Section 2, Chapter 7
Monitoring and Evaluation Strategy

Written by Alyssa Robinson

Introduction

In order to track watershed improvements and effectiveness of the plan, the community developed a realistic system for monitoring and evaluation. This chapter presents the selected strategies that will monitor and evaluate the effects of adopting and implementing the plan. These strategies prioritize the promotion of watershed goals and progress of plan implementation.

The community met on March 19, 2019, to determine rural monitoring and evaluation strategies. On April 29, 2019, the community met again to ascertain residential monitoring and evaluation strategies. Stakeholders plan to establish the East Fork Creek Watershed Evaluation Committee, who will be responsible for carrying out the monitoring and evaluation efforts.

Criteria to Measure Success

The Evaluation Committee will meet annually or biannually to track evaluation milestones.

Annual measurable milestones for the Evaluation Committee:

1. Communication to stakeholders.
    a. Send standardized Monitoring Worksheets to stakeholders and allow them time to send in updates.
    b. Send plan updates and progress to stakeholders annually, including examples and photos
2. Submit grant applications to funding agencies.
3. Report updates of new funding opportunities or programs available to stakeholders
4. Gather and compile data on nutrient loading, sediment loading, wildlife presence, runoff volume and velocity, and education.
5. Perform evaluation of nutrient and sediment loading reductions, wildlife enhancement, runoff volume and velocity reductions, and education/outreach progress based on completed projects.
6. Revisit and evaluate Watershed Plan and make updates or changes necessary.

Monitoring Focus

Monitoring will focus on sediment levels in the lake, suspended solids in water flow, water quality of the lake, and condition of the remnant prairie. The Evaluation Committee will track the amount of sediment removed during dredging. After rainfall events, the Committee should perform visual observations of the presence of sediment plumes and water clarity. It is vital for the committee to establish consistent mechanisms for their on-site monitoring. In order to establish some consistency, the Committee should select a specific hour after the termination of the storm to perform visual observations. These monitoring actions will aid to address Goal 1 to reduce sediment loading from all sources in the watershed. Additionally, the Committee could sample total suspended solids (TSS) and measure water flow velocity at the spillway after these storm events. Joe Rush of JadEco Consulting has already organized the collection of annual samplings of Lake Carroll water quality levels from 3 locations: the Dam, East Marina, and Three Tubes. Continuing to test various water quality conditions in the waterways can aid in establishing whether or not implemented projects and practices are efficient and/or if more conservation efforts need to be undertaken.

These samples test for multiple water quality conditions:

- dissolved oxygen (DO)
- temperature
- clarity
- orthophosphorous (OP) and total phosphorous (TP)
- nitrate, nitrite, and Kjeldahl nitrogen (NNK)
- total suspended solids (TSS) and total volatile solids (TVS)
- chlorophyll a

Testing for these water quality condition levels aids in discovering if the watershed efforts are addressing Goals 1 and 2, which are to reduce sediment loading and nutrient loading from all sources in the watershed.

In terms of tracking implementation of conservation practices, the Committee can conduct observational surveys where they track new acres that have been enrolled in conservation practices, ie. low/no-till or cover crop usage. Another focus for monitoring is wildlife habitat enhancement and reestablishment. The Watershed Plan prioritizes the protection and/or enhancement of wildlife habitat through Goal 3. The Prairie Club identified a natural area as a remnant prairie within the watershed and has written up management plans for both this remnant prairie and the prairie on Lake Carroll Boulevard. Management plans for each prairie can be found at the end of this chapter. Within this remnant prairie, there are a couple flora and fauna species of interest for monitoring and tracking that the Prairie club is already monitoring:

1. Rusty Patched Bumble Bee (*Bombus affinis*)-The U.S. Fish & Wildlife Service has placed this bumble bee on the Endangered Species list. It is the first bee in the continental U.S. to be listed. Citizens can submit bubble bee sightings to Bubble Bee Watch at https://www.bumblebeewatch.org/. The Bubble Bee Watch website also provides information on how to identify and conserve bumble bees and other pollinators. Another resource for Rusty patched bumble bee guidance is the U.S. Fish & Wildlife Service at https://www.fws.gov/midwest/endangered/insects/rpbb/surveys.html

2. Red-breasted Merganser (*Mergus serrator*) is a slim, crested, diving duck generally seen around piers. The Audubon Society has deemed this species climate endangered. https://www.audubon.org/field-guide/bird/red-breasted-merganser

3. Tall Green milkweed (*Asclepias hirtella*) and Short Green Milkweed (*Asclepias viridiflora*)- A remnant prairie was newly found on Lake Carroll Association property. The Prairie club has been stewarding the site and has identified some populations of green milkweed there.

