Issues, Challenges and Opportunities at the Wildland-Urban Interface

Annie Hermansen

USDA Forest Service,

Southern Research Station

Eliana Kämpf Binelli

School of Forest Resources and Conservation,

University of Florida

Outline

- What is the WUI?
- Historical Perspectives
- WUI Issues
- Challenges to Natural Resource Management
- The Toolbox
- Needs in the WUI
- Final Considerations

General Definition:

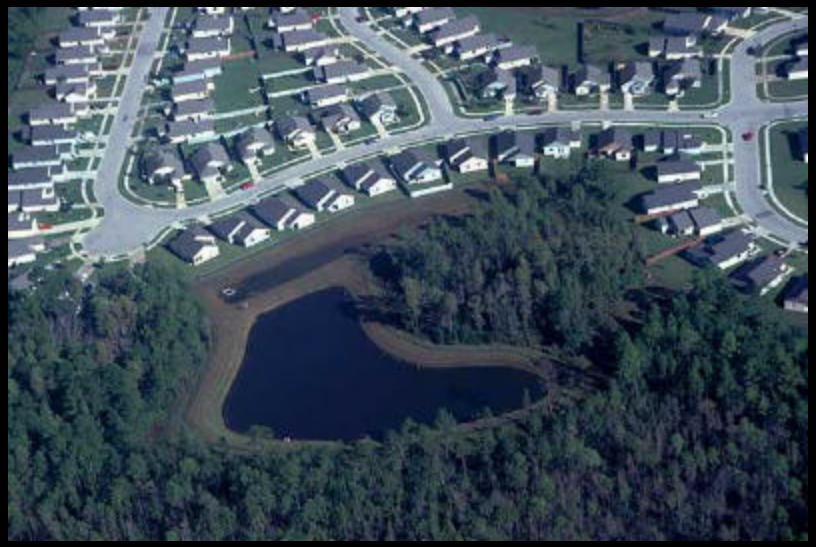
Areas or zones where increasing human influence and land use conversion are changing natural resource benefits, services, and management.

Source: Southern Wildland-Urban Interface Assessment

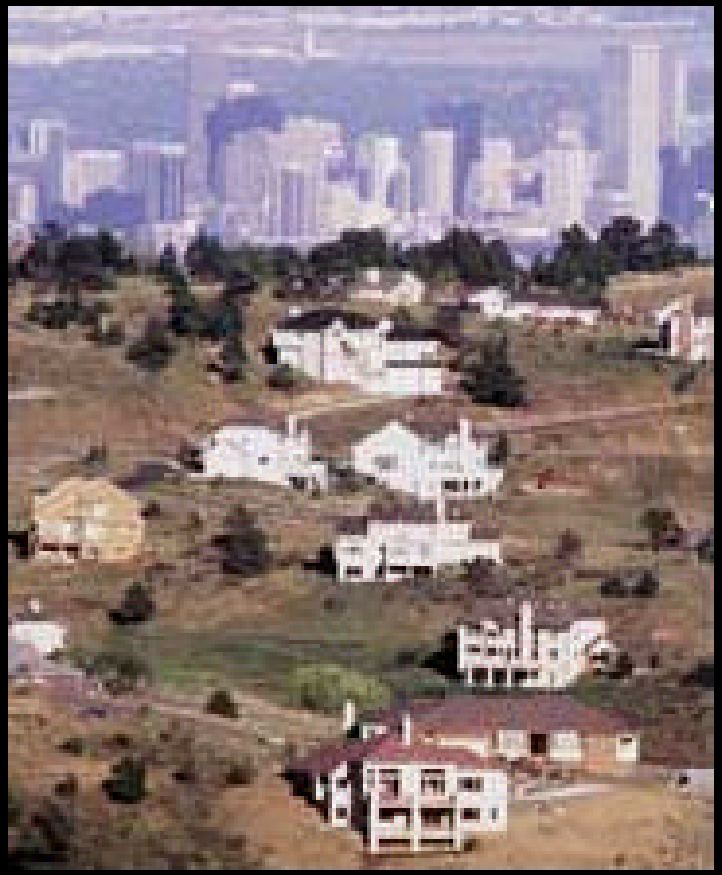
Defining the WUI

More specifically:

- geographical
  - classic interface
  - Intermix
  - isolated interface
- fire
- socio-political



Geographical



1. “Classic Interface”

Geographical

2. “Intermix”

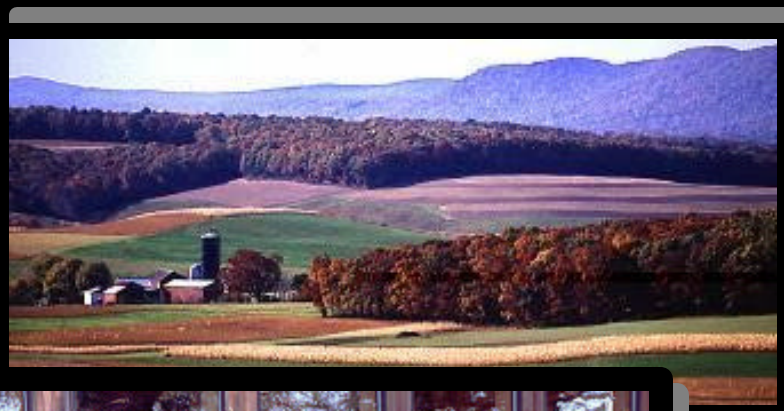
Geographical

3. “Isolated Interface”

Fire

A zone where man-made infrastructures are in and adjacent to areas prone to wildfire.

