



Lower Suwannee National Wildlife Refuge



JUNIOR RANGER



Name: _____

Date: _____

How to Become a Lower Suwannee National Wildlife Refuge Junior Ranger



Follow these steps to earn your badge!

1

GRAB A PEN or PENCIL and start by flipping pages in this booklet.

2

FIND YOUR JUNIOR RANKING below and start work on the pages for your age group. Visit the Refuge to answer some questions. Complete as many pages as you can or all of them if you want to!

3

BRING THE COMPLETED BOOKLET to one of the locations listed on page 17 to claim your badge and become a Junior Ranger! Be sure to complete the pledge at the back of the book first.

JUNIOR RANGER RANKINGS

Circle your ranking below and look for it in the booklet to know if you should complete that activity for your Junior Ranger badge.



Butterfly - ages 5-8



Alligator - ages 9-12



Swallowtailed Kite - ages 12 & up



Freddie Fiddler Crab says, "Take along some **water** to drink, **bug spray**, **sunscreen**, and to wear **appropriate clothing** and **closed-toed shoes** during your activities.

GOOD LUCK AND HAVE FUN!"

NEED HELP? Ask your family, a Friends member, a Refuge or library staff member, or check the Internet, especially friendsofrefuges.org!



Getting Started

The Lower Suwannee National Wildlife Refuge

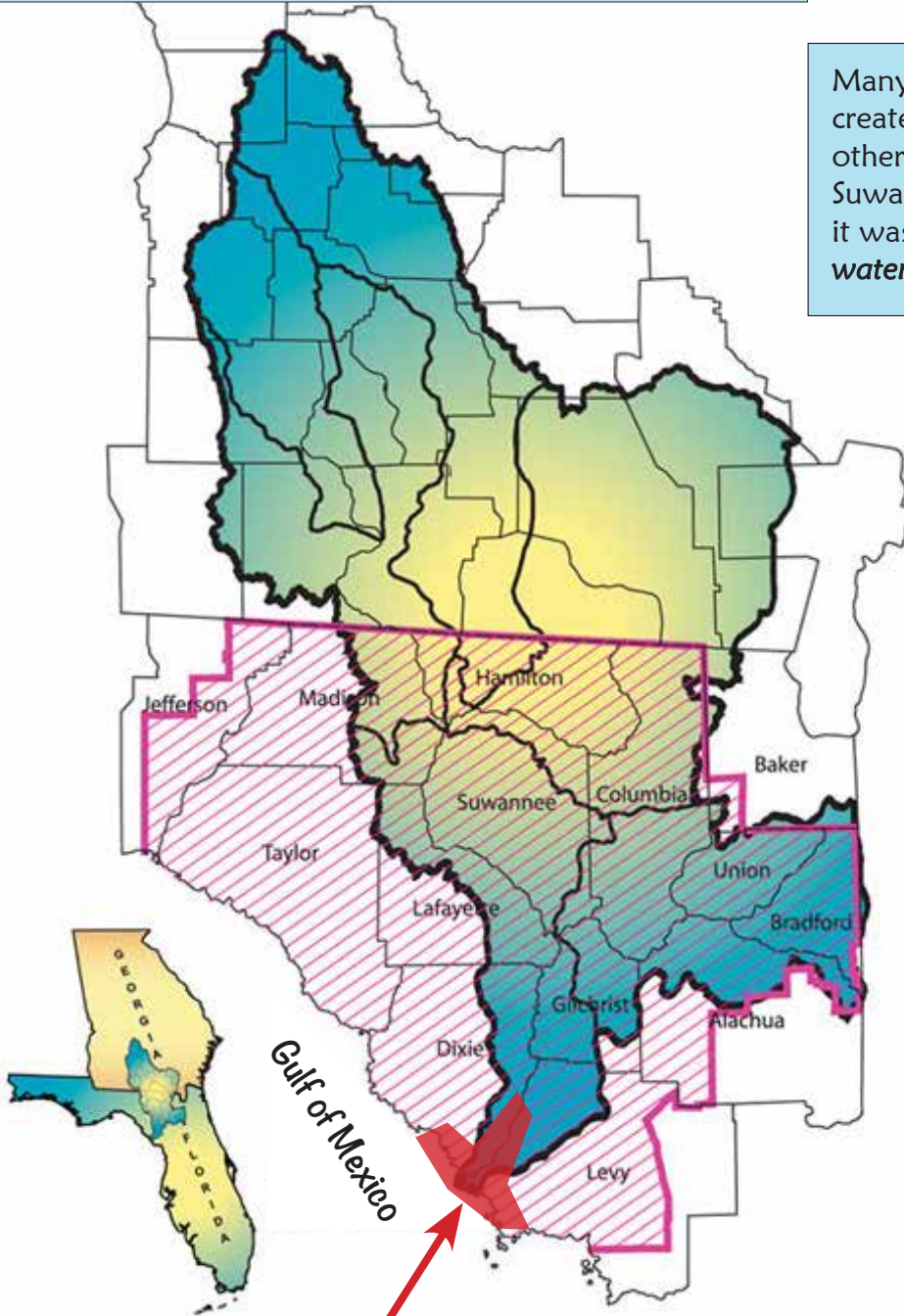


WELCOME to the Lower Suwannee National Wildlife Refuge! Our rural refuge is really big—54,000 acres in a T-shape along 20 miles of the historic Lower Suwannee River and 26 miles of the Gulf of Mexico shoreline. We are unique because, unlike other wildlife refuges, the Lower Suwannee was created to protect water quality. We are excited that you have come to explore this special and diverse place. There is so much to discover and learn!

We're All About Water

A **watershed** is the land that gathers water from rain, marshes, creeks or springs and feeds a large body of water like the Suwannee river and Gulf of Mexico.

Many Wildlife Refuges are created to protect birds or other animals. The Lower Suwannee is different because it was created to protect the **water** of the Suwannee River.



**Lower Suwannee
National Wildlife
Refuge**

I will protect the water!



Healthy plants and clean soil keep water pure as it flows to the Gulf.

What is your super-power?
How can you help protect the watershed for generations to come?



One of a Kind



Photo: Viviana Ricardez

Few people ever see this elusive turtle. Despite its fearsome reputation, these turtles are extremely shy and only attempt to bite when captured, handled or harassed.

