EXECUTIVE SUMMARY:

THE FLORIDA WILDLIFE CORRIDOR AND CLIMATE CHANGE

Managing Florida's Natural and Human Landscapes for Prosperity and Resilience

PRESENTED BY :

Archbold Biological Station

Florida Atlantic University

April 2024

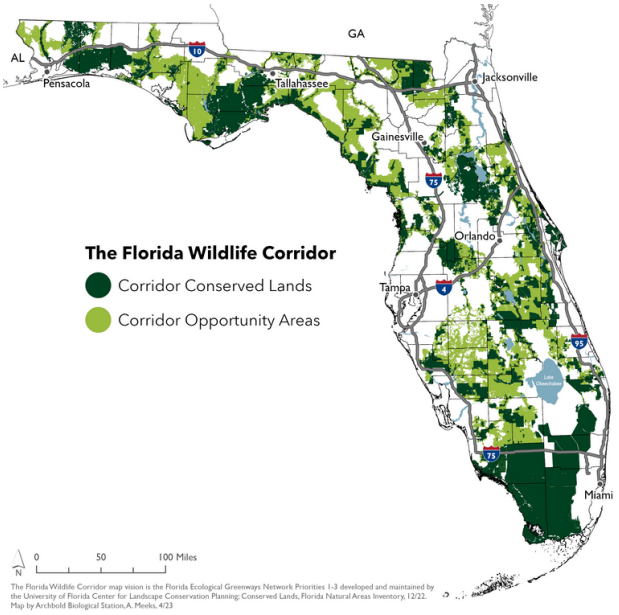
Archbold

FLORIDA ATLANTIC UNIVERSITY

LIVE WILDLY foundation

INTRODUCTION

The Florida Wildlife Corridor (FLWC) is a critical conservation initiative aimed at preserving natural landscape connectivity across Florida. Spanning the length of the state, from Alabama to the Everglades, the FLWC not only plays a vital role in protecting endangered species like the Florida Panther, but also brings economic and climate benefits to local communities. Although the FLWC was not designed to enhance climate resilience, its climate benefits are not trivial, and a successful FLWC will help Florida achieve climate resilience more easily and quickly.



After four decades of research and advocacy, the Florida Wildlife Corridor Act was unanimously passed in 2021, signifying a bipartisan goal to protect 18 million acres (with 10 million of those already in conservation areas). In the three years since its creation, the Corridor has already produced economic, social, and environmental benefits, especially to the 90 % of Floridians who live within 20 miles of the FLWC. Still, future benefits will grow exponentially if we conserve the remaining 8 million acres of "Opportunity Areas" within the Corridor. The FLWC is an example of how public and private partners can come together to achieve mutual economic, social, and environmental goals at the local and state levels. Since the Florida Wildlife Corridor Act was approved in 2021, state funding and agencies have helped private landowners conserve over 170,000 acres within the Corridor.

Florida's Challenges: Future Climate and Population

Our state is experiencing significant climate-related challenges, including rising temperatures, altered precipitation patterns, and an increase in the frequency and intensity of extreme weather events such as hurricanes and heatwaves. Insurance rates are skyrocketing alongside these changes. By 2050-2074, Florida may warm ~3-5 °F relative to a 1981-2010 baseline. By 2050, under a higher emissions scenario, the state will likely experience >50 days with temperatures that exceed 95 °F, with a projected heat index increase of 8° to 15 °F, higher than any other region in the country.

At the same time, as the state's population grows by 1,000 residents per day, it is projected to lose 3.5 million acres of land to development by 2070, threatening Florida's future ability to maintain biodiversity and ecosystem services. This report aims to highlight how the FLWC can help buffer Florida against both climate change and population pressures.

A team of academic and professional experts, led by Florida Atlantic University's Center for Environmental Studies and Archbold Biological Station, assembled a report to help address these issues. The following is a brief summary of the report, which aims to convey the report's main recommendations and takeaways.

FLOODING AND INCREASED PRECIPITATION

KEY FINDING:

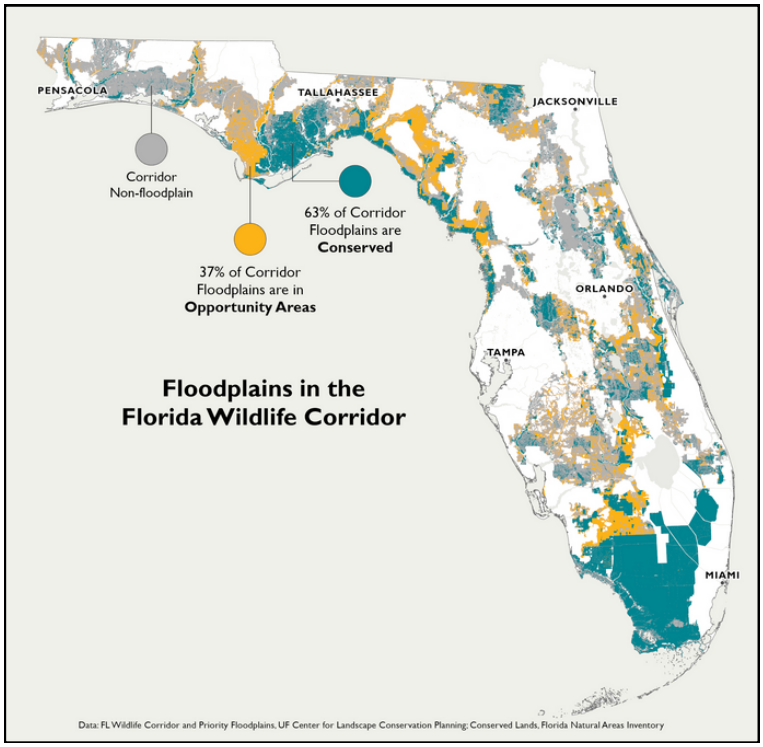
The FLWC provides billions of dollars of flood hazard protection, a vital service as precipitation volume increases under climate change. A large part of this benefit comes from keeping floodplains undeveloped and natural coastal vegetation in place.

- There are 1,857,424 properties in Florida (24% of all Florida properties) that have a more than one-in-four chance of being affected by flooding in the next 30 years.

- The economic value of the FLWC's ecosystems in terms of flood control is large. A FEMA review of ecosystems globally and nationally showed substantial economic benefits for flood hazard reduction, ranging from hundreds of dollars per acre for forests to thousands of dollars per acre for coastal wetlands. Conversely, reduction of wetlands resulted in a $430 million increase in property damage by Hurricane Irma in 2017.

- About two-thirds of Florida's floodplains, or ~10 million acres, are located within the FLWC, with 63% already conserved. With climate change, more flooding is predicted, but floodplains act as a natural buffer against flooding in developed areas. Conserving floodplains will mitigate future loss of property.

- Coastal areas only occupy ~707,811 acres (4%) in the FLWC but are vital to the function of watersheds, floodplains and inland forests. Mangroves and coastal marshes, wetlands and forests in the FLWC could mitigate the impact of storm surge along the coastline, reduce erosion from waves, serve as windbreaks, and provide water quality benefits in addition to offering habitat for fauna.



- A 2019 study found that Everglades National Park, within the FLWC, had the greatest annual ecosystem services value of any national park in the U.S. at $50 billion per year. This was not only due to its size, but because of its massive extent of mangrove and tidal marsh ecosystems. Ecosystem services are the benefits that humans derive from ecosystems, like fresh water, nutrient cycling, climate regulation, pollination. tourism and recreation, and spritual connection.

HEAT, WILDFIRES, AND FIRE MANAGEMENT

KEY FINDING:

Wildfire risk will increase with climate change. However, clustered development will reduce fire risk provided we also launch a thorough program of prescribed fire management.

- Florida burns more area with prescribed fire each year than any other region of North America, possibly the world, but risk of large wildfires are still increasing across the state and much of the Southeast.

- To reduce fire risk to human development in the long term, fuel load on conserved lands needs to be actively managed through prescribed burns.

- The more that new housing and infrastructure is scattered, the more difficult it becomes to manage fire risk. Large blocks of conserved connected lands ease prescribed burns and wildfire control.

- The FLWC will contribute most to Florida's overall climate resilience when it maintains its characteristic fire regime. Most wildlife in Florida relies on fire-maintained habitats.

Prescribed burn, Avon Park Air Force Range. Photo by Jen Guyton

URBAN DEVELOPMENT

KEY FINDING:

The FLWC by design will incentivize clustered, mixed-use development, which will preserve ecosystem services and minimize habitat fragmentation while reducing infrastructure costs.

- Smart development restricted to denser geographies outside of the FLWC would conserve more natural and working lands, maintaining more of the FLWC's ecological and human benefits.
- By both incentivizing clustered, mixed-use development near existing infrastructure and discouraging sprawling single-use development, undeveloped lands within the FLWC can be conserved, minimizing habitat fragmentation.
- Every green space plan should start with a landscape-scale analysis of regional conservation networks, including the FLWC, and identify opportunities to connect to the growing statewide conservation network.
- Areas within the FLWC may increase in property value due to the various ecosystem services and recreational opportunities that natural areas and working lands provide.