Socio-Political



Interaction of different political forces and potentially competing interests

Characteristics

- Encroaching urban developments
- Loss of natural areas
- Fragmentation

Characteristics

- Increasing number of land owners
- Decreasing parcel size

- Loss of connectivity
- Changes in biodiversity
- Alteration of forest structure and composition

Encroachment of invasive species

Characteristics

67% of invasions in FL originate from ornamental horticulture plants

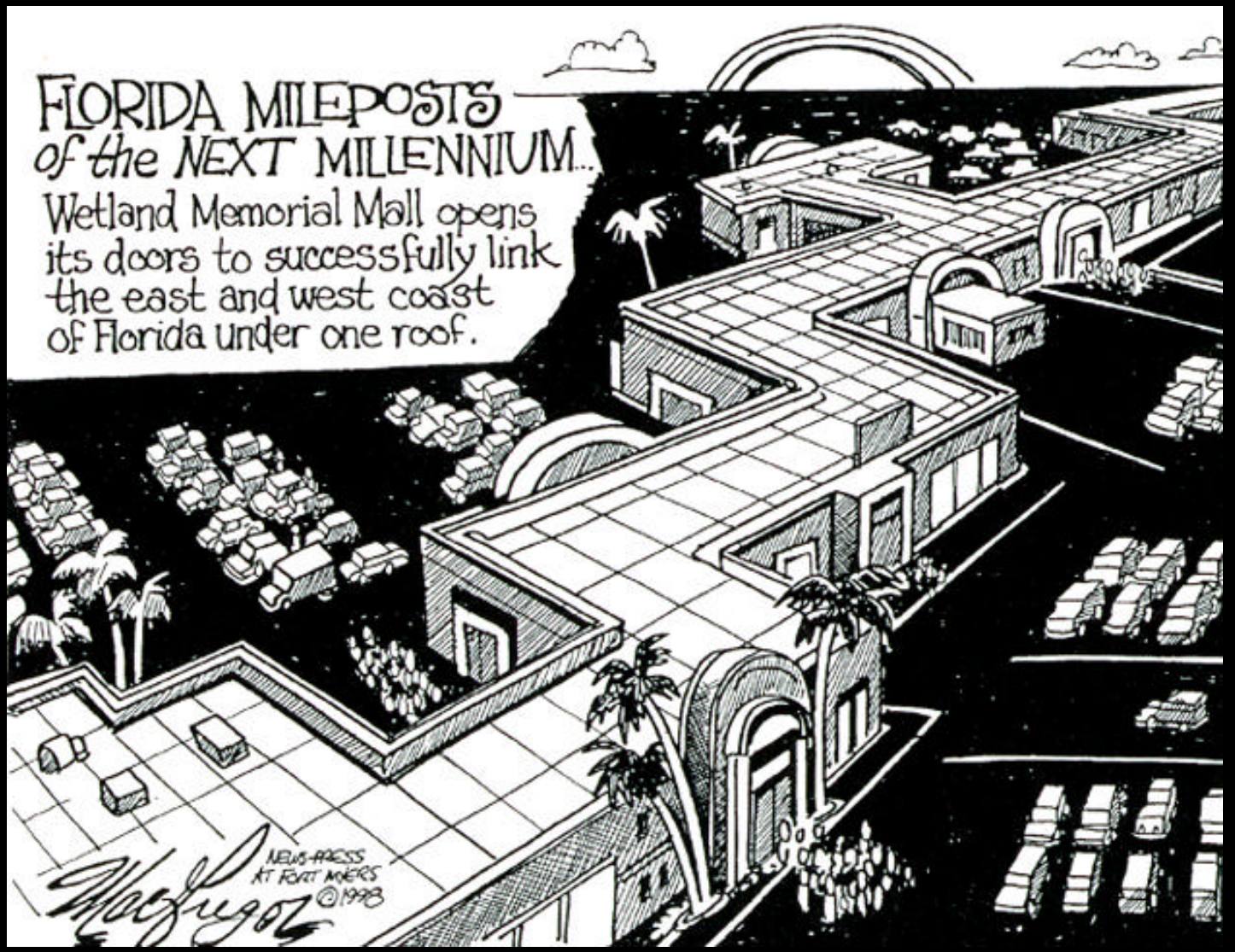
More impervious surfaces

Characteristics

Alteration of natural waterways

Characteristics

Urban Wildlife



Generic development

Characteristics

Loss of “feeling of place”

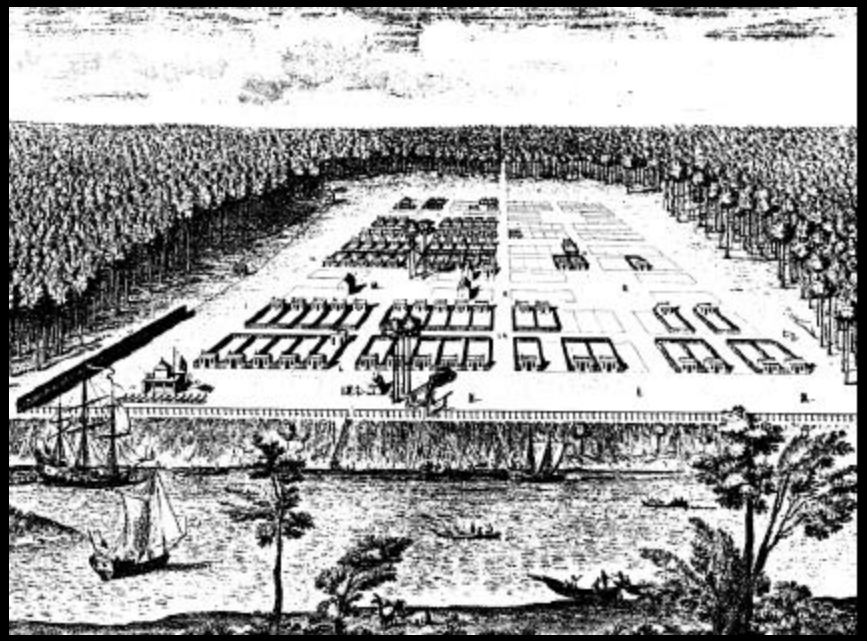
Characteristics

Contrast of land uses

Historical Perspectives

I. Land ownership and use in the U.S.

- Offshoot of the British land tenure system (fee tail vs. fee simple)