The Suwannee alligator snapping turtle is only found in the Suwannee River system. This includes parts of the Refuge. It has **special adaptations** to help it fit into this specific riverine environment.

- It is one of the largest freshwater turtles in the world growing up to 190 pounds! As an adult, its large **size protects it from predators**, including alligators!
- It has a **large head and powerful jaws** which are used to crush prey.
- A **spiky but streamlined shell** protects it while allowing it to move easily even in strong river currents.

Find the words in the puzzle.

Words can go in any direction.

Words can share letters as they cross over each other.

F	K	A	M	T	Q	K	E	R	E
R	N	L	M	W	S	U	E	E	J
E	N	L	C	J	H	A	N	G	S
S	E	I	C	E	P	S	N	N	L
H	Y	G	L	M	P	W	A	A	A
W	Y	A	C	H	O	P	W	D	R
A	K	T	T	R	P	Y	U	N	G
T	I	O	M	I	H	L	S	E	E
E	P	R	N	E	L	T	R	U	T
R	S	G	P	R	O	T	E	C	T

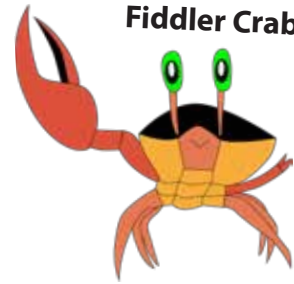
ALLIGATOR
SNAPPING
TURTLE
SUWANNEE

FRESHWATER
SPECIES
SPIKY
PROTECT

LARGE
WORM
ENDANGER

- It will **eat just about everything** found in the river, including fish, snails, clams, seeds, snakes, and small mammals.
- It can **hold its breath** for more than an hour underwater!

Fun Fact from Freddie Fiddler Crab



The alligator snapping turtle's most notable adaptation is a tongue that looks like a worm that is wiggled while its jaw is open, to attract fish and other prey into striking distance.

The alligator snapping turtle is protected throughout its range and is listed as "threatened" under the Endangered Species Act.



Wildlife Habitat

The Lower Suwannee National Wildlife Refuge was purchased from commercial timber companies who cut most of the native trees and planted fast-growing slash pine. Refuge staff works to restore native long-leaf pine and encourage other natives.

Tree Root Fact

There is as much tree above ground as there is below!



Circle the mast trees:

Cypress	Magnolia
Oak	Pine
Sweetgum	Pecan
Palm	Hickory
Bay	Maple

What is a mast tree?

Mast is the fruit of forest trees and shrubs such as acorns and other nuts. Mast is an important, high-calorie food for wildlife.



Prescribed fires are deliberately set for a variety of purposes, such as reducing hazardous fuels, improving wildlife habitat, and restoring ecosystems. A prescribed or controlled fire manager is called a burn boss.

Photo by FWS Staff

Fire is important for many native plants and animals in Florida.

What does fire leave behind after burning?

How does fire benefit plants and wildlife?



