Web session etiquette. Please:

• If you are using a phone, turn off your computer speakers to avoid feedback and terrible noises.

• Mute your line unless you are speaking to the group.
Add A Chat Box

ONLINE COURSE

URBAN FORESTED WATERSHEDS

ADAPTATION PLANNING AND PRACTICES

Session 1: Introduction to the Online Course and Adaptation Workbook

Tuesday, November 6, 2018 @ 11 am ET

Web session etiquette. Please:

• If you are using a phone, turn off your computer speakers to avoid feedback and terrible noises.

• Mute your line unless you are speaking to the group.
Web session etiquette. Please:

- If you are using a phone, turn off your computer speakers to avoid feedback and terrible noises.
- Mute your line unless you are speaking to the group.
Sending Chats

Try it: send a chat to “everyone” by typing your Name and organization.
Welcome!

Leslie Brandt  
lbrandt@fs.fed.us  
Climate Change Specialist  
Northern Institute of Applied Climate Science  
US Forest Service  
www.forestadaptation.org

Danielle Shannon  
dshannon@mtu.edu  
Climate Change Specialist  
Northern Institute of Applied Climate Science  
Michigan Technological University  
www.forestadaptation.org
Northern Institute of Applied Climate Science

Provides **practical** information, resources, and technical assistance related to forests and climate change

Regional multi-institutional partnership among:

- Northern Institute of Applied Climate Science
- U.S. Department of Agriculture
- Michigan Technological University
- Great Lakes Indian Fish & Wildlife Commission
- University of Minnesota
- American Forests
- The University of Vermont

www.nrs.fs.fed.us/niacs/
USDA Northern Forests Climate Hub

- “Specialty Hub” - forestry
- Support 2 Regional Hubs
- 20 states in NE/MW
  - 42% forested
  - 41% of US population
  - >70% privately owned
- Climate Services
  - Assessment
  - Practical resources
  - Technical assistance
- Operated by NIACS
Today’s Agenda

- Welcome, introductions & overview
- Step 1 introduction & assignment
- Adaptation Workbook walkthrough
- Example from last year: special guest Danielle Fox, Columbia, MO
- Discussion: Share your project ideas
Course Objectives

Integrate climate change considerations into real-world projects for forest management and conservation

- Identify local climate change impacts, challenges, and opportunities
- Develop specific actions to adapt to changing conditions
- Create your own “climate-informed” projects
- Better communicate with stakeholders
- Plus: Access post-training support from NIACS staff during project planning and implementation
Course Expectations

▪ Attend all 7 sessions
  • Let us know as soon as possible if you must miss a course
  • Try to have at least one person from your project at each session
  • You will only receive CEUs for classes you attend.

<table>
<thead>
<tr>
<th></th>
<th>Session 1</th>
<th>Session 2</th>
<th>Session 3</th>
<th>Session 4</th>
<th>Session 5</th>
<th>Session 6</th>
<th>Session 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td></td>
<td></td>
<td></td>
<td>27</td>
<td></td>
<td>18</td>
<td></td>
</tr>
<tr>
<td></td>
<td>NOVEMBER</td>
<td></td>
<td>DECEMBER</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Course Expectations

- Complete all homework by Noon Monday before the next class*
  - If you know you’ll be busy later on, work ahead!

*Note: Our first class assignment is due Friday, November 9 because of Veterans’ Day
Course Expectations

▪ Be fully engaged in the course
  ▪ close your email
  ▪ mute your cell phone
  ▪ shut your door or put up a sign that says “I’m in class” at your cube
Course Expectations

- Collaborate with your classmates
- Share your ideas and struggles
https://urbanwaterfapp.slack.com
QUESTIONS?
Adaptation is the adjustment of systems in response to climate change.

Adaptation actions are designed to specifically address climate change impacts & vulnerabilities in order to meet goals/objectives.
Adaptation is the adjustment of systems in response to climate change.

