



Resources At Your Fingertips

Part II: Tree & Plant ID

Tree & Plant ID Apps

Week One, we covered some of the more common forest trees of Maine. You can review Jim's presentation on Tree Id by clicking the link below & selecting the, 'Knowing Your Woods' unit.

https://www.maine.gov/dacf/mfs/policy_management/woodwise/landowner_101.html

This week, we will review two, free resources for your android or iOS device to continue cultivating your tree and plant identification skills.

Virginia Tech Tree ID



Pl@ntNet



Virginia Tech Tree ID

Virginia Tech University developed the dendrology app to assist with tree id and offers a 'help feature' where you can ask 'Dr. Dendro' (a tree expert in the Department of Forest Resources and Environmental Conservation at Virginia Tech) if you get stuck.

The app contains factsheets, range maps, and images. It allows users to define their location using a network, GPS Location, or by typing in coordinates. VT Tree ID also offers something similar to a dichotomous key in a form of questions the user answers to help with identification.

Factsheets will list exotic species with the note, '**Exotic**' next to the woody plant's common name on the factsheet. This can help user identify invasive, trees/shrubs in their woodland. But keep in mind, not all exotics are invasive.



Acer pensylvanicum
striped maple



Acer platanoides
Norway maple ****Exotic****



Before You Venture Into the Field

Download factsheets for North America, your location, or as needed (not recommended for areas without service). You will need a Wi-Fi connection or data (warning, downloading large amounts on data could result in additional charged). Check your phone's storage before deciding which bundle to download.

The app will display the amount of space required for Option 1 (650MB) & Option 2 (250MB).

For this example, I downloaded, 'Option 2.'

DO YOU PLAN TO USE THIS APP OFFLINE?
PLEASE SELECT A DOWNLOAD OPTION

OPTION 1

All woody species for all of North America (~650MB) - [read more](#)

OPTION 2

Woody species for your (or any) location (up to ~250MB) - [read more](#)

OPTION 3

Woody species as needed - [read more](#)

Factsheets

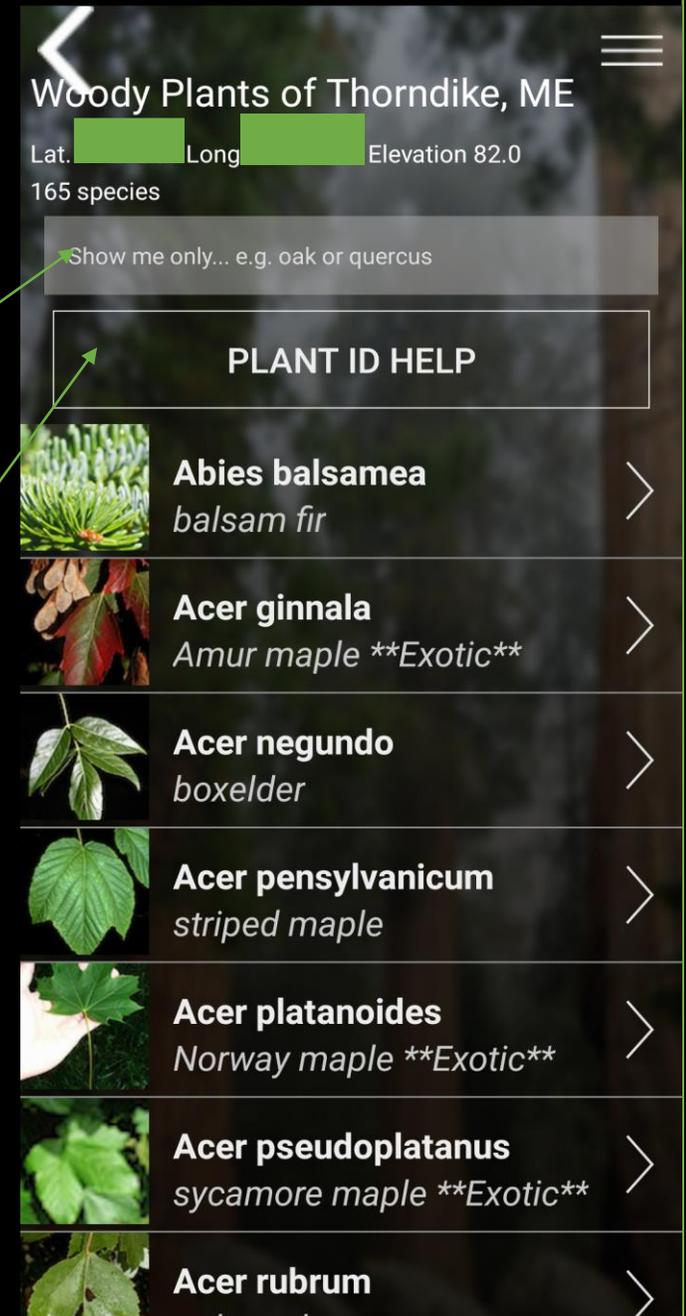
Once you've downloaded your desired option and determined your location, the app will display the factsheet folder.