Asclepias viridiflora.
Source: Lady Bird Johnson Wildflower Center

Asclepias hirtella.
Source: missouriplants.com

The Committee also has specific ideas for the monitoring and evaluation of residential-specific issues and projects. The Committee will track streambank stabilization projects and progress through photo documentation and physical observations. Photo documentation should occur at least every 5 years. Documentation should also occur after storm events to track effectiveness of stabilization and determine where more streambank stabilization is needed. If there are rural streambank stabilization projects implemented, then this monitoring strategy can apply for those rural projects as well. Joe Rush

is also looking into getting hydrographic or acoustical surveys for 22 acres of the area surrounding Lake Carroll Association. The estimate for this cost is $22,000.

The Committee has established some specific reporting points to be conducted:

- Perform annual shoreline inspections, with mailing follow-up to homeowners that need to repair rip rap when necessary
- Ensure landscaping contactors are informed of correct lawn care application
- Conduct periodic testing for sediment depth in lake every 10 years
- Conduct in-house aquatic plant and fish surveys to monitor success of native plants and track any invasive plant or fish species infestations.
    - These surveys should be conducted every couple years either by Association staff or volunteers
    - Through the assistance of the Illinois River Watch Network, the group could conduct aquatic macroinvertebrate surveys, which can indicate level of water quality.

The Illinois River Watch Network is a state program offered through the National Great Rivers Research and Education Center. This program assists and trains Illinois citizens in water quality data collection within their local streams and educates those citizens to be better stewards of their own watersheds. The Illinois River Watch Network could assist in monitoring 4 main tributaries of East Fork Creek. Joe Rush is working on getting this relationship established with the River Watch Network. http://www.ngrrec.org/riverwatch/

Monitoring Worksheets

The East Fork Creek Watershed Evaluation Committee will utilize standardized monitoring worksheets to track BMP implementation and effectiveness throughout the Watershed. The Evaluation Committee will be responsible for distribution, retrieval, and compilation of worksheet data. The East Fork Creek Watershed Monitoring Worksheet can be found on pages 5-6 of this Chapter.

These monitoring worksheets will:

- Quantify BMPs over time
- Track maintenance
- Ensure follow-up
- Reiterate the goals of the East Fork Creek Watershed though annual distribution
- Consolidate information in a cohesive manner

By utilizing these worksheets to consolidate data and show active enthusiasm and participation in BMP implementation, potential for funding opportunities increases. These monitoring worksheets also provide feedback to the Evaluation Committee for them to evaluate effectives of BMPs and for progress towards the five selected Goals of this watershed plan.

East Fork Creek Watershed Monitoring Worksheet

The Monitoring Committee asks that landowners and stakeholders use this worksheet to track their implementation of best management practices and conservation efforts throughout the watershed. The Committee will utilize the information provided to monitor BMP implementation progress and efficiency towards the goals of the watershed plan. With positive landowner participation in BMP implementation and tracking, funding opportunity potential increases. By showing that landowners and stakeholders are taking initiative and ownership of successful implementation of the watershed plan, grant dollars are more likely to be awarded.

Please return this worksheet to: Lake Carroll Association
3-200 Association Dr.
Lanark, IL 61046

1. Name and detailed description of project or best management practice, including area (in feet or acres) affected and location:

2. Start date:

3. Completion date:

4. Approximate cost:

5. Unexpected costs or frustrations:

6. Scope of project:

7. Why did you decided to implement this practice?

8. Is the project or practice implemented working?

9. What are your anticipated benefits from implementation of this practice?

10. If applicable, have you observed any changes in erosion, runoff, sedimentation in waterways, flooding, or wildlife using the area after project implementation?

