

FOREST ADAPTATION PLANNING AND PRACTICES

~ ONLINE COURSE ~

Session 3 Discussion: Understanding and Evaluating Climate Change Vulnerabilities

Tuesday, February 5, 2019

Web session etiquette:

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



CHECK IN!

Type your name, organization, and favorite snack food in
the chat box!

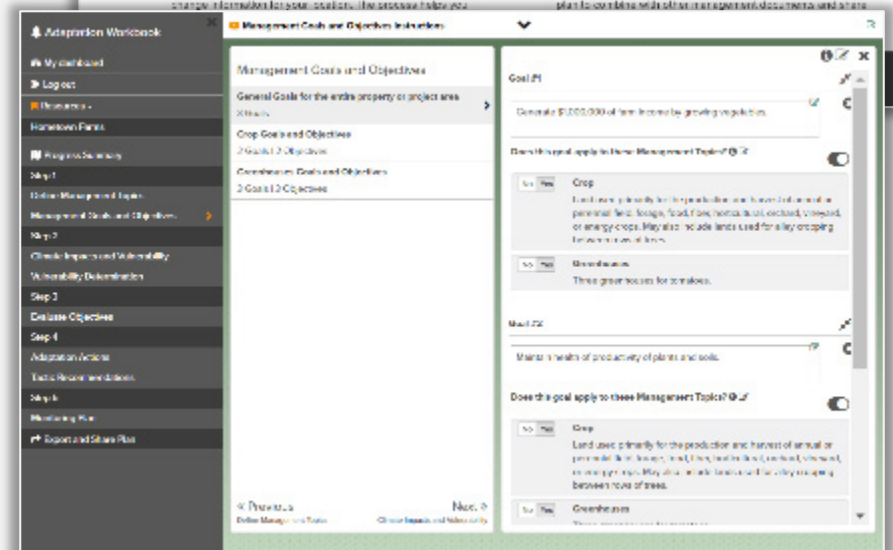
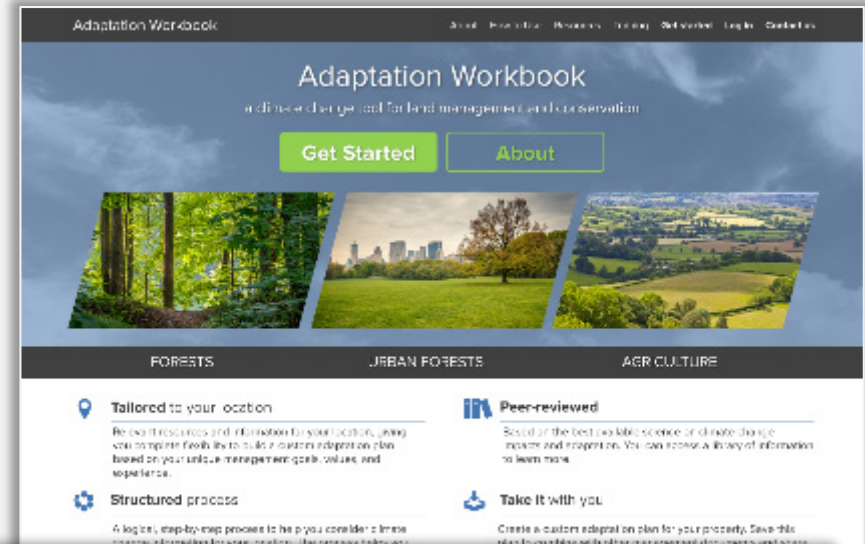
Welcome back!

Discussion: 10:00-10:45 am

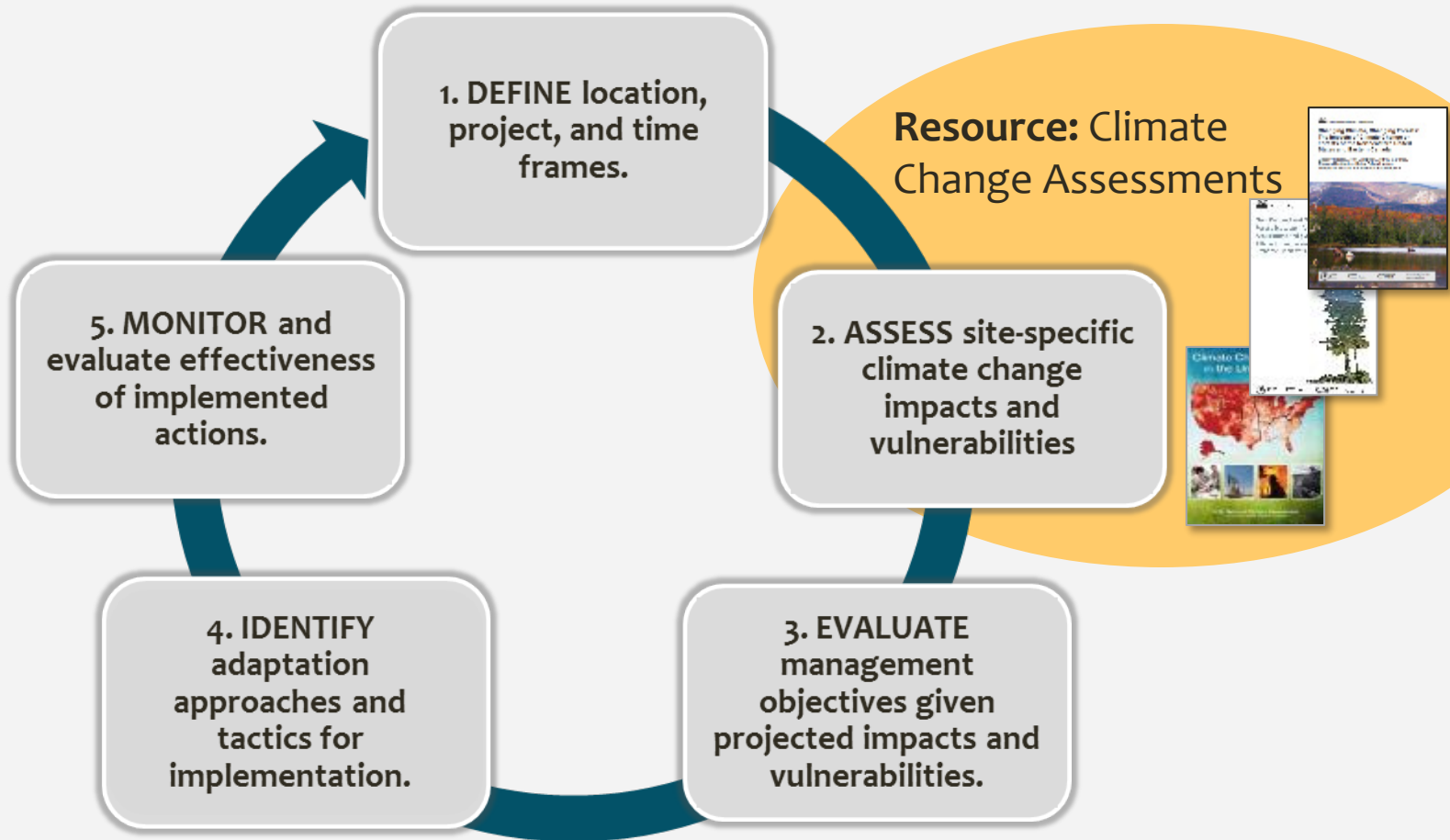
- Discuss climate change impact for your project

Lecture: 10:45-11:30 am

- Step 3 introduction
- Assignment for Monday, Feb 11



Step 2 – Review



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

Key Question:

- How might the area be uniquely affected by climatic change and subsequent impacts?
- How might regional impacts be different in the project area?

Step 2.1: ASSESS site-specific climate change impacts and vulnerabilities.

