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NOTICE OF A MEETING AGRICULTURAL & RURAL COMMUNITIES OUTREACH TEAM MID-OHIO REGIONAL PLANNING COMMISSION REMOTE MEETING

May 20, 2021, 10:00 am - 11:30 am

AGENDA

- 1. Call to Order Chair Jessica D'Ambrosio
- 2. Approval of March 18, 2021 Meeting Minutes Chair Jessica D'Ambrosio
- **3.** <u>Guest Presentation</u> Dr. Aaron Wilson, OSU & Laura Fay, FLOW Climate Adaptation Planning and Scioto Watershed Projects
- 4. Social Science Key Informant Survey Update Chair Jessica D'Ambrosio
- 5. Other Business Chair Jessica D'Ambrosio a. Member or Partner Updates
- 6. Adjourn

Please notify Lynn Kaufman at 614-233-4189 or LKaufman@morpc.org to confirm your attendance for this meeting or if you require special assistance.

Microsoft Teams meeting

The next meeting of the Agricultural & Rural Communities Outreach Team will be on July 15, 2021. Location is to be determined.

William Murdock, AICP Executive Director Karen J. Angelou Chair Erik J. Janas Vice Chair Chris Amorose Groomes Secretary

Overview of Climate Adaptation Course & Climate Vulnerabilities for Scioto River Basin

Aaron B. Wilson Sustaining Scioto Ag Committee May 20, 2021

(aka NIACS)

Northern Institute of Applied Climate Science

We provide **practical** information, resources, and technical assistance related to forested ecosystems and climate change.

- Climate and carbon services
 - Climate impacts modeling
 - Vulnerability assessment
 - Climate adaptation
 - Carbon biogeochemistry
 - Carbon management





Kristen

Giesting



Aaron

Wilson

Patricia

Leopold

Chartered by USDA Forest Service, universities, non-profit, and tribal conservation organizations



A course designed to help professionals integrate climate change considerations into real-world natural resource projects.

Course Objectives

Through this training participants will be able to:

- Identify local climate change impacts, challenges, and opportunities.
- Develop specific actions to adapt to changing conditions.
- Create your own "climate-informed" project plan.
- Better communicate with stakeholders on the topic of climate change and climate adaptation.

Bonus: Access post-training support from instructors during project planning and implementation

Adaptation is the adjustment of systems in preparation or in response to climate change.



Adaptation actions are designed to **intentionally** address climate change impacts and vulnerabilities in order to meet goals and objectives

Adaptation is the adjustment of systems in preparation or in response to climate change.



Ecosystem-based adaptation activities that build on sustainable management, conservation, and restoration.

Adaptation: there is no single answer

Every landowner is different



Each decision is unique and will vary based upon:

People: Values, Culture, & Resources

Place: Location & Site Conditions

Purpose: Goals & Objectives

Practices: Equipment, Procedures, & Methods

Adaptation Workbook

- Flexible process
- Intentionally consider climate in land stewardship activities.
- Project-based approach
- The Workbook is available in print and online platform.





This week we are working on...

Step 1: DEFINE location, project, and time frames.

Key Question:

- Where are you working?
- What are your goals and objectives for this area?



Step 2: ASSESS site-specific climate change impacts and vulnerabilities

Key Question:

- What climate change impacts and vulnerabilities are most important at your project area?
- How vulnerable is your project area?