Factsheets folder will list: Town, Lat. & Long., Elevation, and number of species that may appear in your designated area.

If you have a fairly good idea what genus your tree falls under, you can type into the search bar to show only that genus or common name category. EX: oak/Quercus

The, "PLANT ID HELP" serves a similar function to a written dichotomous key. The help feature will ask you a series of questions to help narrow down your results. An example will be provided later in the presentation.

Below the help feature is a list of clickable woody species factsheets with images. We will cover the factsheets further on the next slide.



Factsheets

When you first click the woody plant of interest, the app will display images for: leaf, flower, fruit, twig, bark, form, & a range map.

For practice, let's click on white spruce (*Picea glauca*).

Below the images there will be an option to, 'VIEW SHEET.' Click to continue.



White Spruce Factsheet

Clicking the, 'View Fact Sheet' will bring up the information for the desired species, displaying common name, scientific name, family, and descriptions of the leaf, flower, fruit, twig, bark, and form. If a species is exotic, it will appear as **** EXOTIC**** on the factsheet.

When using the app, I scroll the listed species in an area and compare to the tree I am attempting to identify. After I find something that looks the same/similar, I click to view the factsheet for confirmation.

white spruce

Picea glauca ((Moench) Voss)

Pinaceae family

Leaf: Evergreen needles, stiff, 1/3 to 3/4 inch long, square in cross section, needle tips are pointed but not sharp, when crushed a pungent odor is apparent (some say similar to cat urine), green to gray-green. Each needle borne on a raised, woody peg (sterigma).

Flower: Species is monoecious; males emerge reddish but turn yellow when shedding pollen; females purple.

Fruit: Cones are 1 1/2 to 2 1/2 inches long, cigar shaped, light brown in color, scales are rounded with entire margins, mature in late summer.

Twig: Slender, light brown or pale, sometimes glaucous, hairless. Needles borne on woody pegs.

Bark: Thin, gray-brown in color, smooth, later flaky or scaly.

Form: Conical, medium sized trees reaching up to 90 feet tall.



