Participatory GIS: Case Study for Southern Maine

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The Baldwin Group at the NOAA Coastal Services Center

GeoTools 2009

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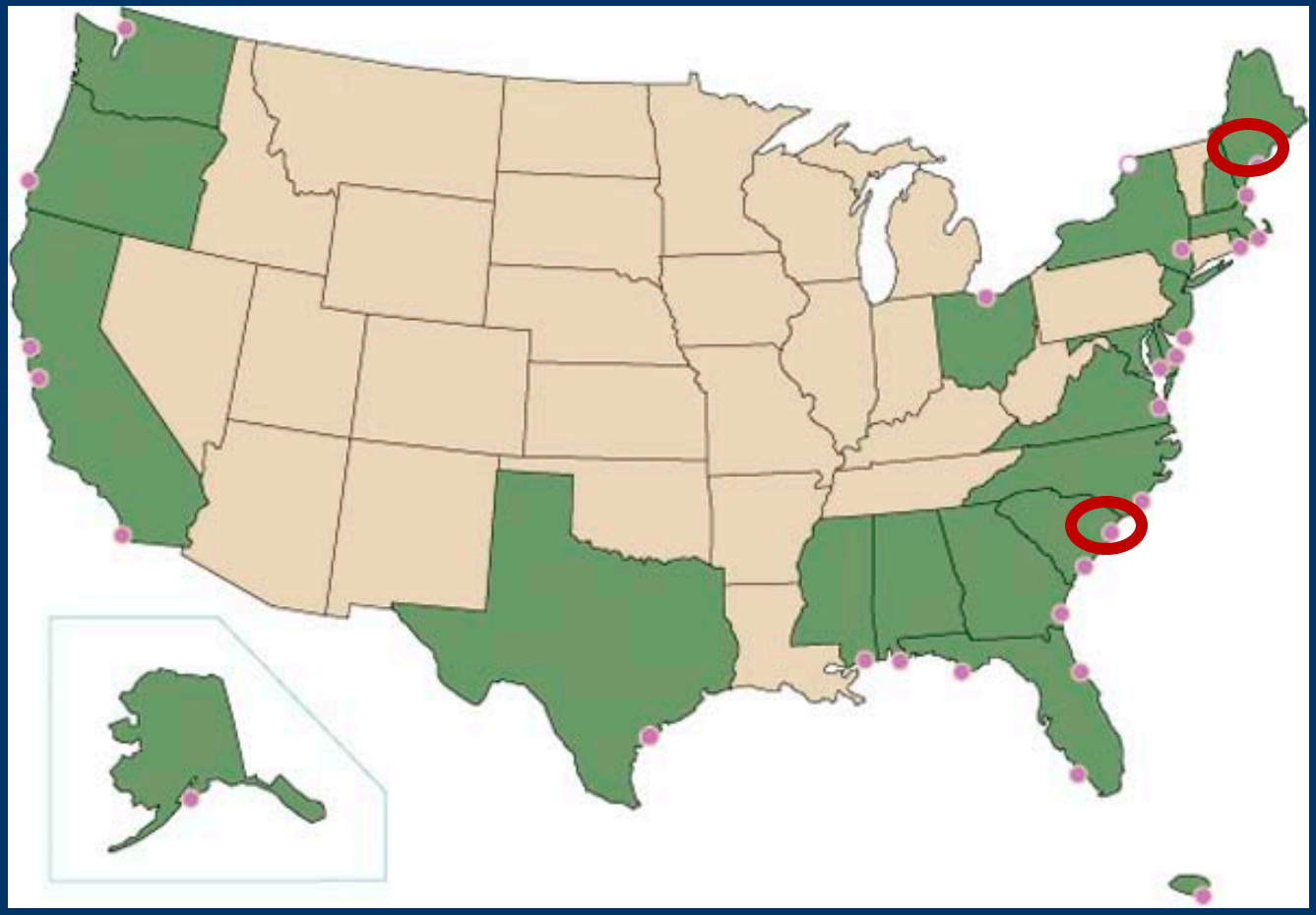
Participatory GIS Pilots with Two Estuarine Reserves