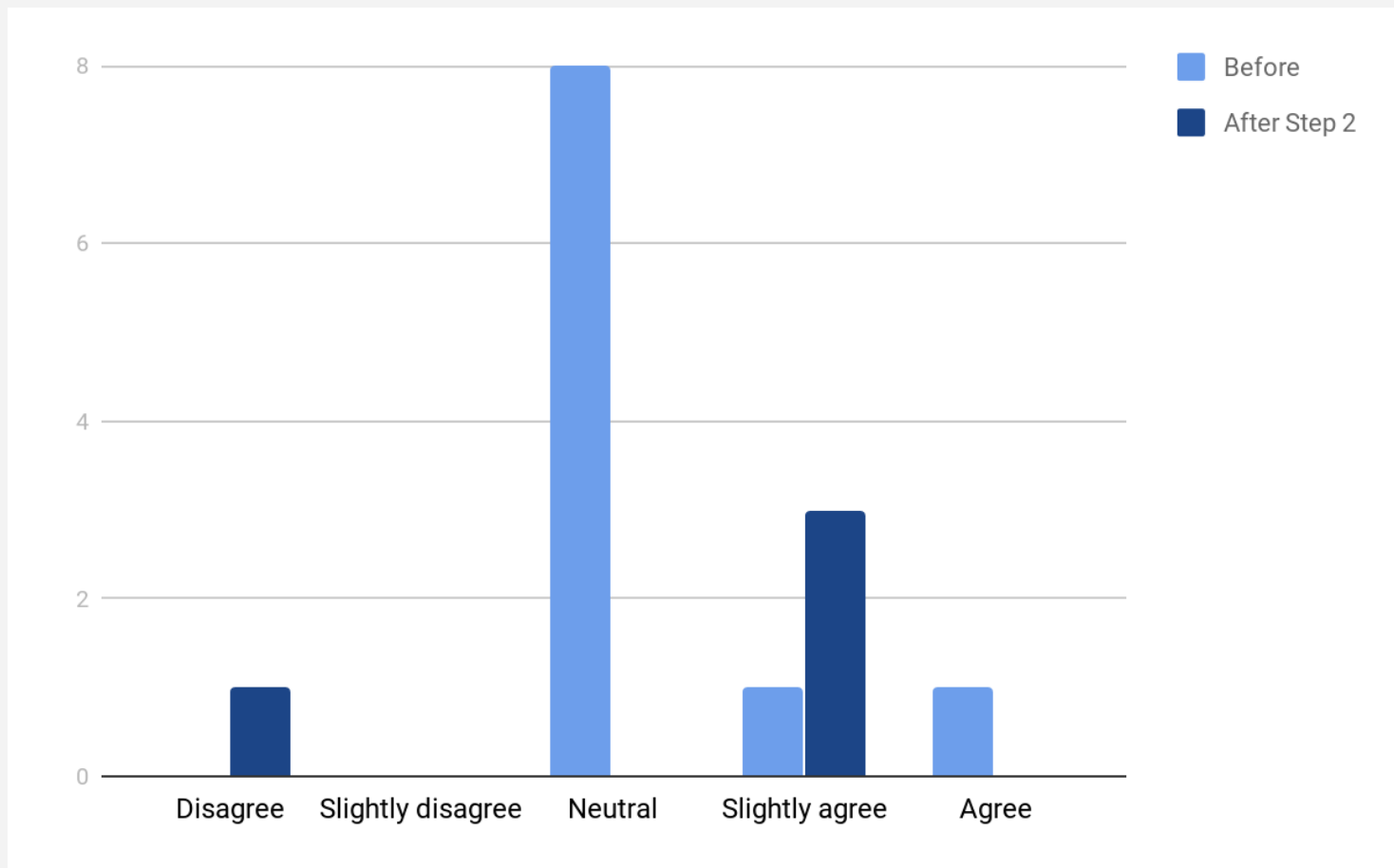
Regional Climate Impacts
Based on regional info



Site-specific Impacts
Based on your expertise

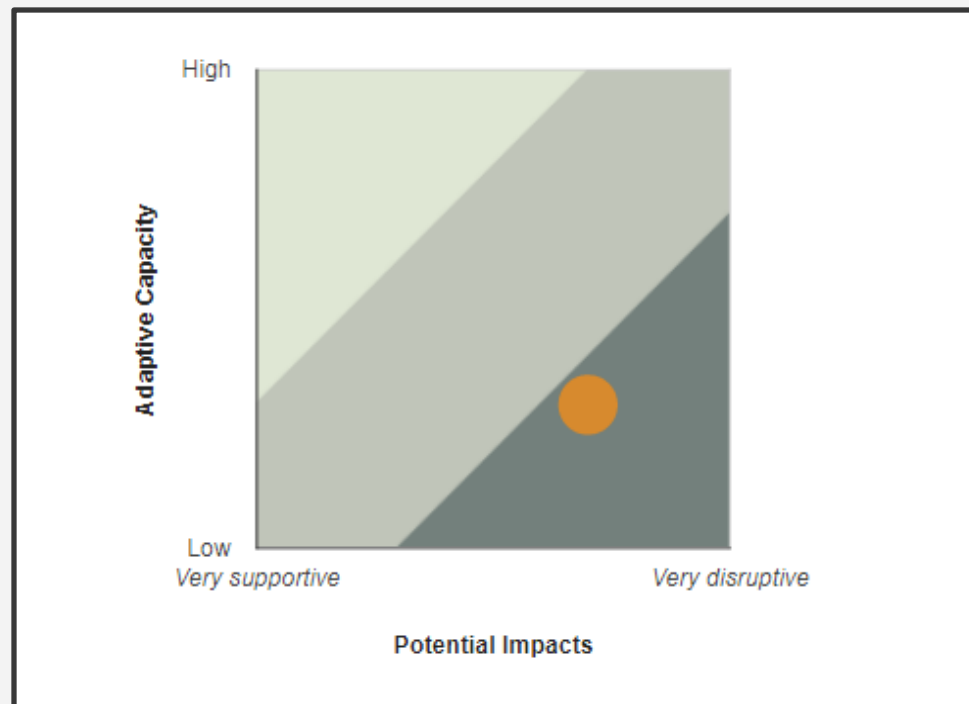
Mgmt. Unit/ Topic	Climate Change Impacts and Vulnerabilities	
	Regional	For the Property or Project Area
Upland forest	<i>From vulnerability assessments</i> More extreme precipitation events Increased potential for summer drought	<i>Based on your knowledge of the site</i> Slope and soil on east side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

I understand the potential local impacts of climate change on the lands that I manage.

