

FIFTY YEARS AHEAD:

What Land Cover Can Teach Us About Building A Sustainable Georgia



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1967

FIFTY (TWO) YEARS AGO

Following an exploratory meeting in January, a group visits Sweetwater Creek on February 25, where, in ninety-degree weather, the group decides to form the Georgia Conservancy.

'69 U.S. National Environmental Protection Act (NEPA)

1970 (FORTY-NINE YEARS AGO)

U.S.

Coastal Marshlands Protection Act

First Earth Day

Creation of the Environmental Protection Agency

Clean Air Act

GA

First Irrigation Survey

1970s

- '72** Cumberland Island is designated a National Seashore
Federal Bureau of Outdoor Recreation helps create SWCSP
- '73** U.S. Endangered Species Protection Act
- '76** Landmark Supreme Court Case: Georgia vs. Ashmore
Granted the state authority to protect its marshes and tidal rivers and granted public access to all of Georgia's beaches
- '77** The last section of Interstate 95 is completed (Brunswick)

1980 (THIRTY-NINE YEARS AGO)

GA Georgia Conservancy successfully blocks a dam on the Altamaha River

'81 Georgia General Assembly creates a Hazardous Waste Management Authority

'82 U.S. Congress passed the Coastal Barrier Resources Act protecting Georgia's precious coastline by removing subsidies which promote development in high-hazard areas

'84 First Commercial Improvement District (Cumberland CID)

1980s

- '85** Scientists identify Georgia's coast as the center of the only known calving ground highly endangered right whale
Quality Based Education Act
- '86** Omnibus Projects Bill deauthorized the Sprewell Dam project on the Flint River
- '87** GC influences the State of Georgia's Governor's Growth Strategy Commission
- '89** Georgia Planning Act

1990 (TWENTY-NINE YEARS AGO)

GC champions the re-authorization of the Clean Air Act and works to make sure the U.S. EPA retains oversight authority of state programs
Development Impact Fee Act

'95 GC launches *Blueprints for Successful Communities*

'98 GC, the Urban Land Institute, the EPA and the Successful Communities Partners host a two-day Smart Growth Conference at the Carter Center to explore environmentally sustainable growth in Georgia

GC participates in the ongoing process that will determine how much water Georgia, Florida and Alabama can draw from two major river basins

2000 (NINETEEN YEARS AGO)

GC brings together scientists from the U.S. EPA and GA EPD to address improving the total maximum daily loads

'01 GC helps initiate the Georgia Quality Growth Partnership, a group of 40 agencies and associations working in various ways to plan for the state's future growth.

'03 U.S. Healthy Forests Restoration Act

The Metropolitan North Georgia Water Planning District adopts three water plans to guide the region's water management for the next 30 years

Governor Perdue signs an Executive Order creating the Georgia Land Conservation Partnership Advisory Council and charged it with the responsibility of producing a comprehensive Land Conservation Partnership Plan.

2000s

- '03** The state does not fund the Northern Arc transportation project
Quality Based Education Act
- '05** U.S. SAFETEA-LU (now “Moving Ahead for Progress”)
GC launches *Mothers and Others for Clean Air* program
- '06** Georgia Land Conservation Tax Credit
- '07** U.S. Energy Independence and Security Act
- '08** First Comprehensive Statewide Water Management Plan
(State Water Plan)

2010 (NINE YEARS AGO)

Advocacy efforts leads to the passage of landmark water conservation legislation, giving Georgia some of the strongest water conservation measures anywhere in the nation

- ‘13 Federal Highway Administration to reject the proposed 411 Connector in Bartow County
- ‘15 GC successfully advocates for the passage of legislation that creates a statute that protects the 25-foot salt marsh buffer
- ‘18 Georgia Outdoor Stewardship Act passes with 82% approval