PREVIOUS SPECIES

NEXT SPECIES

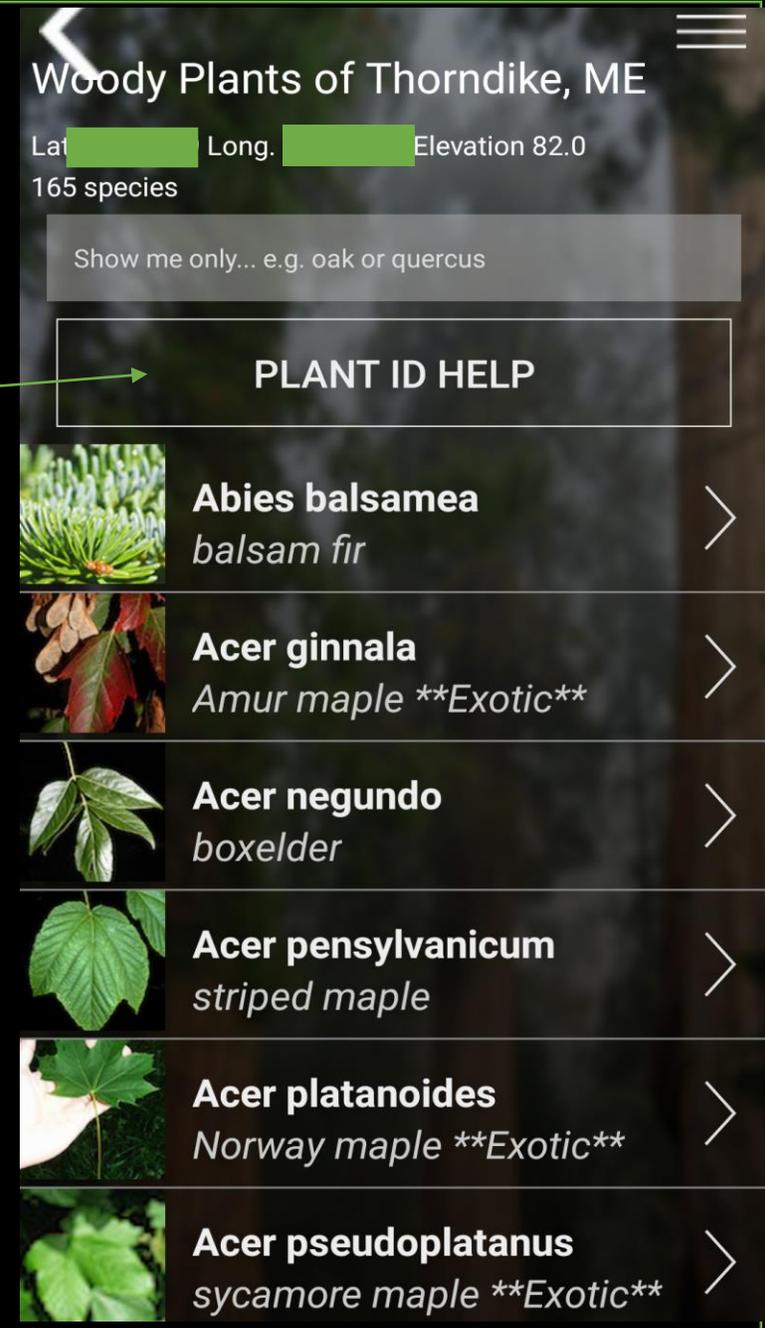
'PLANT ID HELP' Feature

If you are unable to determine your tree's identity through process of elimination (scanning the factsheet) you can opt to use the, 'PLANT ID HELP' feature.

You will need several pieces of information to answer the questions about your trees. So, for best results, it works best to do this in front of your tree/shrub or by taking notes of the following in the field:

- Leaf Type (broadleaf or needle, leaf attachment (woody pegs, suction, single needle or leaf etc...), leaf shape, and margin)
- Growth Form (tree, shrub, vine, or bramble)
- Location (near water, typical woods, dry/fire prone, arid desert, etc)
- Fruit (cone, berries, fleshy fruit, capsule, feathery seed, etc)

If you are unable to answer a question, click, 'Skip Question.' It is normally the last option



'PLANT ID HELP' Example

For this example, we are going to identify white spruce. You can refer to slide 6/factsheet for the information necessary to complete the interview or try it from memory!

You will be provided two interview options-'BASIC or ADVANCED.' For our practice session let's choose, 'ADVANCED ID INTERVIEW.'

After clicking the desired box, the app will display the number of woody plant possibilities at the top of the page for our location and the question below. The woody plant species list will decrease with each question answered. At the end of the interview, we should be left with just a few species to pick from.



By answering this short list of questions, you can narrow down the possible identity of your plant. Advanced filtering may have more technical questions that all users may not be familiar with.

BASIC ID INTERVIEW

ADVANCED ID INTERVIEW

'PLANT ID HELP' Example

For this example, our woody plant is a, 'tree' in form.

And, we'll say it is growing in a typical/normal woods.

The leaves are needles so we pick the, 'needles or scaly leaves' option.

165 matching species		^ Where was it growing?		78 matching species	
^ What is the growth form of your unknown?			swamp, river, or lakeside	^ What best describes your leaves?	
	tree		typical/normal woods		needles or scaly leaves
	shrub		dry and fire-prone		broadleaves
	bramble or rose		arid desert		cactus with spines
	vine				yucca with bayonette leaves
	Skip Question		Skip Question		Skip Question

'PLANT ID HELP' Example

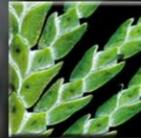
Next, we better describe our leaf/needles. White spruce has, 'single needles on woody pegs.' Remember, you can always skip a question if you don't have a confident answer.