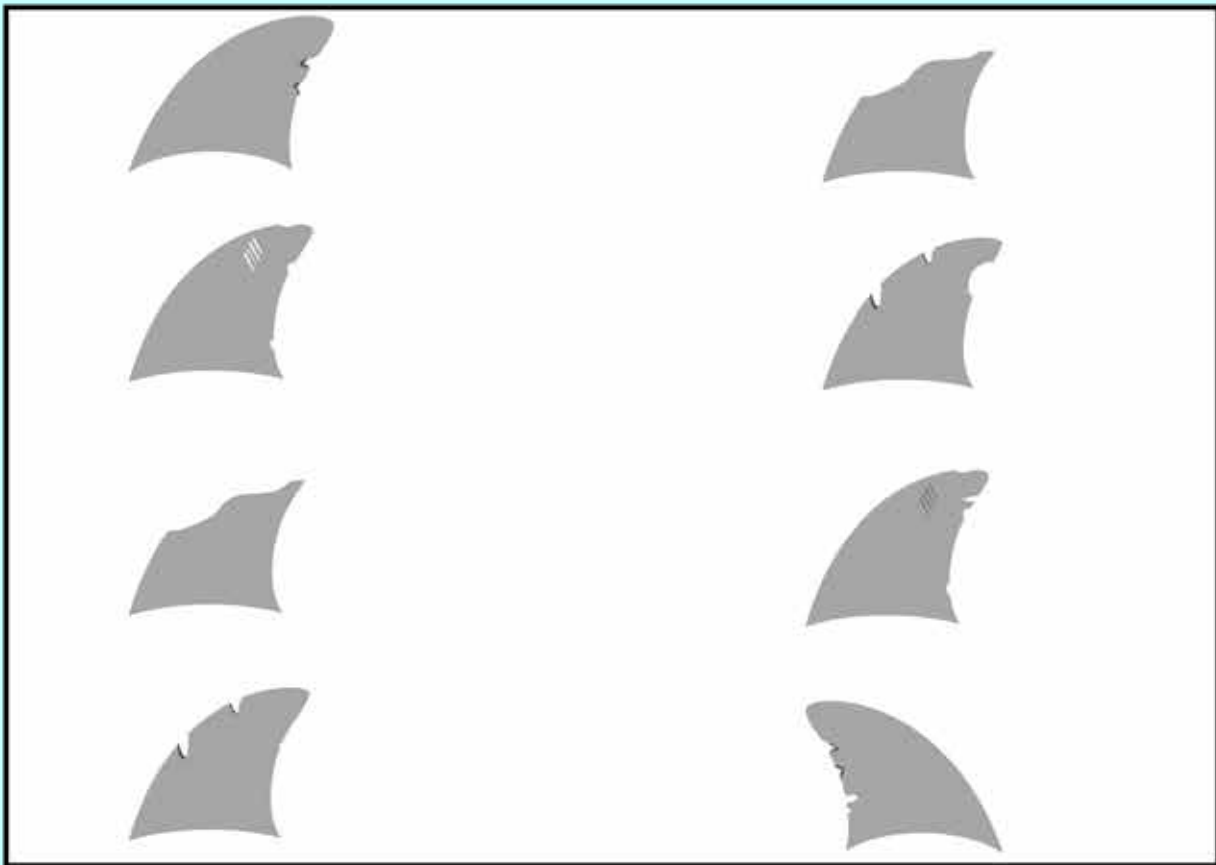
Who's That Dolphin?

The Gulf of Mexico neighbors the Lower Suwannee National Wildlife Refuge to the west. Many dolphins live here year-round, and scientists can identify dolphins using their dorsal fins!



Draw a line to match the dolphin fins.

Be careful! They may have picked up a new marking over time.



A dolphin's fin can get "marks" and "notches" over time from playing or fighting with each other, scratches from oysters, and even from boats or fishing gear.



Leaf Match Up

Leaves at the Lower Suwannee come in many different sizes, shapes and colors. They are a one way to know what type of tree you're looking at.

Can you find leaves on the ground from several different trees? Draw the pattern of each leaf on your paper and try to match it to the leaves on the edge of the page. You can either trace the leaf or make a leaf pressing.

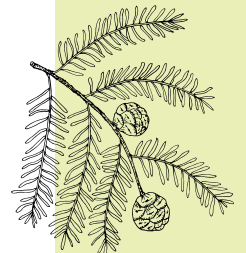


How to Make a Leaf Pressing

Hold the leaf against the backside of your paper and firmly press your pencil or a crayon against the front-side of the paper. Color over the leaf. Soon you'll be able to see the veins of the leaf and it's texture.



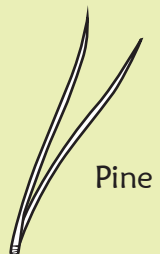
Oaks



Cypress



Sweetgum



Pine



Magnolia



Willow



Citizen Science

Anyone can be a scientist, like you! You can help Refuge scientists learn more about the diversity of plant life in this Refuge. One experiment scientists do is

called a grid test. A **grid test** helps find out if an area has a lot of different plant species which can indicate a resilient ecosystem.

