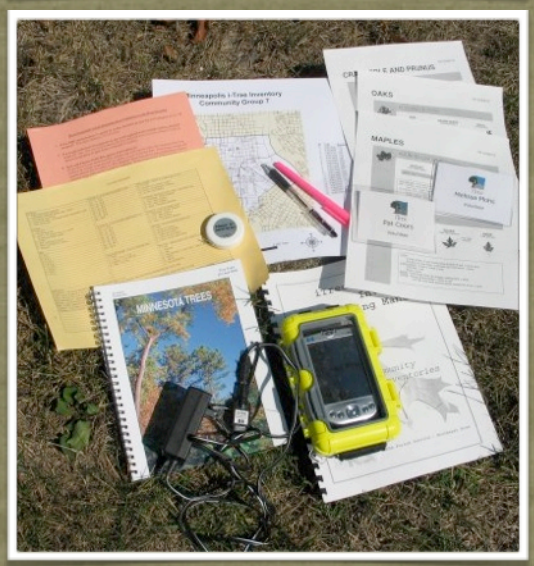
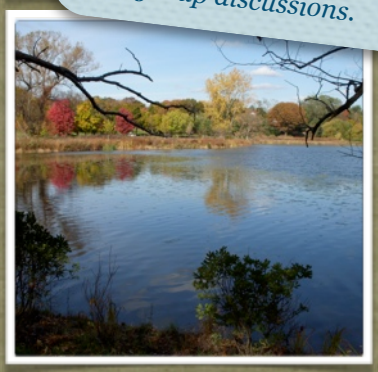


Updated Project Information

October 2009 - The following materials outline a few of the components that have been suggested become part of the Urban Forestry Standards initiative. Please use these as starting point for your group discussions. Thanks. Dave Nowak



STANDARDIZATION

Urban Forestry Data Collection and Recording Standards

The development of specific data standards will relate to various issues associated with data collection, recording archiving of info related to urban forests. This initiative intends to develop standards which can be used to ensure that data collection protocols are consistent across the globe.

Develop specific objectives related data collection and recording

The development of these specific objectives will relate to various issues associated with data collection and recording. Urban forest data collection often relates to either inventory data (100% census) of trees along streets, in parks, or other urban areas; or a sampling of trees in these areas. Data collection can also be related to direct management issues (e.g., hazard assessments) or general assessments of species composition and ecosystem services. The objectives may vary depending upon the context.

General Tree Metrics

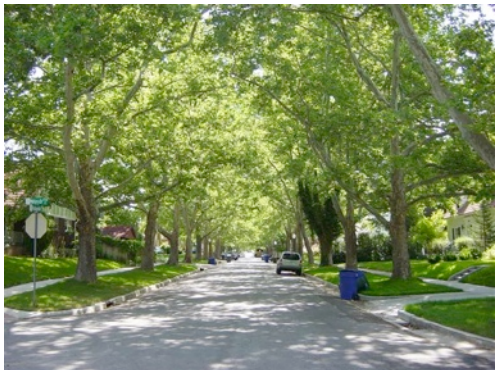
Specific metrics on measurement of tree diameter, tree height, crown width, height to base of crown, species, species to cultivar or variety.

Tree Maintenance

Standard metrics on maintenance needs such as structural support, pruning, removal, crown cleaning, crown raising, fertilization, aeration, pest management, follow-up inspection/monitoring, and other tree maintenance tasks.

Tree Health, Decay and Risk

Metrics on structural health including tree decay, failure type and specifics, tree hazard rating and other risk factors.



Tree Location and Site Variables

Tree location, including coordinates of tree and or address, city, country, general information on location in landscape (e.g., front yard, street tree, etc.), tree regeneration, plant and ground cover information soils information, and site constraints such as overhead wires, underground restrictions, planting width, available planting space and other site conditions.

Outlining the Standardization Process

The process of standardization of data collection variables will include a series of overall steps that will be completed by the standardization teams. These will include the following tasks, as they relate to each urban forest variable or item:

- Develop and document consistent methods and measurements on trees and other site variables in urban areas.
- Define standard metrics for measurements and classification of variables.
- Determine appropriate quality control standards on measurements.

It may be useful to simplify the standardization process into a series of questions that can be answered for each variable, and then expanded to include the more intricate and detailed components of the field data collection processes.

What?

Define the specific variable that will be measured, quantified and archived in a standardized format. This should include scientific and general information related to the variable.

Why and What?