Early Savannah, GA
Source: Kundell et al., 1989

Historical Perspectives

- "Takings issue" – societal rights vs. individual rights
  - Takings clause (5th Amendment)
  - Kohler vs. Pennsylvania
  - Environmental regulations

Source: Kundell et al., 1989

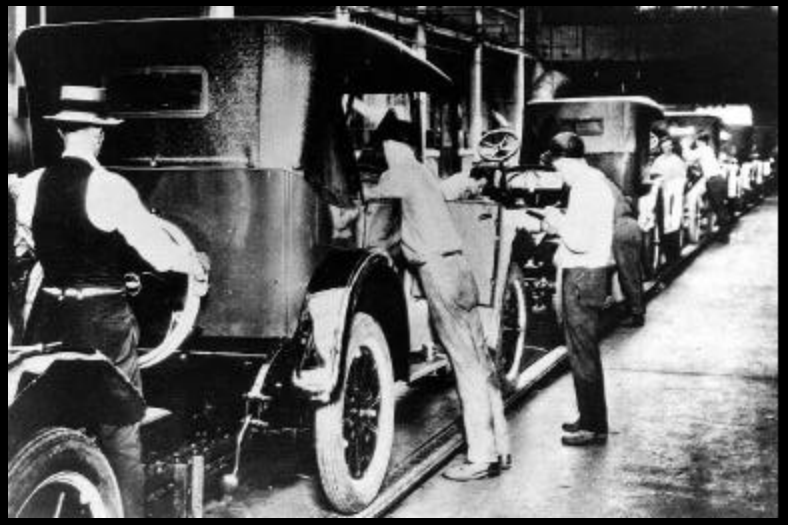
II. Settlement Patterns

- rural ⇒urban ⇒rural
  - In 1690 – only 1/10th population was urban, with clear line where cities ended and countryside began
  - In 1860 – 100 cities with populations exceeding 10,000
  - In 1910 – over 50 cities with 100,000+ people

Source: Cullingworth 1997

Historical Perspectives

- Development of the train, street cars, and automobile



- Construction of roads, interstate highways

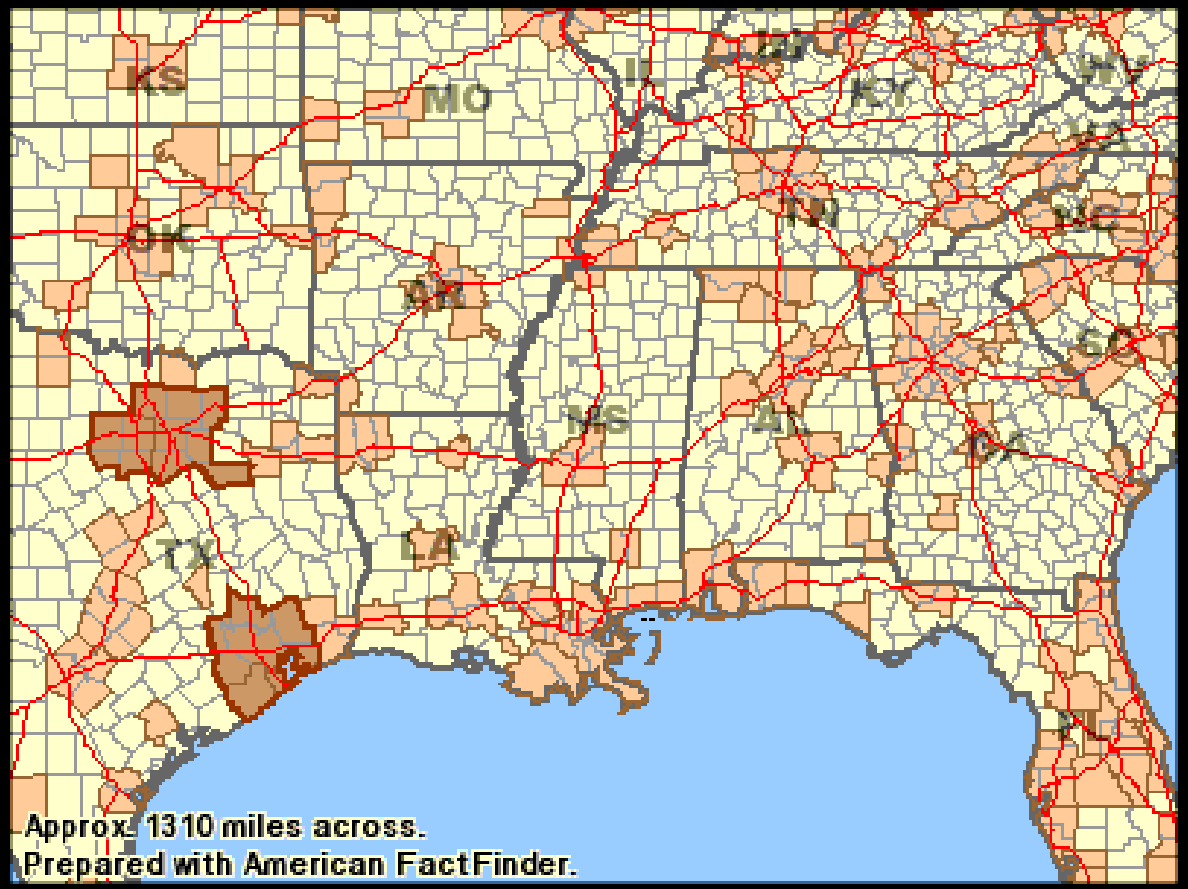
- Creation of the suburbs; dispersed settlement patterns