To perform a grid test. Map a pretend square on the ground **anywhere** outside. Your square can be the same size as the graph paper below or it can be bigger. Sketch and count what you see in your square. Try to identify all the plant species or take a picture and record your observations. A lot of different plants means high diversity.

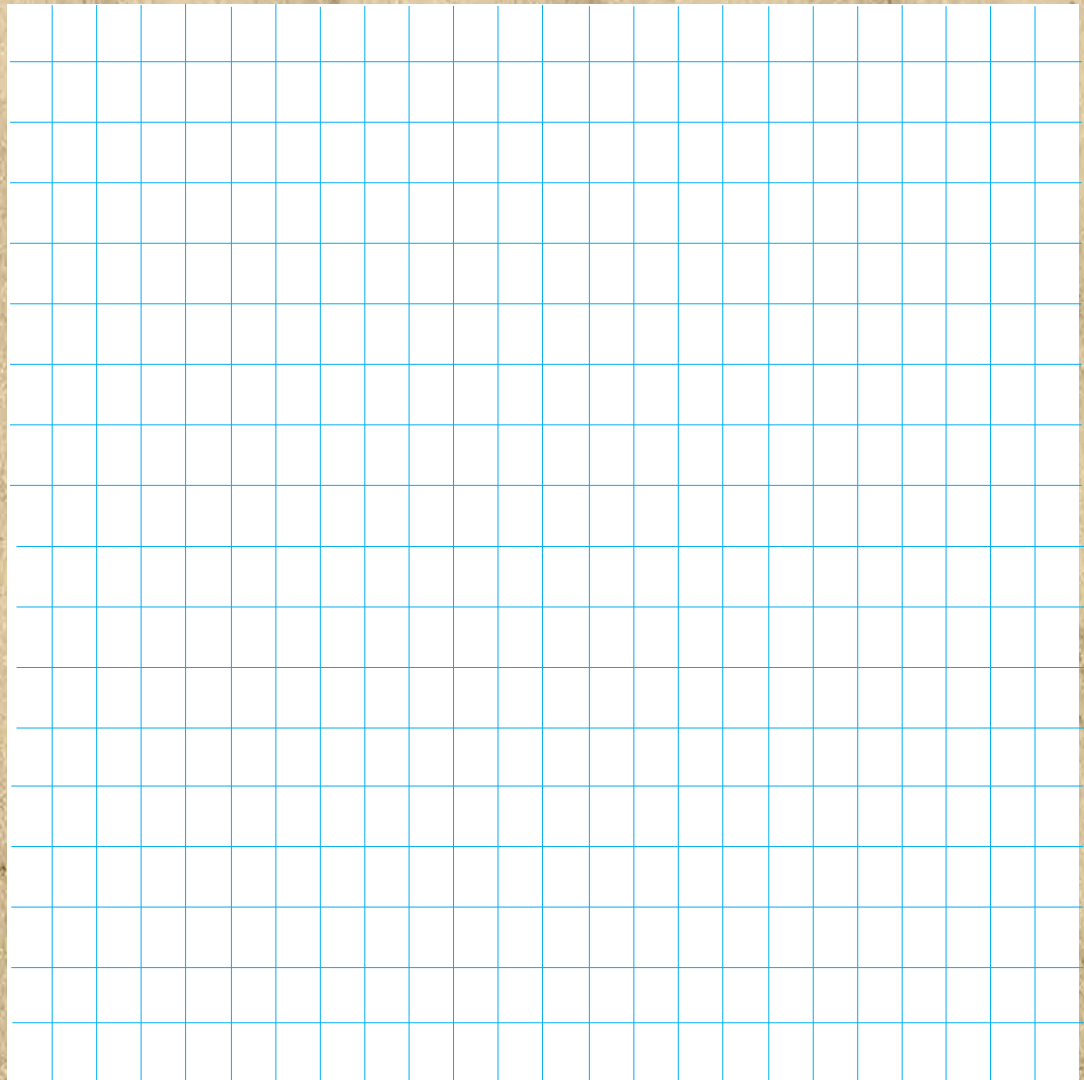
Species 1- Name: _____ Quantity: _____

Species 2- Name: _____ Quantity: _____

Species 3- Name: _____ Quantity: _____



Example



Knowledge helps natural resource managers set goals that improve wildlife habitat.

Learn more about grid test learning tools by searching the internet for Simpson's Index or Shannon-Weiner Index.



Scavenge for Answers Bingo

Write or draw what you discover!





