


Supplement A: Journal Pages 1 & 2

# Thrive to Survive

At each habitat stage, draw lines to match the three adaptation clues to the correct plant. Look around for the plant ID cards next to the actual plants. \*Hint: read the back of the plant ID card if you get stuck.

**Forest**



*American Holly*

*White Oak*


*White Pine*

I shed my leaves to survive cold and drought

Waxy, sharp leaves keep me warm and safe all winter

My conical shape allows me to shed snow easily

**Bog**



*Bladderwort*

*Cranberry*

*Blue Flag Iris*

My bright, distinct blossoms lead pollinators right to my nectar

I have 4 air pockets so I can float when my habitat floods

I am a carnivore - I feed on insect larvae and other small organisms

**Rain Garden**



*Hairy Tick Trefoil*

*New England Aster*

*Common Milkweed*

Monarch caterpillars love to eat me and I can grow roots up to 12 feet deep

My seeds have tiny hairs that spread by latching onto animals fur

My seeds grow fluffy hairballs that can float through air

**Did you know?**



Did you know that when plants are being eaten by caterpillars or other bugs, they send a chemical distress signal that attracts predators like wasps to eat their attackers?!

## Adopt a Plant!

Congratulations! You now have a pet plant! Follow these instructions to take care of your new friend, and learn all about them. First, name your plant!



Using the internet or a plant identification book, look up some facts about your plant and record them in the space below. Try to find out what species it is, where it likes to live, what season it blooms in, and any other interesting things you find.

\_\_\_\_\_

\_\_\_\_\_

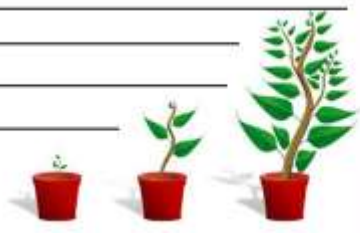
\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



Over the next few weeks watch your plant grow. It will happen slowly, but over time you can make sketches in the space below of what your plant looks like and notice how it changes. Date your sketches and save this page to share with people once your baby plant is all grown up.

Use this ruler to measure how tall your plant is! Date your entries to keep track of your plant's progress.



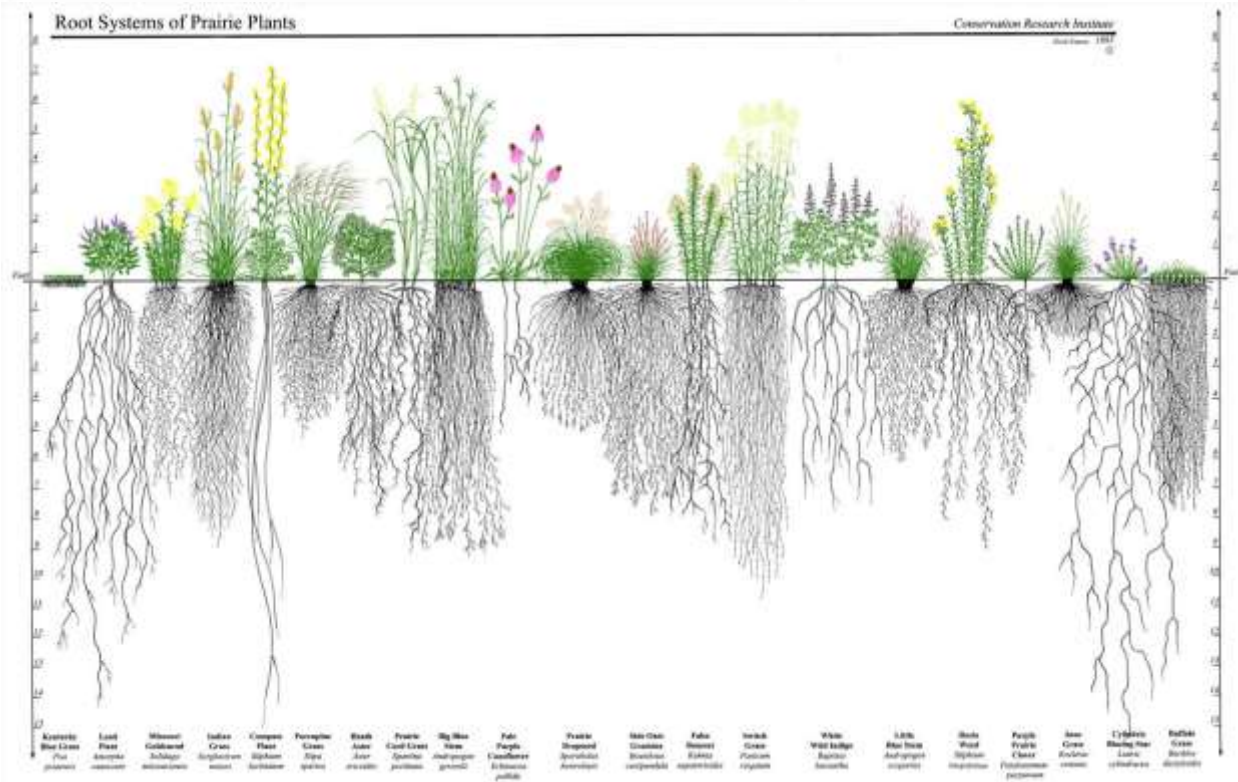
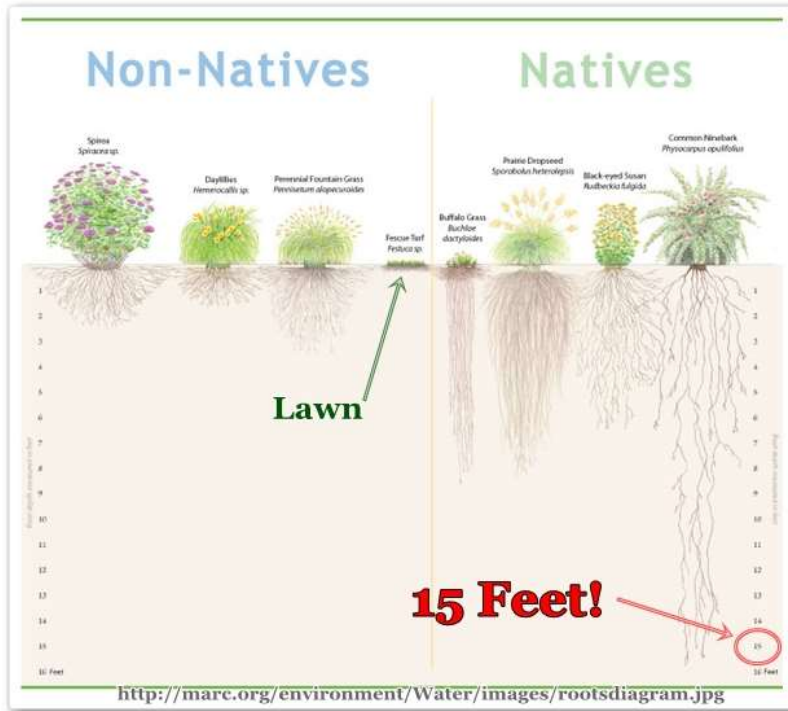

