

Tree/Plant Injury Monitoring Program - Volunteer Guidelines

Introduction and Overview

This project is designed to survey for a select set of related plant injury symptoms observed in recent years in Illinois and surrounding states. These symptoms have been associated with exposure of oaks and other tree and broadleaf plant species to some herbicides.

The data collected will help determine the scope of the problem including its geography, species involved, and severity of injuries. It will not identify specific cause(s) of individual occurrences of observed injuries. It will help elucidate patterns that can suggest potential causes and warrant further investigation and study.

The occurrence of this phenomenon is known to undergo considerable variation from year to year. Some years have shown little symptomology while others have seen more widespread issues. There is no way to predict what 2018 will bring. It will likely take at least 2-3 years to build a reasonable understanding of annual variations.

Injuries to trees and other plants will be documented by recording visual observations of leaf and twig abnormalities on data sheets and by making an accompanying photographic record. In some cases, a few vegetative community level observations will also be needed.

Both positive findings (indicative symptoms present) and negative findings (indicative symptoms absent) are valuable. Knowing where and when symptoms occur and do not occur is important to understanding the scope of the problem and likely causes. Both types of findings in 2018 will provide an important baseline for understanding future trends as well.

Field data will be recorded on standardized data sheets. Equipment needed will include data sheets (Tree Injury Report Form), clipboard, binoculars (for viewing larger tree canopies), and camera. Don't forget water, insect repellent, and sunscreen if needed!

Photographic documentation will require a **digital camera**. Some (especially forest) situations may require camera/lens combinations capable of magnifications generally equivalent to those provided by 7x-8x binoculars, or equipment to remove twigs and leaves (sometimes at considerable height) for photography "in hand."

Be sure to keep track of the time, date, location of each photograph very carefully.

Please email A COPY of your Data sheets and photos to monitoring@prairierivers.org

You may post a hard copy if needed to:

Monitoring - c/o Kim Erndt-Pitcher

Prairie Rivers Network

1605 S. State St., Suite 1

Champaign, IL 61820

Site Selection and Repetition of Observations

Sites for monitoring activities may be selected by volunteers. Examples include natural areas, parks, cemeteries, school campuses, and residential areas. You may use your own judgment or work with local expertise to identify suitable sites. Legal access will generally be required making public lands more accessible generally. However, private lands are no less desirable for data collection when access can be obtained. **Please be sure you have permission to access and monitor before accessing a property that is not your own.**

There are two categories into which all sites will fall, regardless of their land use. This information is reported on the data form. Both types of observations provide very important information, but influence the way the data may be treated.

1) “Planned Sites” are sites visited for which the observer has no advance knowledge of the presence or absence of injurious symptoms. The observer has decided to survey **and report** the status of health at a location in advance, regardless of the finding. (If you do not see injuries – please report on that as well!)

2) “Opportunity Sites” are sites where an observer decides to report on conditions after having knowledge of whether symptoms are or are not present. The observer has made an observation (e.g., the presence of injurious symptoms) and decides to report.

There is no limit to the number of sites that may be examined. However, obtaining high quality data requires a commitment of time and energy. Plan accordingly.

Repetition of site visits is desirable. This is especially true of sites where an early growing season observation (soon after bud break) has been performed. An ideal scenario is to obtain an early season observation at a site and then follow that with at least a mid to late season observation (regardless of the presence or absence of symptoms initially). Sites first visited mid-season can still benefit from a later follow-up visit, especially if symptoms are absent on the first visit. Single observations from any site regardless of time are still valuable.

Determining Whether Injury Has Occurred

Determining that a site has experienced injury of the type under investigation requires the presence of one or more species with specific symptoms. These are called indicative *Symptoms*. When present, the observer will be asked to provide species specific data that include the most prominent indicative Symptom(s), an estimate of the average and range of severity of the injury, and some additional data. The NOTES can be used to list additional symptoms, comments, and/or observations that the observer deems important.

For sites with no visible injury, record a few (e.g., 2-3) of the most important species present – each with an injury level rating of zero (0). Focusing on species with known sensitivity is recommended (see below).

Determining Species to Survey

While any plant in theory may demonstrate some of these symptoms, our focus is on native broadleaf trees. However, data on other woody perennials and herbaceous plants in woodlands, other types of natural communities, and other types of landscape locations in both rural and urban landscapes are also

valuable. When only a few species are observed with injury, the decision concerning which species to record should not be difficult.

When many species are involved, it is not necessary to report the condition of all symptomatic species at a location. The data form provides space for three species on the front and an additional three on the back if needed. Use additional sheets if more species are surveyed. Some stands may have only a single species of tree. Where multiple species are involved use your judgment. Focus on the most common species in the surveyed area and species with higher levels of visible damage. A list of species known to commonly demonstrate this suite of symptoms are listed below.

It is especially valuable to take data from species from more than one plant family – for example data for an oak species (beech family) coupled with data for redbud or honey locust (legume family). There is a space on the form to make brief anecdotal notes of additional species which show injury where full data is not taken.

Susceptible Species

Most broadleaf plants are susceptible to some level of chemical drift exposure. However, there is a wide range of tolerance to specific agents. The following plant species are known to demonstrate visible symptoms to the conditions of exposure that have been encountered in recent years. They are listed in a very “rough” order of overall susceptibility (i.e., species lower in the list tend to show fewer and less dramatic symptoms when exposed (side-by-side) to those nearer the top of the list. However, there are many exceptions. The list is organized into Oaks and Other Species.

Within individual species, the type and severity of symptoms also vary. This is likely due to many factors including the unique genetic makeup of individual plants that sexually reproduce. This fact adds to the variability observed between species.

Partial List of Species Observed with Herbicide Drift Injury Type Symptoms (2015-2018)

Oak	Other Species
White Oak	Redbud
Black Oak	Flowering Dogwood
Post Oak	Box Elder, Kentucky Coffee Tree
Red Oak	Hickory, Tulip, Poison Ivy
Blackjack Oak	Rosinweed, Cupplant, Ginkgo
Chinkapin Oak	Sugar Maple, Catalpa, Grape, Tomato
Swamp White Oak	Hackberry/Sugarberry, Bradford Pear
Bur Oak	Sassafras, Elm, Ash,
Overcup Oak	Sycamore, Walnut, Pecan, Mulberry
Shingle Oak	Cherry
Pin Oak	Silver Maple, Persimmon

NOTE: Many other species of trees, vines, and herbaceous plants may also show these symptoms. You may report on any plant that is showing symptoms.