Developing Landscape Scenarios:
Obtaining and Integrating Expert Knowledge

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US-IALE 25TH ANNIVERSARY SYMPOSIUM

Motivation

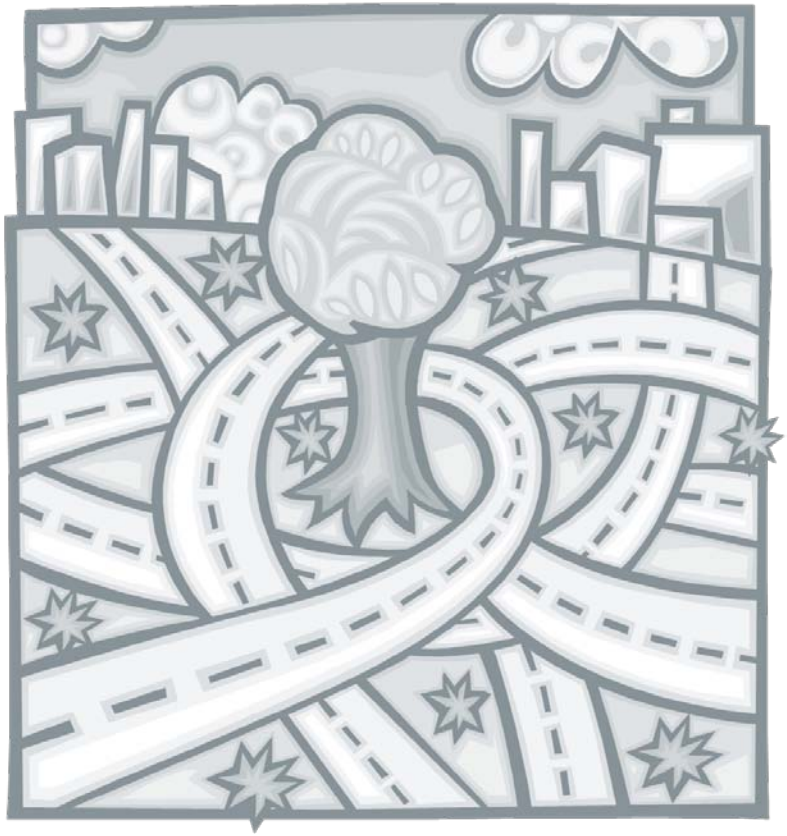
Approach

Study Sites

Scenario Building

Outcomes

Next Steps



Road Map

Changing Environment of Conservation

- Δ Ownership patterns
- Δ Drivers of landscape change
- Δ Management goals

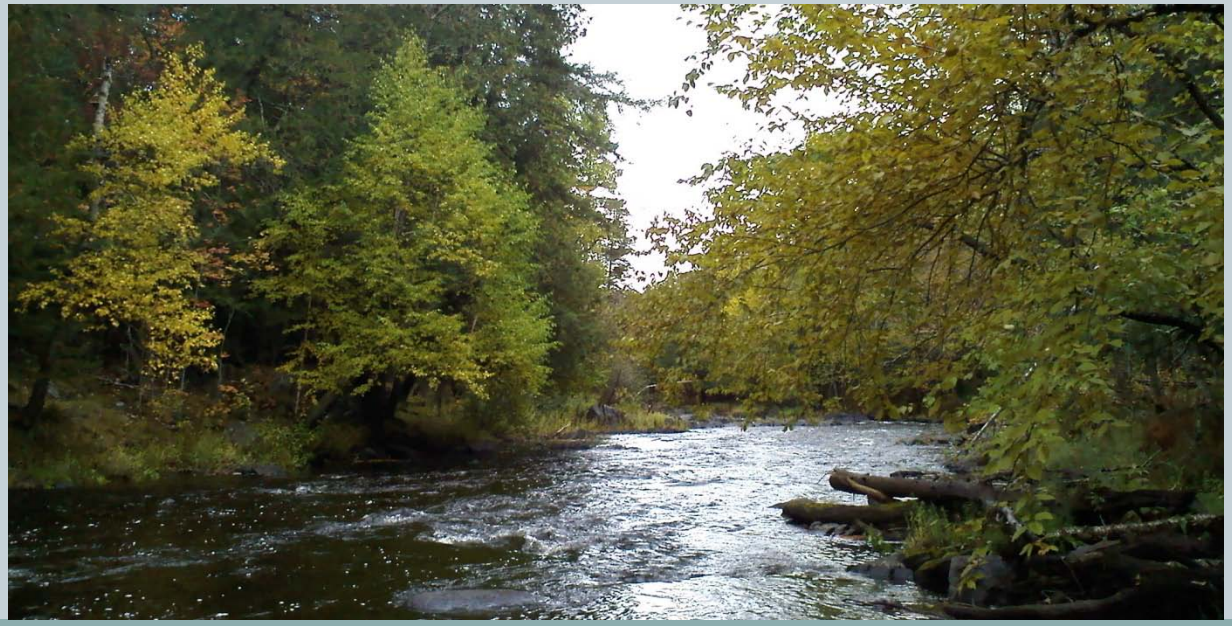
