

# Make Room for Wildlife on Private Lands



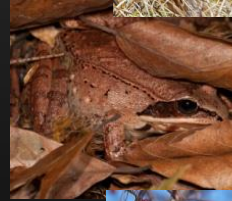
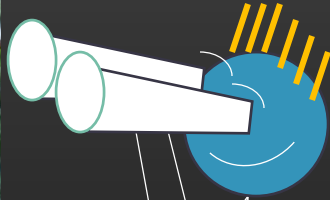
November 2017

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Cornell University - Associate Adjunct Professor









# Outline

- Why plan for wildlife?
- How can we influence the planning process to benefit wildlife?
- What can we improve in conservation ordinances?
- How do we engage local communities in the process?





# Low-density development





But, we have so much open space...why plan for wildlife?





# Private lands harbor important habitats



Alpine  
Boreal Upland Forest  
Cliff and Talus  
Glade and Savannah  
Outcrop and Summit Scrub

*Mostly on public land*

Glennon and Curran 2013, AJES 19:36-46

*Mostly on private land*

Central Hardwood Swamp  
Central Oak-Pine  
Northeastern Floodplain Forest  
Ruderal Shrubland and Grassland  
Agriculture, Developed





# Lessons from WCS Research

- *Size of the impact >>> physical footprint*
- *Changes can be very fast*
- *Changes show consistency across taxa and systems*
- *Most prevalent pattern → simplification*

**Biotic Homogenization**





# Why plan for wildlife? People support actions that benefit wildlife

	Northern NY	Southwest MT
Growth & development can be accommodated without negative effects on wildlife	38.1%	49.6%
I support development <b>restrictions</b> that benefit wildlife	71.1%	68.6%
Local government should have <b>guidelines</b> for promoting dev. that will not harm wildlife	80.0%	79.2%
I would support changes to land use <b>regulations</b> if it would benefit wildlife	54.3%	49.7%





# People support actions that benefit wildlife - State of the Art Example

## KOALA BEACH HOUSING DEVELOPMENT

In association with The Ray Group, a Gold Coast based developer, the Australian Koala Foundation (AKF) has taken the first steps towards creating a Koala-friendly development where a community makes conscious compromises to its lifestyle so that it can co-exist with wild Koalas. The development site is located on the northern New South Wales coast, just north of Pottsville. Formerly a cattle property called Searanch, the housing estate is now known as Koala Beach.



If people really are to live in harmony with wild Koalas, measures such as no dogs, keeping all the Koalas' food trees and home range trees, educating the residents to understand and respect the Koalas' needs and restricting vehicle speeds, need to be put to the test and not just talked about. All these things are happening at Koala Beach and we are cautiously optimistic about the results.





at



# Where can we influence the process to benefit wildlife?

Purchase Parcel  
Review Title  
Consult Regulations  
Hire Consultant  
Submit Proposal  
Public Hearing  
Receive Approval  
Build





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## Green groups hammer on resort's wildlife impact

June 23, 2011

By JESSICA COLLIER - Staff Writer ([jcollier@adirondackdailyenterprise.com](mailto:jcollier@adirondackdailyenterprise.com)), Adirondack Daily Enterprise

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RAY BROOK - Green group attorneys continued Wednesday to argue that the consultants who prepared application materials for the Adirondack Club and Resort could and should have done more study into the resort's potential impact on wildlife on the project site.

State Adirondack Park Agency staff had asked the LA Group, the Saratoga-based consultant group that wrote the project's APA application, to analyze the impact on wildlife, referring to standards outlined in a paper written by the Wildlife Conservation Society's Michale Glennon and Heidi Kretser called "Impacts to Wildlife from Low Density, Exurban Development."

Protect the Adirondacks attorney John Caffry went through the





# Where can we influence the process to benefit wildlife?

Do you mean to tell me that this development is going to change *life on earth as we know it*?



## Green groups hammer on resort's wildlife impact

June 23, 2011

By JESSICA COLLIER - Staff Writer ([jcollier@adirondackdailyenterprise.com](mailto:jcollier@adirondackdailyenterprise.com)), Adirondack Daily Enterprise

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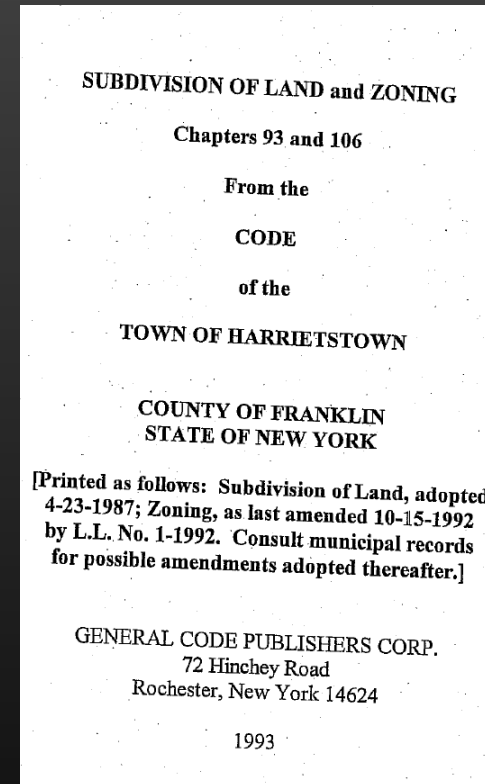
Hire Consultant

Submit Proposal

Public Hearing

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Build



- State Enabling Legislation
- Model Tool Language
- County or Municipal Comprehensive Plans
- Land-Use Regulations & Zoning Ordinances



# What needs to change? Example: Conservation development (CD)

*Aspen Springs*

119 Acres  
Your personal backyard for the enjoyment of hiking trails, a year round stream, seclusion, and the wildlife habitat.

Cooperative ownership in over 110 Acres of Land  
Each homesite deeded one acre, with over 110 acres of communal ownership.  
Surrounded by 1700 miles of fishable streams, 2200 miles of trails, 700 high mountain lakes located within the Gallatin National Forest.  
Seclusion from the city, with the convenience of town just minutes away.  
Preservation of land for Future Generations

Before you is the Preserved Beauty of the West  
Surrounding you is an Unlimited Backyard