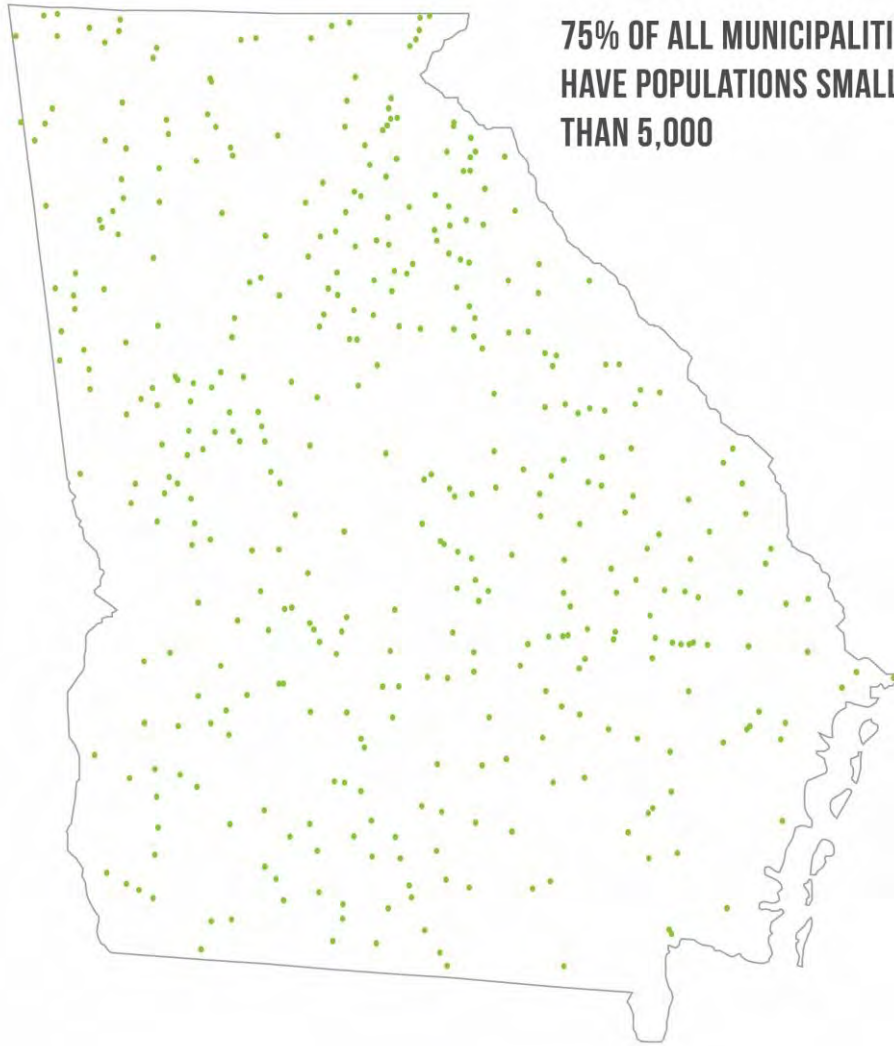
Georgia Population Facts

9th most populous state in the US

>2x population growth from 1970 and 2010

- greater population growth than US on average (US Census)
- rapid growth of metro Atlanta

15th in US for income generated by farming – though we are a land-rich state, we are growing and using it fast.



**75% OF ALL MUNICIPALITIES
HAVE POPULATIONS SMALLER
THAN 5,000**

Georgia's Small Towns

How has our
rural land
changed to
support an influx
of people?