Seasonal Temperature Trends



https://www.ncdc.noaa.gov/temp-and-precip/us-trends/

Precipitation Trends Spring 1990–2019 (30 years)

Seasonal Precipitation Trends





-2.00 -1.50 -1.00 -0.50 -0.25 0.00 0.25 0.50 1.00 1.50 2.00

National Centers for Environmental Information

Inches per Decade



Precipitation Trends Summer 1990–2019 (30 years)



National Centers for Environmental Information

Inches per Decade
Data Source: 5km Gridded Dataset (nClimGrid)

https://www.ncdc.noaa.gov/temp-and-precip/us-trends/

Data Source: 5km Gridded Dataset (nClimGrid)



Numerous Challenges \rightarrow Opportunities



- Additional (sustained) heat stress on humans and livestock
- Lower food productivity and reduced quality
- Increased weed pressure, insects, and potential disease
- Unpredictable growing seasons, shifting growing zones, false springs
- Invasive, non-native plants and animals' ranges are expanding
- Greater Flood Risk (Increased Frequency of Flooding)
- Health risks associated with floods
- Increased transportation issues
- Reduced Soil and Water Quality intense runoff, erosion, and contamination
- Potential for summer droughts and seasonal water shortages



Step 2: ASSESS site-specific climate change impacts and vulnerabilities

Regional Climate Impacts

Based on regional info

Site-specific considerations

Based on your expertise

Mgmt.	Climate Change Impacts and Vulnerabilities			
Unit/ Topic	Regional	For the Property or Project Area		
	From vulnerability assessments	Based on your knowledge of the site		
Upland	More extreme precipitation	Slope and soil on east side of property is		
forest	events	vulnerable to flooding/ponding		
	Increased potential for summer	Hill tops are especially vulnerable to		
	drought	growing season moisture stress		

Step 3: EVALUATE management objectives given projected impacts and vulnerabilities

Key Questions:

- What management challenges or opportunities might occur?
- Can current management meet management goals?
- Do goals need to change?

Step 4: IDENTIFY adaptation approaches and tactics for implementation.

Key Question:

• What actions can enhance the ability of the project area to adapt to anticipated changes and meet management goals?



Step 5: MONITOR and evaluate effectiveness of implemented actions.

Key Question:

- How do we know if the selected actions were effective?
- What can we learn from these actions to inform future management?



Climate Change Communication



Focus on Benefits and Solutions



"I CAN DO IT!"



POSITIVE AND PRODUCTIVE MESSAGING

"We expect that within the next 20 years, will be shift from being a zone 5 to a zone 6. That means we can plant certain species (such as...) here that would not have survived the winters previously."

EXAMPLES, IDEAS, STEPS, SOLUTIONS

"Intense precipitation events are increasing, so it make sense to invest in green infrastructure for stormwater management"

Thank You!



forestadaptation.org

Aaron B. Wilson, PhD CFAES-OSU Extension | Climate Specialist Byrd Polar & Climate Research Center | Research Scientist State Climate Office of Ohio (climate.osu.edu) Affiliated Faculty, Sustainability Institute 040 Scott Hall, 1090 Carmack Rd., Columbus, OH 43210 (614) 292-7930 Office wilson.1010@osu.edu Olentangy Greenspace Enhancements, considering Climate Change

Delaware & Franklin Counties
 Goal to Benefit all watershed residents

WATERSHED FAST FACTS

Watershed Size (sq. miles)157
Watershed Size (acres)100,450
River (miles)
Tributaries (miles)400
Subwatersheds
Wetland (acres)
Lakes (acres)354
Ponds (acres)996
Canopy Cover
Protected Lands (acres)

GREENSPACE ENHACEMENT PRIORITIES & STRATEGIES BY TIER

	Greenspace Tier	Acreage	Priority / Strategy	
	1	2,417	8,295 or 8%	
	2	5,878		
/	3	15,791		
	4	36,732	Lawns to Wildflowers	
	5	22,629	Trees, Pocket Parks	
	Impervious	17,003	DePave	
	Total	100,450		

24 Floodplain Management

Table 2.1 Ecological Resilience Is a Better Framework Than Engineering Resilience

Engineering Resilience

Seeks stability Resists disturbance One equilibrium point Single acceptable outcome Predictability Fail-safe Narrow tolerances Rigid boundaries and edges Efficiency of function Redundancy of structure Ecological Resilience