The fruit for our white spruce is a, 'cone.'

Notice that the number of 'matching species' continues to decrease with our answers (14 down to 5).

14 matching species

What best describes your needle or scale-like leaves?



scale like with flattened sprays



scale like, rounded or 4 sided



single needles on tiny leaf stalks



single needles on woody pegs



single needles on suction cups



long needles/groups of 2s

5 matching species



Skip Question

What best describes your fruit?



cone



dry berry with thin flesh



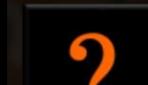
fleshy like, apple/berry



capsule, may be papery



tiny dry feathery seed



Skip Question

'PLANT ID HELP' Results

After answering the interview questions, we are given a list of 5 potential species to choose from.

White spruce is listed!

We recommend practicing with a couple species you already know to get the hang of the interview feature before using it to identify your mystery woody plants.

Woody Plants of Thorndike, ME

Lat. [redacted] Long. [redacted] Elevation 82.0

5 species

Show me only... e.g. oak or quercus

PLANT ID HELP



Larix kaempferi

Japanese larch ****Exotic****



Picea abies

Norway spruce ****Exotic****



Picea glauca

white spruce



Picea mariana

black spruce



Picea rubens

red spruce



PlantNet

PlantNet or Pl@ntNet helps you to identify from pictures rather than factsheets. Instead of only using the process of elimination, you are given the option to upload a picture of a plant/tree/shrub/etc... and choose from potential matches. You can choose to create an account and save your confirmed/unconfirmed plants for later use.

Pl@ntNet offers an app and website so you are not limited to using your smart portable device/phone.

Pl@ntNet is also available for multiple countries and can be an option to identify while on trips or visits with family outside of the United States.

Image results are not always accurate; we recommend doing a bit of research after being given your potential matches to ensure you have the correct tree/plant.

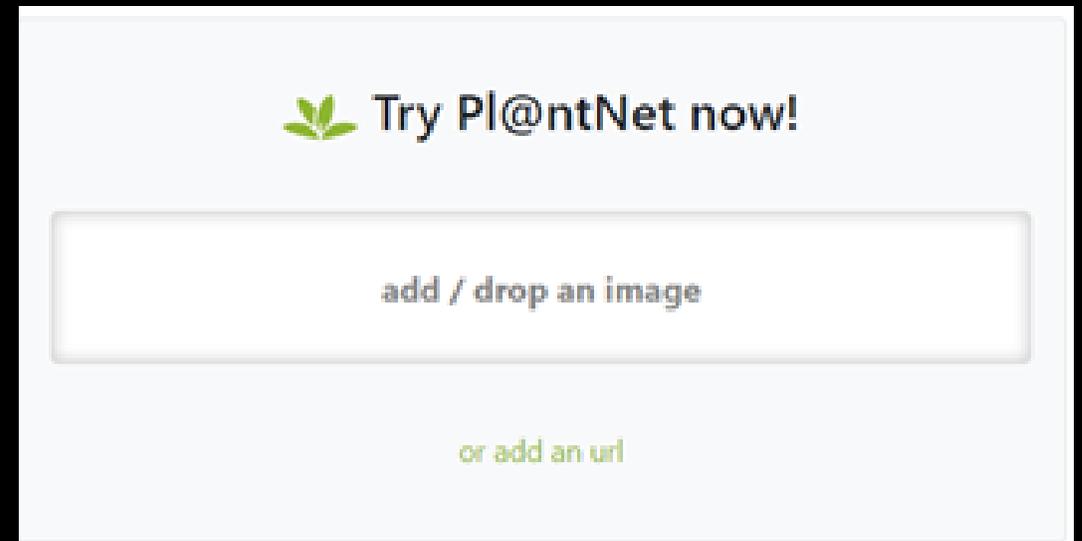


Where to Find PI@ntNet

You can download the PI@ntNet app from iOS or Android/Google.