Photo by Carlton Ward, Jr./Wildpath

WORKING LANDS & AGRICULTURE

KEY FINDING:

The FLWC incentivizes keeping working lands in production, preserving their climate benefits while protecting farmers, billions of dollars of agricultural revenue, and valuable livelihoods. Farmers can contribute to climate resilience by implementing climate-smart management solutions. Carbon markets may provide substantial additional financial benefits to working lands owners.

- Farmers can enhance agricultural profitability while also aiding carbon sequestration by implementing climate-smart management solutions.
- The FLWC helps reduce greenhouse gases. Carbon markets could help landowners receive payment for providing carbon benefits, if credible markets are developed.
- Florida's agricultural production in 2020 totaled $7.4 billion. The FLWC supports 4,959,310 acres of working lands (nearly 40% of all FL working lands) that generate valuable agricultural products, fisheries and aquaculture.
- Through conservation easements, the FLWC incentivizes keeping working lands in production. Without it, most of these lands will be lost to development.
- Florida cattle industry production generated more than $446 million of gross revenue in 2017, but also provides a variety of ecosystem services.


Photo by Carlton Ward, Jr./Wildpath


Photo by Carlton Ward, Jr./Wildpath


Photo by Carlton Ward, Jr./Wildpath


Photo by Lauren Yoho/Wildpath


Photo by Haoyu Li

CRITICAL LINKAGES AND CONNECTIONS

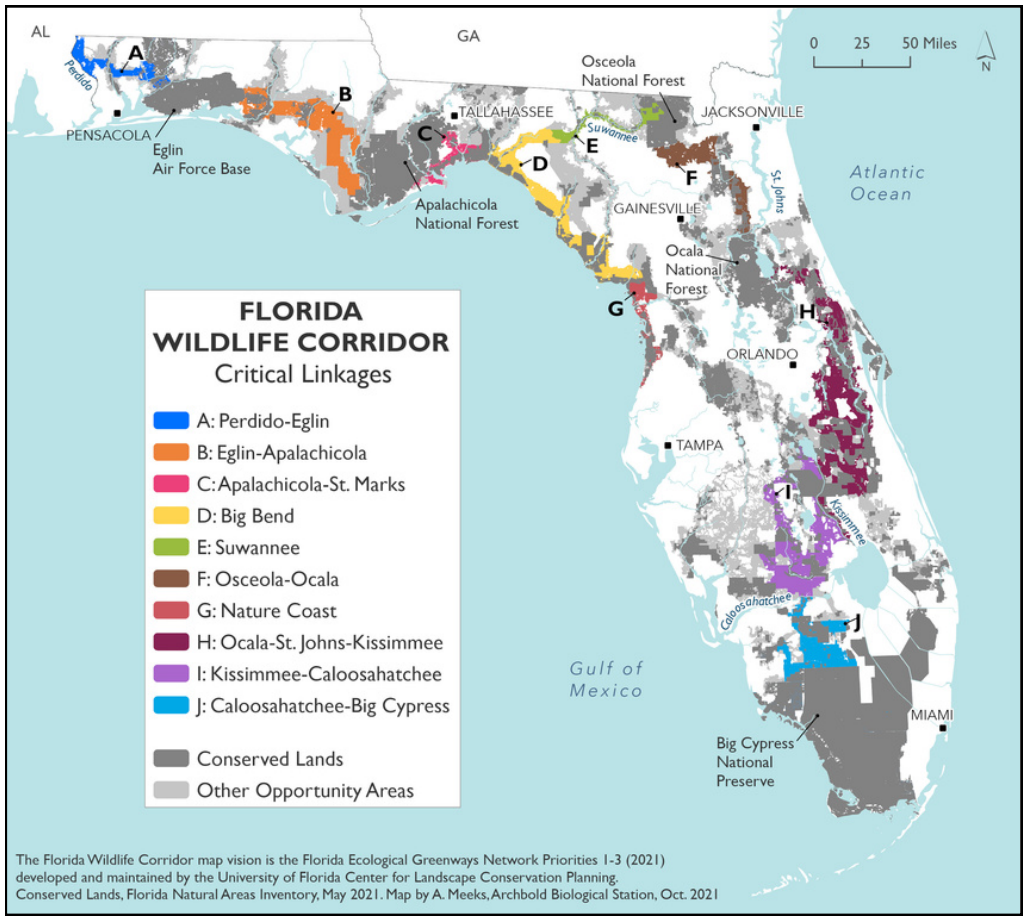
KEY FINDING:

We need to conserve critical linkages in the FLWC in order to maximize its benefits to wildlife and for climatic resilience. Critical linkages are the FLWC's "missing links"; if they are not conserved, the vision of the corridor as a continuous pathway that spans the length of the Florida peninsula cannot be realized.