9 Individual Lots Contained within 119 Acres  
Preserved Land for Generations to come

1 2 3 4 5 6 7 8 9

McKENNA  
406-581-0792

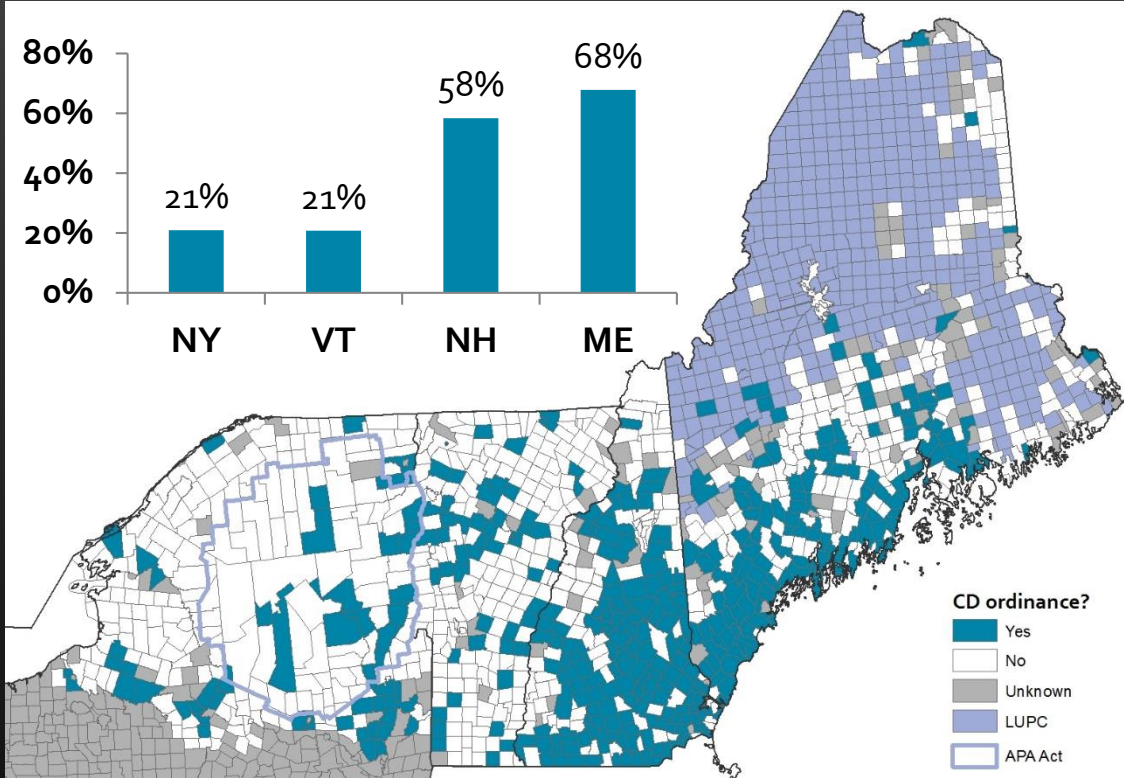
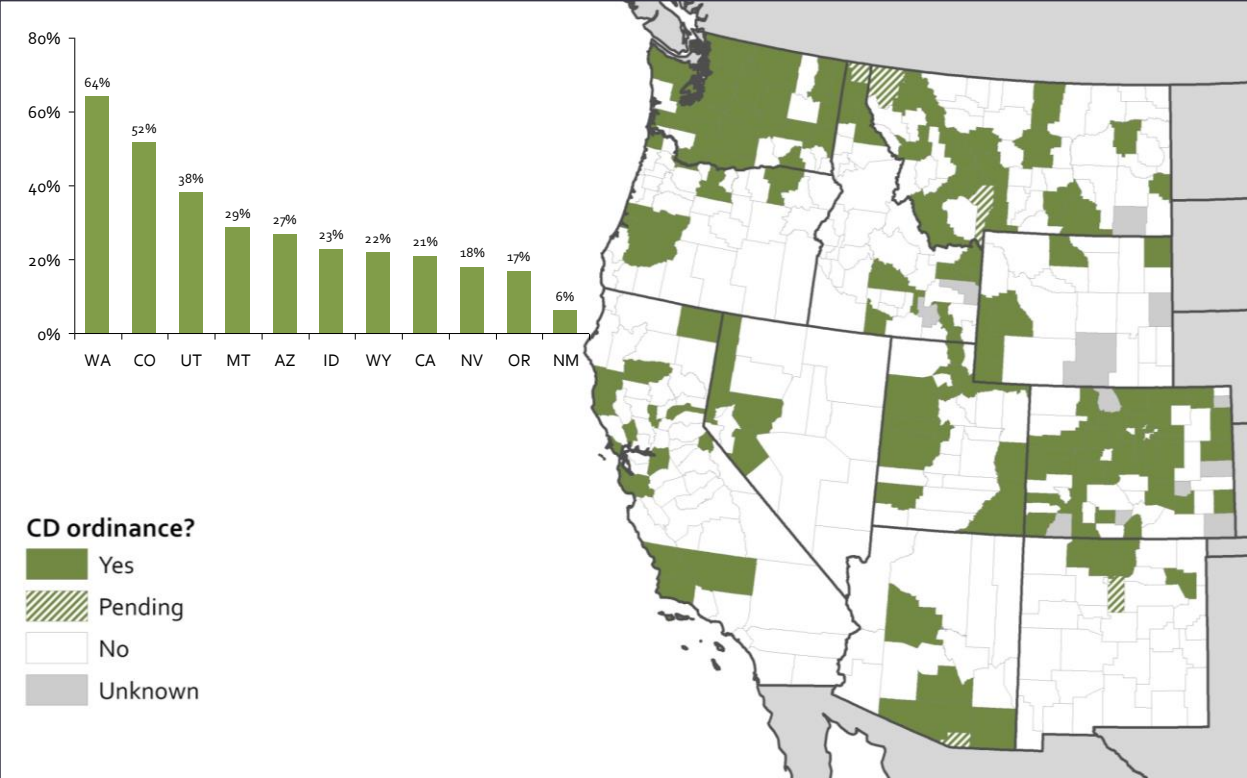
An approach to the design, construction, and stewardship of a development that achieves functional protection for natural resources while also providing social and economic benefits to human communities.

3-4% of new residential development, 25% of privately-conserved lands





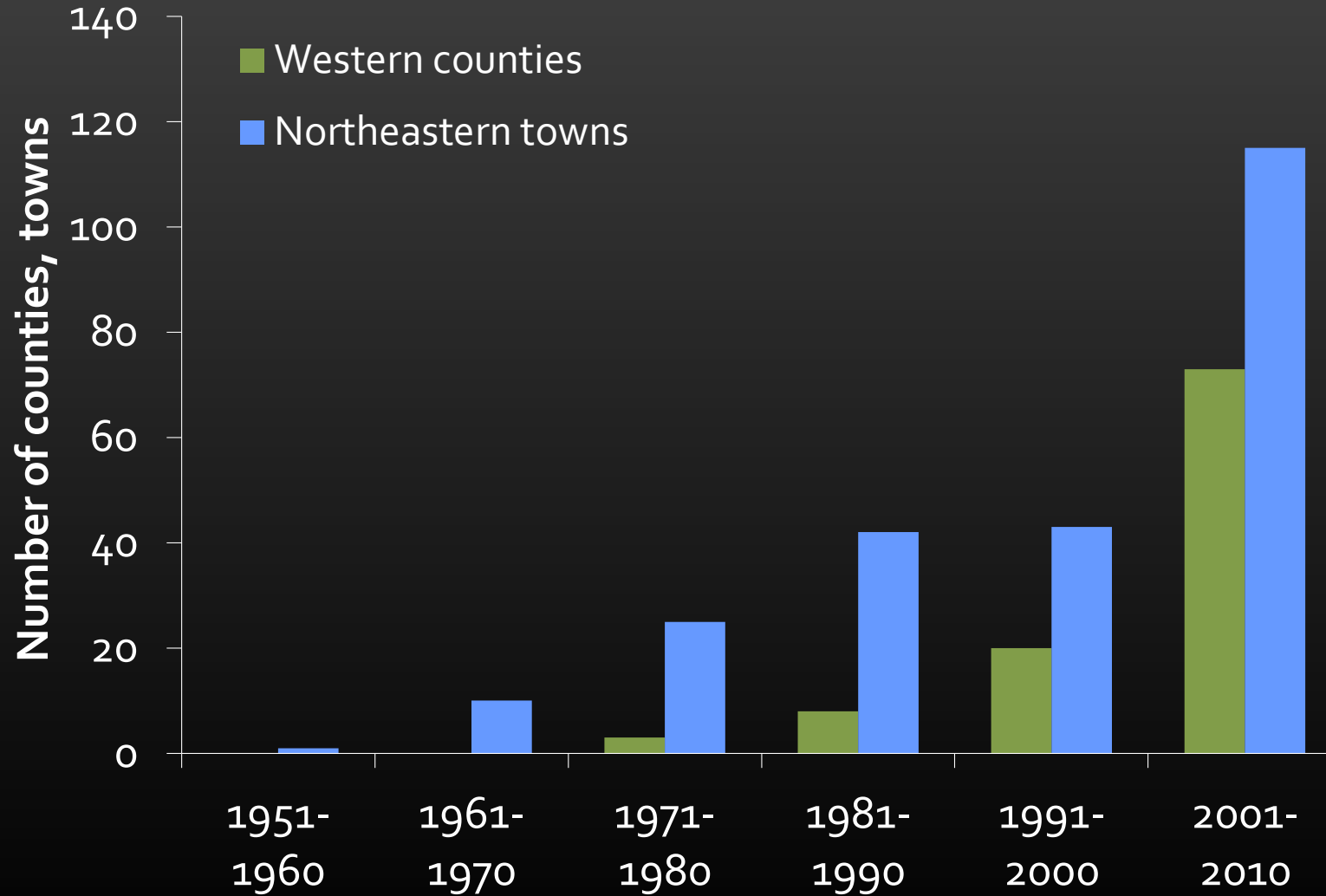
# CD in the U.S.