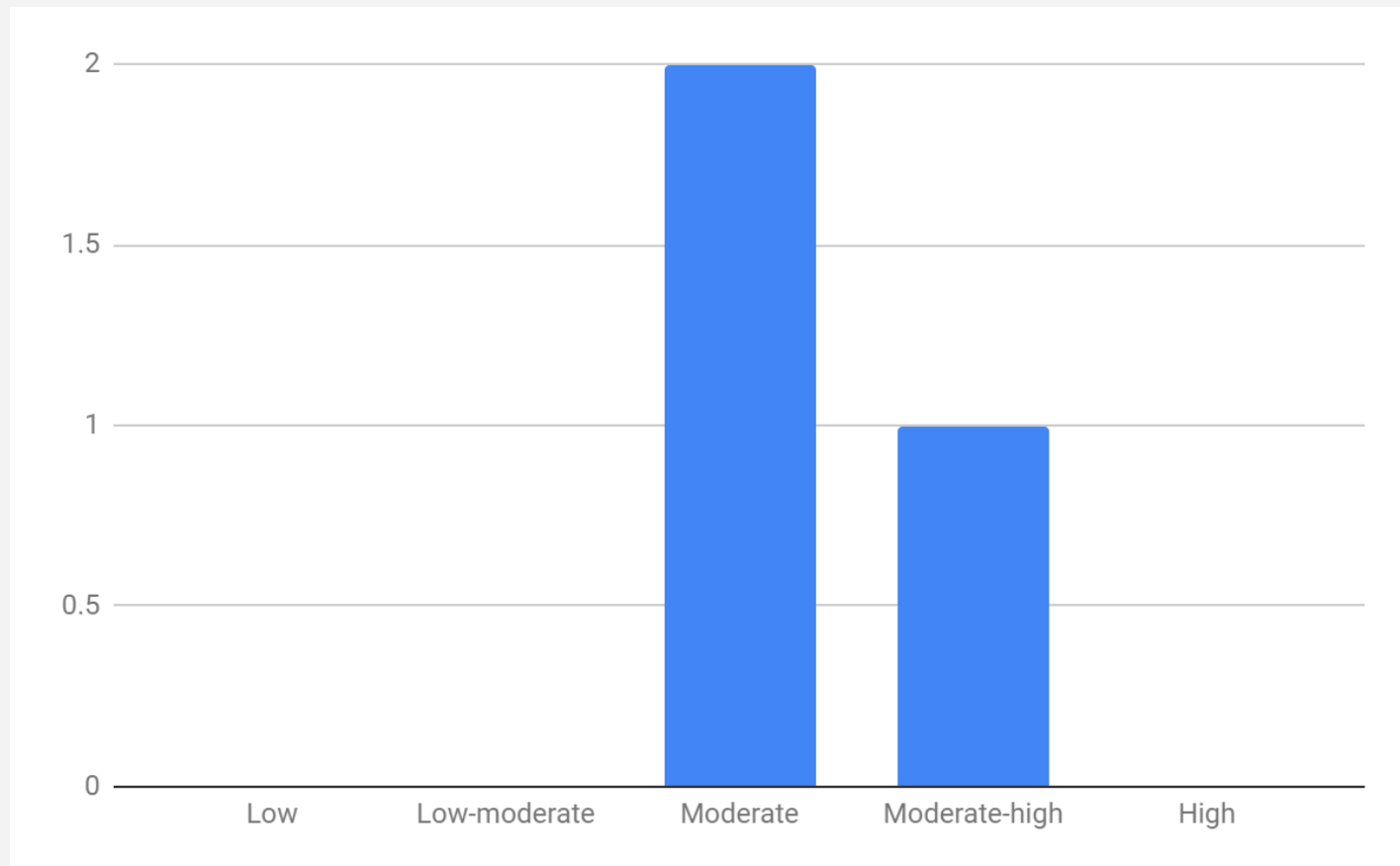


Step 2.2: Vulnerability determination

- How will the **potential impacts** from climate change affect this particular location?
- How much **adaptive capacity** (i.e., resilience) does this system have to bounce back from climate change or disturbance?



How vulnerable is your forest or project area?



Impacts Activity

- 1) Put on your thinking cap!
- 2) Virtual white board will have post-it notes with the key regional impacts
- 3) For each impact, we'll ask you what site-level considerations you think would make those impacts more or less severe in your project area.



What site-level characteristics would make the climate change impacts more or less severe?



Post-it note activity

Share this Wall: <http://note.ly/brandtleslieagmailcom>

note.ly | + 📷 📧 Login Signup ⚙️

Physical Impacts

- Increases in temperature**
 - frost pocket effect doesn't extend into summer time
 - warmer winters
 - The major shifts in growing season, seasonal temperatures
- Droughts**
 - longer periods of drought
 - increase in summer drought
- More extreme weather events/storms**
 - temperature extremes
 - number of days exceeding 95 degrees
 - heavy rain events
- Soils considerations**
 - reduced soil moisture
 - increased change for soil erosion on site
- Precipitation shifts**
 - precipitation increases in the winter and decreases in the summer
 - Hydrology alterations and wetland functions are already at risk, and are likely to become more at risk or more altered
- Sea level rise/lake level changes**
 - increased precipitation and sea-level rise which will result in greater flooding and degradation of riparian corridors
- Flooding**
 - increased precipitation and sea-level rise which will result in greater flooding and degradation of riparian corridors
- Fire**
 - fire changes
- Changes in snowpack**
 - changes in snowpack

Biological Impacts

- Changes in species composition**
 - forest composition could change
 - die-off of drought intolerant species
 - impacts to many oak/hickory species currently found in the parcel (northern red, chestnut, pignut, etc.) are no change or negative change
 - changes may occur that would favor some species (i.e. oak, maple, elm)
 - species like aspen, ash, and most of the conifers will be challenged.
- Increased non-native species invasion**
 - increased invasive species pressure
 - increased pressure from invasive plants and insects
- Insect pests**
 - pathogens
 - longer growing season increases susceptibility
 - pests and pathogens
- Changes in canopy cover**
 - Stands 1 and 2 could be very susceptible to significant mortality of major dominant canopy tree species
 - decrease the window which red spruce has to grow because of an increase in canopy cover
 - increased risk to seedlings/saplings
 - Longer growing season
- Changes in growing conditions**
 - may be replaced by a conifer stand as species migrate northward
 - a decrease in seed germination in native species
- Effects on wildlife**
 - Herbivores
- The likely response to increased flooding would be new stormwater infrastructure and stream restoration projects which would result in loss of forest canopy**

What are some factors you identified that **enhanced** your adaptive capacity?



What are some factors you identified that **reduced** your adaptive capacity?



Is there other information
would have been helpful?



Other thoughts about Step 2?



