Lower Suwannee 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. Need help? Ask your parents, a Friends member, a Refuge or library staff member, or check the Internet! You will need to visit the Refuge with your family 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

Look for your age icon in the booklet to know if you should complete that activity to earn your Junior Ranger badge.

Butterfly - ages 5-8

Alligator - ages 9-12

Swallowtailed Kite - ages 12 & up

Freddie Fiddler Crab says, "Make sure to 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!"

Getting Started

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! This journal will help you get started on your adventure here.

How many acres is your home site? _____	How many times would it fit into the Refuge? _____

My Adventure on the Refuge

Date I was here: _____

What was the weather like? _____

_____

What was my favorite thing? _____

_____

_____

Biggest thing I learned: _____

_____

_____

The Refuge is like my home area because: _____

_____

_____

The Refuge is different from where I live because: _____

_____

_____

We're All About Water

The land that rain, marshes, creeks or springs run through to supply a river is called a *watershed*.

SUWANNEE

WITHLACOOCHEE

ALAPAHA

SANTA FE

SUWANNEE RIVER

What keeps water clean as it flows to the river?

- Healthy plants
- Clean soil

What happens when roads & development stop fresh water from reaching the river?

Salty water intrudes from the Gulf, changing which animals and plants can live here.

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.

How would you be affected if clean water couldn't flow properly to the river?

_____

_____

_____

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

_____

_____

_____

Gulf of Mexico

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 the same size as the graph paper below. Sketch, count, and measure what you see in the square. Try to identify all the plant species or take a picture. Then answer the questions.

Species 1- Name: _____ Quantity: _____Size of largest: _____

Species 2- Name: _____ Quantity: _____ Size of largest: _____

Species 3- Name: _____ Quantity: _____ Size of largest: _____

A lot of different plants means high diversity.

Was your grid test in a diverse area? Yes ___ No ___

Perform the same test at home. Is the Refuge more or less diverse? More___ Less___

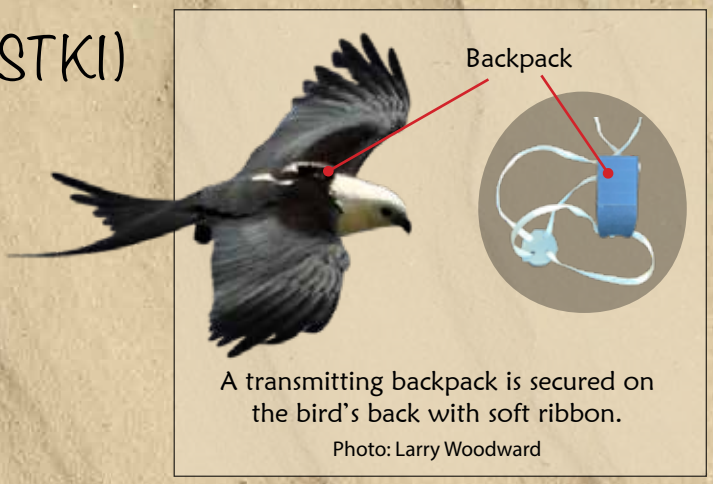
Scavenge for Answers

Write or draw what you discover!

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

Swallow-tailed Kite (STKI)

STKIs make 10,000-mile annual round-trip migrations between their Florida breeding grounds and Brazil.



A transmitting backpack is secured on the bird's back with soft ribbon.
Photo: Larry Woodward

Two birds that hatched on the Refuge are outfitted with small backpacks that constantly transmit their location via cell-phone towers. The journey takes two months each way even for these strong fliers! The forests they go to in Brazil are similar to where they hatched in Florida and they always return to our Refuge to nest even if they get blown off-course by a storm. Understanding migration is important for the conservation of the places where STKIs rest and eat. STKIs' summer nests are protected in the Refuge, but can you imagine flying 5,000 miles to discover your winter home had been lost to development?

A voyage transmitted by Suwannee II, a female STKI, courtesy of the Avian Research and Conservation Institute.