- ~29-32% of local land use regulations (Reed et al. 2014; Reed & Kretser In prep)



# Increasing rate of adoption





# Regional differences in CD ordinances

*northeastern towns vs. western counties*

	NORTHEAST		WEST
Mean percent of site area required to be protected	41%	<	58%

# What needs to change? - Opportunities for wildlife

- 1) Adoption increasing – opportunity to guide new ordinances & revisions
- 2) Existing CD relatively weak - need for biological expertise
- 3) What needs to change from a biological perspective?





# What needs to change?

## Biological recommendations for residential design & stewardship ordinances (Workshop 1)

- Participants

*Leading experts on the effects of residential land-use on biological communities*

- Goal

*Generate science-based recommendations for how residential design and stewardship guidelines could be improved to protect native wildlife species and habitats on private lands*





# What needs to change? Integration of wildlife science

- Biological Consultation
- Ecological Site Analysis
- Clustering
- Open Space
- Sustainable Construction
- Stewardship and Education

Draft report available



CHALLENGE  
Residential design & stewardship guidelines within current land-use patterns result in ineffective conservation of native wildlife & habitats.

GOAL  
Generate practical recommendations for how residential design and stewardship guidelines could be enhanced to improve their effectiveness for protecting native wildlife & habitats on private lands.

OUTCOME  
Recommendations, including model code language & supporting scientific evidence, for a selected set of planning, design, & mgmt processes that influence biological communities.

1. Require Consultation  
A. Certification for Bio.  
C. Involvement in design stage  
D. State agency wildlife biologists  
E. Fed agencies, USFWS, NRCS

1. Require Consultation  
O. Begin at site Selection (listed in P)  
P. Plan for land trust (priorities are accounted)  
Q. Consultation w/ key players early (checklist)  
R. Consultants involved in design, of mgmt plan  
S. Construction manager that is aware of biology

1. Require Consultation  
F. Additional training  
H. Land trust/other NGO  
I. Univ scientists  
K. Developer hired consultants

1. Require Consultation  
T. Suggestions can be used to modify design to their needs  
U. Context dependent  
V. 2 places of engagement: higher level, dev already underway

1. Require Consultation  
L. Nature of engagement  
a. Nat resource inventory  
b. timing of inventory  
c. synth avail info  
b. State/Fed threatened or endangered

Abiotic/Physical  
A. Topography/slope  
B. Hydrologic features  
C. Soil conditions  
D. Water quality  
E. Existing disturbance  
F. Natural disturbance - fire, floods, etc

1. Require Consultation  
M. Important cons. areas (habitats)  
e. habitat map  
f. local knowledge (universities)  
g. community id. imp habitat  
h. indigenous resources and agricultural resources

Ecological Site Analysis Context  
A. Ecological and Social context beyond the boundary - migration corridors, ownership, land use, development patterns, protected lands, context informs with sit open space  
B. Land cover/veg

2. Ecological Site Analysis Habitat  
A. Bio Habitat Quality/integrity  
B. Evidence of prior disturbance or degraded resources (invasives)  
C. Biogenic habitat types - snags, cañons, vernal pools, wetlands, riparian, grasslands, cliffs, deserts, caves, riparian slopes, early successional habitats, prairie remnants

2. Ecological Site Analysis Habitat cont  
C. Cont  
- streamer sites, ephemeral wetlands, prairie potholes, wintering areas, woody draws, forests/wetlands, moistest conditions, shrub communities  
D. Mapping on site veg  
E. Consult sources (see process)  
F. Inventory of wildlife/cw species - SOCN

2. Ecological Site Analysis Process cont  
G. Timing (abiotic hydrologic, species specific) seasonality

2. Ecological Site Analysis Process  
A. Complete ecological site analysis prior to design  
B. Monitor pre-construction conditions (soil, H<sub>2</sub>O, etc)  
C. Who to include - developer, biologists, local experts - habitat and species occurrence data  
D. Analysis - USFWS or other agreement - spatial priority ranking/mapping  
E. Evaluate long-term effects of built or open  
F. Consider alternate designs - dev. of what might change after construction - req. site construction to ensure that impacts are reduced during design



# What needs to change?

Improve ordinances by integrating biological recommendations  
(Workshop 2)

- Participants

*Researchers, planners, and consultants from universities, regional planning agencies, and technical support organizations in NY, VT, NH and ME.*

- Goal

*Review existing land-use planning tools and collaboratively generate suggested revisions and improvements to enhance wildlife conservation opportunities on private lands.*



# What needs to change? Focus on ordinances

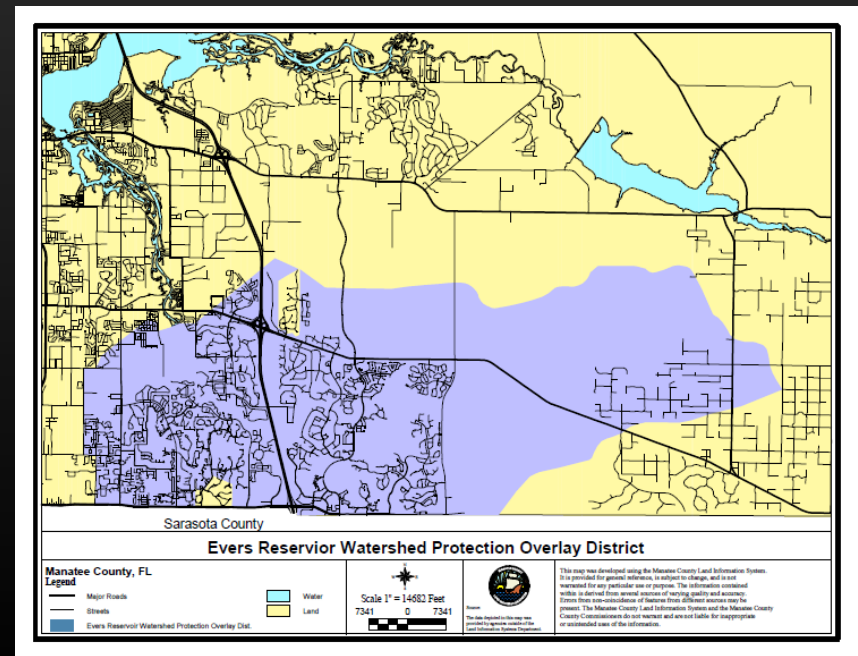
Tool	Towns with tool (n=90)
Conservation Development	72 (80%)
Overlay District	62 (69%)
Subdivision Design Standards and/or Review Criteria	38 (42%)
Environmental Analysis	27 (30%)
Density Bonus	18 (20%)
Transfer/Purchase of Development Rights	9 (10%)
Sustainable Design Certification	5 (6%)
Payment for Ecosystem Services	0