11. Identify which goals you believe your project applies to. Circle all that apply:

    a. Goal 1: Reduce sediment loading from all sources in the watershed.

    b. Goal 2: Reduce nutrient loading from all sources in the watershed.

    c. Goal 3: Utilize practices that protect and/or enhance wildlife habitat.

    d. Goal 4: Address volume and velocity of water runoff to enhance water quality.

    e. Goal 5: Educate the watershed community about land and water conservation and this plan.

12. Please provide a map of your project location and before and after photographic documentation:

13. Did you receive technical assistance in implementing this project or practice? If yes, from whom?

14. Will you be pursuing future best management practices? If so, would you be interested in learning about financial or technical assistance for any of these projects?

15. Are there best management practices you would like to learn more about? If so, please list them here.

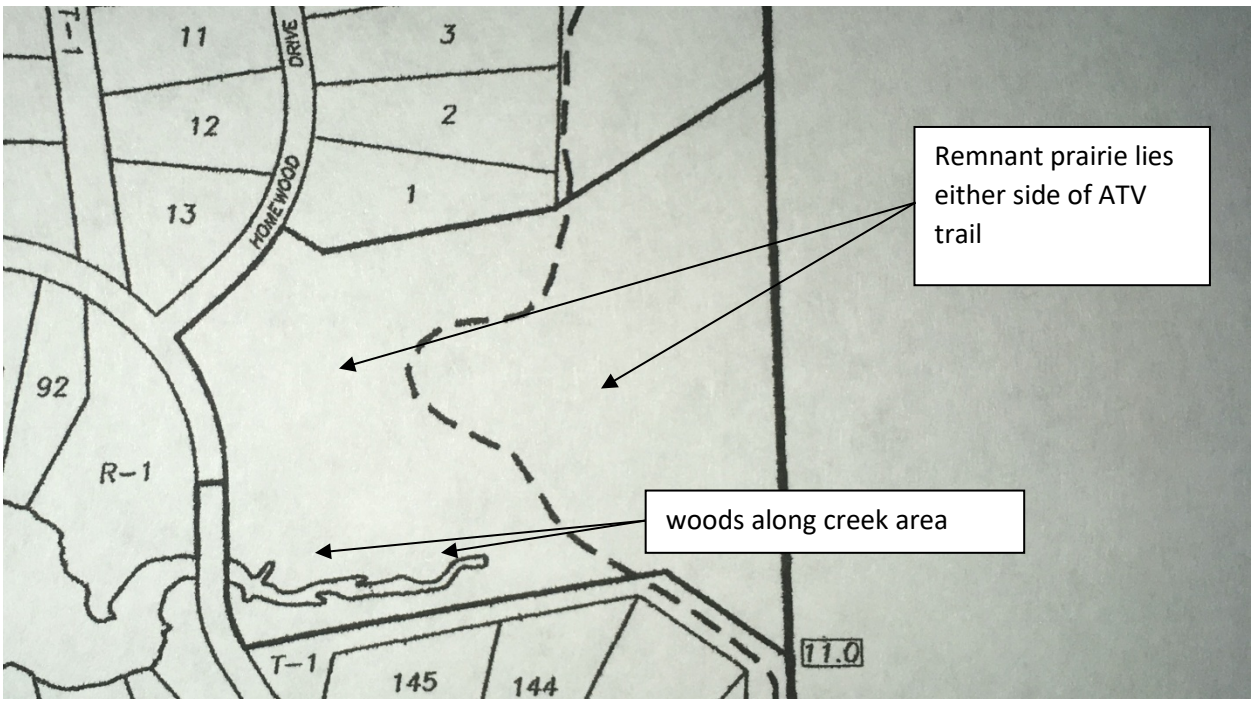
16. Are you interested in becoming more involved in the East Fork Creek Watershed conservation efforts?

17. If you answered yes to questions #14, #15, or #16, please provide your name, phone number, mailing address and email address:

Lake Carroll Remnant Prairie Management Plan

Created and Written by Jim Richards of the Prairie Club

The Lake Carroll remnant prairie on the northeast side of Lake Carroll on either side of the ATV trail in section 25.



Remnant Prairie Map in Section 25

The site is anchored by a giant white oak, that is estimated at 200 - 250 years old.

We removed most of the understory vegetation from around the oak in late fall 2018. We piled in on either flank of where it sits, onto cedars and tried burning the piles in February 2019.