Georgia's Small Towns

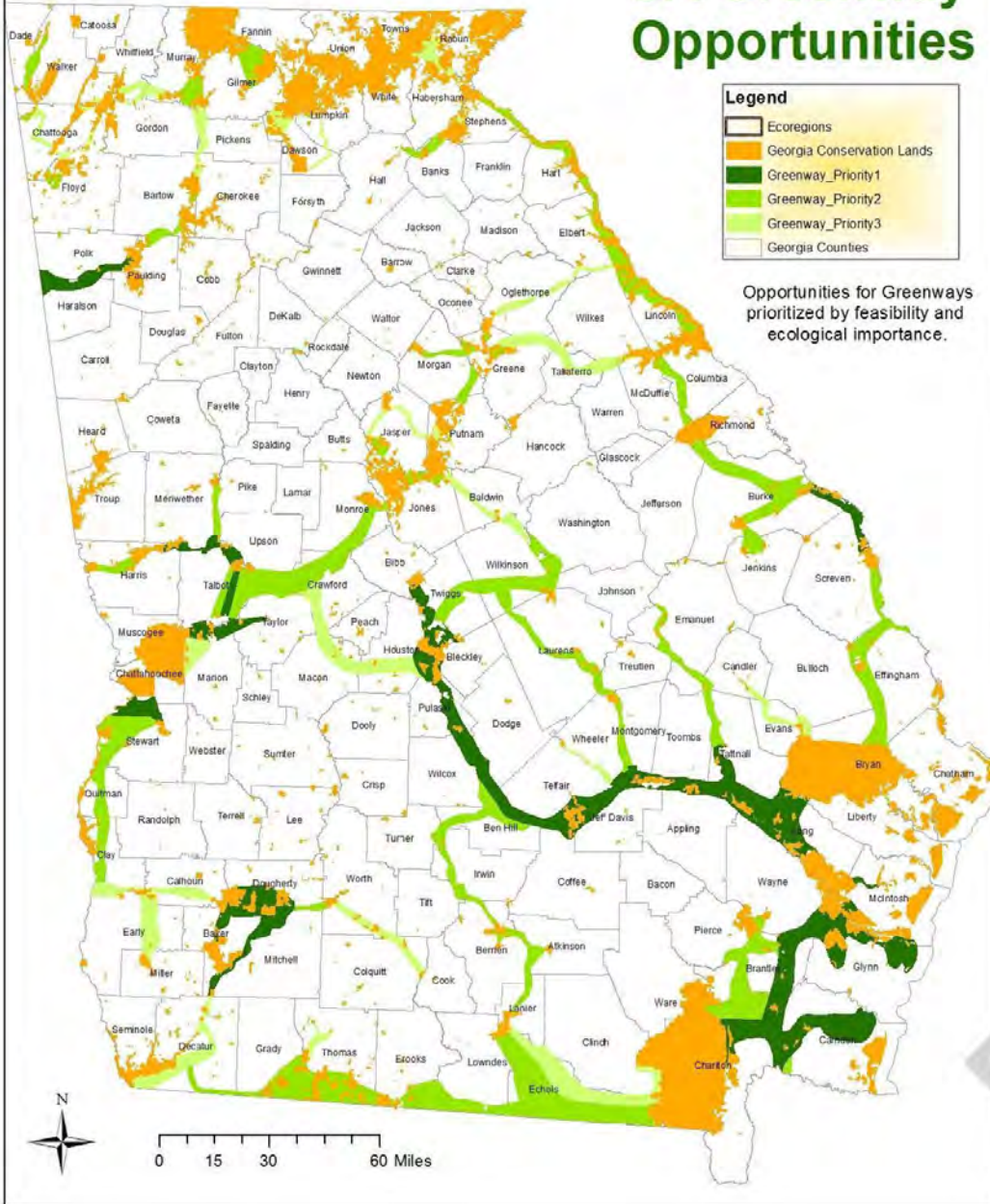
How has our
rural land
changed to
support an influx
of people?

83% of Georgia's land is classified as [Rural](#) or [Non-Metro](#).