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# Participatory process to make recommendations

Conservation Development	Examples
An approach to the design, construction, and stewardship of a development that achieves functional protection of natural resources, while also providing social and economic benefits to human communities. Homes in CD subdivisions are built on smaller lots and clustered together, allowing for a substantial portion of the property (typically >50%) to be permanently protected for conservation purposes.	Newry, ME Elmore, VT Model, NH Dublin, NH Peterboro, NH

1) Start with model ordinances and local examples

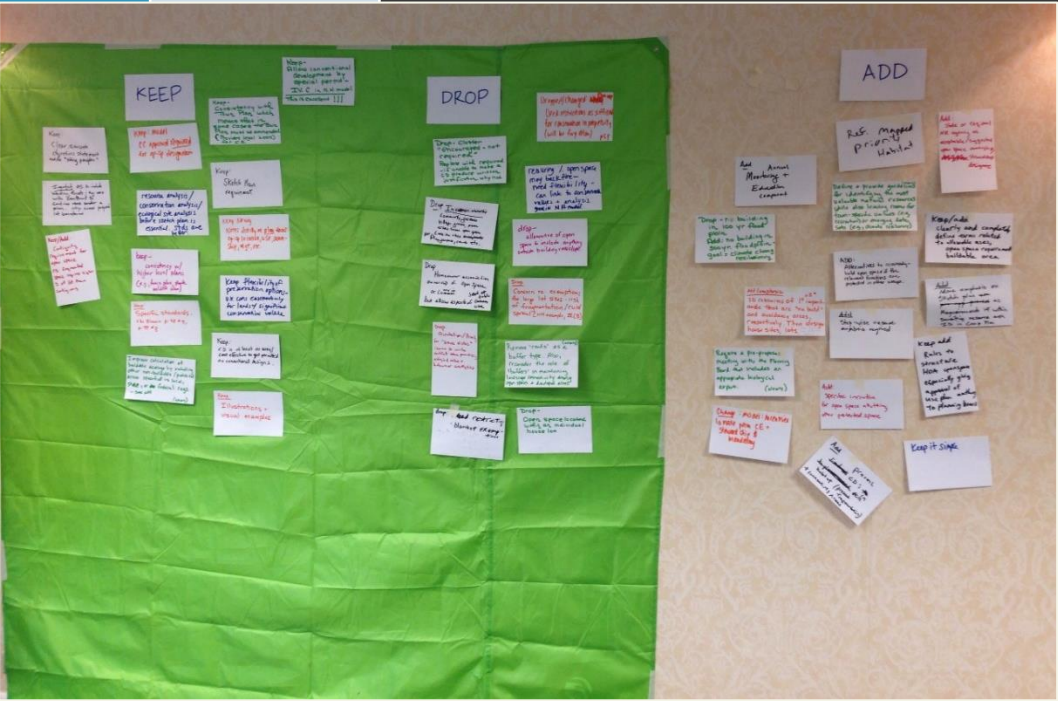




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2) Identify elements to keep, drop, or add

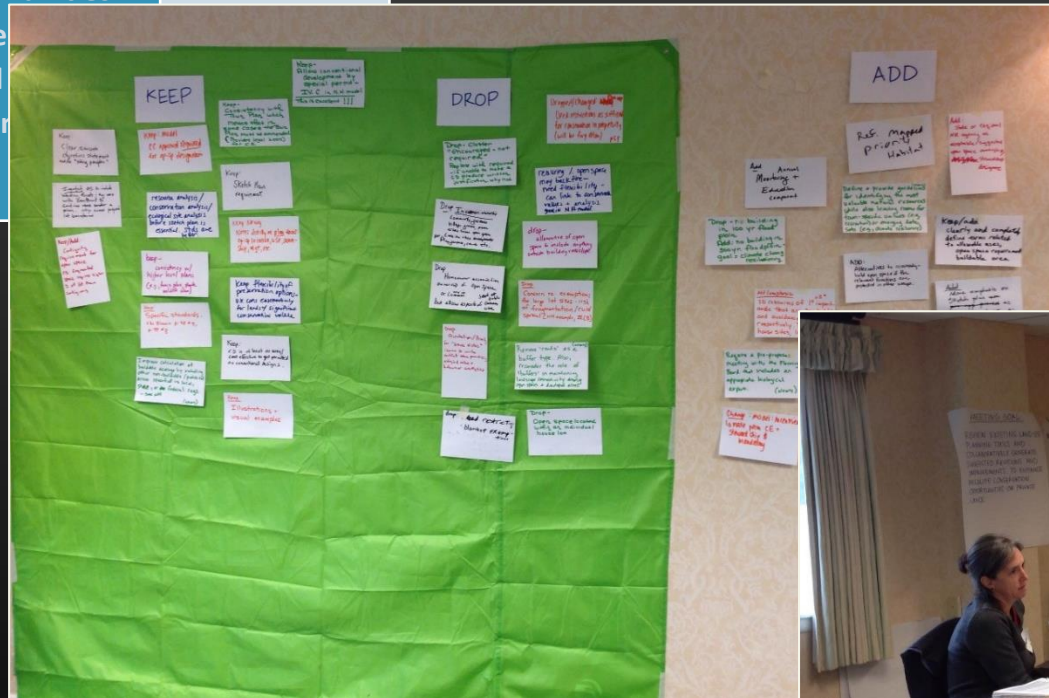


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3) Collaboratively develop composite models

## WCS ADIRONACKS

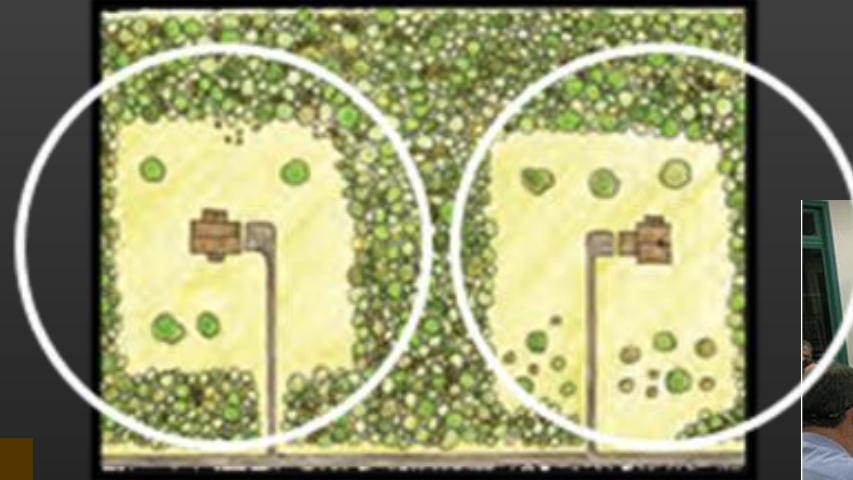
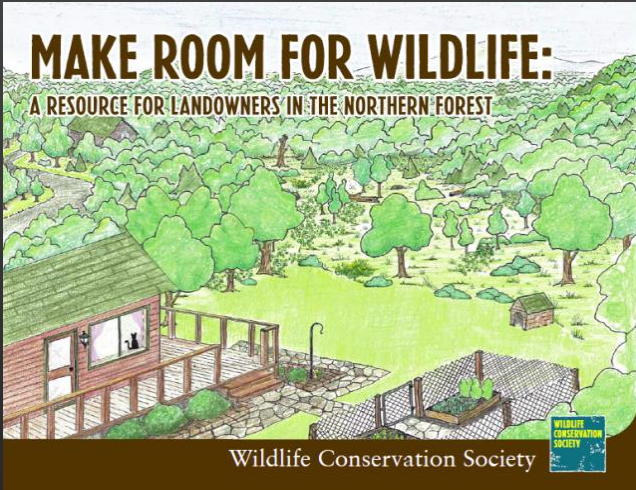
Incorporating wildlife science into land-use planning to improve private lands conservation