- Directions for transplanting your plant to the ground!**
- 1) Pick a place with lots of sun and good, moist soil (You can also use an indoor pot near a window)
  - 2) Dig a hole about 3 inches deep
  - 3) Carefully remove soil and seed from newspaper pot
  - 4) Place in hole and bury roots gently
  - 5) Water every 2-3 days
  - 6) Sing and talk to your plant. It is true that this makes healthier, happier plants!

Supplement B:

Native

Roots

Posters



Supplement C: Plant IDs



Common Milkweed  
*Asclepias syriaca*

Common Milkweed

**Description:** This plant can grow 3 1/2 - 6 1/2 feet tall. The leaves are thick, opposite on the stem and approximately 6" long by 3" wide.

**Habitat:** Full sun to part shade. Dry soil. Common Milkweed grows in fields and along roadsides.

**Adaptations:** milkweed can adapt very well to many different climates, soil types, and the presence of other organisms because of its root system which has both horizontal and vertical roots. Roots can reach depths of 12.5 feet into the ground. The horizontal roots also produce buds underground, which then become new stalks the following spring. Toxin produced by milkweed kill predators. Milkweed can self-pollinate and does not solely depend on insects for pollination. Milkweed also provides protection for its seeds in pods that are tough, especially when mature.



American Holly  
*Ilex opaca*

American Holly

**Description:** This understory tree grows 30 to 60 feet tall. It is evergreen. Its leaves are pointy but

**Conditions:** Moist, well-drained soil. Shade. Small white flowers bloom from April to June.

**Adaptations:** Bright colored berries attract animals who eat them and then disperse their seeds. Thick, pointy sharp waxy leaves help protect against cold all year round, and protect it against predators.



New England Aster  
*Aster novae-angliae*

New England Aster

**Description:** New England aster can grow 2-6 feet. It blooms in the fall from August to October. Its flower is a composite made up of purple rays and yellow disk flowers. The leaves are green, alternately arranged and its base wraps around the stem.

**Habitat:** It grows in full to part sun, in moist soil. It likes moist woodlands, thickets, and roadsides.

**Adaptation:** Because it blooms in the fall, one of its pollinators is the Monarch butterflies which drink the nectar for energy to fly to Mexico. It spreads its seeds using the "fluff and fly" method. When the seeds are ripe, they grow a silky umbrella that helps the wind carry them to a new location.