GA Greenway Opportunities

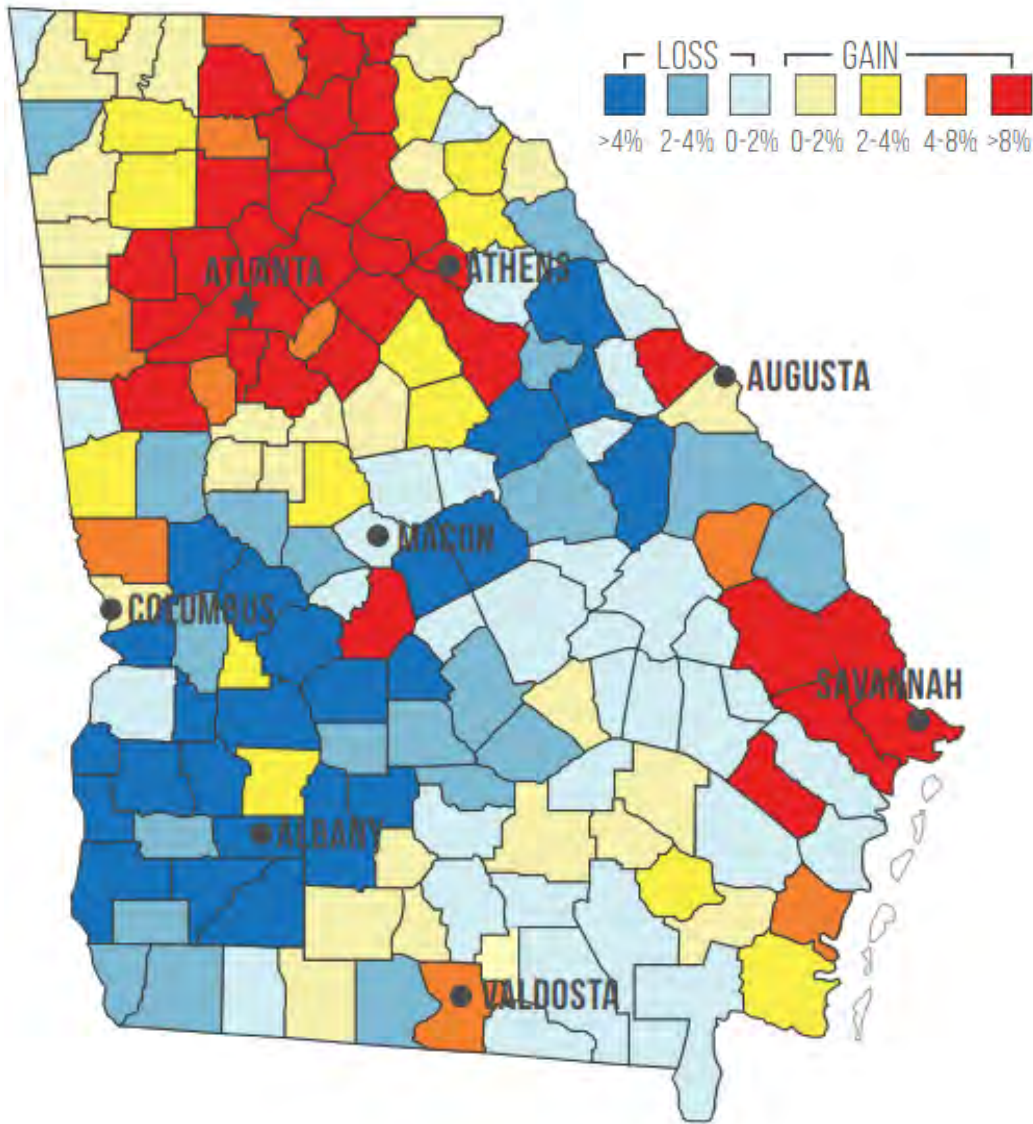


Opportunities for Greenways prioritized by feasibility and ecological importance.



State Wildlife Action Plan

How can our use of land sustain our natural world so Georgians continue to prosper?



Georgia in 2040

How have we accommodated population shifts and how has our landscape changed as a result?

But, why?

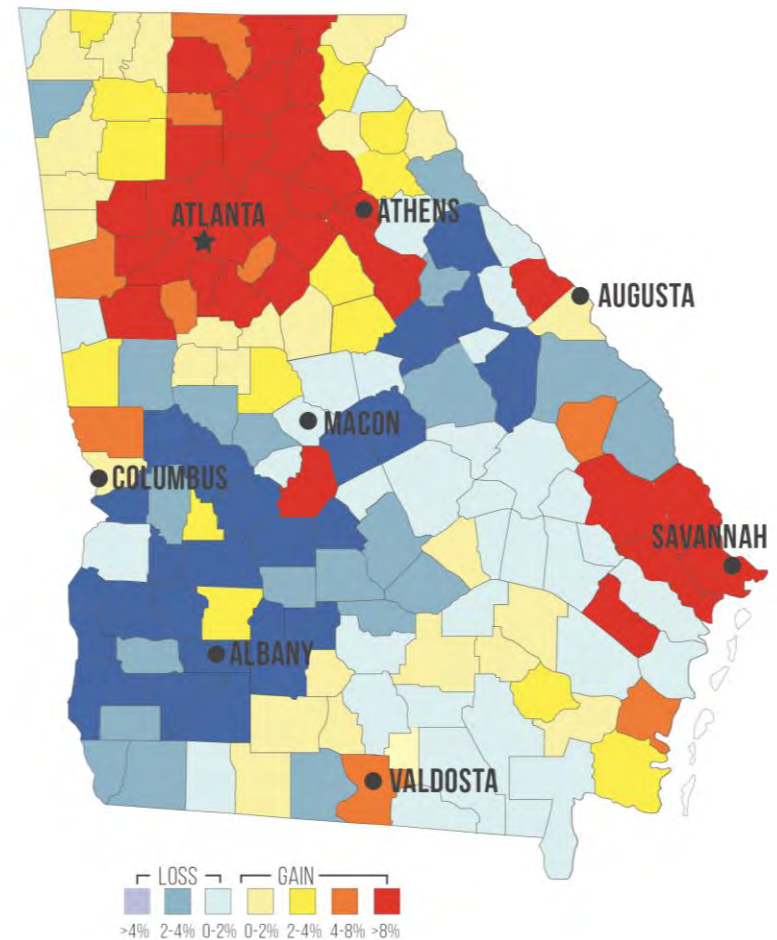
Statewide, populations are shifting: growing in some areas, contracting in others.