The PI@ntNet website also offers an option to upload images of plants for identification:

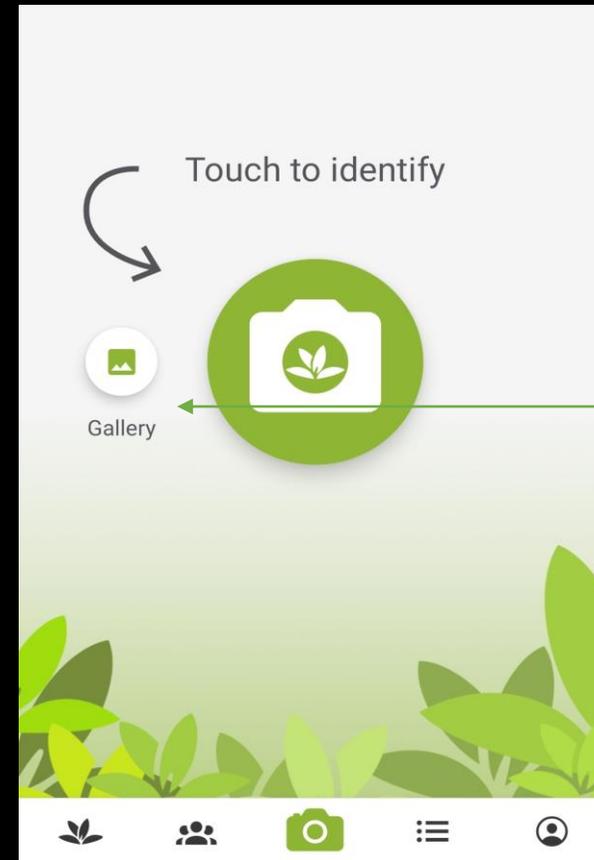
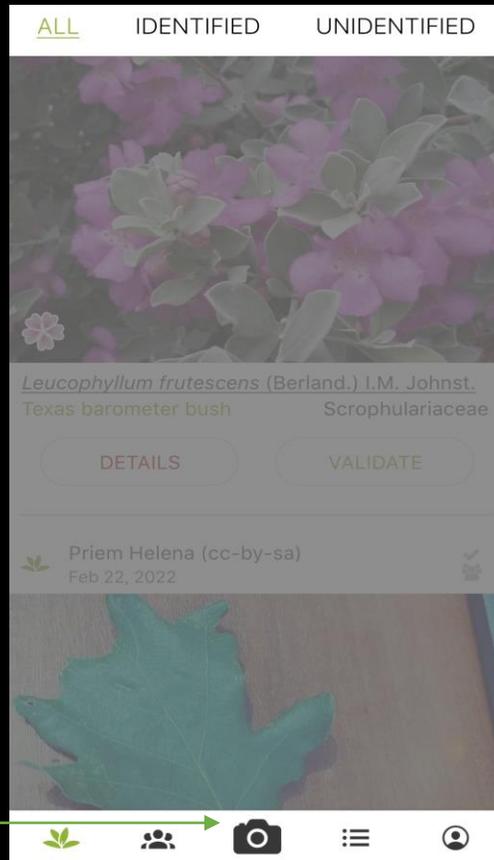
<https://identify.plantnet.org/>



How to Use PI@ntNet

There are lots of features in this app but we will focus on identifying a plant from an image on our phone/computer.

After creating an account, click the camera button on the bottom center of your screen. You will be given the option to take an image of the plant or upload one from your gallery that you have already take. Let's choose the gallery option.



Example

For this example, I will use images of a tulip-poplar (*Liriodendron tulipifera*). These were taken at different times of year (before leaf out and during bloom). It helps if you have two images that feature different parts of the plant/tree (ex: flower, leaf, fruit, habit, or bark).

Habit



Flower



Results

The results for our two images can be seen on the right. *Liriodendron tulipifera*/Tulip Poplar is our first recommendation with 78% probability of it being the right species.

Other possibilities will be listed below to most probable option. The next option is Big-leaf magnolia with only 3% probability. Both are in the Magnoliaceae family.

You can click the images to view other photos submitted to the app and verified as being that species to aid in your identification.

By hitting, 'Confirm' you can add a GPS location, comments, and share with other users.

Identification - Results
World flora

Liriodendron tulipifera L.
Tulip Poplar
Magnoliaceae
Confirm 78%

Magnolia macrophylla Michx.
Big-leaf magnolia
Magnoliaceae
Confirm 3%

Video Instructions

PI@ntNet created a video explaining the app/website. It is recorded in French with English subtitles.

https://youtu.be/W_cBqaPfRFE