<input type="checkbox"/> Name something not normally found in nature	<input type="checkbox"/> Find something that is your favorite color	<input type="checkbox"/> Measure the height of a flower above ground	<input type="checkbox"/> Find something that is bigger than you
<input type="checkbox"/> See something with wings	<input type="checkbox"/> Identify a source of water	<input type="checkbox"/> Find something rough	<input type="checkbox"/> Hear a bird song
<input type="checkbox"/> Draw a leaf from a tree	<input type="checkbox"/> Find something smaller than you	<input type="checkbox"/>  Wave to a fiddler crab	<input type="checkbox"/> Find something that smells
<input type="checkbox"/> Find a plant or animal that lives in water	<input type="checkbox"/> Name the colors of a butterfly you see	<input type="checkbox"/> Find nuts or seeds	<input type="checkbox"/> Find something smooth





Moth or Butterfly?

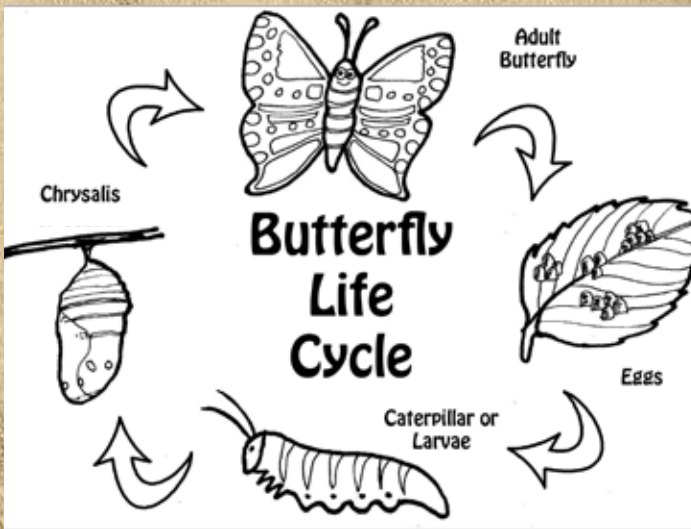
Butterflies and moths are not only beautiful, they are important pollinators and help plants create seeds. Can you tell a moth from a butterfly?

Moth	Butterfly
	
Active at night (nocturnal)	Active during the day (diurnal)
Dull colors (not always)	Bright colors
Wings rest at their sides	Wings rest together and upright
Feathered or pointed antennae	Straight and clubbed antennae
Thick body	Thin body

Fun Fact from Freddie Fiddler Crab



Over 90 butterfly species have been identified and photographed on the Lower Suwannee National Wildlife Refuge! View them on our website 



Fill in the blanks using the Butterfly Life Cycle diagram:

This _____ or _____ will end up being a beautiful butterfly.

The last step before the butterfly emerges is known as a _____.

Plants need help moving their pollen between flowers so they can make seeds. **Mark** everything in this list that helps pollinate Refuge plants.

<input type="checkbox"/> Ant	<input type="checkbox"/> Hummingbird
<input type="checkbox"/> Bat	<input type="checkbox"/> Mosquito
<input type="checkbox"/> Bee	<input type="checkbox"/> Moth
<input type="checkbox"/> Beetle	<input type="checkbox"/> Wasp
<input type="checkbox"/> Butterfly	<input type="checkbox"/> Wind
<input type="checkbox"/> Fly	



Plants that Eat Insects!

Some plants “eat” insects (and even small animals). They are called **carnivorous** (meat-eating) plants.

So, why do carnivorous plants consume bugs? It is an **adaptation** to living in an area with very poor soil. Most plants need water, sunlight, and soil with lots of nutrients to survive. Carnivorous plants can get their nutrition from the fluids and soft body parts of insects instead of soil and water.

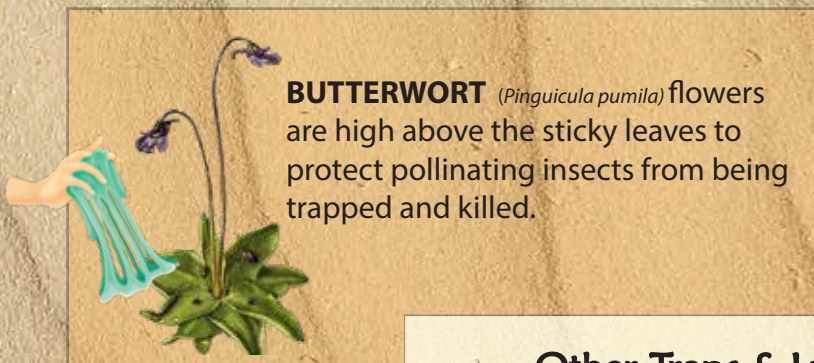
Look for **butterworts, sundews and bladderworts**. Carnivorous plants are special to the Refuge because we have three of the five types found anywhere in the U.S.