A SYNTHESIS REPORT  
Heidi E. Kretzer and Sarah E. Reed  
April 30, 2017



# Compile information– but that's just the beginning



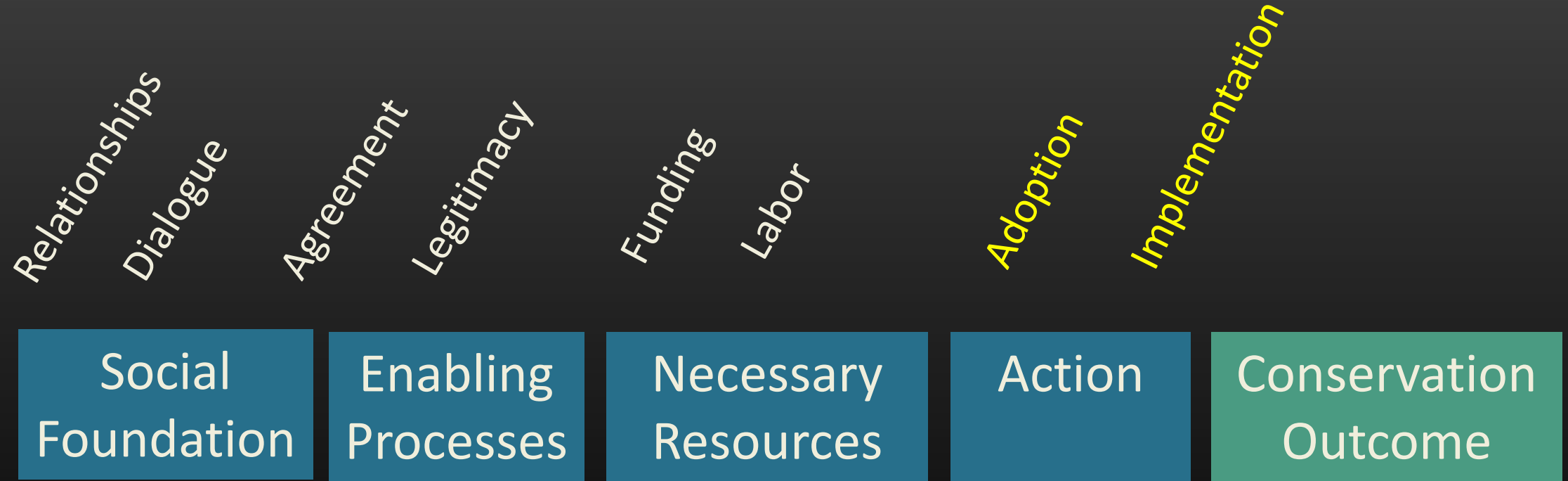
### A WILDLIFE-SENSITIVE HOME IN THE NORTHERN FOREST

Whether you are building a new home or making management decisions in your existing home, you have a variety of opportunities to minimize adverse impacts and maximize benefits to wildlife.

- A variety of types of trees are present, including snags and fallen logs, which provide important habitat.
- The house is near the main road and the neighbors, protecting the large intact block of woods nearby.
- The lawn is small and is maintained without chemicals.
- Compost is in a secure, wildlife-resistant container.
- Pets are restrained or kept indoors to avoid causing harm to wildlife.
- The house's windows do not reflect outside vegetation or show inside houseplants; reflected vegetation often attracts birds, which then die when they hit the glass.
- The house's landscaping includes mostly native species and completely avoids invasive plants.
- Fences around gardens prevent potential conflicts with wildlife.



# How do we engage? Collaborative conservation action



Social, Conceptual, and Technical Learning



(adapted from Lauber et al. 2014)



# “Strong” ordinances



- (a) Purpose includes objective(s) related to wildlife, habitat, species, or connectivity conservation
- (b) Includes quantitative requirement for land protection ( $\geq 50\%$  of site area)
- (c) Requires ecological site analysis
- (d) Requires management plan for open space



# How do we engage? Emerging themes

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Motivations: 1) Development threat or protect rural character  
2) State statutes or required code updates/a revision process resulted in stronger ordinances, **but top-down less likely to be implemented unless:**

Capacity (e.g., individuals or outside experts) **AND**

Dialogue (e.g., among the municipality, the public & the developer)

“One of the things that the town...does well is that they **sit down with you early on in the process**, with their plans, to discuss how you’re **fitting into the town** ...it’s a good approach because...it drives you to **think a little more outside of the property lines**...by having their open space plan and sitting down with you early on, **makes you consider linkages, natural open space, pathways** and that sort of thing.”

*~Eastern Town with Typical Ordinance*



# What conditions facilitate adoption and implementation of CD?

State Statutes Updates, Increasing Development, Rural Character, Economic Benefits, Wildlife

Capacity: Model Regulations & Consultants

ANSWER: Motivation and Capacity with productive Dialogue

Relation  
Dialog  
Agree  
Legitin  
Fund  
Labor  
Adopt  
Imple

Motivation

Social Foundation

Enabling Processes

Necessary Resources

Action

Conservation Outcome



Social, Conceptual, and Technical Learning

(adapted from Lauber et al. 2014)

# How do we engage? A road map for action

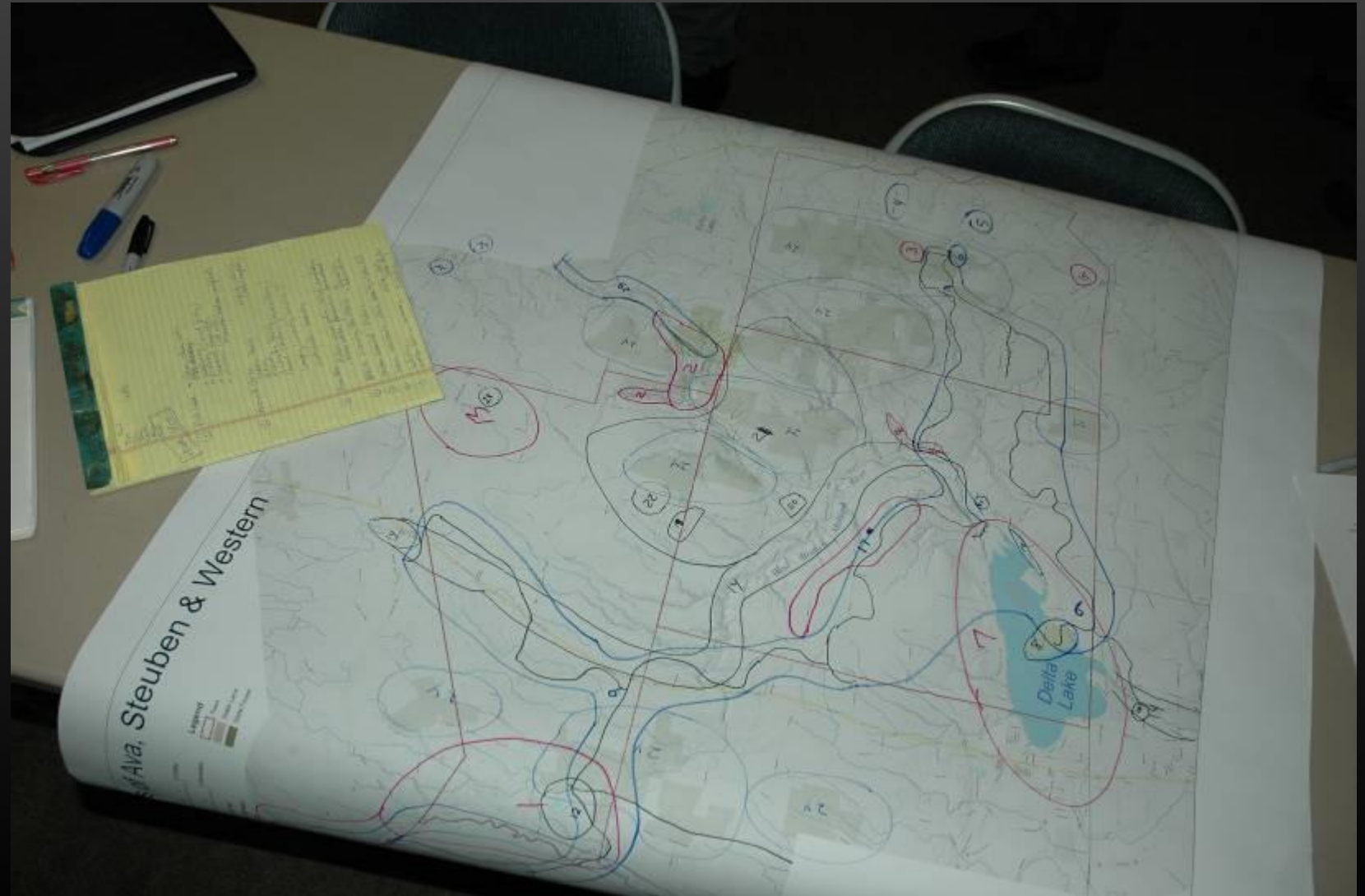
- Improve model ordinances
- Train the trainers/consultants
- Work where ordinances exist
- Connect with a motivation
- Community engagement



