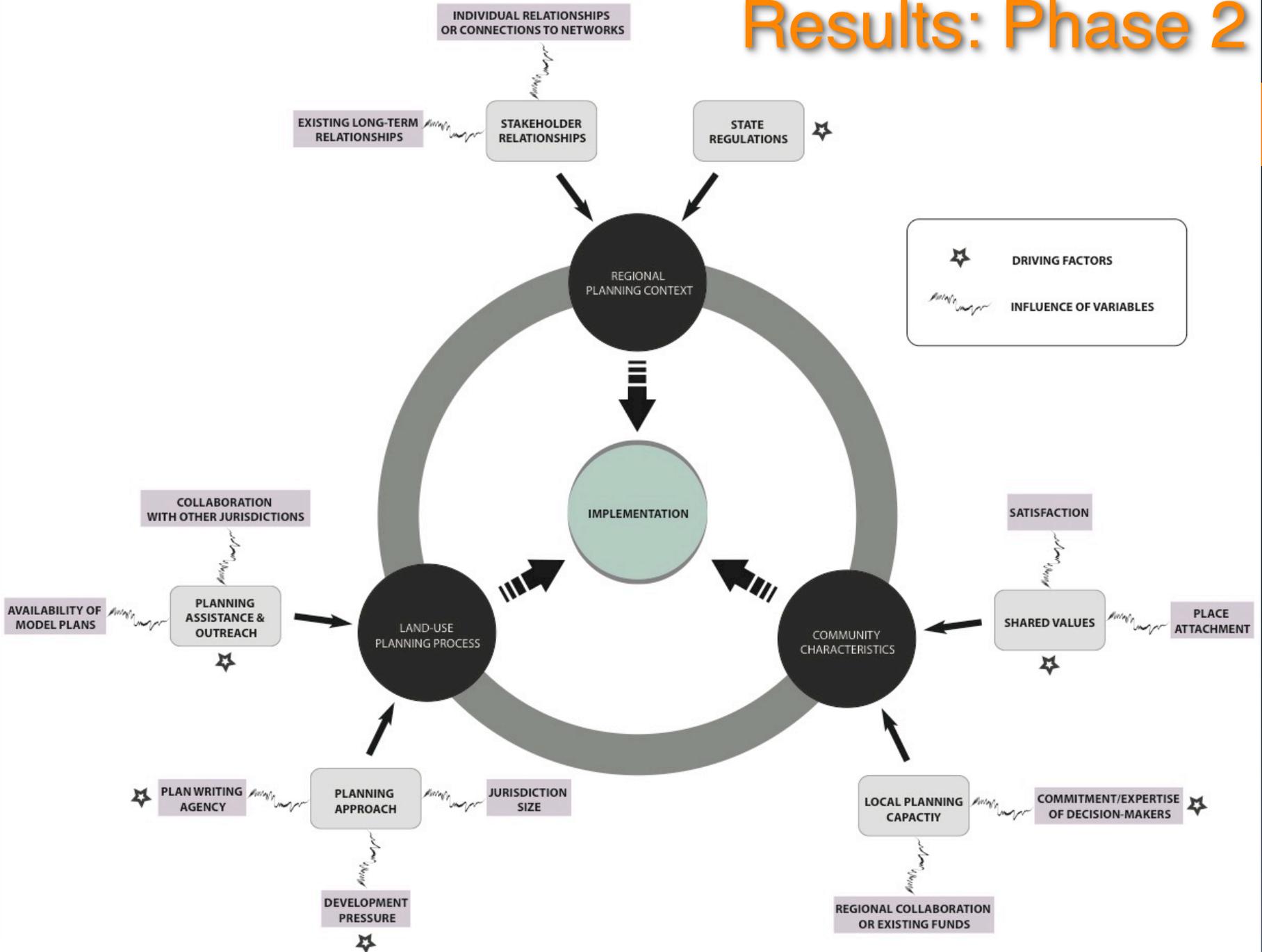
- ◆ Language specific to habitat fragmentation and connectivity were seen mostly with Adk2Grn-VT plans, and public benefits of wildlife and habitat were emphasized in plans from both sides of the Adk2Grn linkage
- ◆ Conservation easements were the most mentioned non-regulatory policy and clustering development was the most common recommended regulatory policy
- ◆ Qualitative evaluations showed that differences in the state policies, the land use planning process, development pressure and planning capacity influenced language