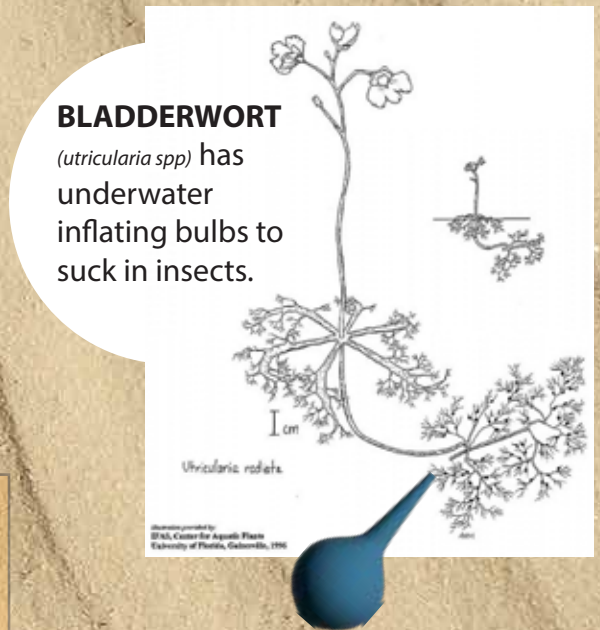
Go to the next page to **build your own hungry carnivorous plant** using the lures and traps shown below—or make up your own!



A **SUNDEW** (*Drosera capillaris*) has sticky leaves with droplets that look like dew to attract thirsty insects.



BUTTERWORT (*Pinguicula pumila*) flowers are high above the sticky leaves to protect pollinating insects from being trapped and killed.



BLADDERWORT (*utricularia spp*) has underwater inflating bulbs to suck in insects.

Other Traps & Lures Used by Carnivorous Plants



smells attractive to insects



slippery surface



digestive chemicals released on contact





Build Your Own Carnivorous Plant

Now that you have picked lures and traps, draw your species below.

Your New Species Name: _____



Shell Mound Time Travel

Shell Mound is a horseshoe-shaped archaeological site that was once a special gathering place for Native Americans.



Walk the mound trail or visit friendsofrefuges.org/shell-mound-trail.html to learn the answers.

The people of Shell Mound used aquaculture to maintain their oyster reefs. Today, Cedar Key is famous for _____ aquaculture. (Hint: a type of shellfish but not oyster)

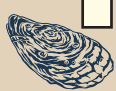
Shell Mound people ate lots of shellfish. What kinds of shells do you see as you walk around the mound? Check them:



clam



whelk/
conch



oyster



mussel

How tall is Shell Mound?

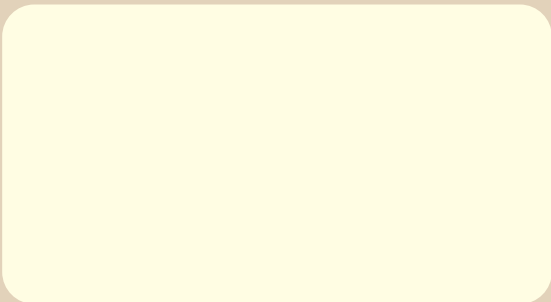
Shell Mound was a place of celebration but other nearby places were also important to the residents. From the fishing pier, can you see the former cemetery or fish trap?

In your neighborhood, what buildings, other than homes, are important for your community?

What years was Shell Mound busy with activity and gatherings?

What are some of the foods people ate here? (circle all that apply)
a) mullet b) horse c) oysters d) birds

Today, no housing structures remain but scientists know they were here. *In the space below, draw the type of house you would build with nearby materials.*



Shells are artifacts when they are near mounds like Shell Mound.

It is OK to remove shells from Shell Mound?

Yes No

(Circle the correct answer)

What is one possible reason people abandoned Shell Mound? *Unscramble the answer:*
MITAELC GAEHCN



Archaeologists learn about people who came before by looking at their trash. At Shell Mound they found lots of refuse from big meals- bones, shells and broken pots. **Connect the dots** to reassemble the makings of a feast.