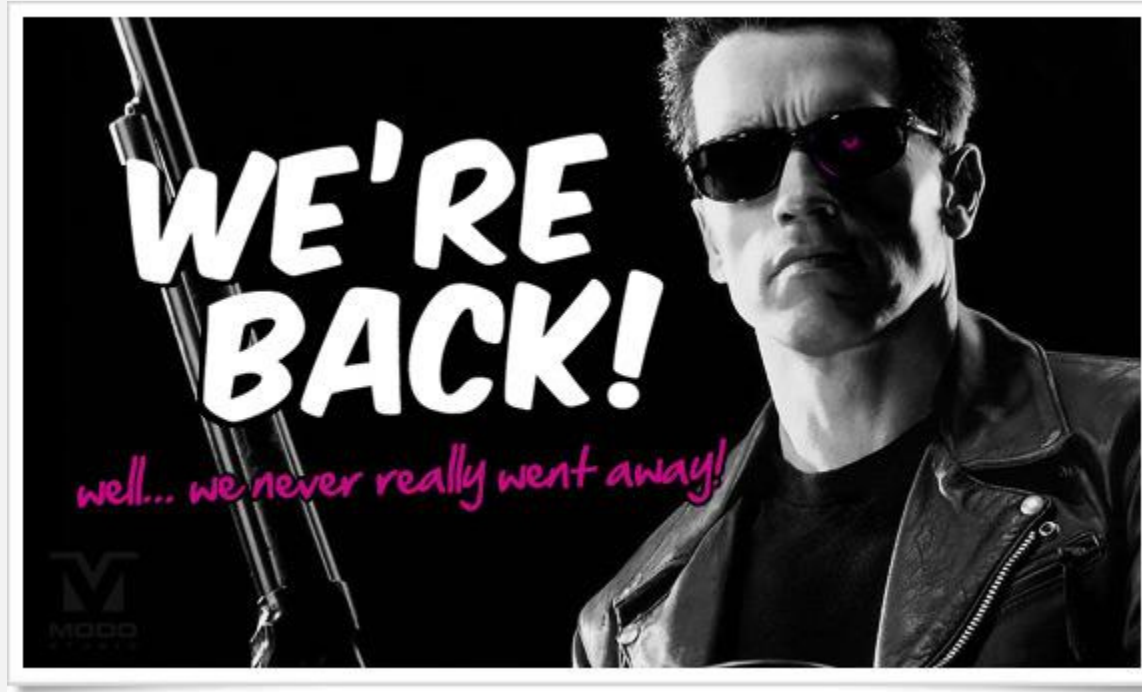
{ Take a Break! }

sensory-motor

10-MINUTE STRATEGIES

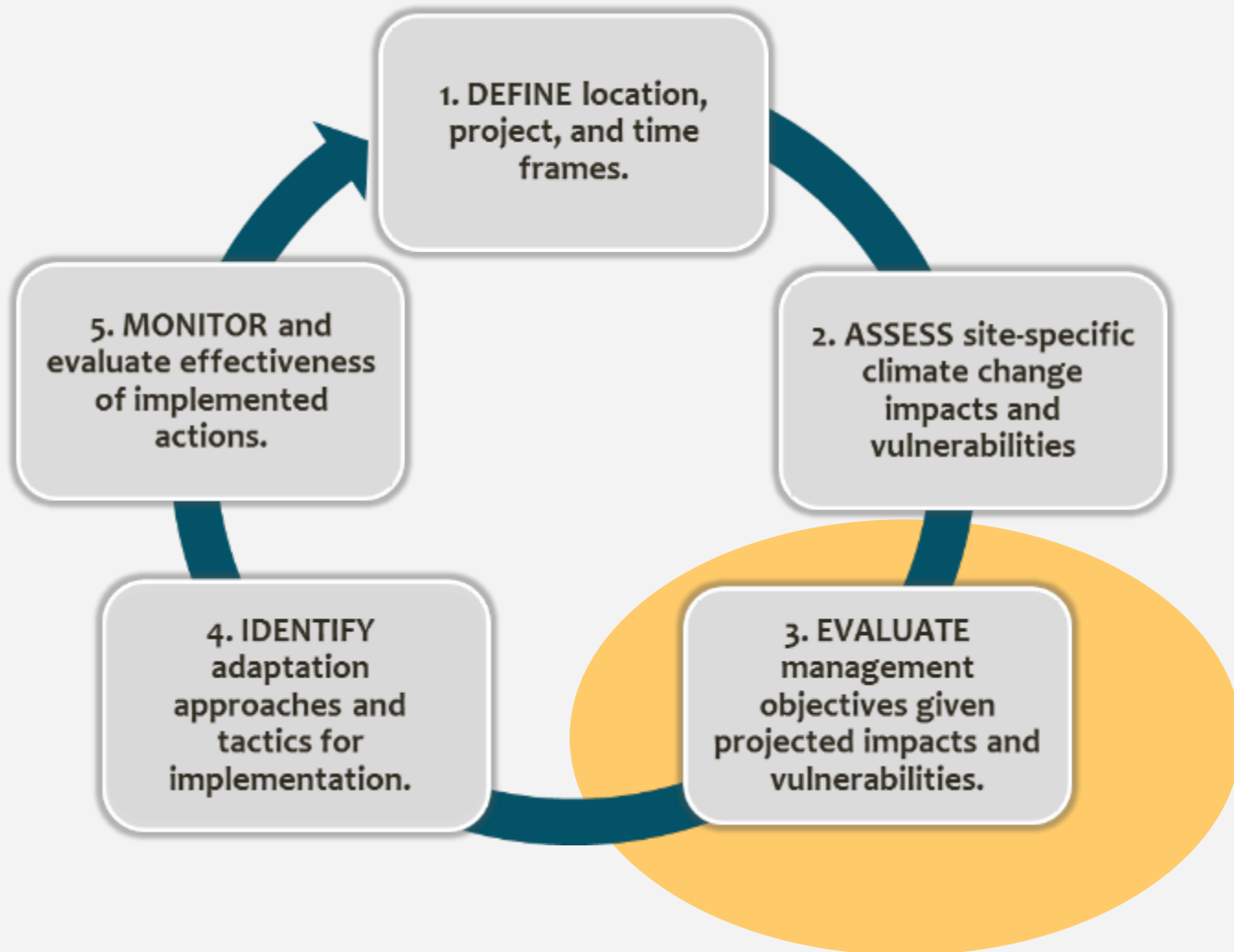
Re-Focus Tired, Hyper or Restless Students
without leaving the classroom!





Step 3...

Today-Step 3!



Step 3: EVALUATE management objectives given projected impacts and vulnerabilities.

Key Question:

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

Step 3 Course Materials

The screenshot shows a web-based course interface. On the left is a dark sidebar with a navigation menu. The main content area is white and contains instructions for 'Step 3 Course Materials'. Below the instructions are four text input fields for 'Challenges', 'Opportunities', 'Feasibility Under Current Management', and 'Other Considerations'. Each field has a small blue icon in the top right corner. At the bottom of the main area are 'Previous' and 'Next' navigation buttons.

Adaptation Workbook

- My dashboard
- Log out
- Resources ▾
- Chicago project
- Progress Summary
- Step 1
 - Define Management Topics
 - Management Goals and Objectives
 - Homework 1
- Step 2
 - Climate Impacts and Vulnerability
 - Vulnerability Determination
 - Homework 2
- Step 3**
 - Evaluate Objectives** >
 - Homework 3
- Step 4
 - Adaptation Actions
 - Tactic Recommendations
 - Homework 4

Evaluate Objectives instructions

Step 3 Course Materials

As you consider how potential climate change impacts will affect your ability to achieve your management goals and objectives, it is possible that some of these may no longer be feasible. Think about the following questions, which will be useful in completing your Homework, and which we will use for our group discussion:

- What are the biggest challenges that you see for meeting your management objectives?
- What are the biggest opportunities?

View Session 3 slides.

If you encounter technical issues with the Workbook or have suggestions for improvements, send us an email using [this link](#).

List different ways climate change impacts and associated vulnerabilities may make it more difficult to achieve your management objective.

Add a Challenge +

Opportunities

List different ways climate change benefits or opportunities may make it easier to achieve each management objective.

Add an Opportunity +

Feasibility Under Current Management ⓘ

Add useful comments about the feasibility of your objective. For example, explain why the feasibility might be higher in the short-term than the long-term, or higher for one portion of the project than another.

Other Considerations ⓘ

List any social, political, financial, or institutional considerations that might be challenges or opportunities for achieving the management objective. You may also note why you would continue pursuing an objective with low feasibility, such as legal requirement or important

« Previous Homework 2 Next » Homework 3

Step 3 Instructions

- Adaptation Workbook
- My dashboard
- Log out
- Resources ▾
- Chicago project
- Progress Summary
- Step 1
 - Define Management Topics
 - Management Goals and Objectives
 - Homework 1
- Step 2
 - Climate Impacts and Vulnerability
 - Vulnerability Determination
 - Homework 2
- Step 3
 - Evaluate Objectives >
 - Homework 3
- Step 4
 - Adaptation Actions
 - Tactic Recommendations
 - Homework 4

Step 3: Evaluate management objectives

In this step, you think critically about your management objectives and consider whether climate change might make them harder or easier to achieve. This is a critical step to evaluate whether your management objectives are robust, or whether any might need to be changed.

In this step, you'll identify management challenges and opportunities associated with climate change for each objective you created in Step 1.2. After thinking about the "pros" and "cons" that climate change will present, you will also evaluate the feasibility of meeting your management objectives **under current management**.

For example:





Let's say your objective was to plant an additional 10,000 trees per year for the next 10 years. Potential challenges related to climate change might be that some species on your planting list are projected to decline over the next century, and more variable precipitation patterns will increase risk for newly planted saplings. An opportunity might be that milder winters could allow you to add new species to your planting list. You might decide that this objective had moderate feasibility due to reduced sapling survival and lack of sufficient nursery supply of new species and cultivars.



Thinking ahead...

If you find yourself brainstorming adaptation actions that could address climate-related challenges, jot down those ideas to capture them for the next step. You can also skip ahead to Step 4 momentarily, and your work on this page will be saved.



 Evaluate Objectives Resources



-  A red triangle indicates fields are incomplete
-  An orange triangle indicates fields are partially complete
-  Hover to learn more about a particular item
-  Expand/collapse a section

Feasibility Under Current Management  

Add useful comments about the feasibility of your objective. For example, explain why the feasibility might be higher in the short-term than the long-term, or higher for one portion of the project than another.