- ‘Distributed’ conservation strategies

Motivation

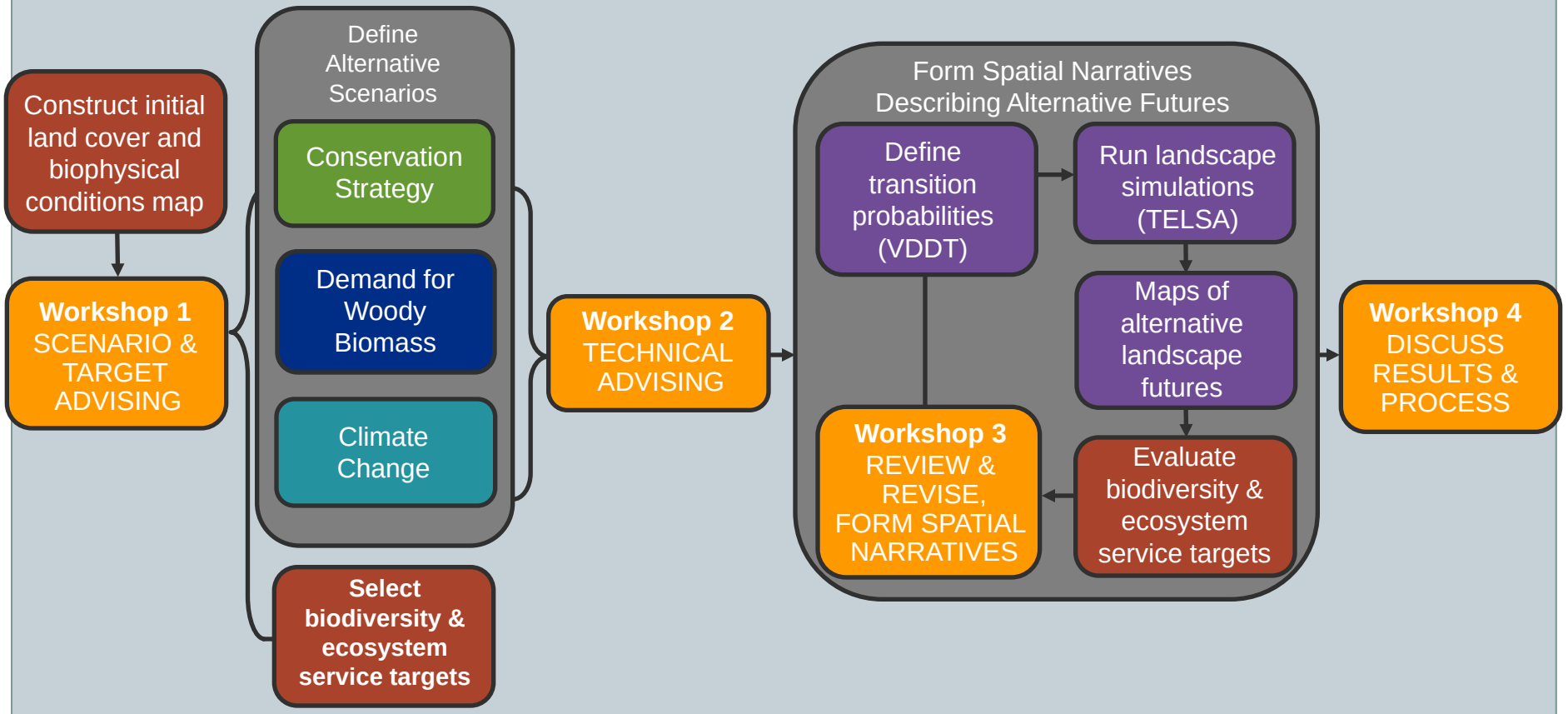
- Are ‘distributed conservation strategies’ effective mechanisms for biodiversity conservation?
- Are they robust to anthropogenic and climate change pressures over the coming centuries?
- Compare different strategies and different spatial arrangement.
- Complement traditional monitoring and adaptive management tools.