2 ●

10 ●

3 ●

9 ●

4 ●

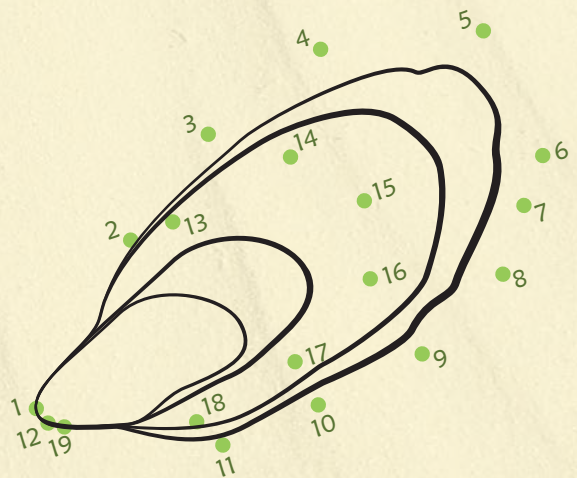
8 ●



5 ●

6 ●

7 ●



1 ●

12 ●

19 ●

2 ●

3 ●

13 ●

14 ●

15 ●

16 ●

17 ●

18 ●

10 ●

11 ●

9 ●

4 ●

5 ●

6 ●

7 ●

8 ●



Pinelands Puzzler

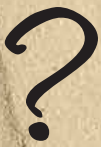
Read the story: You've decided to explore one of the unique and endangered habitats on the Refuge.

Hiking through the pinelands, you come across a cluster of pine trees whose trunks are black near the ground and normal up above. Then you see that some of the trunks are black on only on one side.

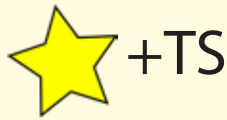
"Isn't that strange?" you mutter to yourself as you walk on, careful not to trip on tree roots.

Pinecones are littered everywhere, but a few look like someone tossed them into a campfire. Looking closer, you notice the soil is black too, but with fresh green shoots of grasses poking up.

OK, that's it! It's been at the back of your mind, but now you're positive. A fire burned through here! But was it an accident or on purpose?



Solve the puzzle to find out who or what caused the fire. Write answers on the lines below. Use the combination of letters and pictures to make words. It may be helpful to "read" the puzzle out loud. Some of the pictures make the sound of the word, but are spelled differently. Be sure to note the plus or minus signs to add or subtract letters. (The arrows show what part of the picture to use.)



+TS



+S



-F

3-RE



-P

SP+



-H



-N +



-HA.



+S

ST+



+S

2



+P

3-RE

10-T + V +



+



+T

H +



-S + THY.

Freddie says:
Fires are good for the pinelands because they renew the soil, spread new seeds, and make room for new plants to grow and wildlife to forage.



For Generations to Come

Part of being a Junior Ranger is helping to protect important places like the Lower Suwannee Refuge. To do this when exploring, leave everything just as you found it. This helps preserve the eco-system for its animals and other people who want to enjoy nature. Taking one rock or dropping a soda can may seem like a small thing, but if everyone does, it can add up to a big impact.



Read the sentences below and write or draw what you think would happen to the Refuge if each visitor acted like this.

What would happen if . . .

. . . each Refuge visitor collected a few shells or rocks?

. . . each Refuge visitor threw trash on the ground?

. . . each Refuge visitor dug up a plant or collected seeds?



You can help!

Remember . . . leave only footprints! . . .take only pictures! . . .make only memories!



Where to Take your Junior Ranger Book to be Verified

--- Dixie County Access Points ---

Suwannee Library Technical Center

21340 HWY 349
Suwannee, FL 32692
(352) 542-8320

Hours:

Monday	Closed
Tuesday	10AM-5PM
Wednesday	12-5PM
Thursday	10AM-5PM
Friday	12-5PM
Saturday	9AM-1PM
Sunday	Closed

--- Levy County Access Points ---

Refuge Headquarters (call in advance)

16450 NW 31 Place
Chiefland, FL 32626
(352) 493-0238

Hours:

Monday	7AM-4:30PM
Tuesday	7AM-4:30PM
Wednesday	7AM-4:30PM
Thursday	7AM-4:30PM
Friday	7AM-4:30PM
Saturday	Closed
Sunday	Closed