The site was confirmed a remnant of the great prairie when we found short green milkweed (*asclepias viridiflora*), a rare plant with an 8 on the conservancy index. That particular species is almost exclusively found in undisturbed areas. It prefers dry, rocky soils, which is consistent with the location we found the species.

The photo at the left is the *Asclepias Viridiflora* found at the site. We were fortunate enough to collect a seed pod from this plant. The seeds are being propagated by Northwest Illinois Prairie Enthusiasts (NIPE). We will plant the seedlings near where we collected the pod and across the ATV trail where more plants were subsequently found. Each will be covered with a milk jug and monitored for survival for a period of four weeks.

Plans for 2019

Early spring: Plant the short green milkweed plants by early May. Cover with prepared milk jugs and monitor for four weeks. Plant two groups: one near parent plant and the other on the other side of ATV trail near plants discovered there.

Early spring to summer: Inventory the site by listing plant species and locations. Note primary locations of plant species and significant geologic differences, as well as possible fire breaks for the site at the tree line and north edge. This is to be done by late Fall.

Early spring - late fall: Continue removal of woody species. The goal is to clear the area surrounding the oak and toward the tree line at the east side for the northern half of the remnant. For the southern half, clear woody species up to the tree line to the east. Cut cedars, but do not herbicide the stumps, as they will not resprout. Removal of the black cherry next to the oak is to be done by early May. Burn the debris on the two piles already begun, as this will sterilize the soil. If it isn't possible or practical to do so, choose sites which have a minimal chance of containing native plants. Over seed the piles with seeds collected solely from remnant when completed.

Spring: Begin determining fire breaks at the site. Priority burn break area is the north side of the ATV trail, as we will target a prescribed burn for spring 2020. Once a site for the fire breaks has been determined, have the break line mowed or at minimum staked out for later mowing.

Spring/summer: Begin removal of wild parsnip and sweet clover. If wild parsnip and sweet clover have not flowered, then discard in the area. If they have flowered, then bag and remove debris. Place debris in yard waste dump below dam. This removal process will continue through the year into late fall 2019.

Begin monitoring the insect and bird population, noting type and species if possible. Take note of any animal activity at the site.

Spring - early winter: Continue removing woody invasive plants, paying close attention to the areas along the tree line. Begin developing fire breaks along this area, in preparation for prescribed burn in the fall. Burn breaks shall be mowed prior to the burn.

Early fall: Begin scouting the area for plants that have seeds ready to pick. Collect seeds as they become ready.

Plans for 2020

All year: Continue to remove woody invasive plants and remove debris by burning.

Early spring: Begin determining fire breaks for southern half of prairie for 2021 prescribed burn.

Early spring: Conduct a prescribed burn of the north side of the remnant prairie. Be sure to protect the oak and its progeny by raking debris from around trunks.

Early spring: Continue to remove wild parsnip and sweet clover by mechanical control. Treat debris as before.

Early spring into summer: Continue to update site inventory.

Early to late fall: Begin scouting for plants that are ready to pick seeds from. Collect as they become available.

Plans for 2021

Early spring: Conduct prescribed burn of southern end of remnant.

Early spring to late fall: Continue to sweep the site for wild parsnip, sweet clover, and resprouts of woody invasive species. Dispose of debris properly if necessary.

Early spring to late fall: Continue monitoring and inventorying insect, bird, and animal activity. Note type and species if possible.

Year round: Continue removing woody invasive plants. Burn debris, as necessary as before, choosing sites where the possibility of finding native plants is minimal. Over seed the burn piles when completed using seeds collected from remnant only.

Plans for 2022

Early spring to late fall: Continue to monitor the site for invasive plants. Cut and treat stumps of invasive woody plants if needed. Remove all debris either through burning or physically removing to yard waste dump. Push management of invasive plants to the west on both southern and northern halves.