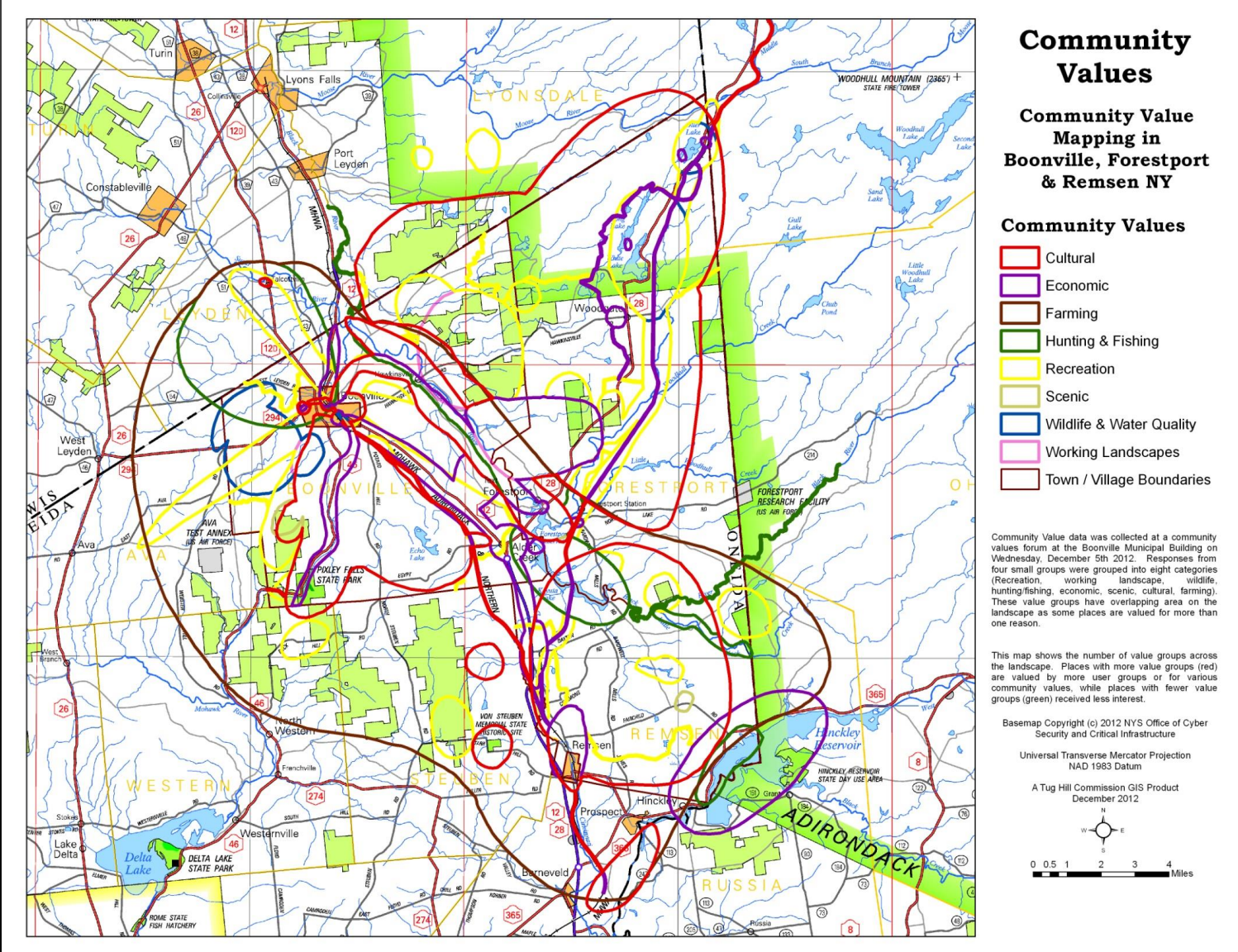
Community Values Mapping



# CVM: Identify important values

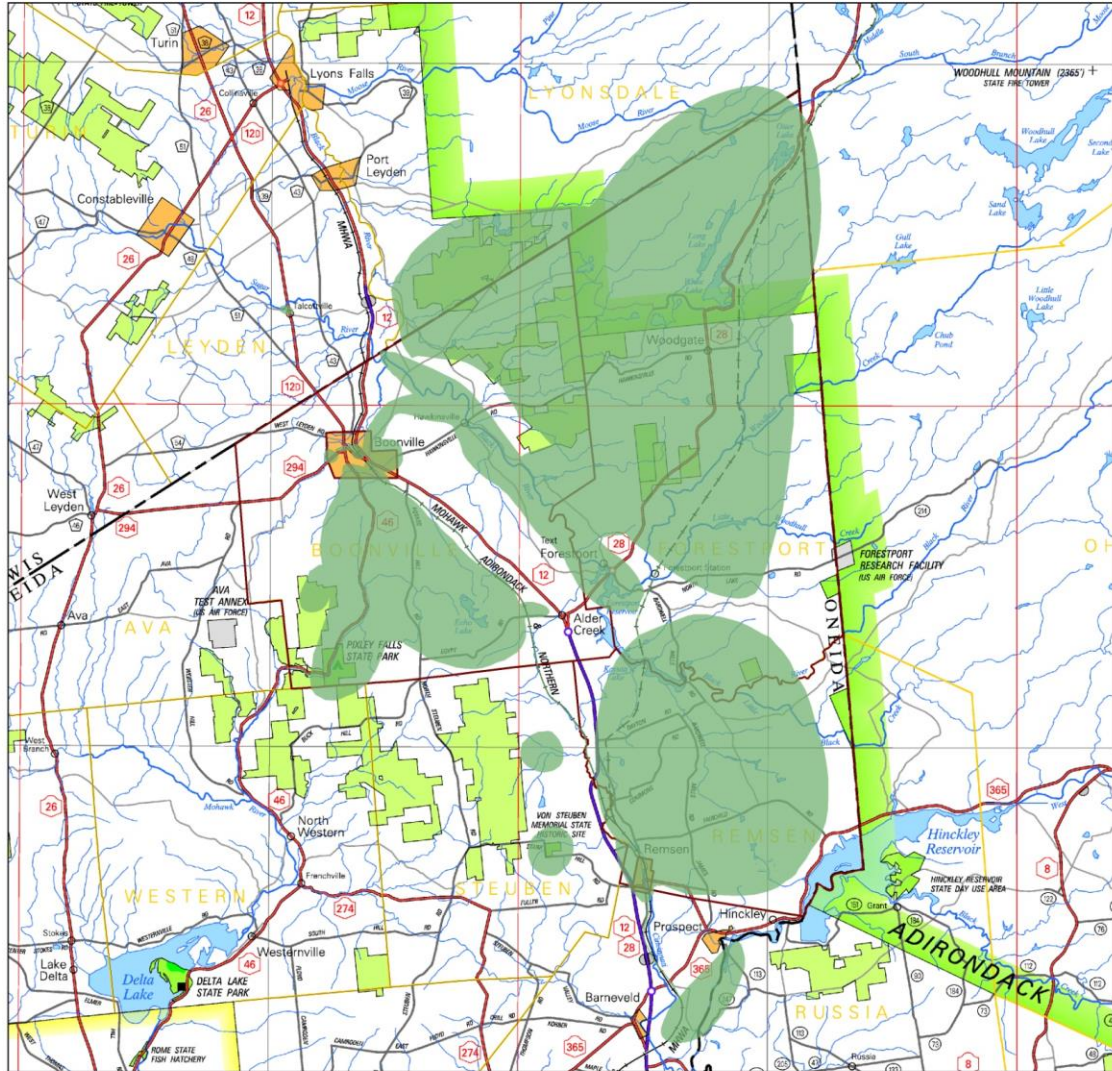


# CVM: Spatial display of values





# CVM: Cultural values



## Community Values

### Community Value Mapping in Boonville, Forestport & Remsen NY

#### Community Values

- Cultural
- Town / Village Boundaries

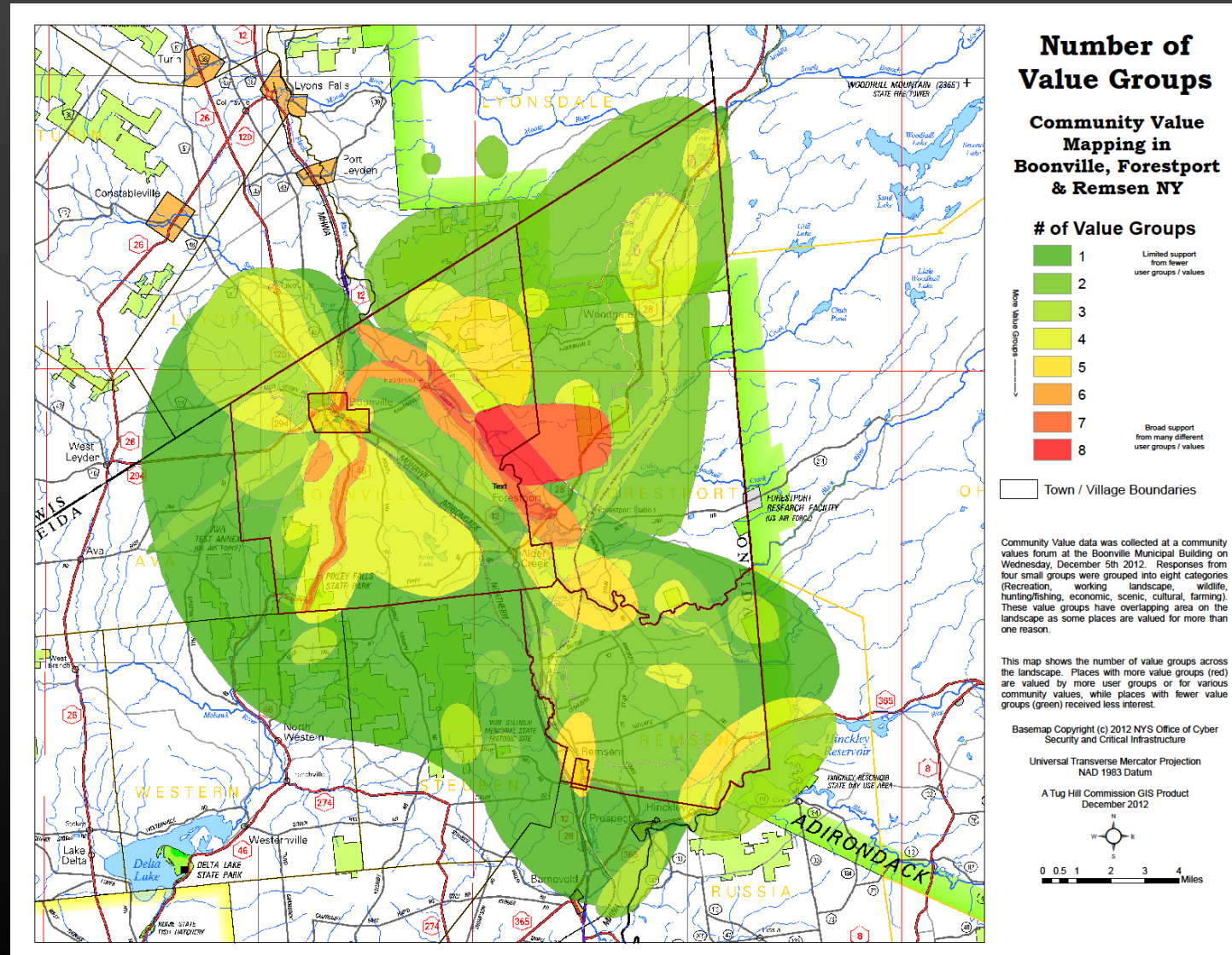
Community Value data was collected at a community values forum at the Boonville Municipal Building on Wednesday, December 5th 2012. Responses from four small groups were grouped into eight categories (Recreation, working landscape, wildlife, hunting/fishing, economic, scenic, cultural, farming). These value groups have overlapping area on the landscape as some places are valued for more than one reason.

This map shows the number of value groups across the landscape. Places with more value groups (red) are valued by more user groups or for various community values, while places with fewer value groups (green) received less interest.

Basemap Copyright (c) 2012 NYS Office of Cyber Security and Critical Infrastructure  
 Universal Transverse Mercator Projection  
 NAD 1983 Datum  
 A Tug Hill Commission GIS Product  
 December 2012