Fun Fact from Freddie Fiddler Crab

A Swallow-tailed Kite can fly up to 25 miles per hour. They chase dragonflies or pluck frogs, lizards, and even snakes from tree branches.

How long did it take you to get from your home to the Lower Suwannee Refuge? _____

How many miles did you travel? _____

Going the same speed you did to get here, how long would it take you to travel 5,000 miles from the Refuge to Brazil? _____

One of a Kind

Few people ever see this elusive and fearsome-looking turtle. Photo: Viviana Ricardez

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.

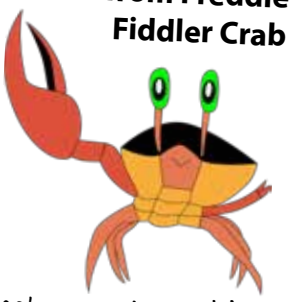
- It is one of the largest freshwater turtles in the world growing up to 190 pounds! As an adult, its large **size protects it from predators**, including alligators!
- It has a **large head and powerful jaws** which are used to crush prey.
- A **spiky but streamlined shell** protects it while allowing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

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

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.

Be a Nature Explorer

The Suwannee alligator snapping turtle has special qualities that make it different from other turtles. These are called **adaptations** and help a species become more suitable for its environment.

Imagine that you are an explorer who has just discovered a completely new species . . .

1. Describe and/or draw your new species.

2. What special adaptations did it develop to live in the environment where it is found?

Bonus Question: Did you discover anything (insect, bird, plant, animal) on the Refuge you've never seen before? How did discovering it make you feel? Describe it or draw a picture of it here.

Plants that *Eat* Insects!

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

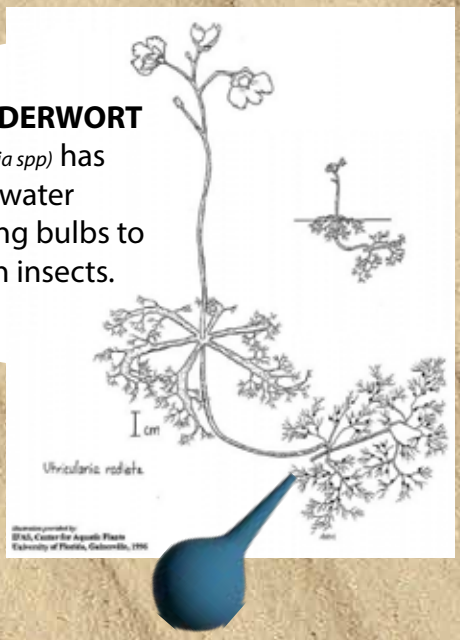
So, why do carnivorous plants consume bugs? It is an **adaptation** to living in an area with very poor soil. Most plants need water, sunlight, and soil with lots of nutrients to survive. Carnivorous plants can get their nutrition from the fluids and soft body parts of insects instead of soil and water.

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

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.