Human Influences on Forest Ecosystems:

Assessing the Southern Wildland-Urban Interface

- ✓ Scope
- ✓ Objectives
- ✓ Products
- ✓ Focus Groups

Scope



13 Southeastern states

1. Describe the WUI in terms of its scale and dynamics.

2. Examine factors driving change at the interface and resulting effects.

3. Involve and promote dialogue about interface issues.

4. Identify past and current interface research, programs, and technology transfer.

5. Identify critical interface research, management options, and technology transfer that will meet future needs in the South.

Focus Groups

- Six locations across the South
  (AL, VA, TX, MS, GA, FL)

- Planners, developers, foresters, policy makers, fire fighters, local government officials….

- Identification of challenges, opportunities, and needs.

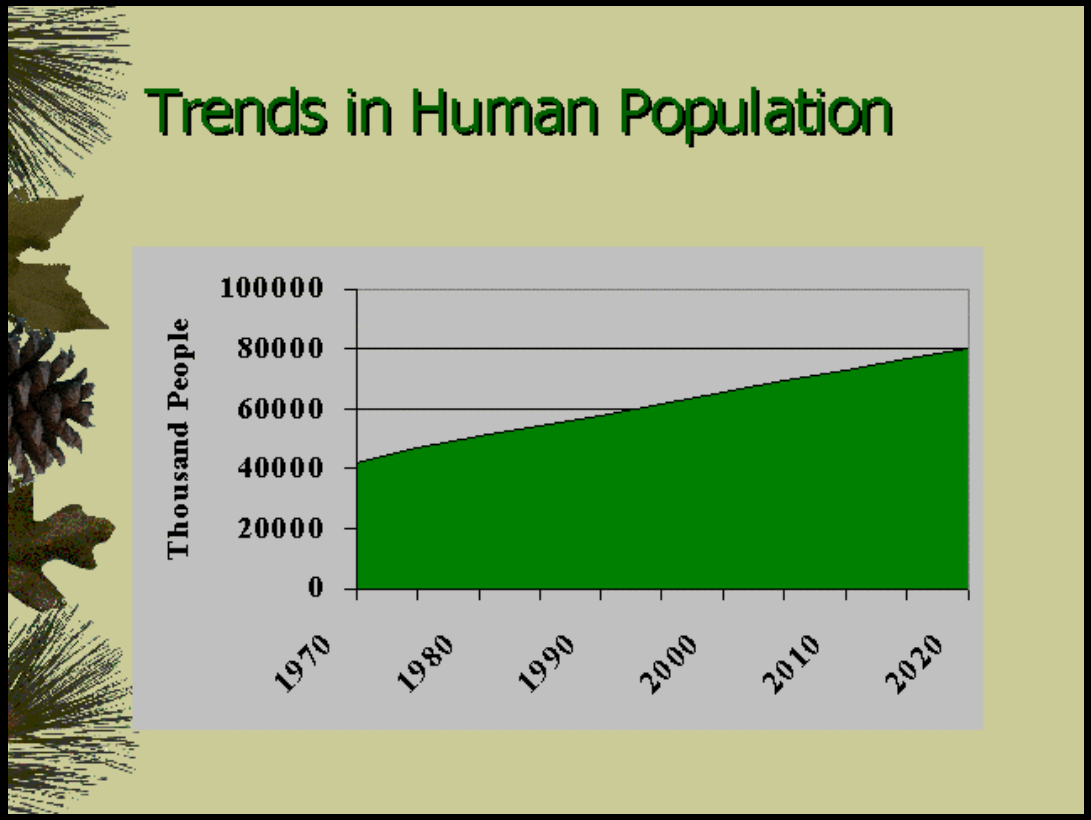
- ✓ Assessment Publication
  - Focus group reports
- ✓ Project Summary
- ✓ Brochures
- ✓ Website:

www.interfacesouth.org

Wildland-Urban Interface Issues

Issues

- Population growth



Source: USDA Forest Service, Southern Forest Resource Assessment

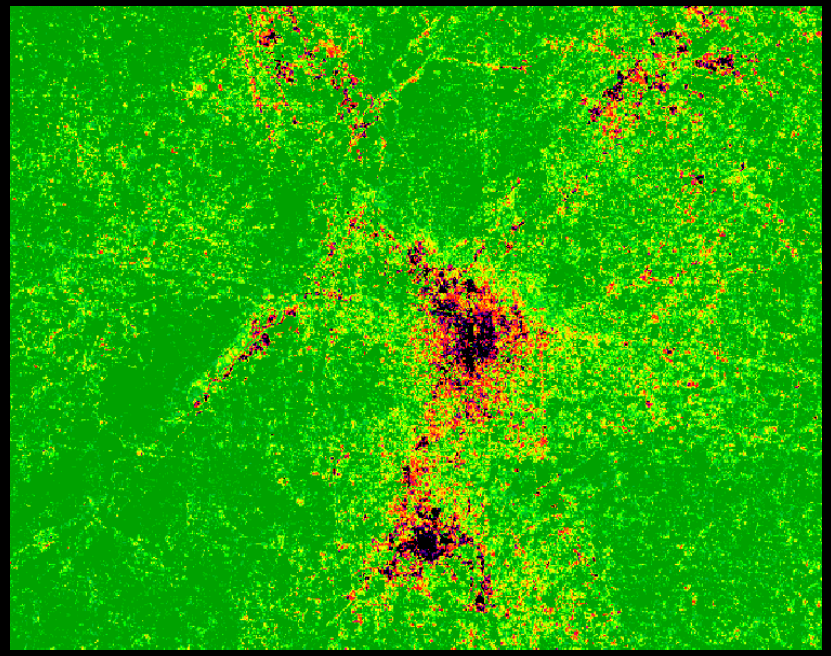
Issues

- Diverse cultural backgrounds, values, perceptions and attitudes

Source: Kundell et al., 1989

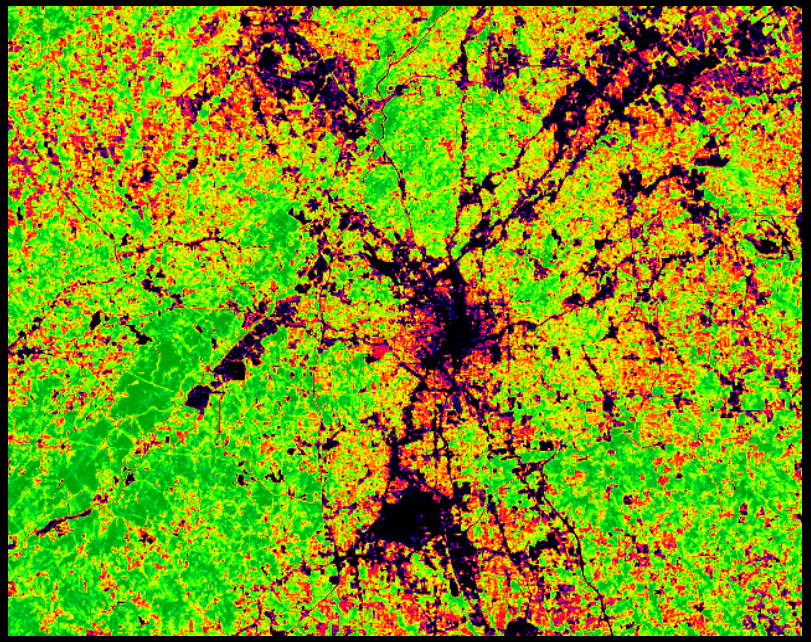
Issues

- Urban Sprawl – low density development



1972

Atlanta, GA



1993

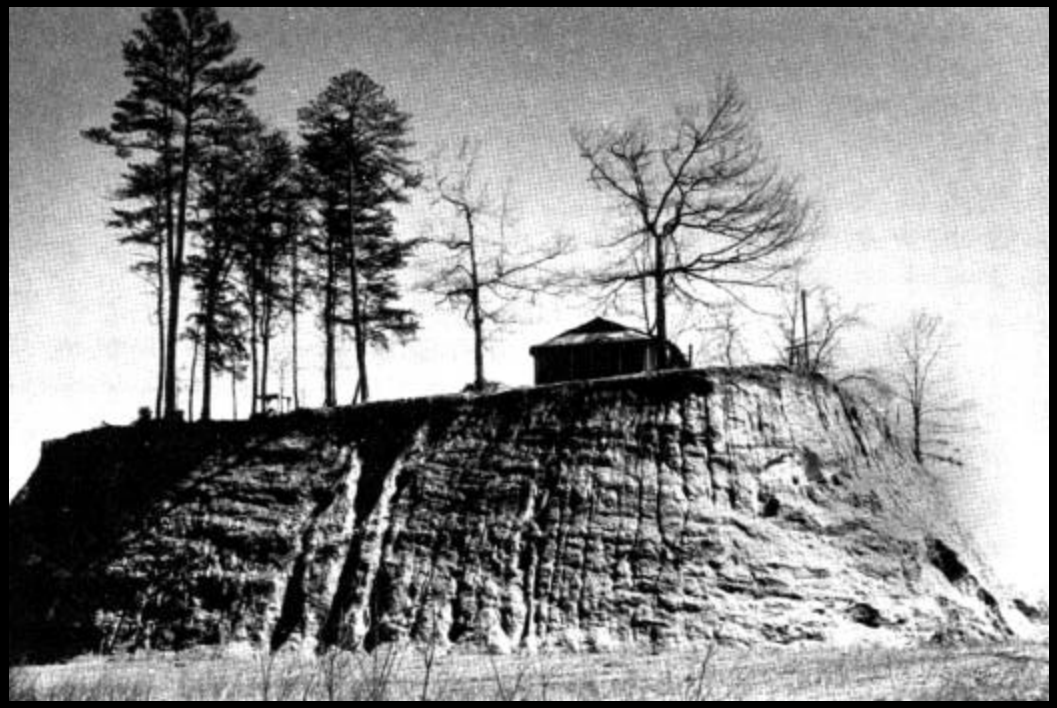
Source: American Forests

Taxation

- Estate taxes

- Property taxes

- Private Property Rights



Source: Kundell et al., 1989

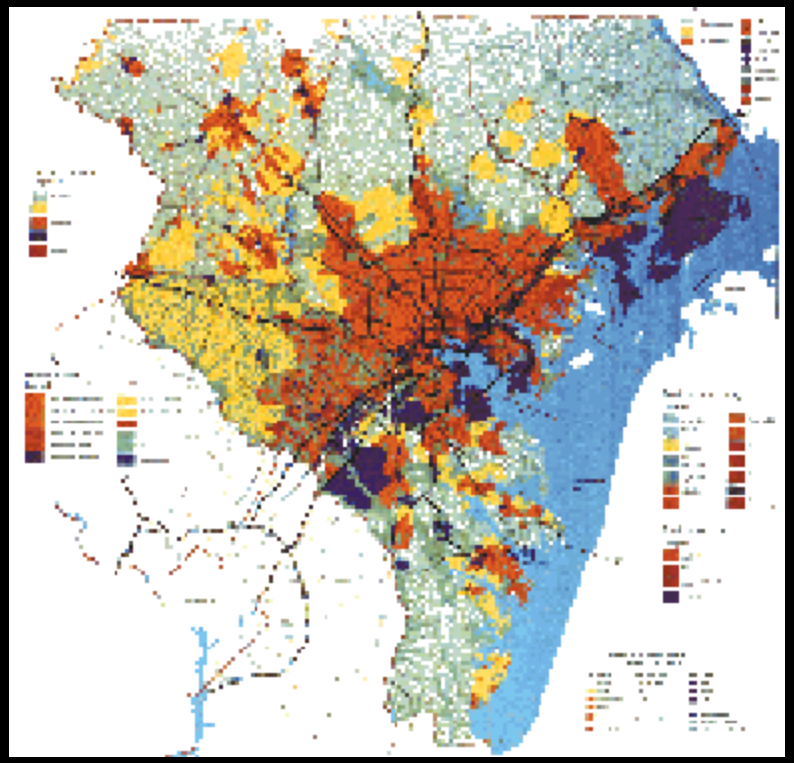
Issues

- Multiplicity of jurisdictions
  - e.g. Metropolitan Pittsburgh – 2.3 million people, 330 local govt.'s:
    - 5 counties
    - 184 municipalities
    - 141 townships
    - sewer and water authorities
    - dozens of school districts

Source: Daniels, 1999

Issues

- Lack of vision at community, county or regional level



Issues

- Transportation/Mobility
  - Road development
  - Increasingly mobile population
  - Commute time (+/-)

Issues

- Water Quality and Quantity

- Air Quality