Goals we strive for:

- high quality of life
- environmental well-being
- equal economic opportunity

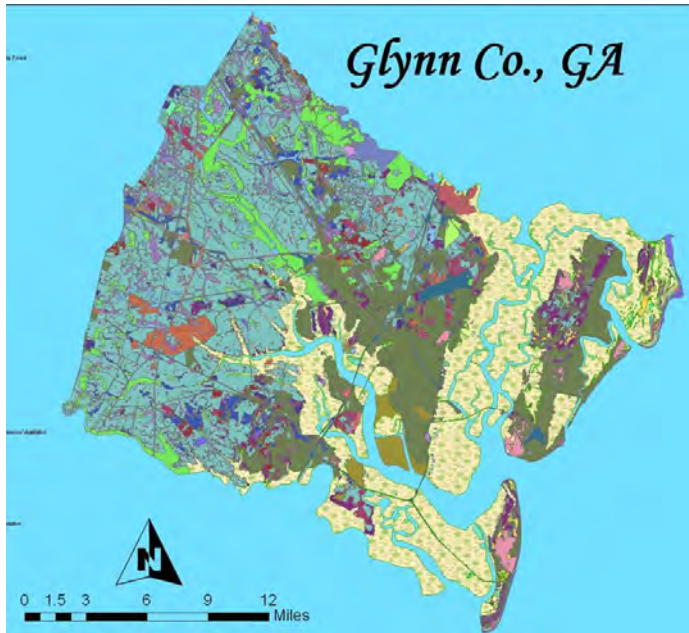
These are affected by how we use land:

- to preserve and enjoy nature
- to support industry and jobs
- to build our communities

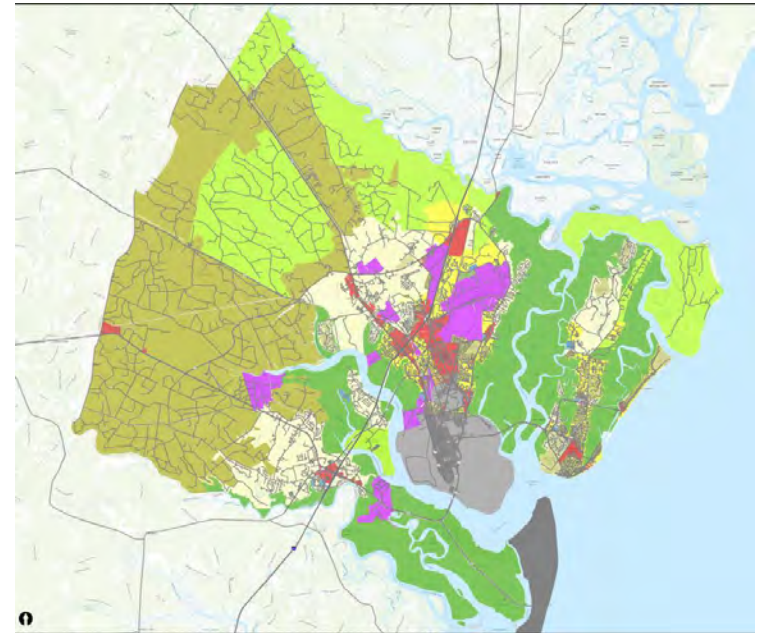


What does landcover tell us?

By comparing land cover data and maps over a period of time, we can document land use trends and changes.



Land Cover
vs.
Land Use



Land cover is the observed (bio)physical cover on the earth's surface.