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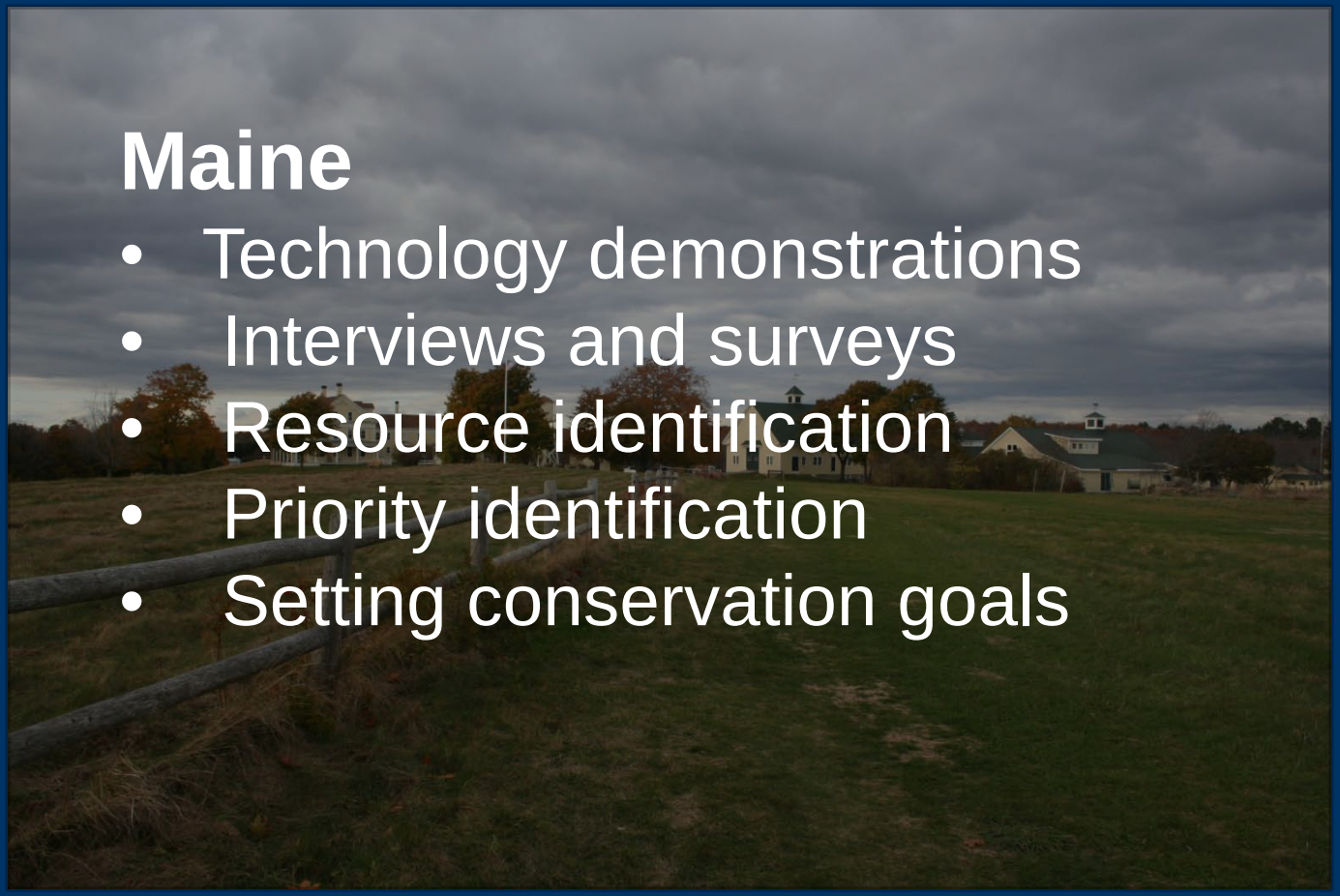
Great Works Regional Land Trust (GWRLT) and Wells NERR



Maine

- Technology demonstrations
- Interviews and surveys
- Resource identification
- Priority identification
- Setting conservation goals

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GWRLT Surveys and Interviews

Interviews

- Targeted recipients, in-person interview
- Personal preferences regarding conservation
- Specific areas to be conserved
- Other members that would be interested

Surveys

- Broad membership, mailed with new outreach products
- One page
- Top 5 natural resources
- Top 5 threats
- Unique features