Ecosystem-based adaptation activities build on sustainable management, conservation, and restoration.
Same actions—climate change just makes them that much more important

Small “tweaks” that improve effectiveness

New & different actions to consider, even some that may seem wild & crazy

*individual results will vary
Forest Adaptation Resources

Strategies & Approaches
Menu of adaptation actions

Adaptation Workbook
- Structured process to integrate climate change considerations into management
- Workbook approach

Swanson et al. 2016;
www.nrs.fs.fed.us/pubs/52760
Adaptation Workbook

Provides “structured flexibility”

1. DEFINE area of interest, management objectives, and time frames.

2. ASSESS climate change impacts and vulnerabilities for the area of interest.

3. EVALUATE management objectives given projected impacts and vulnerabilities.

4. IDENTIFY and implement adaptation approaches and tactics.

5. MONITOR and evaluate effectiveness of implemented actions.

Vulnerability assessments, scientific literature, and other resources

Menu of Adaptation Strategies & Approaches

www.nrs.fs.fed.us/pubs/52
Adaptation Demonstrations
(real-world examples)

250+ projects underway

www.forestdadaptation.org/demos
Forestadaptation.org/demos

Climate Change Response Framework

Central Appalachians

Central Hardwoods

Mid-Atlantic

New England

Search on the map by location or filter by keyword
Provides “structured flexibility”

1. DEFINE area of interest, management objectives, and time frames.

2. ASSESS climate change impacts and vulnerabilities for the area of interest.

3. EVALUATE management objectives given projected impacts and vulnerabilities.

4. IDENTIFY and implement adaptation approaches and tactics.

5. MONITOR and evaluate effectiveness of implemented actions.

Menu of Adaptation Strategies & Approaches

Vulnerability assessments, scientific literature, and other resources
Questions?
Step 1: DEFINE location, project, and time frames.

Key Question:
- Where are you working?
- What are your management goals and objectives for this area?
Step 1: DEFINE location, project, and time frames.

- Real-world project
### Step 1: DEFINE location, project, and time frames.

#### Too big
- Metro area project, multiple ownerships, multi-county, natural and developed sites combined. Multiple forest types

#### Sizes that can work:
- A restoration project in a riparian area
- A street tree master plan (citywide or neighborhood)
- A new urban development
- A few (1-4) forest types within a park
- A demonstration garden

#### Too small
- A private backyard
**Step 1.1:** Define management topics.

**Land Use or Management Topic** – Land uses or management topics that are relevant to your project area.

- **Pre-defined Land Uses**
  - Based on the same definitions used in i-tree

- **Custom Land Uses or Management Topic**
  - Land use type not shown
  - Management topic: e.g., “Ash removal and replacement" or "Gravel bed nursery project" or "Stormwater management project."
Step 1.2: Define management goals & objectives.

- **Management Goal**—broad, general statements, usually not quantifiable, that express a desired state or process to be achieved
- Have at least 1 goal for each land use/management topic.
Step 1.2: Define management goals & objectives.

- **Management Objective**—concise statements of measurable planned results that correspond to pre-established goals in achieving a desired outcome
- You can have multiple objectives for each goal or 1 objective for each goal
- Try to have at least 3 and no more than 12 objectives for your whole project.
Objectives Should be SMART

S - Specific
M - Measurable
A - Achievable
R - Relevant
T - Time bound
**Step 1.2:** Define management goals & objectives.

- **Example:**

<table>
<thead>
<tr>
<th>Management Goal</th>
<th>Management Objective</th>
<th>Time Frame</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increase species diversity</td>
<td>Have no more than 20 percent of a family, 10 percent of a genus and 5 percent of a species across all street trees</td>
<td>25 years</td>
</tr>
<tr>
<td>Increase canopy cover</td>
<td>Increase % canopy from 20% to 30%</td>
<td>20 years</td>
</tr>
<tr>
<td>Reduce invasive species cover</td>
<td>Reduce area covered by invasive buckthorn from 10% to no more than 5%</td>
<td>10 years</td>
</tr>
<tr>
<td>Improve water quality</td>
<td>Stabilizing 50 feet of eroding banks</td>
<td>5 years</td>
</tr>
</tbody>
</table>
Things to Keep in mind

▪ If possible, use goals/objectives you ALREADY have.
▪ These DO NOT need to be related to climate change (that comes later)
▪ Goals/objectives can be area-wide or specific to a particular topic or land use.
▪ The more specific your objectives are, the better.
Questions?
Workbook Tutorial

Adaptation Workbook
a climate change tool for land management and conservation

Use Workbook  About

FORESTS  URBAN FORESTS  AGRICULTURE

Tailored to your location
Relevant resources and information for your location, giving you complete flexibility to build a custom adaptation plan based on your unique management goals, values, and experience.

Structured process
A logical, step-by-step process to help you consider climate change information for your location. The process helps you capture your thinking and align your goals to adaptation actions.