# Results: Phase 2



- ◆ Existing state regulations and stakeholder relationships influenced the regional planning environments
- ◆ Stakeholder relationships explained as ‘the long-term relationships of local communities with regional and state organizations’ and ‘individual relationships and connections’
- ◆ Model plans or assistance from other jurisdictions were some of the factors that influenced the wildlife content
- ◆ The availability of planning assistance and outreach activities had a direct influence on the natural resource data included by the plans
- ◆ Community values, distinguished as ‘place attachment’ and ‘satisfaction’, were important
- ◆ Local planning capacity improved through regional collaboration or existing funds

# Results: Phase 2

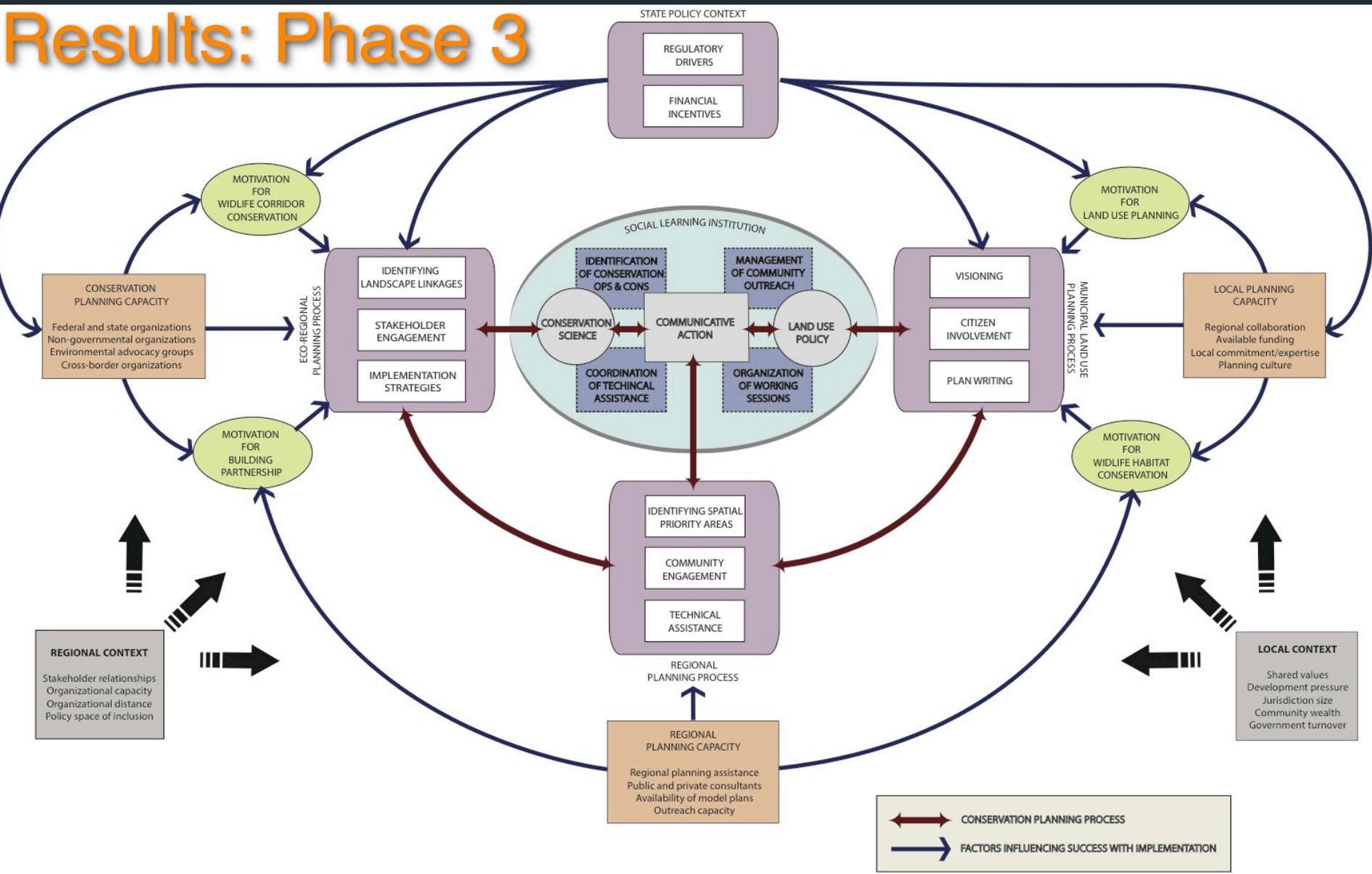


Circumstance and factors influencing success with wildlife considerations in municipal land use plans

# Results: Phase 3

- ◆ Conservation planning and implementation was carried out in three phases: the eco-regional, regional and land use planning phases
- ◆ Some communities incorporated wildlife language as a result of SCI's implementation efforts
- ◆ Disconnections occurred at several phases of the planning process:
  - 1) Identification of conservation opportunities and constraints
  - 2) Coordination of technical assistance
  - 3) Management of outreach activities
  - 4) During the working sessions of municipal plan development

# Results: Phase 3



The proposed organizational framework for the implementation of wildlife conservation corridors through municipal land use planning

# Implications and Applications in the Northern Forest Region

- ❑ There is a growing need to implement biological conservation in the Northern Forest region that extends well beyond single sites, and this need will drive more coordination with local governments and their planning processes
- ❑ Conservation organizations can use the understandings of the local comprehensive planning process to plan community engagement more strategically
- ❑ The organizational framework developed through this study could be used by conservation scientists working in the Northern Forest region to plan actions during conservation assessments

# Implications for the Northern Forest



Some conclusions match those of previous studies:

- ① Conservation implementation through land use planning requires coordination
- ② The size of the local community does affect planning capacity
- ③ Sustained funding over time is a critical factor

This research suggests that:

- ❑ Multi-level coordination is inherently difficult and complicated but it can be successful
