

## Lab 4: Plant Appreciation Lab

Name \_\_\_\_\_

Date \_\_\_\_\_

### Learning Objectives:

1. Explain the importance of plants in human affairs
2. Recognize some of our common native trees
3. Recognize some of our common invasive plants
4. Recognize that plants produce a variety of useful and/or toxic chemicals
5. Learn how to write a scientific name properly

**\*\*Note:** This laboratory exercise is designed to be completed outside of assigned laboratory time\*\*

### Introduction: Plant Appreciation

If the Land Plants all went extinct, life as we know it would soon cease. The human species depends, directly or indirectly, on plants for the majority of our food. Plants also provide many other benefits, including: useful fibers; lumber and other building materials; fuels; many medicines; wildlife food and habitat; shade; soil production and protection; and, beauty.

There are many ways to categorize plants. These can include formal **taxonomy**, or classification, based on their relatedness, and informal groupings based on their form (tree, shrub, grass), or usefulness (fruit, vegetable, nut, herb, spice), or place of origin (native, introduced).

**Native plants** are of particular importance because they are adapted to the specific area where they are found and usually are functional members of the local community. This means that they thrive without human intervention, provide the basis of all or most of the local food chain, provide suitable habitat for local animals, and determine many of the characteristics of the local landscape.

**Introduced (exotic) plants**, mostly require human care to survive because they are not native to the place or area where they are found, and as such living outside of its native habitat. Some introduced species, however don't rely on human care and can become highly destructive and are called **invasive**. The worst of these cause severe ecological disruption and often have highly negative economic impacts (crop losses, destruction of native communities, blocked waterways, clogged water intake and outflow pipes of power plants, etc.). Controlling them can cost many millions of dollars each year – and every year, because completely eradicating them is rarely possible.

It is important to note that many plants, including those that have medicinal value, are toxic. Some can cause allergic reactions simply by contacting your skin – poison ivy is a locally common example of this. Others show varying degrees of toxicity when ingested or inhaled. Cooking a plant is not always enough to destroy toxins. Thus, you should always assume that a plant is NOT safe to eat unless you are certain of your identification.

A few of the important medicines derived from plants include: painkillers (morphine, codeine, salicylic acid); anti-cancer drugs (taxol, vinblastine); and, anti-malarial drugs (quinine). Many other compounds are

used for flavor or fragrance, for relaxation (nicotine) or alertness (caffeine), to tenderize meats (papain), and, as poisons (cyanide, pyrethrins, coumarin).

### Activity 1: Research, Collection of Information and Report on an Individual Plant

#### Materials Needed

- Each student will need a computer and access to the internet or library resources

#### Exercise A: Research

Each student will select one plant from a list provided. (This may be adjusted to small groups by individual professors)

1. Do internet research to find out the following information:

- i) Common name \_\_\_\_\_ and scientific name \_\_\_\_\_
- ii) Is it native to Georgia? Yes / No      If not native, is it considered invasive in Georgia?
- iii) Briefly explain in 2 – 3 sentences, its uses – both economic and ecological
- iv) Is there anything else interesting or important that your fellow students should know about this plant?

#### *Note:*

Your information sources must be authoritative! A typical blog post or a website run by a person without obvious training or other credentials is quite likely to contain errors or omissions – do not use such things. Websites that have been peer-reviewed – such as having an affiliation with a University or government or professional society - are much better choices.

Some resources:

- <https://plants.usda.gov/>
- Harrar, Ellwood S.; Harrar, J. George, *Guide to Southern Trees* Dover Publications, inc. NY. 1962 (available in the lab)

#### Exercise B: Presentation

1. Each student will make a power point presentation with 2 slides. A sample submission (from a previous student group) is provided, along with the following details to be included for your guidance:
  - a) First slide with the above information that was researched about the plant.
  - b) Second slide - Include the references
  - c) Student Name should be on top left of the **first slide**.
  - d) Use Calibri for body, min 14 size font for the text.
  - e) Add two pictures, one of the plant and one close-up with leaves and flowers (if any). Try to find these plants around campus or in your neighborhood and try to take pictures. If you can't find the live specimen of the plant, use pictures from internet.

2. Each student will post their completed PowerPoint presentation on D2L under Discussion Forum.  
Due date \_\_\_\_\_
3. Each student will also be required to review the posts of their fellow classmates, and comment with questions or other interesting facts on at least 3 presentations.

**Activity 2: Learn from the findings of your peers.**

Exercise A: Discussion Board

Once the PowerPoints are posted by each student you will be responsible to read all of them. If you have a question about one, post a comment and the student researchers will try to answer it.