Detail the importance and relevance of the specific data variable, and outline why it is important to be measured. What will it the data be used for?

How?

Explain the specific methods and protocols that will be followed during the data collection process, outlining the exact manner in which the data will be gathered and documented. This will also be used as a major component of the support materials that will developed by the standardization team.

ID Units?

Identify the units of measure that will be used to record the data on the specific data variables. English and metric units of measure will be identified fore each variable that will be recorded. The specific units of measure (for example: inches and centimeters) will be identified in this process. If categorical variables, each category must be specifically defined and documented with a standard variable.

Accuracy?

Determine the number of digits that will be used in recording the information related to each variable. Identify the tolerances will be acceptable for each measurement. For example, will an item be measured to the .000 threshold, or will it be to the .0 or to a single digit unit. Is there a minimum or maximum value for each variable.

Submitting a Standardized Variable for Review

To organize, review and comment on the proposed variable standardization consistent formatting is needed, so that a document can be developed and distributed for review and comment. This review will be part of an iterative process, whose objective is to reach international consensus on each variable, so that data collection can be repeatable and consistent in all countries and regions. The suggested format for the fist draft of the standardization items is shown below. Please use a similar format for your submissions.

SAMPLE FORMAT FOR REVIEW SUBMITTAL

VARIABLE NAME GOES HERE

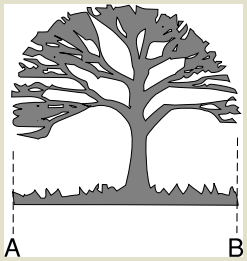
UNIT OF MEASURE
DEGREE OF ACCURACY

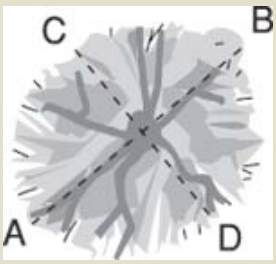
WHAT - GENERAL INFORMATION ON THE VARIABLE WILL GO HERE

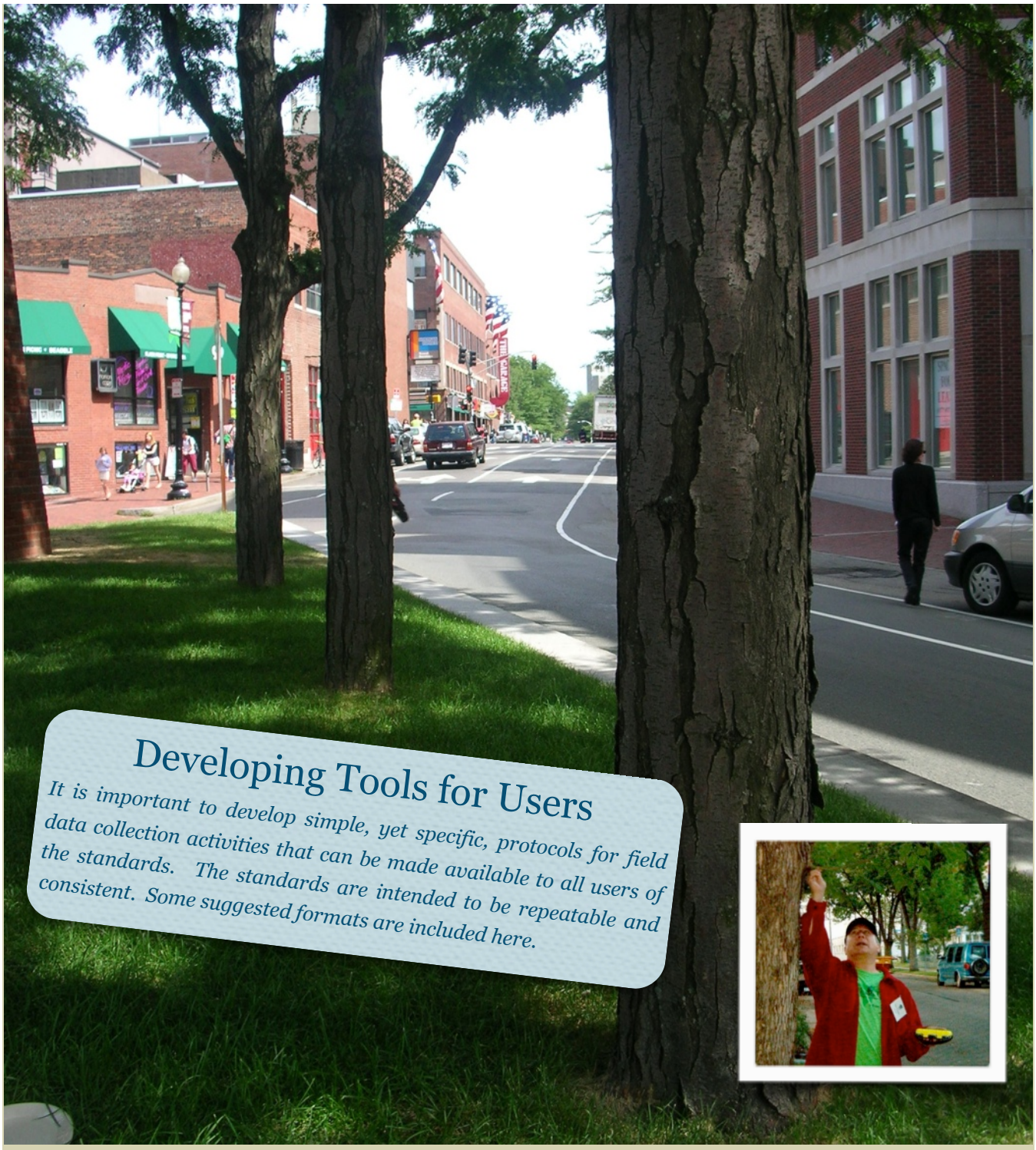
WHY - DETAILED EXPLANATION OF WHY THE VARIABLE IS IMPORTANT TO BE STANDARDIZED WILL GO HERE