Issues

- Forest Fragmentation/Parcelization

Issues

- Fire Management and Mitigation

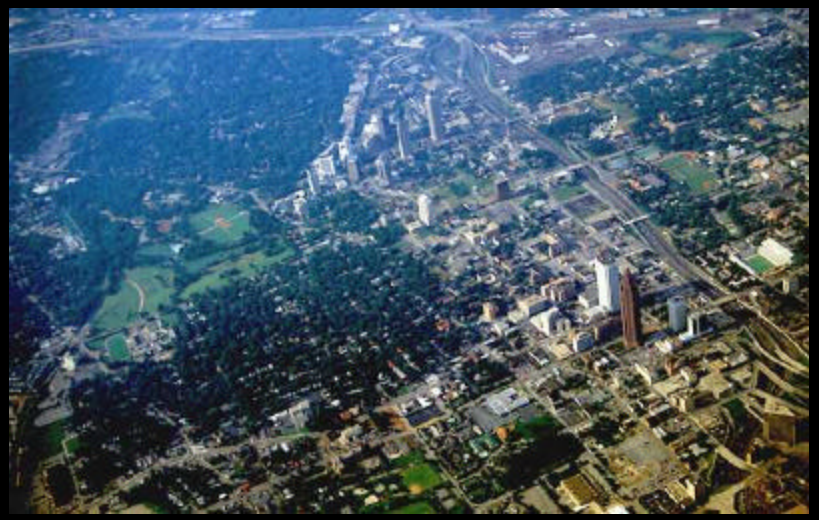
Challenges to Natural Resources Management

Challenges

- Managing fragmented forests
- Managing urban wildlife
- Maintaining healthy forests
- Managing watersheds
- Managing fire in a mixed urban/rural setting
- Providing for nature-based recreation
- Education

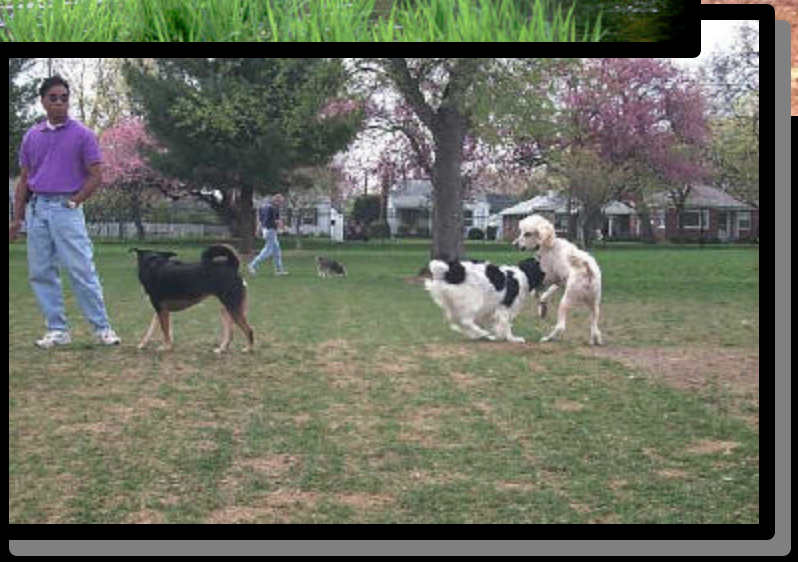
Managing Fragmented Forests

- Need to manage smaller parcels sustainably
  - commodity
  - non-commodity



- Different owners with a diversity of goals

Managing Fragmented Forests



- Alternative management to accommodate landowners' objectives

Managing Fragmented Forests

Conflicts between forest management practices and “new” neighbors

Proposed Tree Protection Ordinance in Alachua County, FL

- 10 days notice prior to any timber harvesting, site preparation or land clearing
- Clear-cuts limited to 40 acres with buffer strips
- All forestry operations not to take place within 50 feet of property boundaries, 100 feet from public roads nor 400 feet from publicly owned parks