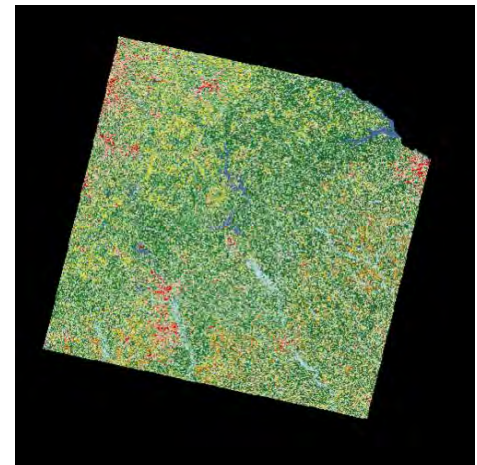
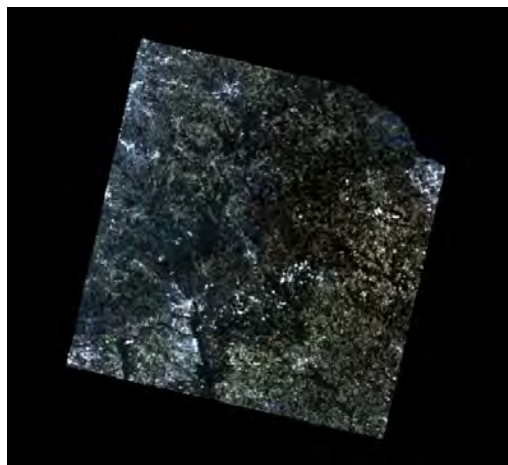
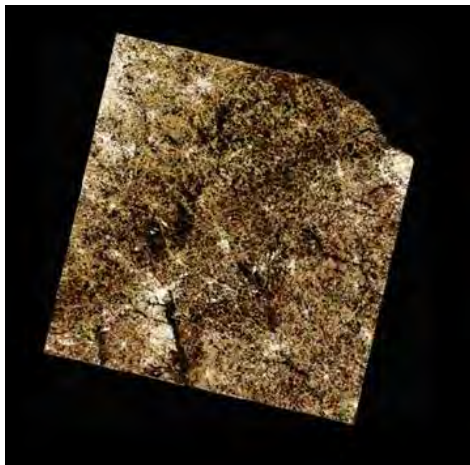
Land use shows how people use the landscape – whether for development, conservation, or a mix of uses.

Why 50 years?

Understanding, analyzing, and visualizing change over time helps us understand where we're headed.

Science-based results make for good evidence that can inform policy.

This data does not currently exist and would fill a gap in our knowledge about Georgia's history.



I still need convincing...

We must balance the economics of population shifts with their attendant environmental implications.



2019

Looking Ahead at Fifty: Georgia Landcover Analysis

How will we do this?

- National Land Cover Database (NLCD) provides land cover products for United States
- Based on classification of Landsat satellite imagery
- Products available for 1992, 2001, 2011, 2016
- We will classify Landsat imagery from the 1970s and 1980s
- 16 classes of land cover



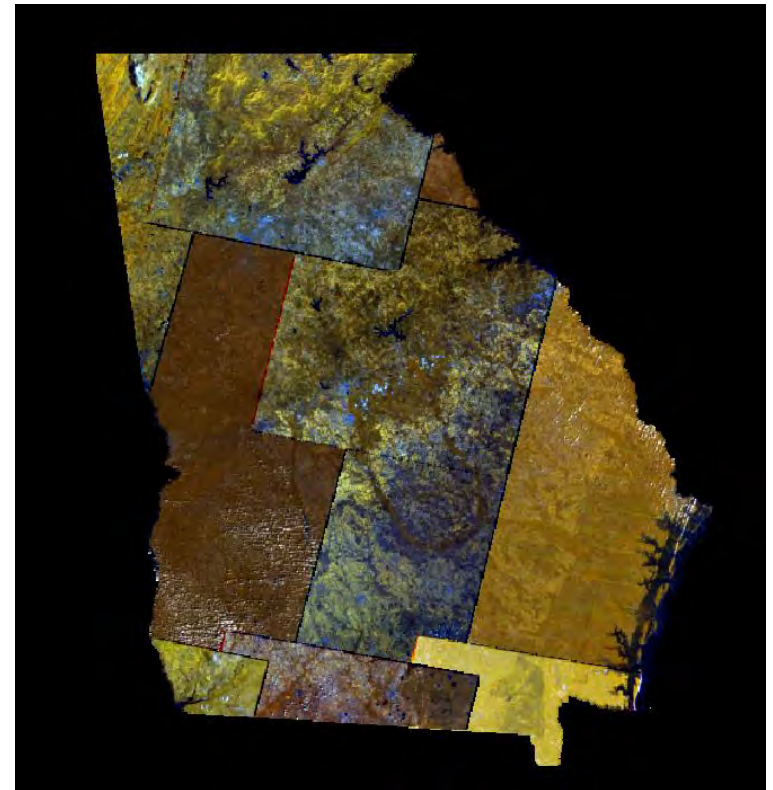
Process

Process and Classify Landsat Images

- 1970s: *Landsat 1* June-October 1972, 1973
- 1980s: *Landsat 2* June-October 1981
- 1990s: Compile 1992 NLCD
- 2000s: Compile 2001 NLCD
- 2010s: Compile 2011 and 2016 NLCD