Project Aims

Develop and model spatially explicit landscape scenarios to provide insight into possible landscape futures and their outcomes for biodiversity and ecosystem services.



Approach


Construct initial land cover and biophysical conditions map
Workshop 1 SCENARIO & TARGET ADVISING
Define Alternative Scenarios
Conservation Strategy
Demand for Woody Biomass
Climate Change
Select biodiversity & ecosystem service targets
Workshop 2 TECHNICAL ADVISING
Form Spatial Narratives Describing Alternative Futures
Define transition probabilities (VDDT)
Run landscape simulations (TELSA)
Maps of alternative landscape futures
Evaluate biodiversity & ecosystem service targets
Workshop 3 REVIEW & REVISE, FORM SPATIAL NARRATIVES
Workshop 4 DISCUSS RESULTS & PROCESS

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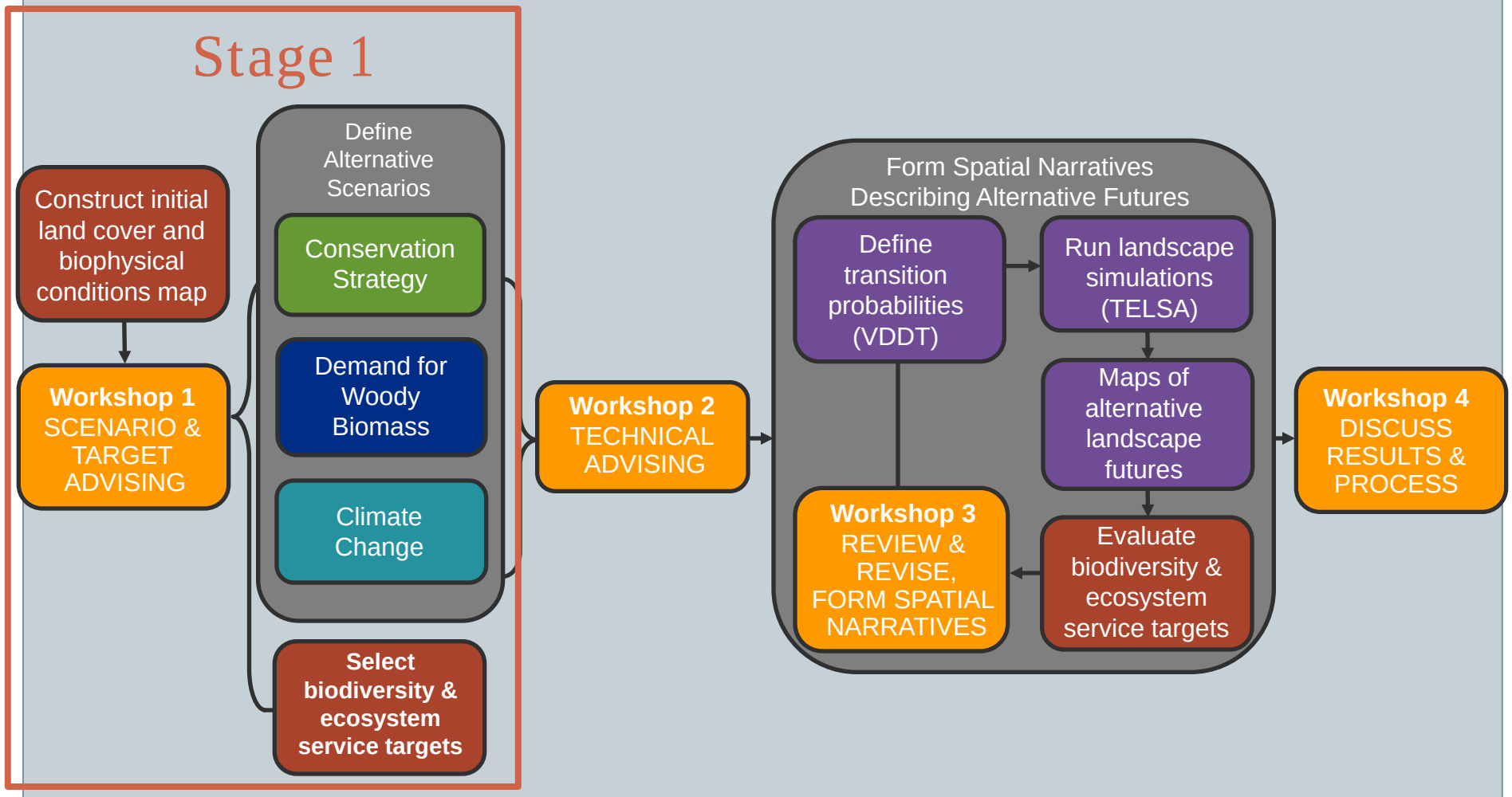
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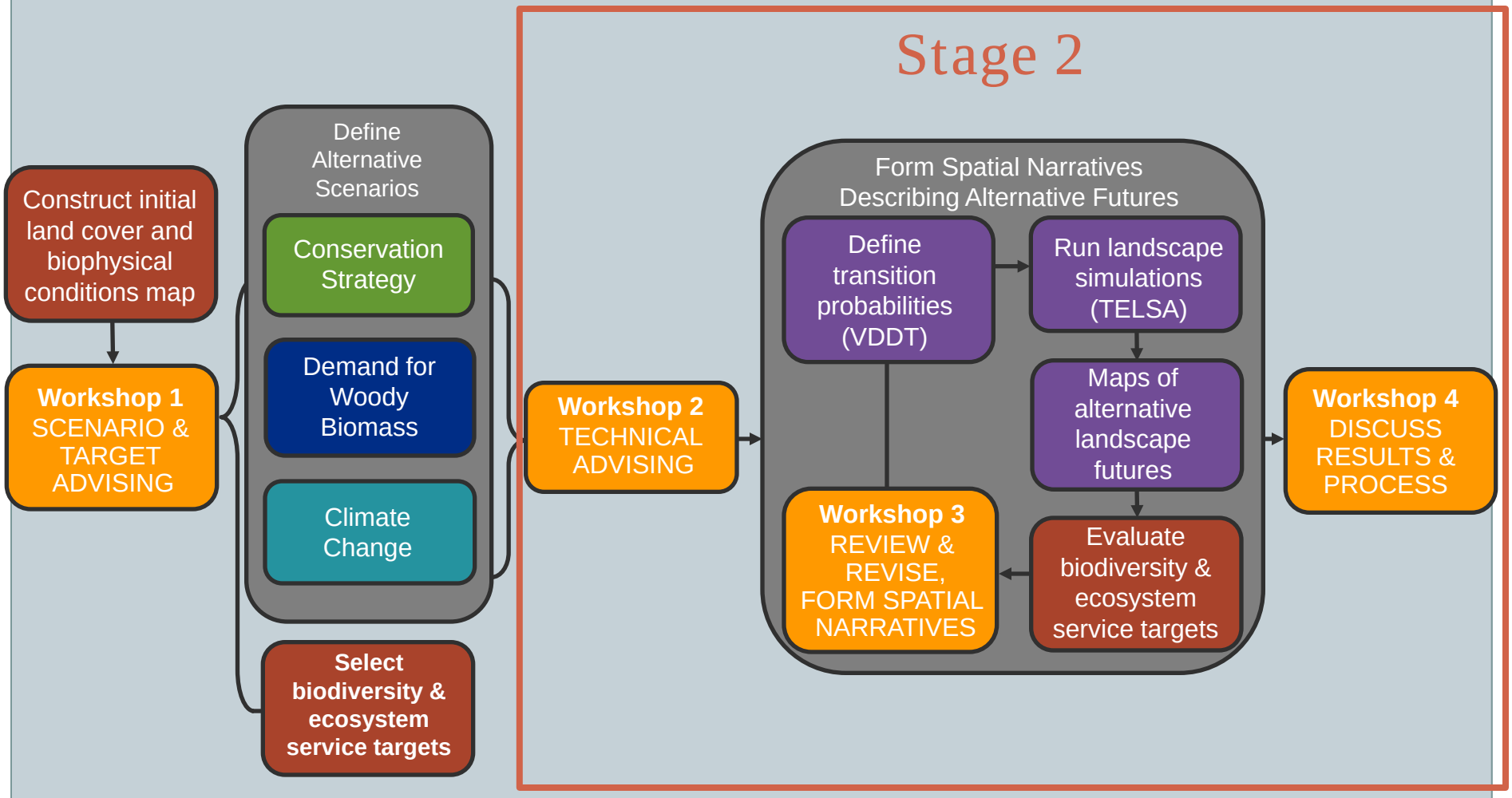
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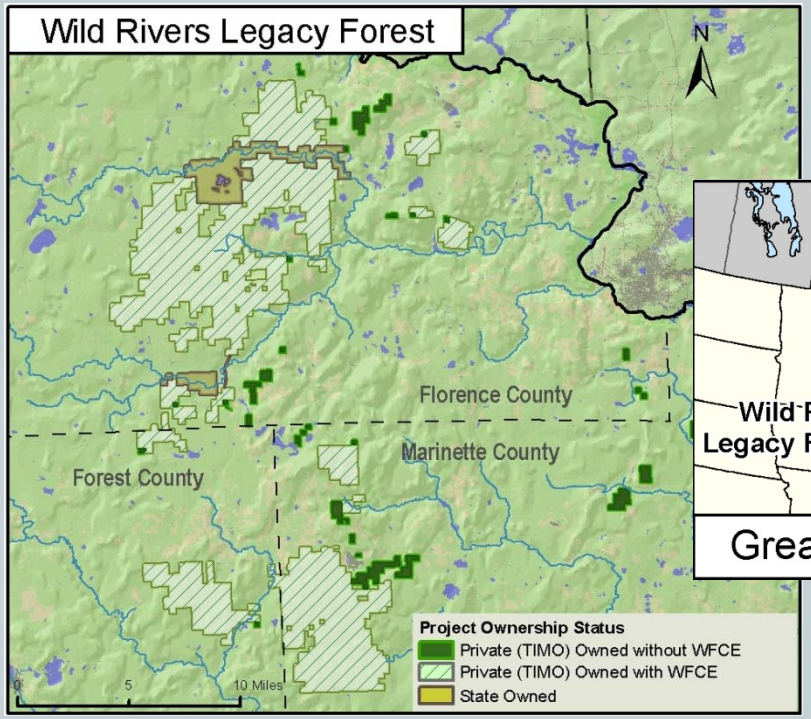
Scenario Development