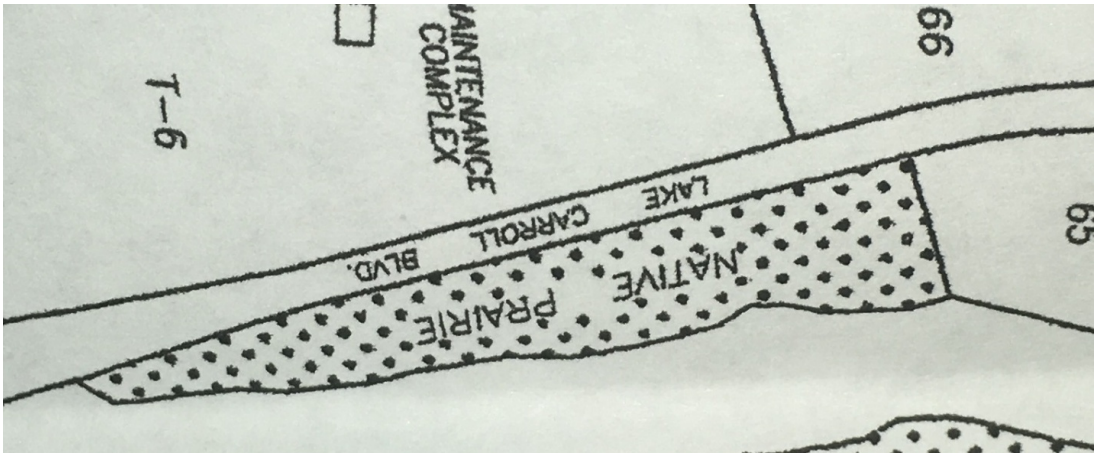
Early spring to late fall: Continue monitoring and inventorying insect, bird, and animal activity. Note type and species if possible. Check for changes in activity with restoration efforts.

Lake Carroll Boulevard Prairie Management Plan

Created and Written by Jim Richards of the Prairie Club

The Lake Carroll Boulevard prairie is located just north of the dam on the east side of Lake Carroll Boulevard, across from the maintenance shed.

It is estimated at 7 - 10 acres in size. We have documented well over thirty species of native plants at the site. It was planted in 1989 through a joint cooperative between Lake Carroll, Pheasants Forever Stephenson Co., and the DNR.



Plans for 2019

Early spring: Meet with Don Aleksy to determine walking paths to be mowed and location of picnic table. Target date for meeting is early April.

Early spring to summer: Inventory the site, listing plants and locations. Note primary locations of plant species and significant geologic differences, as well as possible fire breaks for the site at the tree line and north edge. This is to be done by late fall.

Spring: Scout the site for woody resprouts where we took the black locusts and honeysuckle down. Burn the debris from last year. Once burning of woody debris is complete, overseed the burn scar with seeds collected the following year.

Spring/summer: Begin removal of wild parsnip and other invasive plants. If removed plants have not flowered, then discard in the area. If invasive plants have flowered, then bag and remove. Place removed debris in yard waste dump below dam. This removal process of wild parsnip and other invasive, weedy plant species will continue through the year into late fall 2019.

Begin monitoring the insect and bird population, noting type and species if possible. Take note of any animal activity at the site.

Spring - early winter: Continue removing woody invasive plants, paying close attention to the areas along the tree line. Begin developing fire breaks along this area, in preparation for prescribed burn in the fall. Mow or develop burn breaks prior to the burn.

Early fall: Begin scouting the area for plants that have seeds ready to pick. Collect as they become ready.

Late Fall: Burn the Lake Carroll Boulevard (LCB) prairie. Over seed sparse or barren areas and burn piles.

Plans for 2020

All year: Continue to remove woody invasive plant and remove debris by burning.

Early spring: Continue to remove wild parsnip by predation. Treat debris as before.

Early spring into summer: Continue to update site inventory.

Early to late fall: Begin scouting for plants that are ready to pick seeds from. Collect as they become available.

Plans for 2021

Early spring to late fall: Continue to sweep the site for wild parsnip. Dispose of debris properly if necessary.

Early spring to late fall: Continue monitoring and inventorying insect, bird, and animal activity. Note type and species if possible.

Year round: Continue removing woody invasive species. Burn debris as necessary as before, choosing sites where the possibility of finding native plants is minimal. Over seed the burn scars when completed using seeds collected from the site.

Plans for 2022

Early spring to late fall: Continue to monitor the site for invasive plants. Remove if needed and treat cut stumps with herbicide if necessary. Remove all debris either through burning or physically removing to yard waste dump.

Early spring to late fall: Continue monitoring and inventorying insect, bird, and animal activity. Note type and species if possible. Check for changes in activity with restoration efforts.