Other Considerations  

List any social, political, financial, or institutional considerations that might be challenges or opportunities for achieving the management objective. You may also note why you would continue pursuing an objective with low feasibility, such as legal requirement or important

« Previous Next »
Homework 2 Homework 3

Expandable Impacts List

The screenshot displays a web-based 'Adaptation Workbook' interface. On the left is a dark sidebar with navigation options: 'Adaptation Workbook', 'My dashboard', 'Log out', 'Resources', 'Chicago project', 'Progress Summary', 'Step 1' (Define Management Topics, Management Goals and Objectives, Homework 1), 'Step 2' (Climate Impacts and Vulnerability, Vulnerability Determination, Homework 2), 'Step 3' (Evaluate Objectives, Homework 3), 'Step 4' (Adaptation Actions, Homework 4), and 'Tactic Recommendations'. The main content area is titled 'Evaluate Objectives instructions' and 'Step 3 Course Materials'. It features a table with two rows: 'Park Objectives' (1 of 1 objectives evaluated) and 'Riparian buffer Objectives' (0 of 0 objectives evaluated). A yellow arrow points to an expanded panel titled 'Review Potential Regional Climate Impacts'. This panel contains several paragraphs of text detailing climate projections for the Chicago area, such as temperature increases, precipitation changes, and species distribution modeling. Below the text is a goal: 'Goal #1: Increase species diversity' with an objective to have no more than 20 percent of a family, 10 percent of a genus, and 5 percent of a species. Underneath, there are two 'Challenges' listed in a list box: 'Some more northern species may no longer be able to survive, reducing possible species for planting.' and 'Diseases such as oak wilt and bur oak blight may become more severe, leading to more mortality of existing species.'

Adaptation Workbook

My dashboard

Log out

Resources

Chicago project

Progress Summary

Step 1

Define Management Topics

Management Goals and Objectives

Homework 1

Step 2

Climate Impacts and Vulnerability

Vulnerability Determination

Homework 2

Step 3

Evaluate Objectives

Homework 3

Step 4

Adaptation Actions

Tactic Recommendations

Homework 4

Evaluate Objectives instructions

Step 3 Course Materials

Evaluate Objectives

Park Objectives
1 of 1 objectives evaluated

Riparian buffer Objectives
0 of 0 objectives evaluated

Review Potential Regional Climate Impacts

Mean annual temperature in the Chicago area is projected to increase by 2.3° to 8.2° F by the end of the 21st century, with temperature increases across all seasons.

Precipitation in the Chicago area is projected to increase in winter and spring over 21st century, but projections for summer and fall precipitation are less clear

Heavy precipitation events in the Chicago area have been increasing and are projected to continue to increase further, which could increase runoff and local flooding from stormwater

Extreme and exceptional droughts in the Chicago area may increase in duration, frequency, and spatial extent compared to the end of the 20th century

Increases in temperature may lead to an increase of 1-2 hardiness zones and 2-4 heat zones in the Chicago area.

Species distribution modeling for native species suggests that suitable habitat may decrease for 15 primarily northern species and increase or become newly suitable for 47 species in the Chicago area.

For species for which no model information is available (rare, nonnative, or cultivars), shifts in heat and hardiness zones could have a positive effect on about 23 percent of species that are either present in the Chicago area or considered for planting.

Adaptive capacity of 179 species in the Chicago area was evaluated using scoring systems for planted and natural environments, with invasive species among those with the highest capacity to adapt to a range of stressors.

An analysis of vulnerability that combines model projections, shifts in heat and hardiness zones, and adaptive capacity showed that 15 percent of the trees currently present in the Chicago region have either moderate-high or high vulnerability to climate

Many invasive species, insect pests, and pathogens will increase or become more damaging in the Chicago area by the end of the century.

The urban heat island effect can exacerbate the effects of increasing temperatures.

Impervious cover can exacerbate the effects of increased heavy precipitation events in urban areas.

Goal #1: Increase species diversity

Objective: Have no more than 20 percent of a family, 10 percent of a genus and 5 percent of a species

Some evaluation details supplied

Challenges

Some more northern species may no longer be able to survive, reducing possible species for planting.

Diseases such as oak wilt and bur oak blight may become more severe, leading to more mortality of existing species.

« Previous
Homework 2

Next »
Homework 3

Step 3: EVALUATE management objectives given projected impacts and vulnerabilities.

Challenges to Meeting Management Objective with Climate Change – Things that will make it harder to achieve the management objective due to climate change.

**Focus on challenges within control of your management (not global markets, policies, etc.)

Examples of challenges

Objective	Challenge from Climate Change
Provide sufficient protection and habitat for the Eastern box turtle.	May be harder to maintain habitats given drier conditions, fluctuating water levels, or reduced winter snowpack.
Improve breeding habitat for forest-interior birds by providing a variety of forest structures.	Projected declines in conifer species reduce that habitat component.
Maintain existing and develop new walking trails.	Extreme precipitation may increase erosion or flooding. Extreme storms may increase windthrow and need for hazard tree removal.

Challenges

The screenshot shows a web interface for evaluating objectives. On the left is a sidebar with navigation options: Adaptation Workbook, My dashboard, Log out, Resources (Chicago project), Progress Summary, Step 1 (Define Management Topics, Management Goals and Objectives, Homework 1), Step 2 (Climate Impacts and Vulnerability, Vulnerability Determination, Homework 2), Step 3 (Evaluate Objectives), Homework 3, Step 4 (Adaptation Actions, Tactic Recommendations, Homework 4). The main content area is titled 'Evaluate Objectives' and includes a sub-section 'Review Potential Regional Climate Impacts' with a goal to increase species diversity. Below this, there are sections for 'Challenges', 'Opportunities', and 'Feasibility Under Current Management'. Two orange callout boxes with arrows point to the 'Challenges' section: one pointing to the first two entries and another pointing to the 'Add a Challenge' button. The 'Challenges' section contains three text boxes with the following content: 'Some more northern species may no longer be able to survive, reducing possible species for planting.', 'Diseases such as oak wilt and bur oak blight may become more severe, leading to more mortality of existing species.', and 'List different ways climate change impacts and associated vulnerabilities may make it more difficult to achieve your management objective.' The 'Opportunities' section has a text box: 'List different ways climate change benefits or opportunities may make it easier to achieve your management objective.' The 'Feasibility Under Current Management' section has a dropdown menu and a text box: 'Add useful comments about the feasibility of your objective. For example, explain why the feasibility might be higher in the short-term than the long-term, or higher for one portion of the project than another.'

List different ways climate impacts may make it more difficult to achieve your management goals and objectives

Add another challenge

Step 3: EVALUATE management objectives given projected impacts and vulnerabilities.

Opportunities to Meeting Management Objective with Climate Change – Things that will make it easier to achieve the management objective due to climate change.

****Focus on challenges within control of your management (not global markets, policies, etc.)**

Examples of Opportunities

Objective	Challenge from Climate Change	Opportunity from Climate Change
Provide sufficient protection and habitat for the Eastern box turtle.	May be harder to maintain habitats given drier conditions, fluctuating water levels, or reduced winter snow pack.	May be able to improve habitat during management, such as through retaining woody residues on site.
Improve breeding habitat for forest-interior birds by providing a variety of forest structures.	Projected declines in conifer species reduce that habitat component.	Active management can improve structure. Active management can increase coarse woody material.
Maintain existing and develop new walking trails.	Extreme precipitation may increase erosion or flooding. Extreme storms may increase windthrow and need for hazard tree removal.	New trails can be designed to reduce impacts from extreme weather.