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Survey and Interview Results

34 Specific Features Identified for Conservation
14 General Feature Types

Highest Priority for Conservation

- 60% – Large natural areas
- 57% – Wetlands
- 43% – Farmland
- 41% – Wildlife

Threats to Natural Areas

- 80% – Development
- 42% – Change in Land Ownership
- 42% – Habitat Fragmentation
- 40% – Cost of Land Protection
- 36% – Cost of Land Ownership

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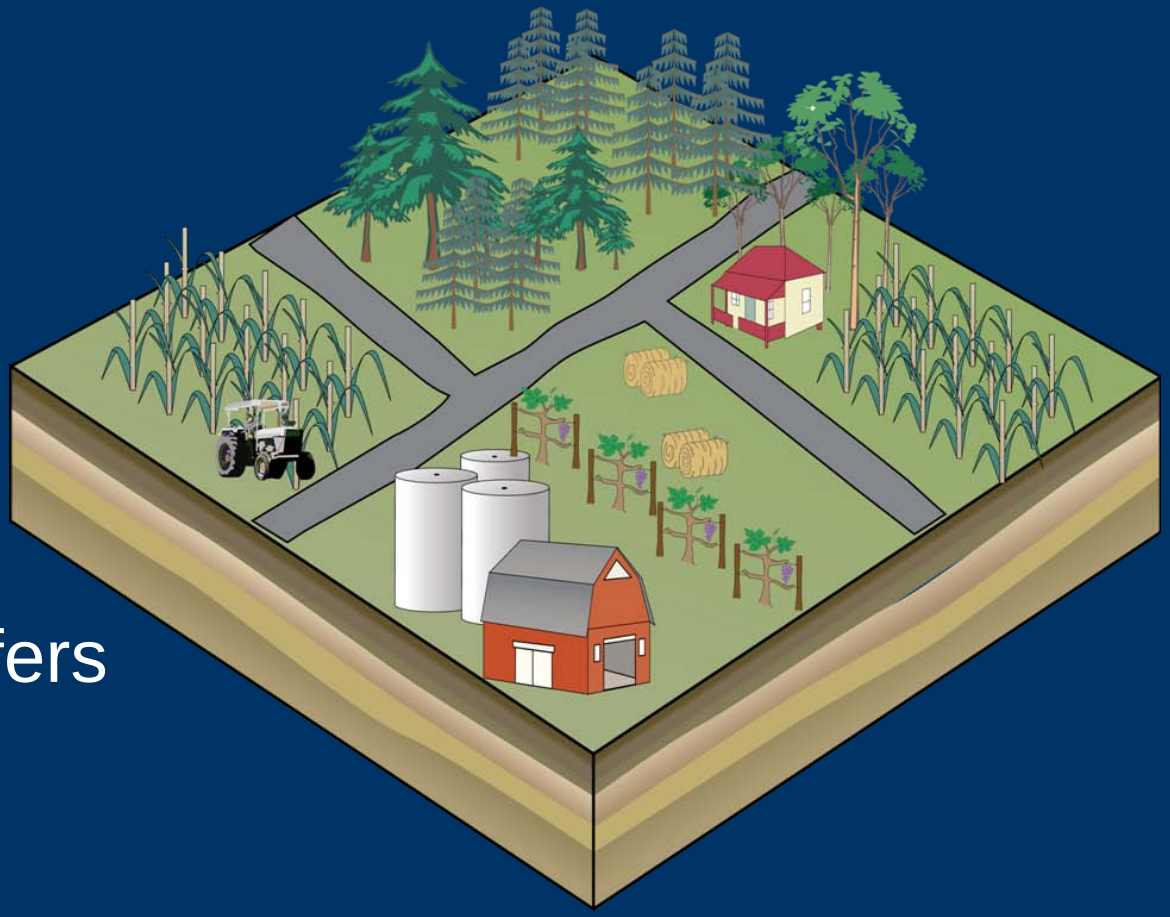
GWRLT Conservation Goals