- Conserving critical linkages is central to the long-term effectiveness of the FLWC. The rate of new development within these linkages is of major statewide significance.

- Some wildlife species will need to move north to escape high heat. A notable case where this movement might be critical is for the Florida black bear. This species is living at its climatic edge and could become more dependent on avenues of 'escape' from excessive temperature change at different temporal scales than other species.

- Habitat fragmentation poses a threat to the continuous movement of wildlife. Designating critical linkages within the FLWC as areas of critical state concern would help ensure that the larger corridor remains a viable means of wildlife movement.



POLICY RECOMMENDATIONS FOR CLIMATE RESILIENCE:

- Support recurring, high-level funding for conservation of the Florida Wildlife Corridor, including fire management.
- Support policies and legislation that integrate climate resilience into land use planning and conservation within the FLWC.
- Allocate funding for local analyses of climate issues to better understand the site-specific impacts of climate change on the FLWC and inform adaptive management strategies.
- Limit coastal, wetland, and floodplain development in order to maintain flood mitigation services.
- Incentivize clustered, mixed-use development, limited to areas outside of the FLWC (and especially away from critical linkages), to conserve land, reduce fire risk, and reduce infrastructure costs.
- Incentivize climate-smart management of working lands, and invest in the development of carbon markets.
- Encourage partnerships between government agencies, non-profit organizations, private landowners, and researchers to leverage resources and expertise in addressing climate challenges.

REPORT AUTHORS & MEDIA CONTACTS

Report Authors

Colin Polsky, Ph.D.
Founding Director, School of Environmental, Coastal, and Ocean Sustainability (ECOS)
Director, Center for Environmental Studies
Professor of Geosciences, Florida Atlantic University

John Baldwin, Ph.D.
Professor and Associate Dean
Charles E. Schmidt College of Science
Florida Atlantic University

Damian C. Adams
Professor and Associate Dean for Research
Institute of Food and Agricultural Sciences
University of Florida

Rebecca Clark
Doctoral Graduate Research Assistant
Center for Environmental Studies
Florida Atlantic University

Victoria Donovan, Ph.D.
PAssistant Professor of Forest Management
School of Forest, Fisheries, & Geomatics Sciences
University of Florida

Christopher Emrich, Ph.D.
Endowed Professor, School of Public Administration
Interim Director, National Center for Integrated Coastal Research,
University of Central Florida

Susan Glickman
President, Susan Glickman Associates

Thomas Hoctor, Ph.D.
Director & Research Associate Professor
Center for Landscape Conservation Planning
University of Florida

Gary Mitchum, Ph.D.
Professor & Associate Dean
College of Marine Science
University of South Florida

Reed Noss, Ph.D.
Chief Scientist, Conservation Science, Inc.
Lead Scientist, Center for Landscape Conservation Planning, University of Florida

Michael O'Brien
GIS Manager
Center for Landscape Conservation Planning
University of Florida

Akin Owosina, P.E.
Chief, Hydrology & Hydraulics Bureau
South Florida Water Management District

Eric Pate, CNU-A
Urban Planner & Designer
Dover Kohl & Partners Town Planning

Michael Volk, MLA
Research Associate Professor
Associate Director, Center for Landscape Conservation Planning
University of Florida

David Zierden
Florida State Climatologist
Center for Ocean-Atmospheric Prediction Studies
Florida State University

For Media Inquiries:

Joshua Daskin, Ph.D., Director of Conservation
Archbold Biological Station
jdaskin@archboldstation.org

Colin Polsky, Ph.D., Director, Center for Environmental Studies, Florida Atlantic University
cpolsky@fau.edu

THE FLORIDA WILDLIFE CORRIDOR AND CLIMATE CHANGE

Managing Florida's Natural and Human Landscapes for Prosperity and Resilience

FULL REPORT ACCESS AND CITATION:

Polsky C, Baldwin J, Adams DC, Clark R, Donovan V, Emrich C, Glickman S, Hoctor T, Klizentyte K, Mitchum G, Noss R, O'Brien M, Owosina A, Pate E, Vogel J, Volk M, Zierden D. 2024. The Florida Wildlife Corridor and Climate Change: Managing Florida's Natural and Human Landscapes for Prosperity and Resilience An Independent Assessment Led by Florida Atlantic University. Pages: 140. Archbold Biological Station. Available from https://www.archbold-station.org/projects/climate-and-wildlife-corridors/

Archbold

FLORIDA ATLANTIC UNIVERSITY

LIVE WILDLY foundation