Opportunities

The screenshot shows a web-based interface for evaluating objectives. On the left is a dark sidebar with navigation options: 'Adaptation Workbook', 'My dashboard', 'Log out', 'Resources', 'Chicago project', 'Progress Summary', 'Step 1', 'Define Management Topics', 'Management Goals and Objectives', 'Homework 1', 'Step 2', 'Climate Impacts and Vulnerability', 'Vulnerability Determination', 'Homework 2', 'Step 3', 'Evaluate Objectives' (highlighted with an orange arrow), 'Homework 3', 'Step 4', 'Adaptation Actions', 'Tactic Recommendations', and 'Homework 4'. The main content area is titled 'Step 3 Course Materials' and 'Evaluate Objectives'. It features a table of objectives: 'Park Objectives' (1 of 2 evaluated) and 'riparian buffer Objectives' (0 of 0 evaluated). A large orange arrow points from the 'riparian buffer Objectives' row to the 'Opportunities' section. The 'Opportunities' section contains a text input field with the text 'New species could potentially be planted.' and an 'Add an Opportunity' button. Below this is the 'Feasibility Under Current Management' section with a dropdown menu and a text area containing the instruction 'Add useful comments... For example, explain why the feasibility might be higher in the short-term than the long-term, or higher for one portion of the project than another.' A callout box with the text 'Add another opportunity' and an orange arrow points to the 'Add an Opportunity' button. The 'Other Considerations' section has a text area with instructions: 'List any social, political, financial, or institutional considerations that might be challenges or opportunities for achieving the management objective. You may also note why you would continue pursuing an objective with low feasibility, such as legal requirement or important...'. Below this is a goal entry: 'Goal #2: Increase species diversity' with the objective 'Increase the percent of species that are native.' and a warning icon and text 'No evaluation details supplied'. The 'Challenges' section has a text area with instructions: 'List different ways climate change impacts and associated vulnerabilities may make it more difficult to achieve your management objective.' and an 'Add a Challenge' button. At the bottom, there are 'Previous' and 'Next' navigation buttons.

Step 3: EVALUATE management objectives given projected impacts and vulnerabilities.

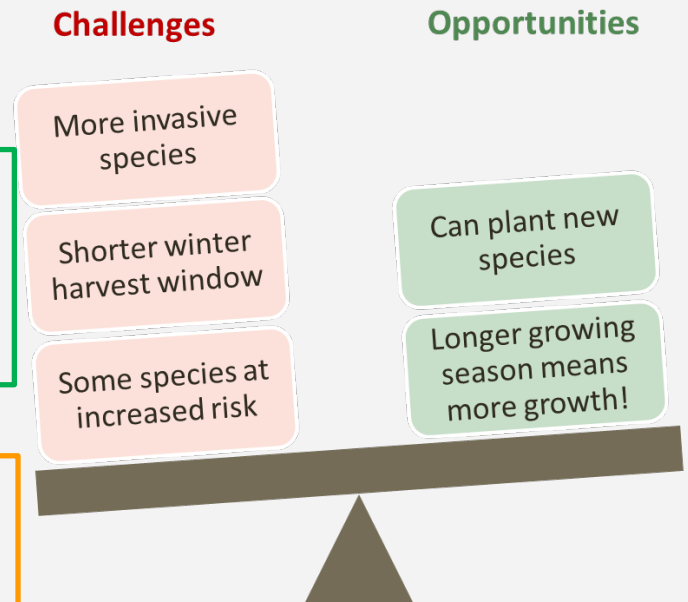
Feasibility – Can you meet your management objectives using current (business-as-usual) management actions?

High: We can do it!

Opportunities > Challenges

Low: We'll need more resources or effort.

Challenges > Opportunities



Feasibility

Rank:
Low
Medium
High

Evaluate Objectives instructions

Step 3 Course Materials

Evaluate Objectives

Park Objectives
1 of 2 objectives evaluated

riparian buffer Objectives
0 of 0 objectives evaluated

Opportunities

New species could potentially be planted.

Add a Challenge

Add an Opportunity

Feasibility Under Current Management

Low
Medium
High

Add useful comments about the feasibility of your objective. For example, explain why the feasibility might be higher in the short-term than the long-term, or higher for one portion of the project than another.

List any social, political, financial, or institutional considerations that might be challenges or opportunities for achieving the management objective. You may also note why you would continue pursuing an objective with low feasibility, such as legal requirement or important

Goal #2: Increase species diversity
Objective: Increase the percent of species that are native.

No evaluation details supplied

Challenges

List different ways climate change impacts and associated vulnerabilities may make it more difficult to achieve your management objective.

Add a Challenge

Opportunities

« Previous
Homework 2

Next »
Homework 3

Step 3: EVALUATE management objectives given projected impacts and vulnerabilities.

Other Considerations

– Social, financial, or other factors that also affect your ability to meet objectives.

Feasibility & Other considerations

Objective	Challenge from Climate Change	Opportunity from Climate Change	Feasibility	Other considerations
Provide sufficient protection and habitat for the Eastern box turtle.	May be harder to maintain habitats given drier conditions, fluctuating water levels, or reduced winter snow pack	May be able to improve habitat during management, such as through retaining woody residues on site.	Medium	High uncertainty about how habitats will be affected. If turtle is present, need to maintain habitats for as long as possible.
Improve breeding habitat for forest-interior birds by providing a variety of forest structures.	Projected declines in conifer species reduce that habitat component.	Active management can improve structure. Active management can increase coarse woody material.	High	
Maintain existing and develop new walking trails.	Extreme precipitation may increase erosion or flooding. Extreme storms may increase windthrow and need for hazard tree removal	New trails can be designed to reduce impacts from extreme weather.	Low	Additional funding would be needed to make improvements.

Other Considerations

The screenshot shows a web application interface for evaluating objectives. On the left is a dark sidebar with navigation items: Adaptation Workbook, My dashboard, Log out, Resources, Chicago project, Progress Summary, Step 1 (Define Management Topics, Management Goals and Objectives, Homework 1), Step 2 (Climate Impacts and Vulnerability, Vulnerability Determination, Homework 2), Step 3 (Evaluate Objectives - highlighted), Homework 3, Step 4 (Adaptation Actions, Tactic Recommendations, Homework 4). The main content area is titled 'Evaluate Objectives instructions' and 'Step 3 Course Materials'. It features a table of objectives:

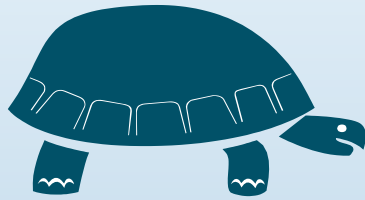
Objective Category	Status
Park Objectives	1 of 2 objectives evaluated
riparian buffer Objectives	0 of 0 objectives evaluated

Below the table are sections for adding content:

- Challenges:** Two text boxes containing text about northern species survival and diseases like oak wilt. Includes an 'Add a Challenge' button.
- Opportunities:** One text box containing text about planting new species. Includes an 'Add an Opportunity' button.
- Feasibility Under Current Management:** A dropdown menu set to 'Medium' and a text box with text about short-term species loss and long-term diversity potential.
- Other Considerations:** A text box containing text about city policies and budgets limiting tree planting.
- Goal #2:** Increase species diversity. Objective: Increase the percent of species that are native. A warning icon indicates 'No evaluation details supplied'.

At the bottom, there are navigation links: 'Previous Homework 2' and 'Next Homework 3'. A callout box with the text 'Add Other Considerations' and two large orange arrows points to the 'Other Considerations' section.

Step 3: EVALUATE management objectives given projected impacts and vulnerabilities.



Slow down!

*Are you going to
continue with these
management objectives?*

Reconsider objectives



Slow Down to Consider...

Are you going to continue with the management objectives you have identified?

If you have [high feasibility](#) of meeting your management objectives and these objectives seem like they'll hold up under projected climate change impacts, proceed to Step 4.

If some or all of your management objectives have [low feasibility](#), or if they no longer seem sensible under climate change (e.g., managing a species that is very likely to experience a severe decline), you may want to reconsider your management objectives or your broader goals.