A list of questions and/or important points to learn will be provided by your instructor. This information will be tested on the first lab practical.

**Activity 3: Some common plants around in Georgia:**

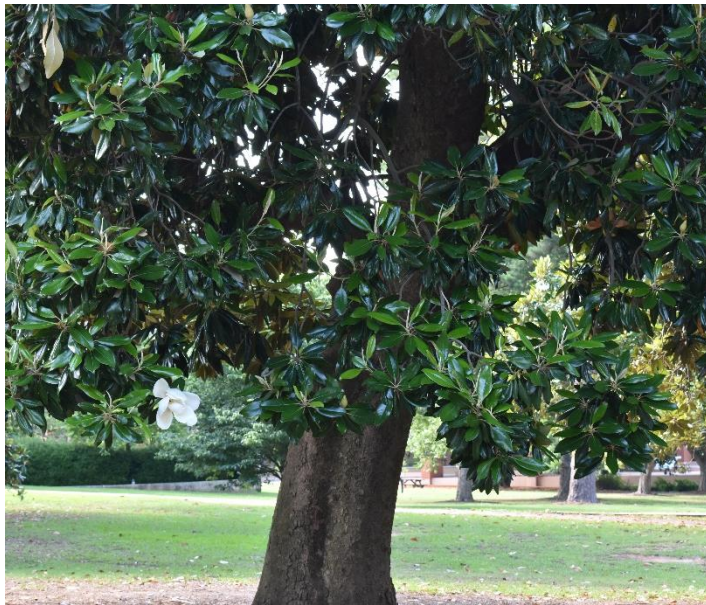


Figure 1A. Magnolia tree (*Magnolia grandiflora*)



Figure 1B. Magnolia flower





Figure 2A. Crepe myrtle tree (*Lagerstroemia indica*)



Figure 2B. Crepe myrtle flower

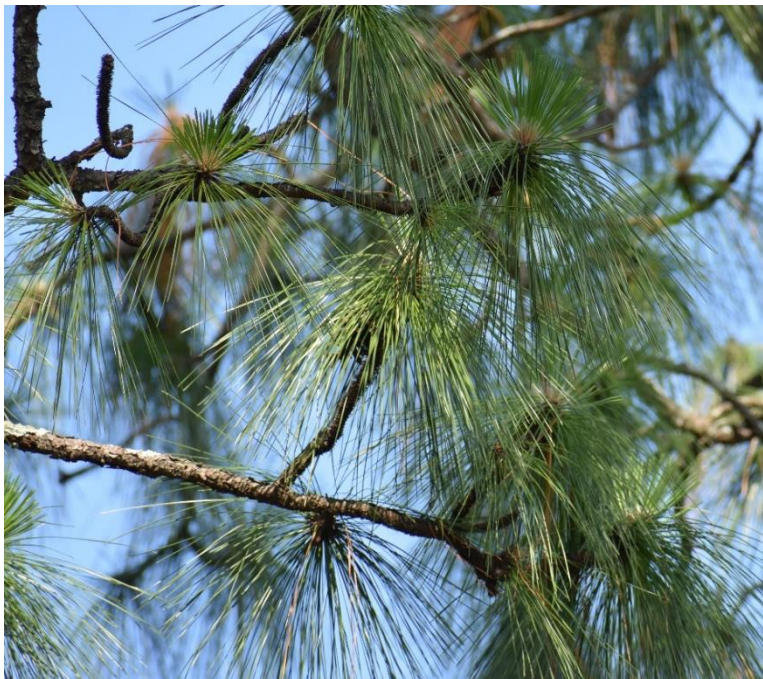


Figure 3a. Pine tree (evergreen tree) (*Pinus roxburghii*)



Pine tree (*Pinus strobus*)





Figure 4A. White oak tree (*Quercus alba*)



Figure 4B: White oak leaf

Non-native plant



Figure 5A. Ginkgo tree (*Ginkgo biloba*)



Figure 5B. Ginkgo leaves

A Poisonous plant:



Figure 6. Poison oak vine (*Toxicodendron diversilobum*)

Questions:

1. Can you find any of these in the University campus or around your neighborhood?
2. if yes, which ones \_\_\_\_\_
3. Give some uses of oak tree and gingko \_\_\_\_\_  
\_\_\_\_\_
- 4a. What is an invasive plant? \_\_\_\_\_  
\_\_\_\_\_
- b. Give one example of a common invasive plant seen around. (hint: it has nice flowers)  
\_\_\_\_\_

Critical thinking:

Why poison oak and poison ivy are called poisonous? Do they really produce/secrete any poison or toxin?