Benefits of a collaborative approach

- Local knowledge fills in gaps
- Compensate for irreducible uncertainty
- Engages diverse set of experts and practitioners
- Balance multiple perspectives and goals
- Generates locally relevant, transferable outcomes
- Increased credibility and legitimacy of outcomes
- Sets the stage for continued cooperation

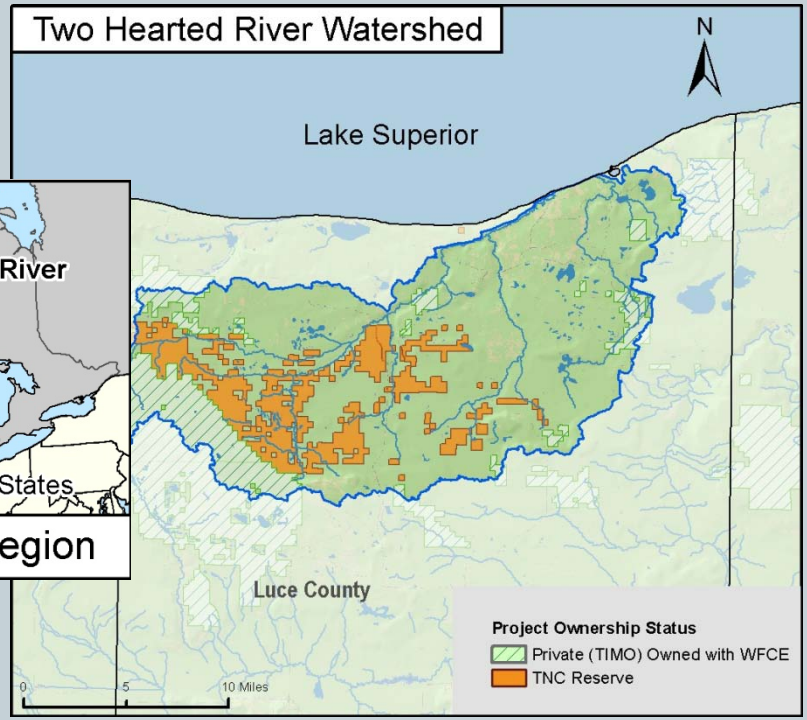
Study Sites

Wild Rivers Legacy Forest



26,300 hectares

Two Hearted River Watershed



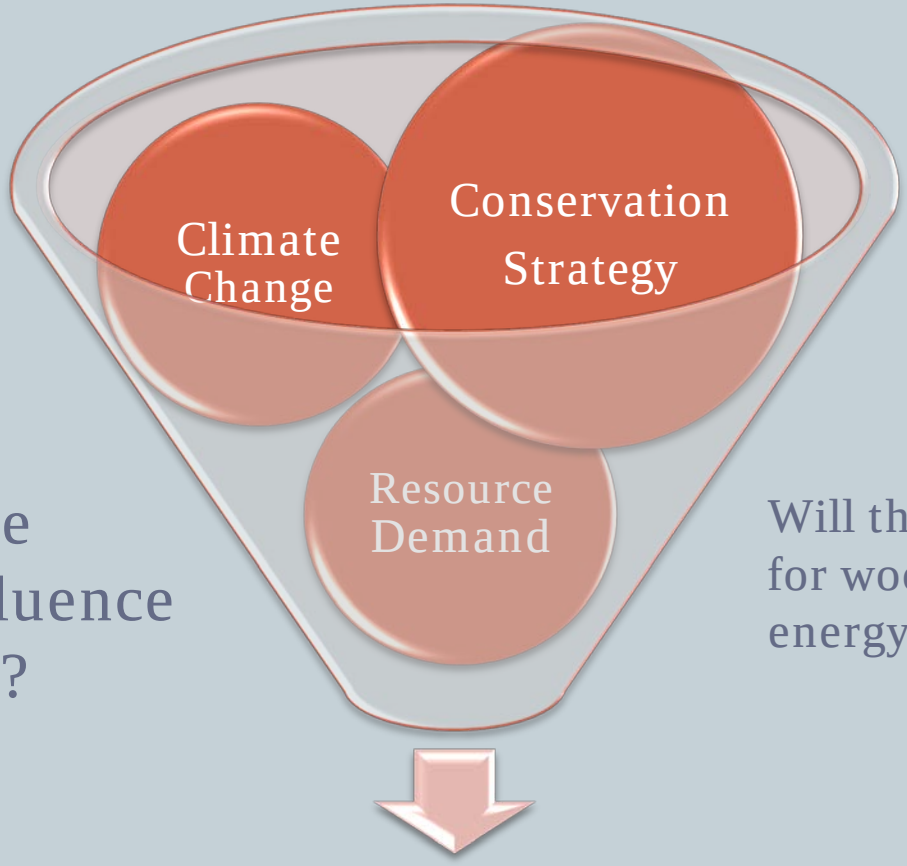
46,500 hectares

Landscape Scenarios

- Exploratory scenarios
  - Extend past trends
  - Anticipate change different from past
- On-site workshop at each study location
- Local experts
  - Foresters
  - TIMO managers
  - DNR biologists and managers
  - TNC experts

Scenario Development

Which climate variables are most important?



What conservation strategies could be applied in this landscape?

How might these components influence forest dynamics?

Will there be a demand for woody biomass for energy production?

Landscape Scenario

Workshop Outcomes

Conservation Strategies

- No conservation action
- Current action
- All working forest conservation easement
- No Forest Stewardship Council certification
- Cooperative ecological forestry