- If you'd like to create new goals or objectives, use the information you've gathered up to this point to create goals and objectives that are more likely to succeed across a range of climate change scenarios.
- If you're still going to continue with objectives that have low feasibility, you might want to provide a short explanation of your decision.
- [You can make all these notes in the "Feasibility" section of Step 3.](#)

Don't show this again.

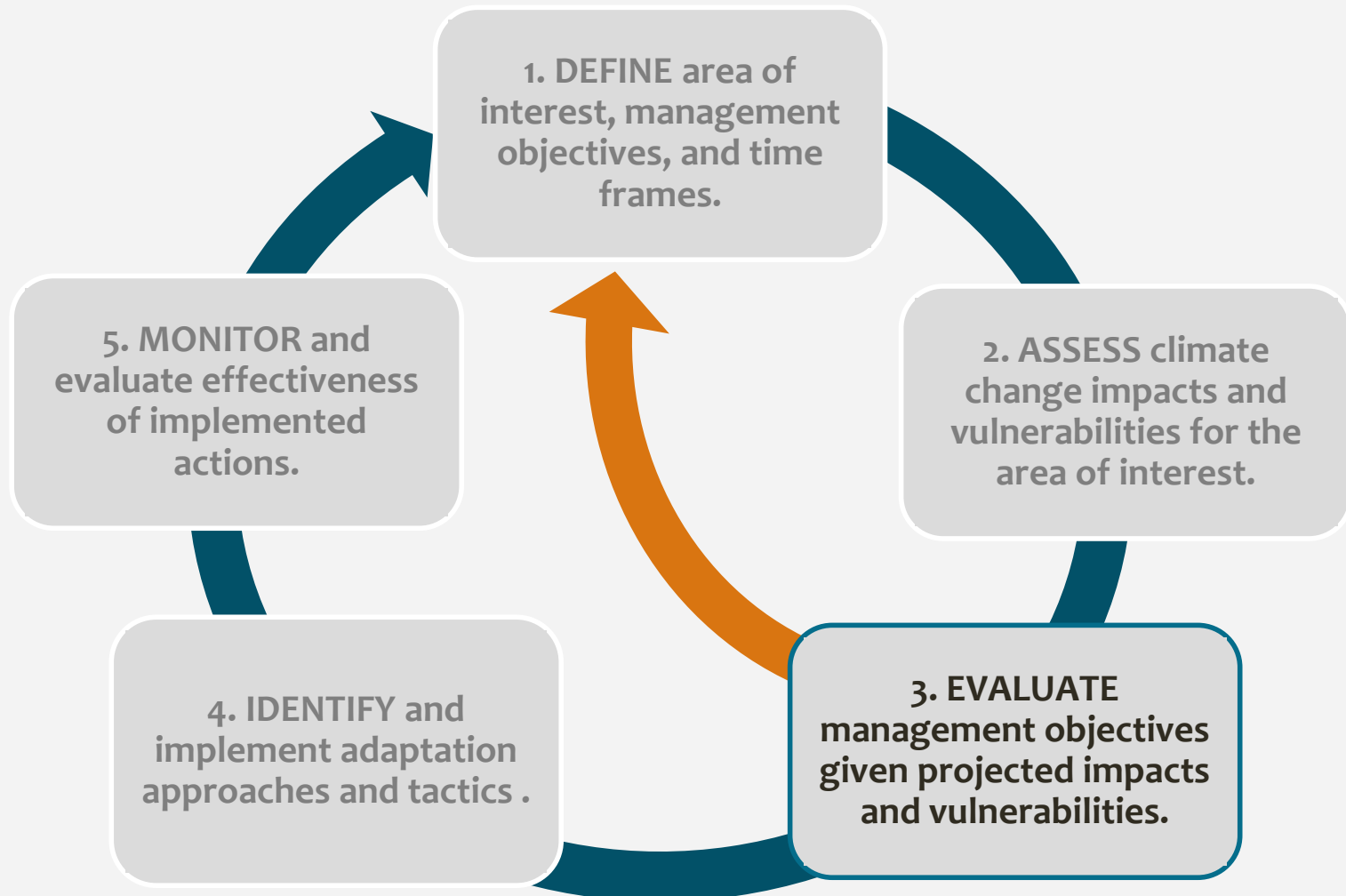
Continue working on this step

Move on!