HOW - THE PROCESS OR PROTOCOLS FOR HOW DATA IS TO BE COLLECTED, COUNTED OR MEASURED WILL GO HERE.

GRAPHICS, ILLUSTRATIONS, PHOTOS AND IMAGES WILL GO HERE







Developing Tools for Users

It is important to develop simple, yet specific, protocols for field data collection activities that can be made available to all users of the standards. The standards are intended to be repeatable and consistent. Some suggested formats are included here.

A FIELD GUIDE

for Urban Forestry Data Collection

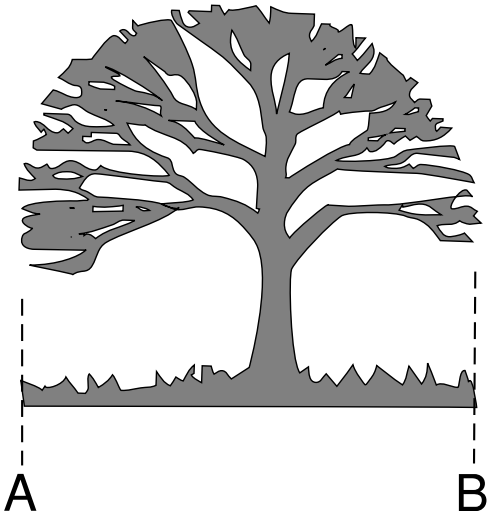
DRAFT 1.0 Fall 2009

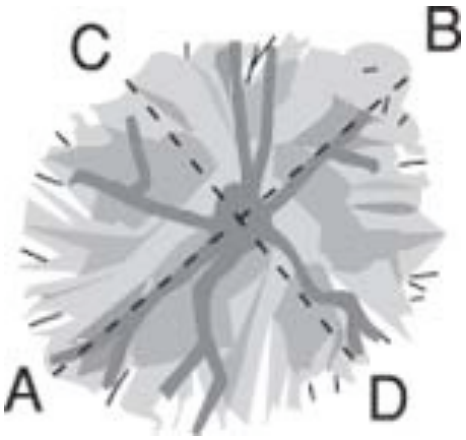
Developing Protocols for Field Data Collection

When the variables have been established, it is important that a method for field implementation be developed. Some items may be fairly simple to explain, while others may require more detailed instruction. It is important to consider the overall instructional components for users of the Urban Forestry Standards, and to develop field protocols that can be outlined in a reference guide or user's manual. Two simple examples are noted below.