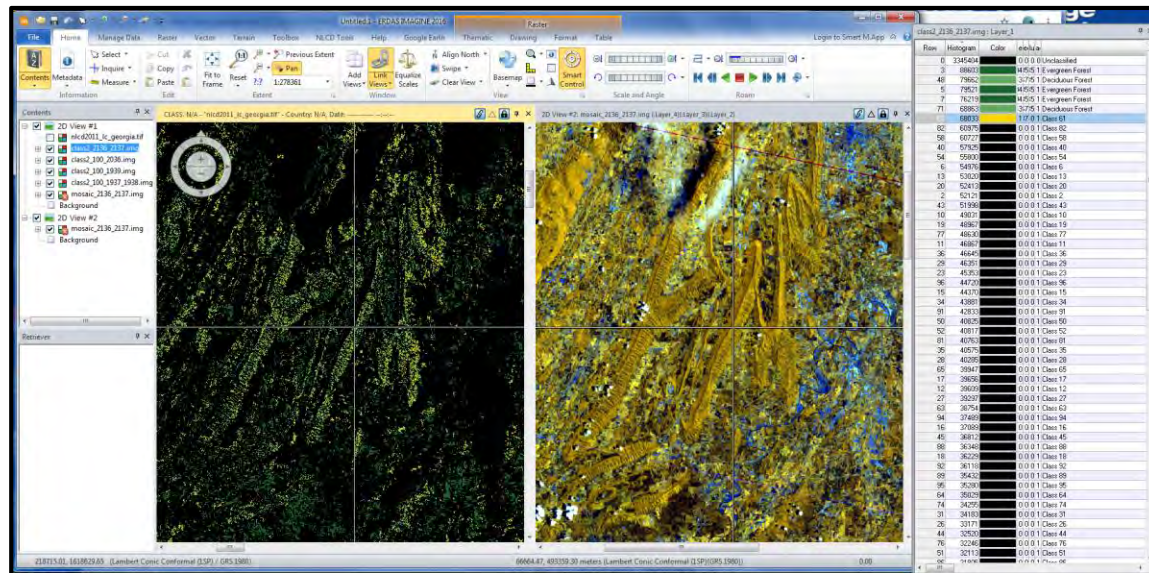
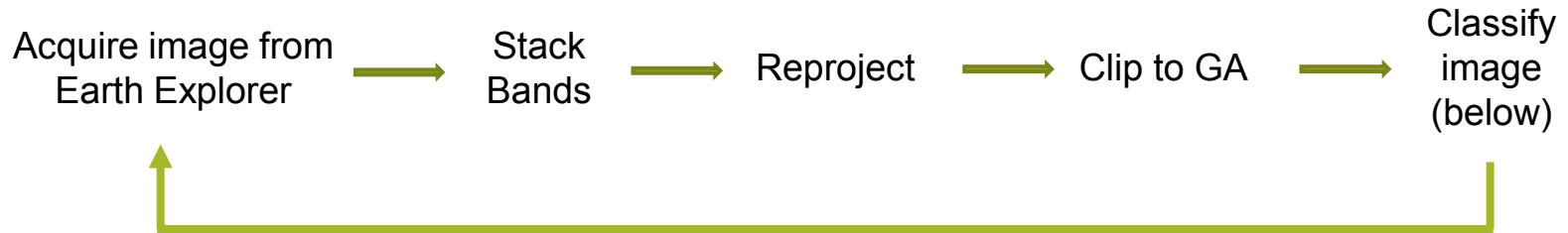
Compare

- Analyze change in Georgia's land cover throughout the 50 year period
- Calculate land cover statistics and change at state, county, watershed and physiographic regions



Landsat 1 images of Georgia during the processing stage.

Workflow for Processing Landsat



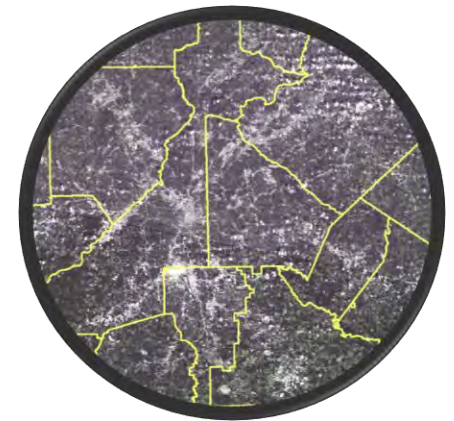
The classifying process. Shown here is the northwest corner of Georgia.