Peer-reviewed
Based on the best available science on climate change impacts and adaptation. You can access a library of information to learn more.

Take it with you
Create a custom adaptation plan. Save this plan to combine with other management documents and share with your colleagues.

Northern Institute of Applied Climate Science
Step 1: DEFINE location, project, and time frames.

Project Dashboard:

Be sure to select: “A Project for ‘Forest Adaptation Planning and Practices – Fall 2018 Urban)”

A project for "Forest Adaptation Planning and Practices - Fall 2018 (Urban)"
A standard project
Step 1: DEFINE location, project, and time frames.

Location:
Click to drop a pin; click and hold to drag it into position
**Step 1:** DEFINE location, project, and time frames.

**Project Dashboard:**

- My Projects
  - Chicago project
    - Created September 27, 2017 | Last edited September 27, 2017
  - Nursery selection
    - Created February 13, 2017 | Last edited February 13, 2017
  - Boundary waters generic
    - Created December 2, 2014 | Last edited November 28, 2016
  - Chicago project
    - Created October 6, 2016 | Last edited October 6, 2016

- Chicago project
  - Ownership: 
    - 10 acres
    - Size: 2
  - Go to Workbook
  - Edit project details
  - View course materials
  - Delete this project

Start Workbook
Welcome to the Adaptation Workbook

Welcome to the Urban Forestry Adaptation Planning and Practices online course!

This course is designed to help you consider climate change information and identify adaptation actions using your own real-world management or conservation project. This online Adaptation Workbook will help you step through a structured process for considering climate change impacts, challenges, and opportunities for your project area. We will use a combination of individual work time [using this Workbook] followed by online classroom sessions to provide you with information and resources for integrating climate change information into your work.

Example Adaptation Projects

As you complete this course, we also encourage you to spend a little time reviewing a few other adaptation projects to get a sense for how the overall process will come together. More than 100 adaptation demonstration projects are featured on the Climate Change Response Framework website. Below are some examples that were developed specifically for urban areas:

- City of Cambridge, MA: Cambridge Urban Forest Adaptation
- Natural Areas Conservancy and New York City Department of Parks and Recreation: Encouraging Robust Urban Forests Through Restoration with Climate Change-Adapted Species Palettes
- Hennepin County: Gravel Bed Nursery and Planting Program
- Village of Riverside, IL: Reforestation Project

Don't show this again.

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

Progress Summary:

Course agenda and notes
Step 1: DEFINE location, project, and time frames.

Progress Summary:
**Step 1.1:** Define management topics.

The Adaptation Workbook is designed to help you consider how climate change might influence your unique management goals and objectives. To help you organize your information, Step 1 asks you to create some general land use categories or custom management topics. In Step 1.2, you will set specific goals and objectives for each category.

The Workbook may have suggested several possible land use types for you, because you’re working on an urban forestry project. You can keep or remove any of these pre-defined categories. If there are different management topics that are important to your goals, you can create your own categories by selecting the “custom” option at the bottom of the page. Create any categories you like, as long as they have distinct management goals and objectives you want to consider throughout the rest of the Workbook.

For example:

- You might create categories like “Tree removal and replacement” or “Gravel bed nursery project” or “Stormwater management project.”

You can also add a custom land use or management topic by clicking the “Add a custom Land Use or Management Topic” button.
Step 1.1: Define management topics.

Step 1 course materials

The first class session will be on November 7 from 11:00 am-11:45 am Eastern/10:00-10:45 Central. Before then, please:

- Select an urban forestry or urban natural area management project to use for the training.
- Assemble relevant materials and information regarding your project (maps, inventory information, fact sheets, management plans, easement documents, etc.) for use during the course.
- Peruse the Forest Adaptation Resources, 2nd edition, in particular the Introduction (pgs. 1-9) and the Adaptation Workbook (Chapter 5, pgs. 74-89).