Accepts inevitability of change Absorbs and recovers from disturbance Multiple, nonstable equilibria Multiple acceptable outcomes Unpredictability Safe-fail Wide tolerances Flexible boundaries and edges Persistence of function Redundancy of function





Tier One Parcel Sample- previously farmed floodplain Del-Co Water recently purchased property



- River is shown by light blue lines
- Olentangy river floodplain is shown by the blue hashed polygons.
- Contours are shown by purple lines
- Needs Some Invasive Species Removal and Reforestation

Olentangy Floodplain Restoration



Mechanical Seedling Planting, Fall 2020

Tree Planting Machine

Local Seed Source Stock- Fresh Roots

Age Diversity Plantings- containerized, Fall 2020

Survivability Tracking Tag for containerized stock

Survivability Monitoring Dr. Flower, USDA-USFS

Additional Seedlings Planted, Spring 2021

Floodplain Best Management Practices

- Reforest 100 Yr Floodplain areas with native trees & shrubs
- Prioritized floodplain in Exceptional Warmwater Habitat and State Scenic River portion of the Olentangy (to start).
- Remove invasives eg: bush honeysuckle, tree of heaven, callery pear. (Native roots are better at holding soil)
- Use data from the Tree Climate Atlas for selecting tree species

Adaptation Actions

Adaptation Tactics

- Plant species projected to do well in Columbus, OH urban forests. Also source from more southern genotype sources (Pickaway and Ross Counties). Plants need to migrate 3 miles per year or 30 miles per decade
 - Use USFS Climate Adaptation Tree Atlas List model for species using the SSO metric and other model metrics.

Common Name	SSO
pignut hickory	1
slippery elm	1
sassafras	1
black oak	1
yellow-poplar	1
green ash	1
black cherry	1
American elm	1
northern red oak	1
hackberry	1

One Tree Species Selection Strategy

SSO Metric= Species Selection Option Code may help screen species for potential planting or otherwise promoting in the region. If the SSO code is 1. the species is currently present in the region and has Fair, Good, or Very Good Capability to cope under low or high emissions; thus the models suggest it should do øk into the future. If SSO code is 2, the species is rare or close by in the region but does have a good chance of spreading within the region especially if it has a high HQCL score (see long definition). If SSO code is 3, the species is not recorded from the region via FIA plots, but does have some chance of getting colonized naturally within 100 years. If SSO code is 0, though not recommended according to our models, there will be many other reasons to evaluate for potential to plant or otherwise encourage in the area, based on local ecology and desires.

Climate Change Impacts, Challenges, Opportunities

Impacts- Increased Spring Rains/Increased Summer Drought

Opportunities-

 Change in Hardiness Zone and Increased Growing Degree Days may make it easier for us to restore riparian floodplains more quickly.

Expansion of Riparian Forest Width by converting Agricultural Land to Forest to increase resilience

Sample Adaptation Planning at Sawmill Wetlands

Outcome-Increased Ecological Services, More Resiliency

Outcomes

- Healthy forests with maximum ecological services
- Support wildlife food web (caterpillars, birds....)
- Sequestration of carbon
- Resilience to flood flows
- Active floodplain to trap sediment

Tier Two Sample- Olentangy Environmental Control Center – Security Issue – Prairie instead of Reforestation

Prairie Planting

Ravine Corridors may be a great option for allowing animals and plants to migrate vertically to deal with climate change temperatures and floods.

Sample Wetland Priority Restoration Area

Stormwater Basin Planting

THANKS

For more information:

Laura Fay

 Friends of the Lower Olentangy Watershed <u>www.olentangywatershed.org</u> <u>info@Olentangywatershed.org</u> <u>lfay2311@gmail.com</u> or 614-580-2656

LOW CANOPY NEIGHBORHOODS

LOW SCHOOL AREA CANOPIES 4%

Rosewind Commons Planting 2018

DePaving to restore infiltration