# CVM: Tools contribute to the planning process





# Engagement leads to action

AVA COMPREHENSIVE PLAN – 5/8/12

**TOWN OF AVA**

**COMPREHENSIVE PLAN**

**DEVELOPMENT IN THE**

**ADIRONDACK PARK**

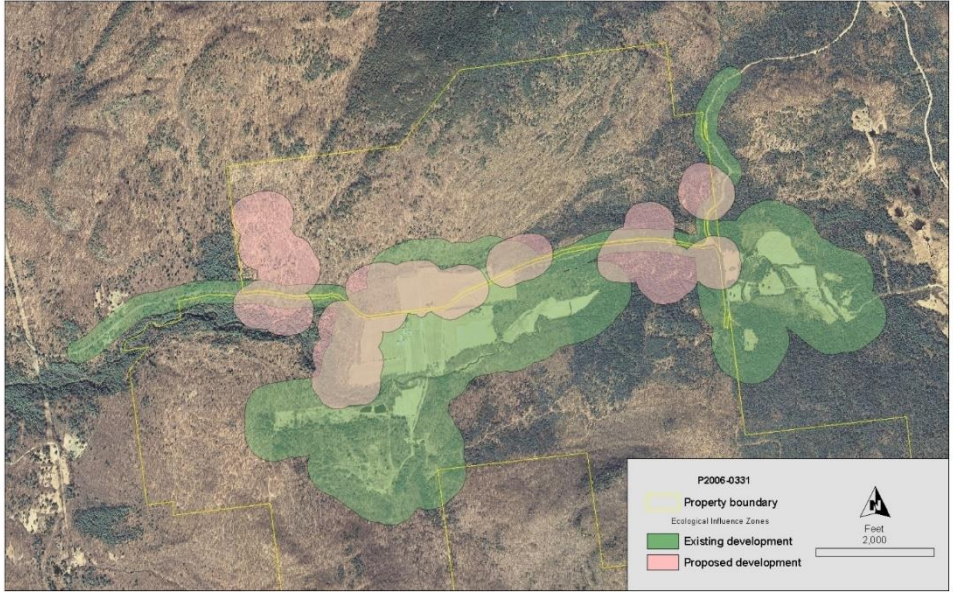
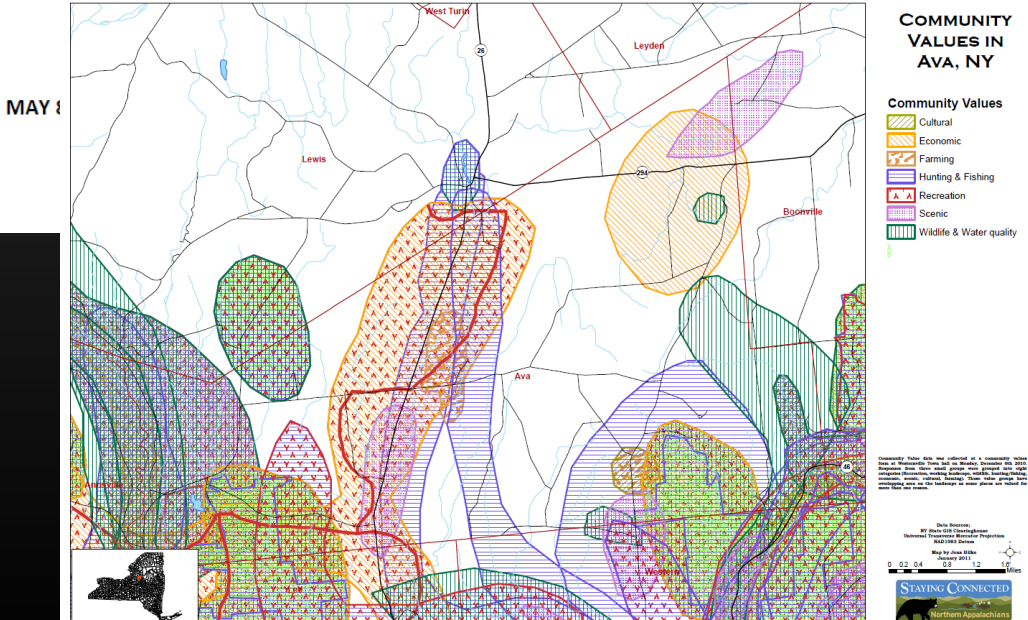
**OBJECTIVES AND GUIDELINES**

**FOR**

**PLANNING AND REVIEW**

**BY**

**ADIRONDACK PARK AGENCY**





# How to engage? Build a community of practice

- Recognize many forms of engagement
- Facilitate productive dialogue
- Commit long-term
- Integrate current science

“[The workshop] helped stimulate some thinking that is invaluable in dealing with the project we have underway. It really helped me better understand what the problems and opportunities are... it was a **paradigm shift** that I think will help us make much better progress.”

*~Maine land-use planner*





# This is not the end!

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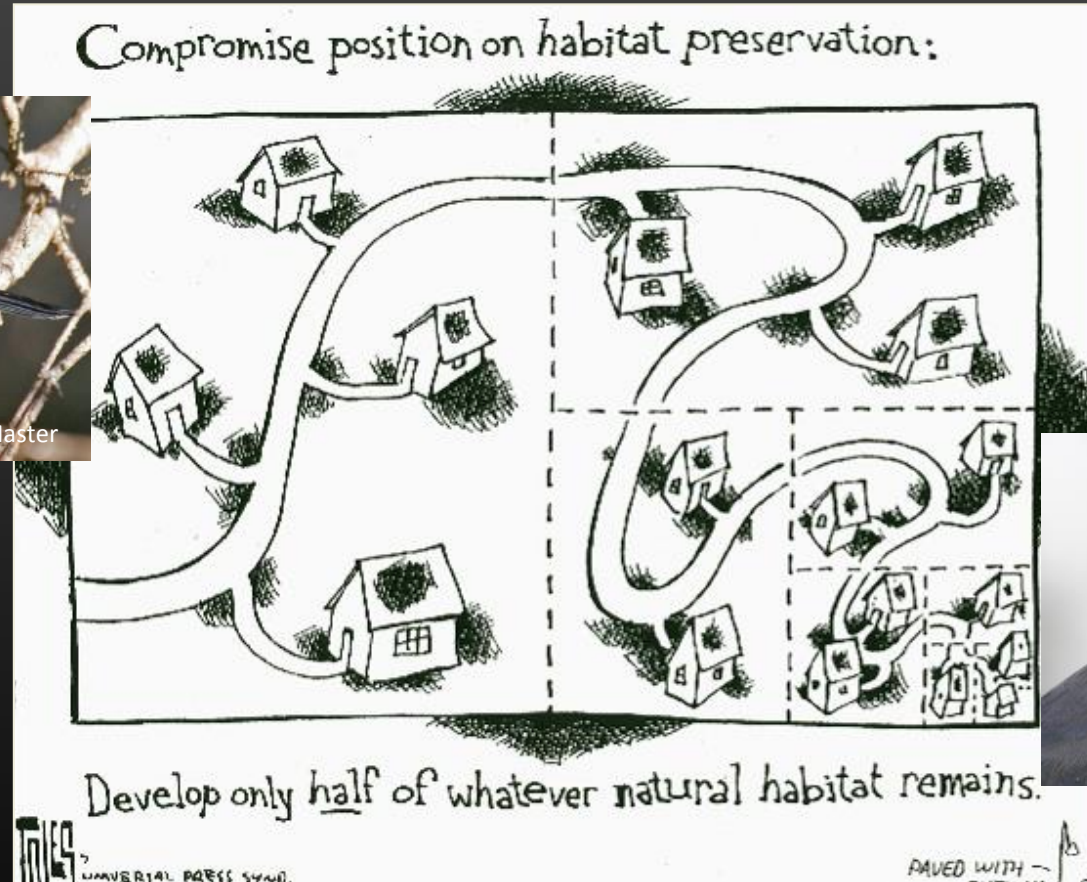
- Wildlife need private lands
- Simply having open space isn't enough
- Land-use planning and community engagement offer important opportunities for private lands protection



# Acknowledgements – Together we can do better!



L. Master




L. Master

Dr. Michale Glennon, Dr. Sarah Reed, Dr. Liba Pejchar, Zoe Smith, Leslie Karasin, National Science Foundation Grant No. 1060505 Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation, Northeastern States Research Cooperative, Northern NY Audubon, NYS Biodiversity Research Institute, Multi-state SWG program, Doris Duke Foundation, North Atlantic Landscape Conservation Cooperative, Adirondack Park Agency, Tug Hill Commission, Two Countries One Forest, Hudson River Estuary Program, Staying Connected Initiative, Center for Collaborative Conservation, Robert & Patricia Switzer Foundation, National Association of Realtors, School of Global Environmental Sustainability, Society for Conservation Biology, USDA Forest Service, many field and research assistants







Thank You  
[hkretser@wcs.org](mailto:hkretser@wcs.org)





**Wildlife  
Conservation  
Society**