Managing Fragmented Forests

- Conserving/providing connected natural areas for wildlife and plant species

Managing Urban Wildlife

- Incorporating wildlife habitat requirements into land management activities

Managing Urban Wildlife

- Encouraging greater public tolerance to living with wildlife:

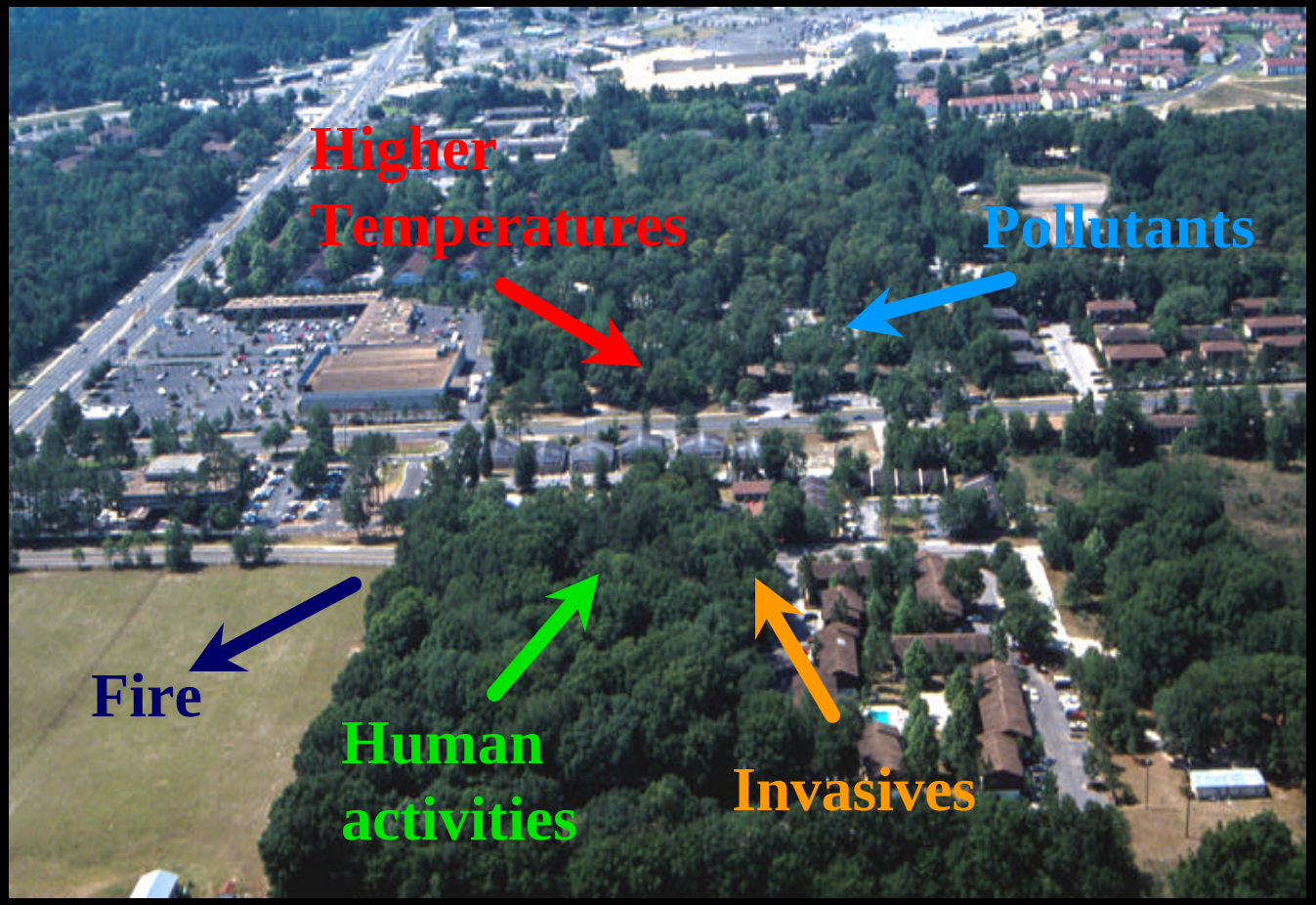
- free-roaming cats and dogs

- deer

Managing Urban Wildlife

- Providing a diversity of recreational opportunities:
  - fishing
  - hunting
  - birdwatching

Maintaining Healthy Forests



Maintaining Healthy Forests

- Maintaining forest structure, composition and function
  - Preventing encroachment of invasive species
  - Preventing and managing insect problems
  - Minimizing stress factors

Maintaining Healthy Forests

- Taking an ecosystem approach to managing forests
  - protecting, managing and restoring natural areas
  - developing lands in an environmentally sound way

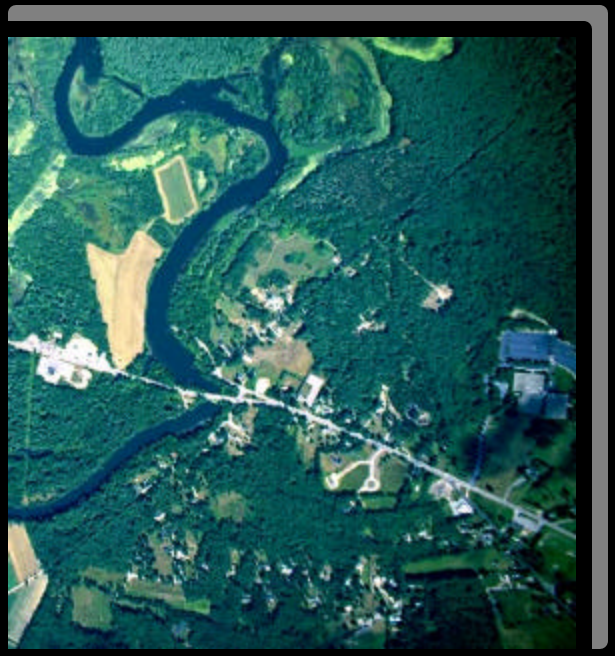
Managing Watersheds

- Maintaining the chemical, physical and biological integrity of water:
  - point source pollution
  - non-point source pollution