- Farmland
- Forests
- Riparian buffers



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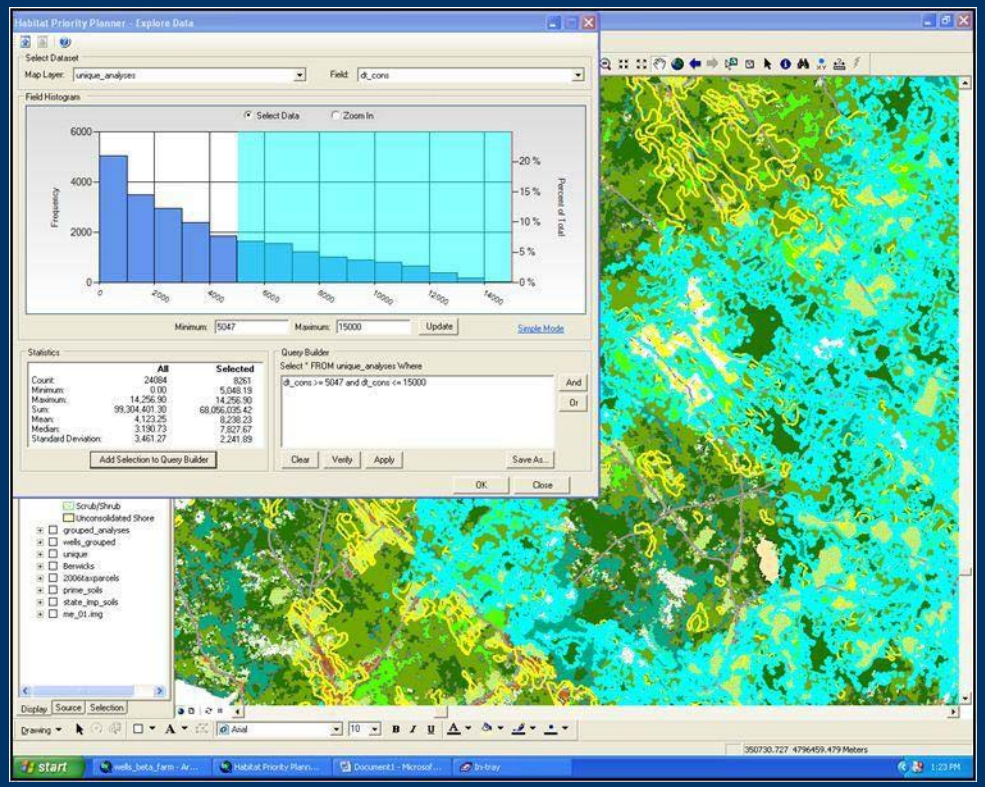
Participatory GIS Tool: Habitat Priority Planner

Decision-support tool for

- conservation
- restoration
- land use priorities

Designed for interactive use with stakeholders



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Habitat Priority Planner

Step 1: Classify Habitats

According to user goals

Step 2: Habitat Analysis

Habitat Quality

Habitat Connectivity

Step 3: Explore Data

Stakeholder engagement

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Habitat Priority Planner Demonstration

Goal 1

Incorporate high-resolution impervious surface data into all goals.

Goal 2

Preserve farmland containing specific soil types, close to conserved lands, and maintain known farms.

Data for Example

GIS layers

- Raster land cover
- Grouped Habitat Priority Planner run
- Impervious surface layer
- Soils data
- Known farm point data
- Conserved lands

Analyses

- Group habitats
- Area
- Presence / Absence of known farms
- Distance to conserved lands
- Polygon overlay farmland and soils

Farmland-State Soils, Final Results

Selection Criteria

- Farmland
- Containing 50% or more state soils
- Within 2 miles of Conserved Lands
- Containing known farmland

4 Habitat Patches Qualified

- Ranging from 35 to 278 acres
- From 0 to 5000 ft from currently conserved lands

GWRLT Comprehensive Plan Results

- **Using participatory GIS enhanced scope**
- **Goals for 5, 10, 25 years (30%)**
- **Alternative methods**

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Lessons Learned

- **Participatory GIS enhances goal development and stakeholder buy-in**
- **Local presence enhances partnership building**
- **Funding, technology, timelines, and communication are key**
- **Data gaps may limit quality of decisions**

Thank You!

" [The Habitat Priority Planner] changed the way the land trust will act on future conservation projects."

– Tin Smith, Well National Estuarine Research Reserve

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