Example #1 - Crown Spread

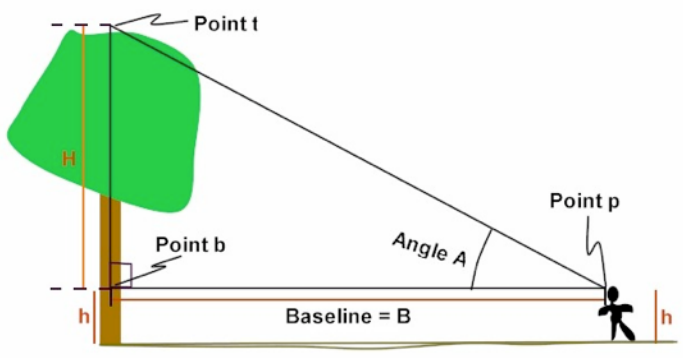
Set a stake directly under the outside edge of the crown **farthest** from the trunk (A) and another directly opposite it at the outer edge of the crown on an imaginary line passing through the center of the tree (B). Next, set stakes marking the **shortest** diameter of the crown passing through the center of the tree (C and D). Measure both distances to the nearest foot with a tape measure. Add the two measurements together and divide the sum by two to find the average crown spread.





Example #2 - Tree Height

Where a tree is too tall for its height to be measured directly, it can easily be calculated using simple trigonometry. The survey recorder stands at a measured distance from the base of the tree (baseline B). Using a hand-held device called a clinometer, he or she measures the angle in degrees between the horizontal, their eye and the top of the tree (the angle bpt = angle A). Then, using tangent tables (obtained from trigonometrical tables or from a calculator) and the equation Height of Tree = h + B x tan(A), the survey recorder can calculate the height of the tree and record it.



Data Collection Protocols

Even more complex concepts need to be outlined and detailed, so that the data collection and recording will be consistent, repeatable and transferable to the widest range of users. Presently, there are many researchers, agencies and individuals who are conducting scientific investigation on urban trees. The Forest Inventory and Analysis (FIA) Program of the USDA Forest Service provides the information needed to assess America's forests. The FIA program has developed data collection standards and protocols. The following shows a page from the FIA Field Manual, outlining the calculation of Crown Vigor Class.

12.8 CROWN VIGOR CLASS

See Figure 12-10 for a visual description of the sapling CROWN VIGOR classes.

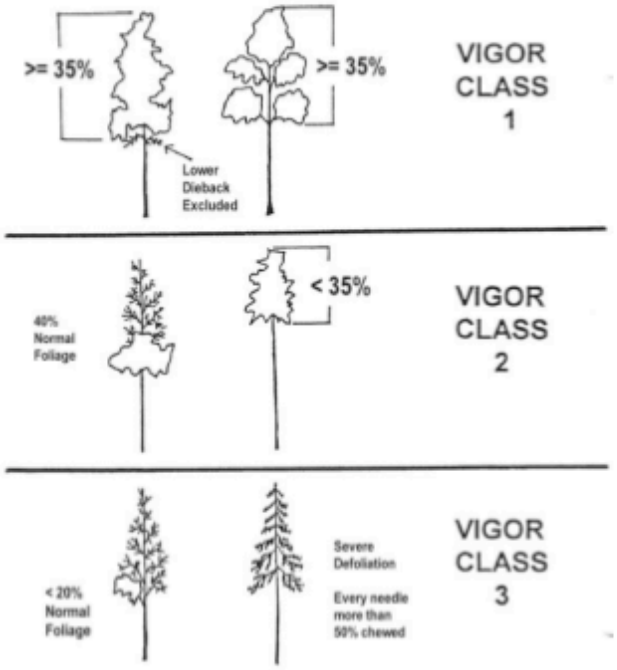


Figure 12-10. Sapling CROWN VIGOR classes.

When collected: All live trees ≥ 1.0 in DBH/DRC and < 5.0 in DBH/DRC
Field width: 1 digit
Tolerance: No errors
MQO: At least 90% of the time
Values:

Class/Code	Definition
1	Saplings must have an UNCOMPACTED LIVE CROWN RATIO of 35 or higher, have less than 5 percent DIEBACK (deer/rabbit browse is not considered as dieback but is considered missing foliage) and 80 percent or more of the foliage present is normal or at least 50 percent of each leaf is not damaged or missing. Twigs and branches that are dead because of normal shading are not included.
2	Saplings do not meet Class 1 or 3 criteria. They may have any UNCOMPACTED LIVE CROWN RATIO, may or may not have DIEBACK and may have between 21 and 100 percent of the foliage classified as normal.
3	Saplings may have any UNCOMPACTED LIVE CROWN RATIO and have 1 to 20 percent normal foliage or the percent of foliage missing combined with the percent of leaves that are over 50 percent damaged or missing should equal 80 percent or more of the live crown. Twigs and branches that are dead because of normal shading are not included. Code is also used for saplings that have no crown by definition.