- Developing a management framework based on the “downstream effect”

Managing Watersheds

- Obtaining cooperation/coordination of neighboring political entities within a watershed
  - Metro initiative in Portland, OR
- Educating:
  - the public
  - managing on a watershed scale



Managing Fire in a Mixed Urban/Rural Setting

- Saving forests and man-made infrastructure
- Collaboration among fire fighting agencies

Managing Fire in a Mixed Urban/Rural Setting

- Managing prescribed fires with increased regulations and development in and near forests

Benefits

- prevents wildfires
- mimics natural fire
- fertilizes soil
- improve habitat

Concerns

- causes smokes
- escapes to other areas
- stresses and kills trees
- scorches landscapes

Managing Fire in a Mixed Urban/Rural Setting

- Educating about fire wise landscaping
- Educating about fireproofing communities

Providing for Nature-Based Recreation

2.7 million Floridians participated in wildlife recreational activities within a mile from their homes in 1996.

Providing Nature-Based Recreation

- Providing recreational opportunities for:
  - inexperienced users with an urban orientation
  - a variety of cultural and ethnic backgrounds
  - differing social and recreational values
  - different age groups

Providing Nature-Based Recreation

- Educating recreation users
- Educating managers about what the user wants and effective ways to communicate
- Managing overused recreational facilities

Education

- Informing:
  - public - urban sprawl, growth management issues
  - developers - benefits and importance of natural resources
  - homeowners - challenges at the interface (fire, invasives, wildlife)
  - elected officials - science-based information

Education

- Working with the media to help educate about:
  - benefits of prescribed fire
  - invasive plants
  - natural landscaping

Not only Challenges but Opportunities too!

- More people experiencing outdoor recreational activities:
  - opportunities to make urbanites more aware about their natural surroundings and the importance of natural resources
  - opportunities for managers to integrate social knowledge and natural resource management

The Toolbox

Toolbox

- Planning
  - Zoning ordinances
  - Comprehensive planning

- Establishment of growth boundaries/ In-fill incentives
- Smart Growth initiatives
- Collaborative planning and processes

Toolbox

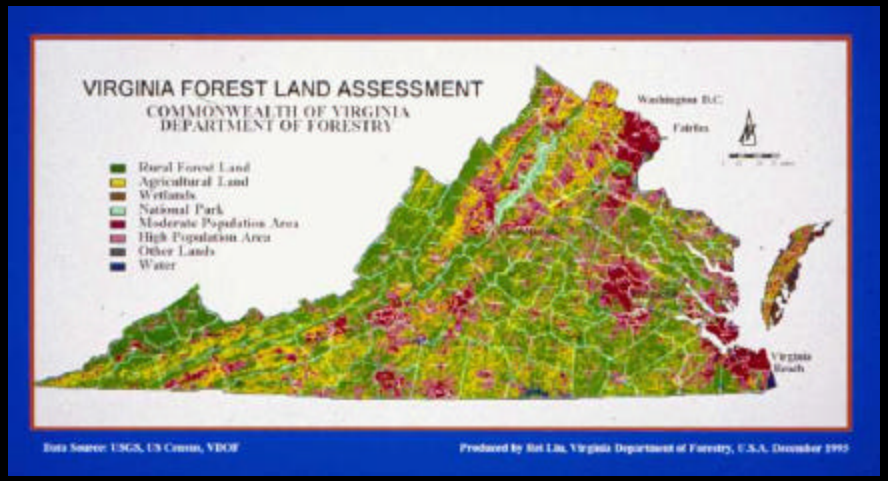
- Acquisition of open space
- Conservation easements

Toolbox

- Forest Legacy Program (USFS)
- Land Trusts
- Universities/Cooperative Extension Service
- State Forestry Agencies

Toolbox

- Technology – GIS, Internet, City Green©



- Firewise landscaping

Needs in the Wildland-Urban Interface

Needs

- More comprehensive land use planning
- Coordination of long range transport-ation planning with natural resource planning
- More incentive based tools

Needs

- Natural resource information packaged for local policy makers

- University and continuing education training for natural resource professionals about interface issues

- Better dissemination and exchange of information about interface issues

Needs

- Alternative silvicultural options for small woodlot management

Needs

- Methods of developing land environmentally

What Does It Mean for Natural Resource Professionals?

Final Considerations

- Improve awareness and understanding of conditions, processes, problems, and laws unique to the interface

- Learn more about ordinances, regulations and growth management tools that affect natural resource management and conservation
  - conservation easements
  - urban growth boundaries
  - purchase of development rights

Final Considerations

- Identify, establish positive relationships and be actively involved with:
  - planning agencies
  - conservation groups
  - decision makers
  - opinion leaders
- Serve as a resource for:
  - local planning and zoning authorities
  - development of regulations
  - helping organize concerned citizens

Final Considerations

- Build communication skills for working with the public
  - conflict resolution
  - public relations
- Identify, involve and respond to the needs of an increasingly diverse audience
- Increase emphasis on non-commodity benefits
  - recreation
  - watershed management
  - aesthetics
  - conservation of wildlife