Results

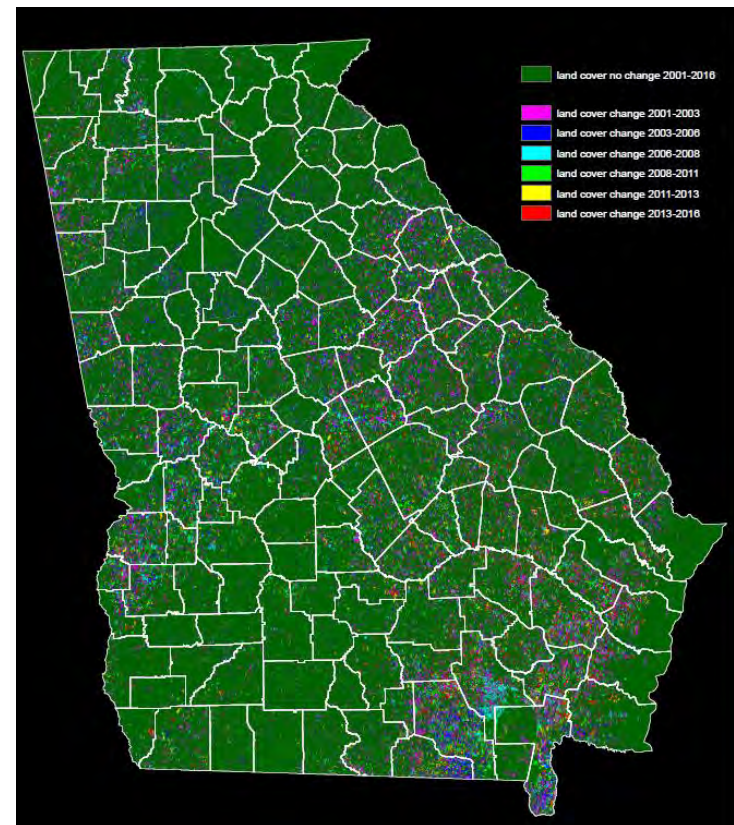
- Historic land cover statistics and change assessment for Georgia (1970-2020)
- State, counties, watersheds, physiographic regions, others
- Results presented in various formats (visual guides, educational materials, etc)



1970's



2018



If everyone is master planning, how come no one is talking to each other?

- Ports Authority Master Plan (2028)
- State Wildlife Action Plan (2026)
- Statewide Strategic Transportation Plan (2050)
- Consolidated State Plan (2022)
- Coastal Comprehensive Plan (2008)
- Georgia Outdoor Recreation Plan (2021)

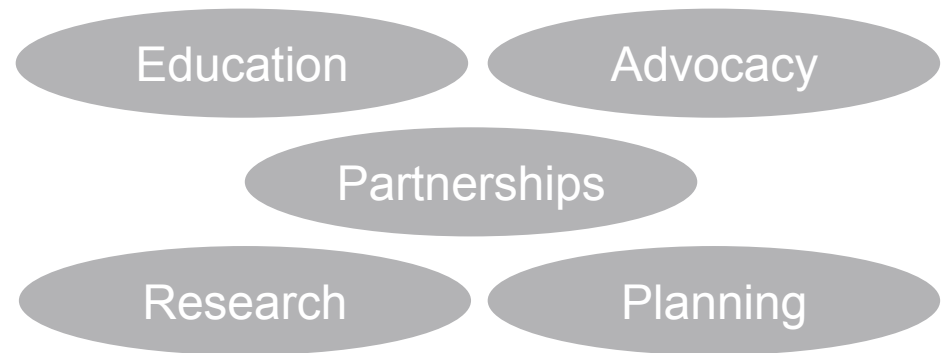
Findings?

SHORT-TERM

- Supplement our analysis with demographic and economic data.
- Partner with topic experts to perform additional analysis.

LONG-TERM

- Project outward.
- Build organizational support.
- Build public knowledge & educational campaign.



Questions:

How do we, as planners, help position our state for future resilience?

Have coastal protection measures successfully stewarded the land in that vital ecosystem?

How have agricultural technologies impacted rural Georgia's landscape?

Has the Atlanta region finished its mega-expansion?