« Previous
Homework 2

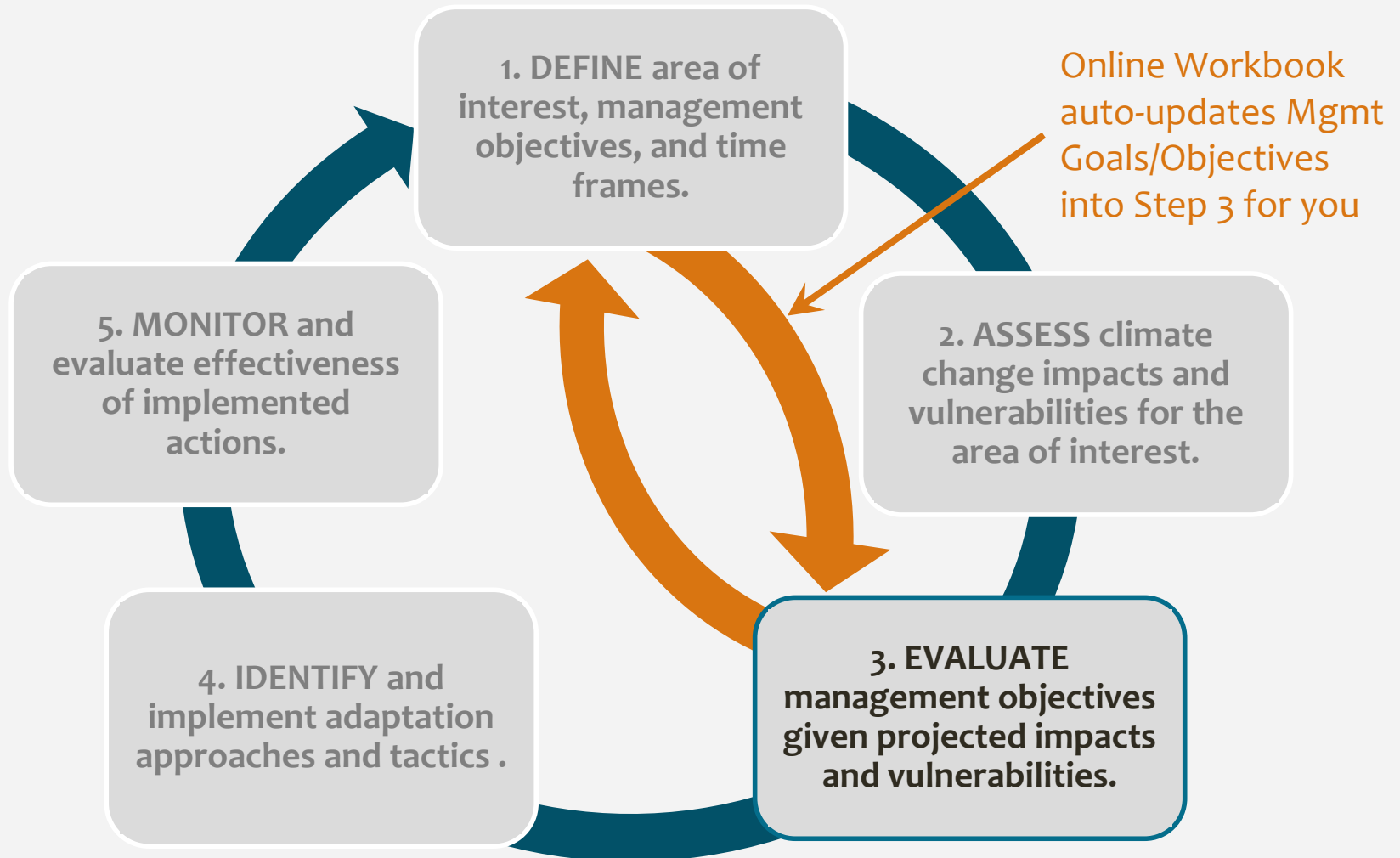
Next »
Homework 3

Workbook Cycle: Step 3



... or, RE-EVALUATE

Workbook Cycle: Step 3



Original Objective in Step 1

The screenshot displays a web-based interface for an 'Adaptation Workbook'. On the left is a dark sidebar with navigation options: 'Adaptation Workbook', 'My dashboard', 'Log out', 'Resources', 'Marsh-Billings National Historic Park', 'Progress Summary', 'Step 1', 'Define Management Topics', 'Management Goals and Objectives', 'Homework 1', 'Step 2', 'Climate Impacts and Vulnerability', 'Vulnerability Determination', 'Homework 2', 'Step 3', 'Evaluate Objectives', 'Homework 3', 'Step 4', 'Adaptation Actions', and 'Tactic Recommendations'. The main content area is titled 'Evaluate Objectives instructions' and 'Step 3 course materials'. It features a list of objective categories: 'Plantations Objectives' (3 of 3 evaluated), 'Northern hardwood Objectives' (2 of 2 evaluated), 'Legacy trees Objectives' (0 of 3 evaluated), 'Wetland meadow Objectives' (0 of 1 evaluated), and 'Pastures, hay fields Objectives' (0 of 2 evaluated). A yellow callout box with the text 'Objective with low feasibility' and an arrow points to the 'Legacy trees Objectives' category. Below the list are 'Previous' and 'Next' navigation buttons. On the right, a detailed view of an objective is shown, including a goal statement, an objective description, and sections for 'Challenges' and 'Opportunities' with text input fields and 'Add' buttons.

NOTE: Modifying objectives is different from adaptation strategies!

Automatically Updates in Step 3

The screenshot displays a web-based course interface. On the left is a dark sidebar menu with the following items: Adaptation Workbook, My dashboard, Log out, Resources, Marsh-Billings National Historic Park, Progress Summary, Step 1, Define Management Topics, Management Goals and Objectives (highlighted with a yellow arrow), Homework 1, Step 2, Climate Impacts and Vulnerability, Vulnerability Determination, Homework 2, Step 3, Evaluate Objectives, Homework 3, Step 4, Adaptation Actions, and Tactic Recommendations. The main content area is titled 'Management Goals and Objectives instructions' and 'Step 1 course materials'. It features a list of goal categories: 'Management Goals and Objectives' (1 Goal), 'Plantations Goals and Objectives' (1 Goal | 3 Objectives), 'Northern hardwood Goals and Objectives', 'Wildlife habitat Goals and Objectives' (1 Goal | 1 Objective), and 'Pastures, hay fields Goals and Objectives' (1 Goal | 2 Objectives). A yellow callout box with the text 'Edit text in Step 1 to modify objective' has an arrow pointing to the 'Plantations Goals and Objectives' section. The right side of the interface shows a detailed view of 'Goal #1' with a text editor containing the following text: 'Maintain a sense of the Forest's history through broad landscape patterns and representative historic features while working with ecological processes and continuing to apply best current thinking and practices in forest management. Perpetuate the tradition of sustainable forest management on the property Incorporate a long-term perspective on the changing composition and character of the Forest Value the Forest as both a natural and cultural resource Emphasize the relationship of the Park's forest management to broader community well-being and sustainability Strengthen civic engagement and stewardship'. Below this text are three 'Objective' input fields, each with a 'Time Frame' dropdown and an edit icon. The objectives are: 'Maintain portions of some plantations along the main carriage road corridors', 'Recruit softwood regeneration in other plantations', and 'Elsewhere, retain plantations through current rotation and then transition to native species'. At the bottom right, there is a button labeled 'Add Objective for this Goal'.

Key Points on Step 3

- Having clear objectives makes everything easier!
- Challenges and Opportunities should relate to **climate change**.
- Other considerations section is for things not related to climate change (policy, budget, public engagement)
- May seem redundant with Step 2 at times
 - Step 2 focuses on the **site**
 - Step 3 focuses on **objectives** and **management**
- You may be tempted to list adaptation strategies in this step. Save your ideas for the next step!

Homework

- Adaptation Workbook
- My dashboard
- Log out
- Resources ▾
- Chicago project
- Progress Summary
- Step 1
 - Define Management Topics
 - Management Goals and Objectives
 - Homework 1
- Step 2
 - Climate Impacts and Vulnerability
 - Vulnerability Determination
 - Homework 2
- Step 3
 - Evaluate Objectives
 - Homework 3 >
- Step 4
 - Adaptation Actions
 - Tactic Recommendations
 - Homework 4

Homework 3

What are the most challenging climate impacts/vulnerabilities that could affect your management goals and objectives for your forest or project area?

What are the most challenging climate impacts/vulnerabilities that could affect your management goals and objectives for your forest or project area?

Are there any climate impacts that present opportunities for meeting your management goals and objectives?

Are there any climate impacts that present opportunities for meeting your management goals and objectives?

Weighing Feasibility: rate how strongly you agree/disagree with the following self-assessments.

	Disagree					Agree				
I can explain how climate change may affect my ability to meet management goals and objectives.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I've determined that my project goals and objectives as articulated in Week 1 of the course are still feasible.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would feel comfortable articulating management challenges and opportunities related to climate change to my peers.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Were there any components of your management goals and objectives that were deemed unfeasible under projected climate changes and impacts? Did you return to Step 1 to refine or alter them? Why?

Were there any components of your management goals and objectives that were deemed unfeasible under projected climate changes and impacts? Did you return to Step 1 to refine or alter them? Why?

« Previous
Evaluate Objectives

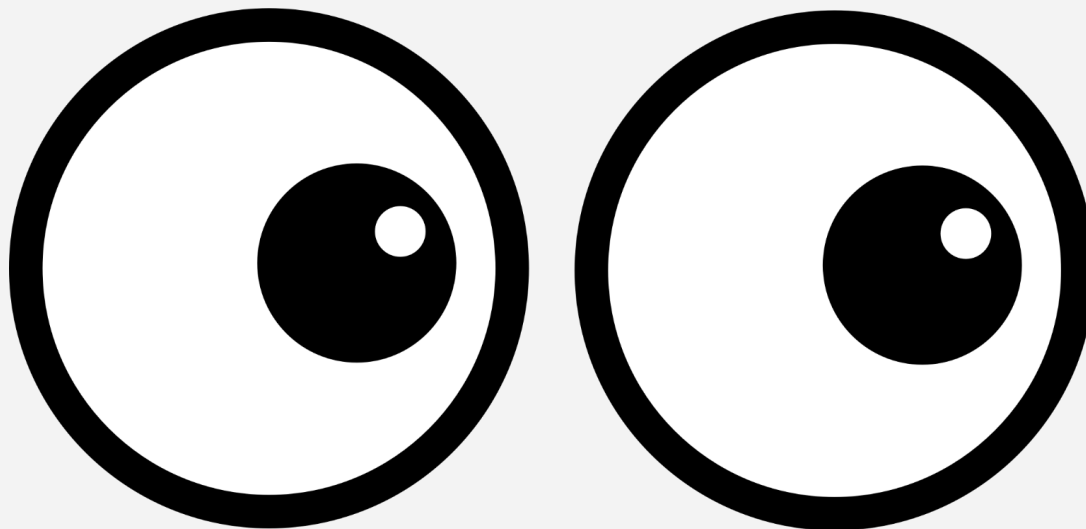
Next »
Adaptation Actions

To-do list:

- **Finish any hanging items from Step 2**
- **Complete Step 3**: Evaluate management objectives
- **Complete the Homework** section following Step 3
- **Come to Session 4** (February 12) ready to talk about your management challenges and opportunities

Looking Ahead

- Next session will cover Adaptation Strategies
- If you want to read ahead:
 - **Forest Adaptation Strategies and Approaches**
(Chapter 3) in *Forest Adaptation Resources*



Questions?