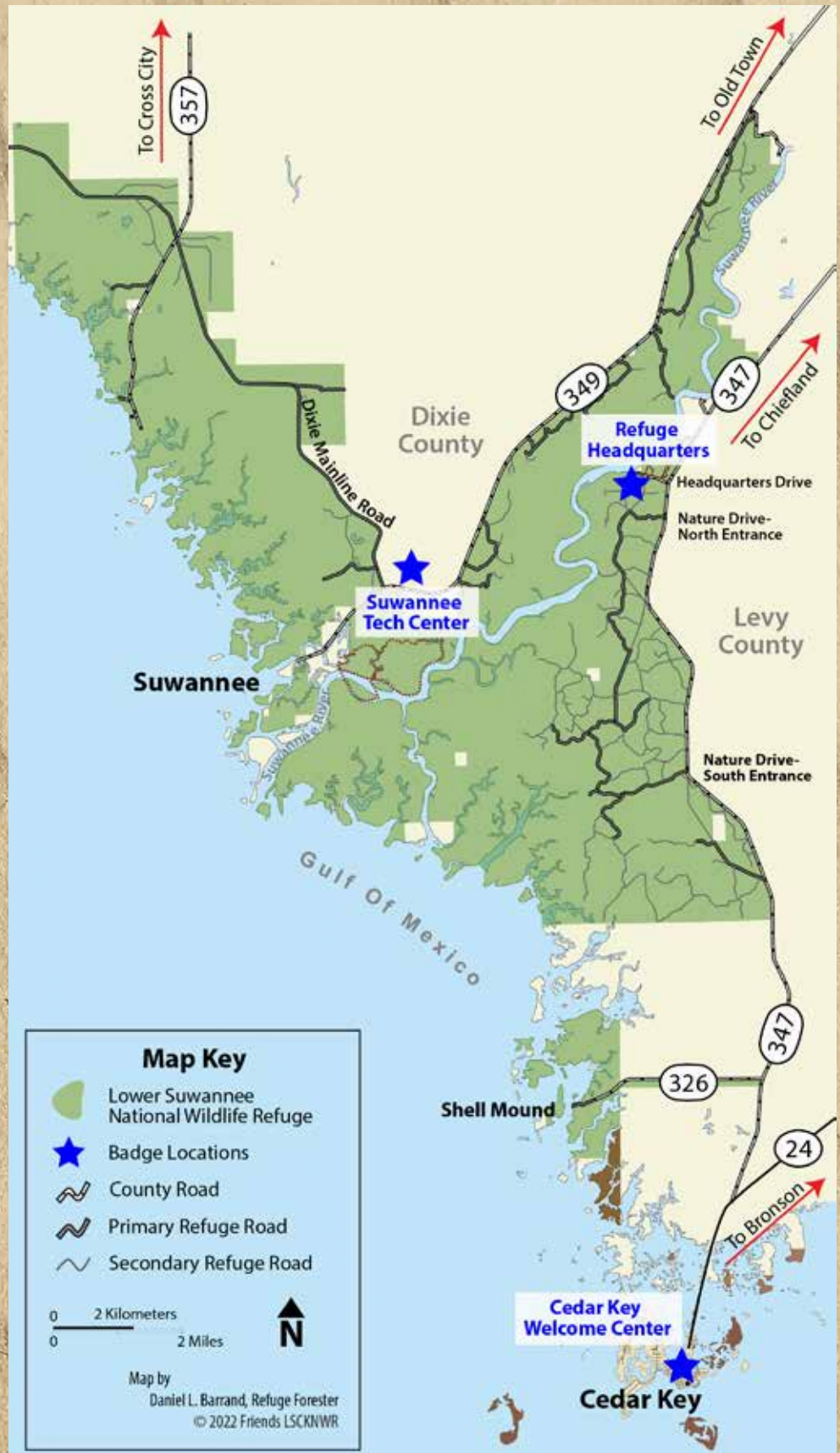
Cedar Key Chamber of Commerce

Welcome Center

450 2nd St
Cedar Key, FL 32625
(352) 543-5600

Hours:

Monday	10AM-4PM
Tuesday	10AM-4PM
Wednesday	10AM-4PM
Thursday	10AM-4PM
Friday	10AM-4PM
Saturday	10AM-4PM
Sunday	10AM-2PM



Lower Suwannee National Wildlife Refuge Junior Ranger Pledge



I, _____
Write Your Name Here pledge to protect
the wildlife and environment of the Lower Suwannee
National Wildlife Refuge to the best of my ability. I will
not approach, interfere with, or feed wild animals on
the Refuge. I will not litter. I will not collect rocks, shells,
seeds, artifacts, or any other object other than litter on
the Refuge. I will show by my good example what it truly
means to be a Junior Ranger.

Certified by: _____

Junior Ranger: _____

Date: _____



Credits

Designed and published by the Friends of the Lower
Suwannee and Cedar Keys National Wildlife Refuges

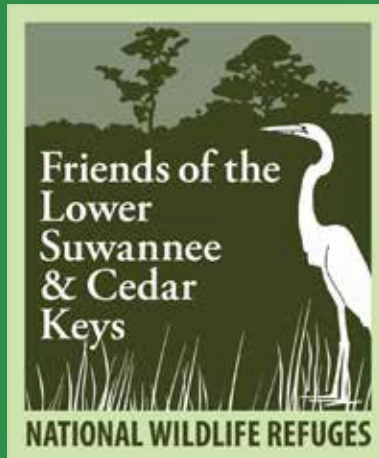
PO Box 532

Cedar Key, FL 32625

friends@friendsofrefuges.org

Friends is a nonprofit volunteer corporation that
supports the Refuges and their work to conserve the
region's wildlife and the places they need to thrive.

Publishing is just one of the functions we perform
to enhance the quality of your visit to our Refuges.
Visit our website, friendsofrefuges.org to learn more.



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