- ❑ The history of relationships between the different organizations is critical. Previous experiences with conservation programs, initiatives, and educational sessions also matter
- ❑ Building a set of strong relationships over time is key to realizing conservation goals both incrementally and during shorter bursts of activity, such as when a large grant is received like the Staying Connected Initiative funding

# Implications for the Northern Forest

- ❑ Jurisdiction size affects the ability to plan, but small jurisdictions are also capable of conducting effective planning processes
- ❑ Support for small communities from conservation organizations and from regional planning organizations is important
- ❑ Funding is important for implementation but a community that is cognizant of its conservation values can still plan in a way that includes wildlife language
- ❑ Even without outside influence, some communities willingly incorporate wildlife provisions in land use plans
- ❑ Effective conservation can be bottom-up but community values, some of which conflict with conservation values, must be considered

# Future Directions



- ❑ A limitation of this study was the number of plans reviewed in New York (n=10), compared to those reviewed in Vermont (n=17). A deeper understanding of the mechanisms by which wildlife considerations are incorporated into land use plans could be accomplished with a review of plans from a greater number of towns in New York State.
- ❑ Future research could focus on the investigation of the communities that are actively engaged in the plan development process.
- ❑ The importance of the community of practice created by conservation professionals working over the long term in a region was revealed in this study. Further research on the significance of the history of interactions over time between conservation organizations and local communities could provide insights into circumstances that lead to greater conservation success, especially in a funding environment that is fraught with uncertainties.

# List of Products

- Bryant, M.M. 2013. *Implementing corridors for climate-induced wildlife migration: Challenges in New York and Vermont*. Council of Educators in Landscape Architecture conference, Austin, Texas.
- Ak, Tutku. 2015. *Implementation of wildlife corridors through local land use planning: Local government perspectives on what works and why*. Dissertation. Syracuse, New York: State University of New York College of Environmental Science and Forestry.
- Ak, Tutku and M. Margaret Bryant. In development. Implementing conservation objectives through local land use planning: A case study of the Staying Connected Initiative in New York and Vermont. To be submitted to *Landscape and Urban Planning* in June 2015.