White Oak  
*Quercus alba*

White Oak

**Description:** This is a deciduous broadleaved tree. The leaves have rounded lobes which turn red in the fall. It grows 75-100 feet tall with a spread of 50-90 feet. It flowers in May and produces fruits called acorns in September thru October.

**Habitat:** This tree is a key species in some forest. Mature specimens seen around houses can indicate that the land was previously a forest. It likes full sun as its leaves would naturally form an upper forest canopy. It prefers moist soil.

**Adaptations:** Oaks can adapt to severe conditions such as poor nutrient, low light and periods of drought. The tree's adaptability makes it a survivor. The tree quickly regrows in areas suffering substantial wildfires. Its thick bark and deciduous leaves allow it to survive cold windy winters.



Inkberry  
*Ilex glabra*

Inkberry

**Description:** woody shrub 8-10 feet tall. Alternate, glossy green leaves. It has small white flowers in March-June and produces black fruit in September-October which persist into the following spring.

**Habitat:** Inkberry prefers full sun to partial shade in dry or moist conditions. It can grow in sandy to heavy peat soil. It is often found in low woods or pine barrens.

**Adaptation:** Fire kills the tops of the plant but the species is adapted to a regime of recurrent fires. Typically the above ground stems die and the plant regrows from its root crown. Less aggressive fires may only kill the current years growth.



American Holly  
*Ilex opaca*

American Holly

**Description:** This understory tree grows 30 to 60 feet tall. It is evergreen. Its leaves are pointy but

**Conditions:** Moist, well-drained soil. Shade. Small white flowers bloom from April to June.

**Adaptations:** Bright colored berries attract animals who eat them and then disperse their seeds. Thick, pointy sharp waxy leaves help protect against cold all year round, and protect it against predators.





Cranberry

*Vaccinium macrocarpon*

#### Cranberry

**Description:** Groundcover: 1-2 feet tall/2-4 feet wide. The leaves are small, glossy green and have a reddish-bronze winter color.

**Habitat:** The American Cranberry grows in nutrient-deficient bogs. It requires part shade to full sun. It likes to be in moist to wet soils.

**Adaptation:** This plant has berries that float, due to 4 air pockets within each berry. This allows the seed to travel to new areas as it is disseminated by the water.



Bladderwort  
*Utricularia sp.*

#### Bladderwort

**Description:** This plant has fine branching leaves which are only 2 mm across. The flower is yellow and is only 5mm across.

**Habitat:** These plants grow as runners on the soil surface, or floating in the water.

**Adaptations:** Its roots are modified into small aquatic traps that can capture small, mostly microscopic insect larvae, fry, crustaceans, and other minute life forms in the water that are sucked in when they touch the trigger-like flagella at the edge of the bladder, causing the bladder to suddenly expand, creating a vacuum. Once inside, the plant secretes enzymes that digest the prey. This allows the plant to grow in low nutrient environments.



Blue Flag Iris  
*Iris versicolor*

#### Blue Flag Iris

**Description:** 2-3 feet tall. Blooms purple and yellow from May-July. It grows 2-3 feet tall. Its leaves are thick and can

**Habitat:** This plant grows along shorelines and its roots keep the soil from eroding. It likes full sun to part shade and moist to wet soil. It can grow in fresh or brackish water. This plant can even grow in shallow water. It is often found in marshes, on the edge of ponds and in meadows.

**Adaptations:** Blue flag iris' distinct coloration helps guide bees down towards its nectar which makes it very easy to pollinate. It also adapts to marshy, damp soils by putting extra energy into a strong, deep root system.



## Supplement D: Habitat Descriptions

### Bog (Man-made bio-retention area)

- Bogs have very moist soil and can even become partially flooded.
- Plants that live here must be capable of surviving with waterlogged conditions, low nutrients in the soil, and low oxygen/acidic soils.
- Some plants that live here are carnivorous as an alternative method for getting food since the soils are so low in nutrients.
- Bogs are great at filtering pollutants out of the water
- Bogs are a great habitat for insects such as dragonflies and amphibians like frogs.



### Rain garden

- Many of these plants could be found naturally in a meadow or forest edge.
- A rain garden is a great way humans can reduce pollution from runoff, encourage water to infiltrate into the ground and to create habitat for native Maryland species.
- Rain gardens catch storm water runoff from parking lots, roads, roofs, and other impervious surfaces.
- Not only are rain gardens beneficial to the environment, they are also easy to take care of and look great.



### Deciduous Forest

- Here in Maryland, this is what a lot of our neighborhoods looked like before we built houses and roads.
- Deciduous forests have moderate climates and plants that live here must adapt to the changes of all four seasons.
- Many plants species that live in deciduous forest shed their leaves in the winter to conserve energy and water.