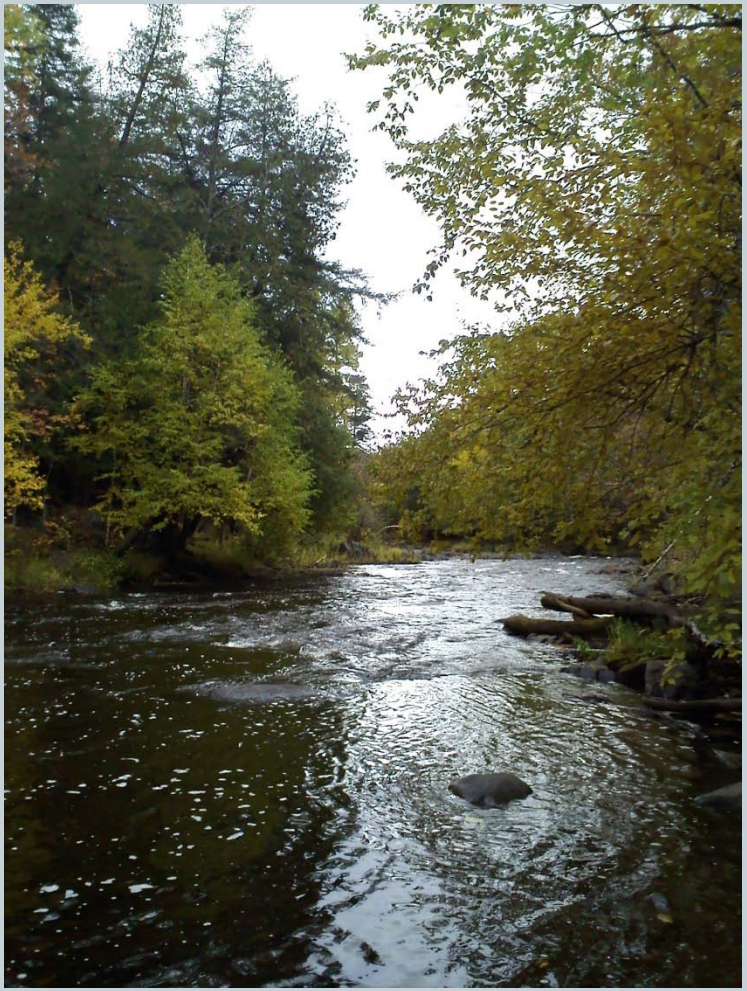
Drivers of Landscape Change

- Climate Change
  - Seasonal precipitation
  - Seasonal temperature
- Harvest of Woody Biomass
  - 25 yr time horizon
  - Decreased residue
  - Changes in harvest

Special Considerations

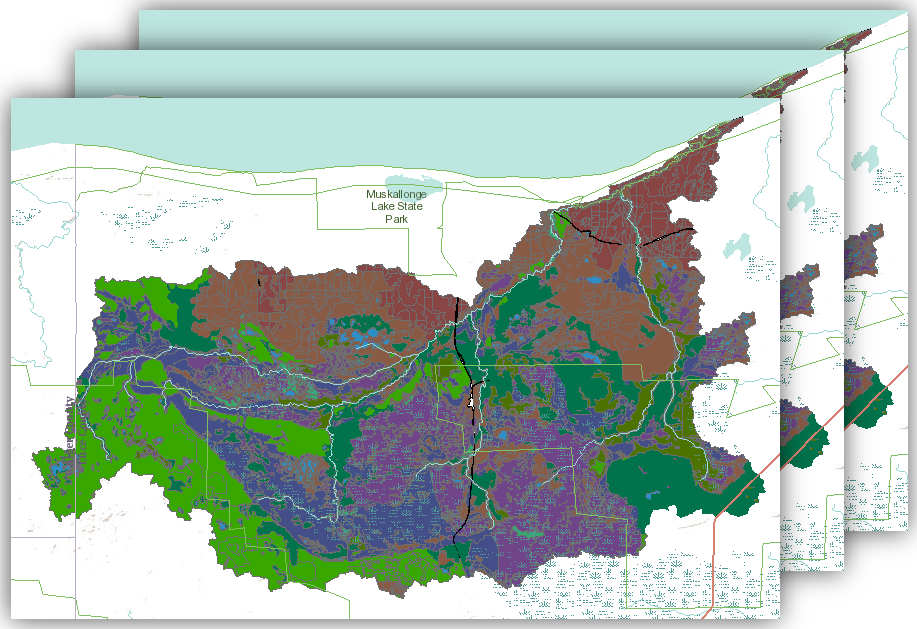
- Selection of participants
- Past experiences of participants
- Drawing boundaries
- Careful mediation
- Continued participation

DATA BASIN



Next Steps: Integrating Scenarios and Modeling

Model landscape scenarios



Generate land cover maps for alternative scenarios

Expert evaluation and feedback

Anticipated Outcomes

- Enable comparison of conservation strategies
- Complement long-term monitoring
- Enable adjustment of strategies to anticipated future conditions
- Inform ongoing and future conservation opportunities
- Useful tool for pre-assessing landscape scale conservation strategies

Questions?

Acknowledgments...

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