**Laboratory Unit 4.2 - Ecological Methods: Field Sampling Techniques**

**Urban Ecology and Field Methods  
  
Data Collection Handout (Areas A and B) – *complete all pages***

1. Describe the location you have sampled, Area “A”. Include where this is located, i.e., neighborhood, local park, forested area, etc…; the state and city, a description of the tree, surroundings and the area overall, and other characteristics that help provide a context for your trees’ locations with respect to environmental impacts, microclimates, or any other influencing factors (other organisms you see on or around the tree).

**AREA A**

Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Location and Area Observations:

Observations on habitat/organisms on or surrounding the tree:

[Relative health of the tree](https://www.deeproot.com/blog/blog-entries/13-simple-steps-to-evaluate-trees-2/): (surface roots, trunk, trunk flare, mulch, branches, leaves, canopy) *rank as* *Healthy (H), Unhealthy (UH), Unsafe (US). Observations beyond ranking:*

Insert pictures (label or provide a caption for each picture):

1. Complete the following research on your tree species to learn more about their ecological niche: The following Resources may be helpful, though you may use other reputable sources

NCSU Extension - Plant Guide - <https://plants.ces.ncsu.edu/>

Arbor Day Foundation - <https://shop.arborday.org/treeguide>/

Lady Bird Johnson Wildflower Center <https://www.wildflower.org/plants> (good for native plants)

Ideal Growing Conditions:

Known Tree Health Concerns:

Wildlife Value:

1. Complete the data tables for each area, Table 4.2-1, 4.2-2 found below.

Table 4.2-1. “Pace to Plant” data – AREA “A”.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Tree species: Origin: Native/Non-Native: | | | | |
| Transect | Total # of steps | # of steps on  impervious surface | # of steps on  “Natural” surface | Health Ranking (H, UH, US) |
| Transect 1 | 25 |  |  |  |
| Transect 2 | 25 |  |  |  |
| Transect 3 | 25 |  |  |  |
| Transect 4 | 25 |  |  |  |
| Totals | 100 |  |  |  |
| % Cover (# steps on impervious/total # steps × 100) = | | | | |

Table 4.2-2. Diameter at breast height (DBH) - AREA “A”

|  |  |
| --- | --- |
| Tree species: | |
| Circumference at  breast height, cm | Calculated DBH, cm |
|  |  |

Other notes:

(*See next page to record Area B data*)

1. Describe the location you have sampled, Area “B”. Include where this is located, i.e., neighborhood, local park, forested area, etc…; the state and city, a description of the tree, surroundings and the area overall, and other characteristics that help provide a context for your trees’ locations with respect to environmental impacts, microclimates, or any other influencing factors (other organisms you see on or around the tree).

**AREA B**

Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Location and Area Observations:

Observations on habitat/organisms on or surrounding the tree:

[Relative health of the tree](https://www.deeproot.com/blog/blog-entries/13-simple-steps-to-evaluate-trees-2/): (surface roots, trunk, trunk flare, mulch, branches, leaves, canopy) *rank as* *Healthy (H), Unhealthy (UH), Unsafe (US). Observations beyond ranking:*

Insert pictures (label or provide a caption for each picture):

1. Complete the following research on your tree species to learn more about their ecological niche: The following Resources may be helpful, though you may use other reputable sources

NCSU Extension - Plant Guide - <https://plants.ces.ncsu.edu/>

Arbor Day Foundation - <https://shop.arborday.org/treeguide>/

Lady Bird Johnson Wildflower Center <https://www.wildflower.org/plants> (good for native plants)

Ideal Growing Conditions:

Known Tree Health Concerns:

Wildlife Value:

1. Complete the data tables for each area, Table 4.2-3, 4.2-4 found below.

Table 4.2-3. “Pace to Plant” data – AREA “B”.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Tree species: Origin: Native/Non-Native: | | | | |
| Transect | Total # of steps | # of steps on  impervious surface | # of steps on  “Natural” surface | Health Ranking (H, UH, US) |
| Transect 1 | 25 |  |  |  |
| Transect 2 | 25 |  |  |  |
| Transect 3 | 25 |  |  |  |
| Transect 4 | 25 |  |  |  |
| Totals | 100 |  |  |  |
| % Cover (# steps on impervious/total # steps × 100) = | | | | |

Table 4.2-4. Diameter at breast height (DBH) - AREA “B”

|  |  |
| --- | --- |
| Tree species: | |
| Circumference at  breast height, cm | Calculated DBH, cm |
|  |  |

Other notes:

**Compare the observations** you recorded with the pace-to-plant and health ranking data for each of the two trees you sampled - Area “A” and Area “B.”

* 1. How do the two trees compare?
  2. What differences do you see
  3. Do you see any differences in the organisms in and around your trees? If so, what?

**Resources:**

**Tree Health and Urban Ecology:**

13 Steps for evaluating tree health:

<https://www.deeproot.com/blog/blog-entries/13-simple-steps-to-evaluate-trees>

Storm damage to landscape trees from NC State’s Extension program:

<https://gardening.ces.ncsu.edu/weather-2/storm-damaged-landscape-trees/>

What Tree Should be Planted from NC State’s Extension program:

<https://lenoir.ces.ncsu.edu/2019/02/what-tree-should-be-planted/>

**Resources for Tree and organism identification**: Here are some resources in the form of links

and applications (some of these apps are not free, but you can search for your own online too):

NC Tree Identification from NC State’s Extension program:

<https://gardening.ces.ncsu.edu/2015/08/nc-tree-identification/>

Trees - NC State Resources Extension Program:

<https://gardening.ces.ncsu.edu/gardening-plants/trees-3/>

ChopDoc – list of apps for tree identification by leaves and bark:

<https://chopdoc.com/how-to-identify-tree-by-leaves/>

Seek by iNaturalist – app that helps you identify organisms:

<https://www.inaturalist.org/pages/seek_app>

MyNature Tree Guide: <https://www.inaturalist.org/pages/seek_app>

iBird: [http://ibird.com/#](http://ibird.com/)

Peterson's Bird Guide: <http://petersonguides.com/apps/apps.php>

Merlin Bird ID: <https://merlin.allaboutbirds.org/>

Audubon Bird Guide App: <https://www.audubon.org/app>

Butterfly Collection – app for identifying butterflies and other insects:

<http://hunter.pairsite.com/butterfly/>