Review Session 1 slides

Prior to Session 2, complete the following by Sunday, November 19th at 12:00 am Central:

- Step 1 of the Adaptation Workbook
- Homework section following Step 1
- Record your intro on Flipgrid: https://flipgrid.com/8f2b6d

(Optional) review regional climate impacts to prepare for Step 2 by watching a recorded presentation or reading a climate report for your specific geographic area:

- Regional forest ecosystem vulnerability assessments here:
- The Chicago Wilderness Assessment covers the Chicago region and parts of Northwestern Indiana
- The Central Hardwoods Assessment covers southern Missouri, Illinois, and Indiana
- The Central Appalachians Assessment covers Eastern Ohio, West Virginia, and parts of Maryland

- Here are some links to other location-specific information:
- New York City Panel on Climate Change 2015 Report
- Climate change in Minnesota: 23 signs
- NOAA State Climate Summaries:
  - Missouri
  - Minnesota
  - Michigan
  - Illinois
  - Indiana
  - Ohio
  - New York

- Additional information on tree species vulnerability and shifts in heat and hardiness zones are here:
  - Missouri
  - Minnesota
  - Michigan
  - Indiana
  - Ohio
  - New York

If you encounter technical issues with the Workbook or have suggestions for improvements, send us an email using this link.
Step 1.1: Define management topics.

Describe how your project is organized:

- Land use: street trees, park, residential
- Management topics: stormwater management, ash replacement

Land use types are pre-loaded for your convenience.

Or, you can create your own land uses or management topics, for example, different areas within a park or neighborhoods in a city.
Step 1.1: Define management topics.

Describe how your project is organized:

- Land use: street trees, park, residential
- Management topics: stormwater management, ash replacement

Add a custom Land use or Management Topic

Custom Management Topic

<table>
<thead>
<tr>
<th>Title</th>
</tr>
</thead>
</table>

Describe your custom land-use category or management topic here. You can attach supporting documents or references using the Add a Link button below.

Add a link

Save
Step 1.2: Define management goals & objectives.

- Property-wide goals
- Goals for specific land uses or management topics
Step 1.2: Define management goals & objectives.

- **Property-wide goals**
- **Objectives & Time Frames for Goals**
- **Goals for specific land uses or management topics**
# Homework 1

**What is your project, and what are the management goals and objectives for your project area? (Summarize in a short paragraph)**

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Rate your pre-course level of knowledge or familiarity with climate adaptation, by how strongly you agree/disagree with the following statements:**

<table>
<thead>
<tr>
<th>Statement</th>
<th>Low</th>
<th>Medium</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>I understand the potential local impacts of climate change on the lands I manage.</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I can explain how climate change may affect my ability to achieve management objectives.</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I can identify viable climate change adaptation strategies that can be applied to my local area.</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I can translate broad adaptation strategies to actionable adaptation tactics in my local area.</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I can identify monitoring metrics to assess the effectiveness of my management tactics.</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

**The topic(s) I’m most interested in learning from this online training is (are):**

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**The reason(s) I signed up for this training to incorporate climate change adaptation into my management planning is (are):**

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Introduce yourself in a short video. Go to [https://flipgrid.com/81706d](https://flipgrid.com/81706d) or use the code 8f2b6d in a flipgrid phone app. Note when you completed this task here.

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Next**

Climate Impacts and Vulnerability

Vulnerability Determination

Homework 2

Evaluate Objectives

Homework 3

Step 4

Adaptation Actions

Tactic Recommendations

Homework 4
Questions?
WELCOME DANIELLE, FOX, CITY OF COLUMBIA, MO
Example: City of Columbia, MO
Discussion: Project Ideas

Do you have an idea for a project?

▪ Location, size, and ownership
▪ Primary management goals & objectives
Getting to Know You

Between now and the next course, go to:
https://flipgrid.com/cdc8cd, Password: NIACS2018
Introduce yourself – 1 min max!

- Name, Organization, Position
- What you hope to get out of this course
- Anything else about you that you’d like to share.
Using Flipgrid (3 options)

Internet browser+webcam (no downloads required)
Chrome and Firefox work best. Internet Explorer and Safari work with flash plug in.

On your phone.
Download flipgrid app for IOS or android

Record on any device as a an MP4, MOV, or WEBM video file and upload on the web.
Looking Ahead

NEXT CLASS: Tuesday, November 13

- Come to the discussion session ready to talk about your project location, goals, and objectives (1 person per project)

- Lecture section will introduce step 2
Assignment for next time:

Complete by THIS FRIDAY:
- Record your intro on Flipgrid:
  - [https://flipgrid.com/cdc8cd](https://flipgrid.com/cdc8cd)
  - Password: NIACS2018
- Complete Step 1 of the Adaptation Workbook
- Complete the Homework section following Step 1
- Be prepared to introduce your project in 3 minutes or less

Optional: CEUs – email Leslie your SAF or ISA member number
Questions?