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

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



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

Other Traps & Lures Used by Carnivorous Plants

smells attractive to insects

slippery surface

digestive chemicals released on contact

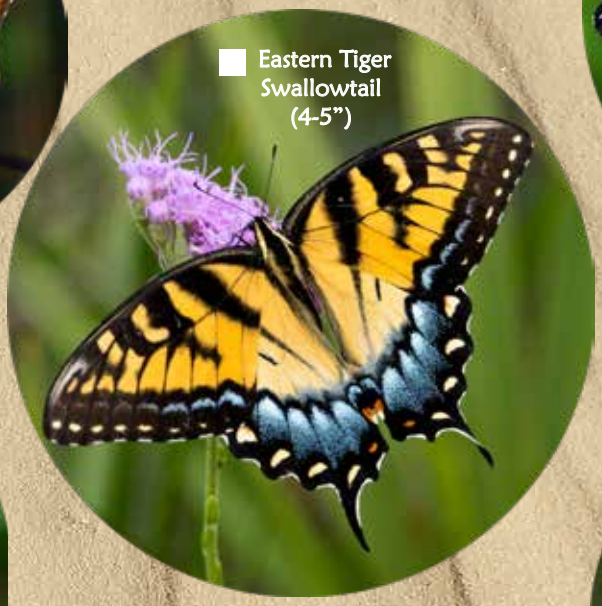
Build Your Own Carnivorous Plant

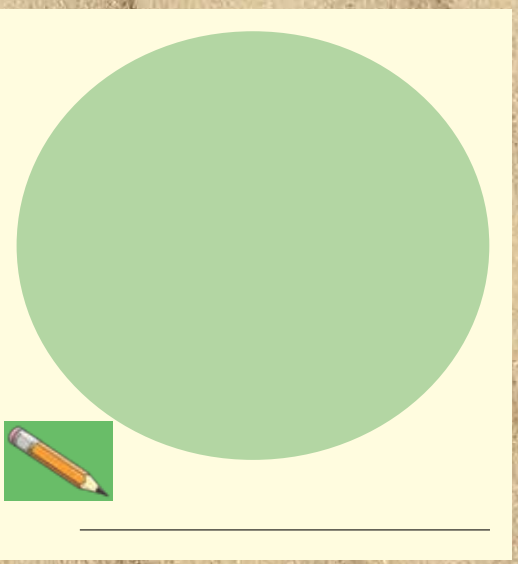
Now that you have picked lures and traps, draw your species below.

Your New Species Name:_____

Butterfly Hunt

How many can you identify? Look for color, wing patterns, wingspan (size). Check-mark those you see. If you see another kind of butterfly, describe or draw it in the empty circle. If you can discover its name, write it below your picture. (Use the ruler on the Citizen Science page to estimate size, but be sure **not to touch the butterfly.**) Photos: Barbara Woodmansee





Butterfly Science

A **lepidopterist** is an insect scientist who studies butterflies and moths. You can become a student butterfly scientist by seeing if you can detect the parts and life cycles of the butterflies you see on these pages, on the Refuge, or at home.

Photos: Jane Connors

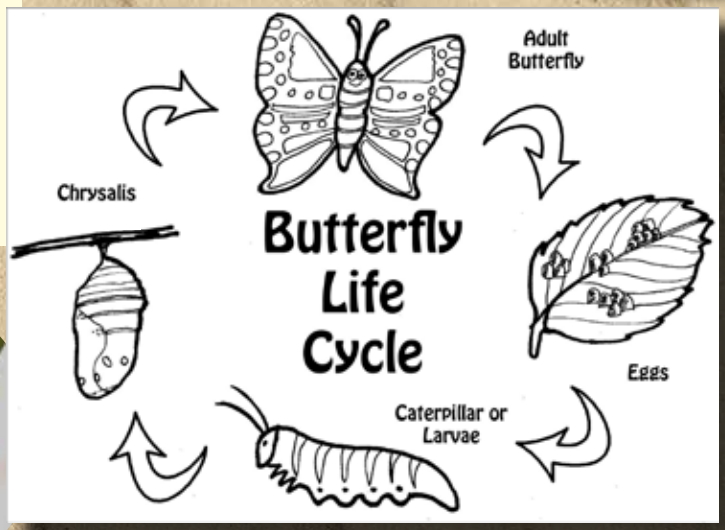
Fun Fact from Freddie Fiddler Crab

Every butterfly has special plants it chooses to lay its eggs called host plants.

Fill in the blanks using the photos & the Butterfly Life Cycle diagram:

This striped _____ or _____will end up being a beautiful Queen butterfly.

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



Can you find the following body parts from the previous page's pictures?

- ☐ Legs (all butterflies have 6 legs, often seen only when the butterfly has landed)
- ☐ Wings (a butterfly has at least 4 wings although they may look like just 2)
- ☐ 2 antenna on its head
- ☐ Proboscis to sip nectar (Hint: it looks like a long, very thin, curved straw)
- ☐ Head
- ☐ Thorax (upper body)
- ☐ Abdomen (lower body)

Shell Mound Time Travel

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

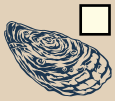
Walk the mound trail or visit friendsofrefuges.org/shell-mound-trail.html to learn the answers.

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?

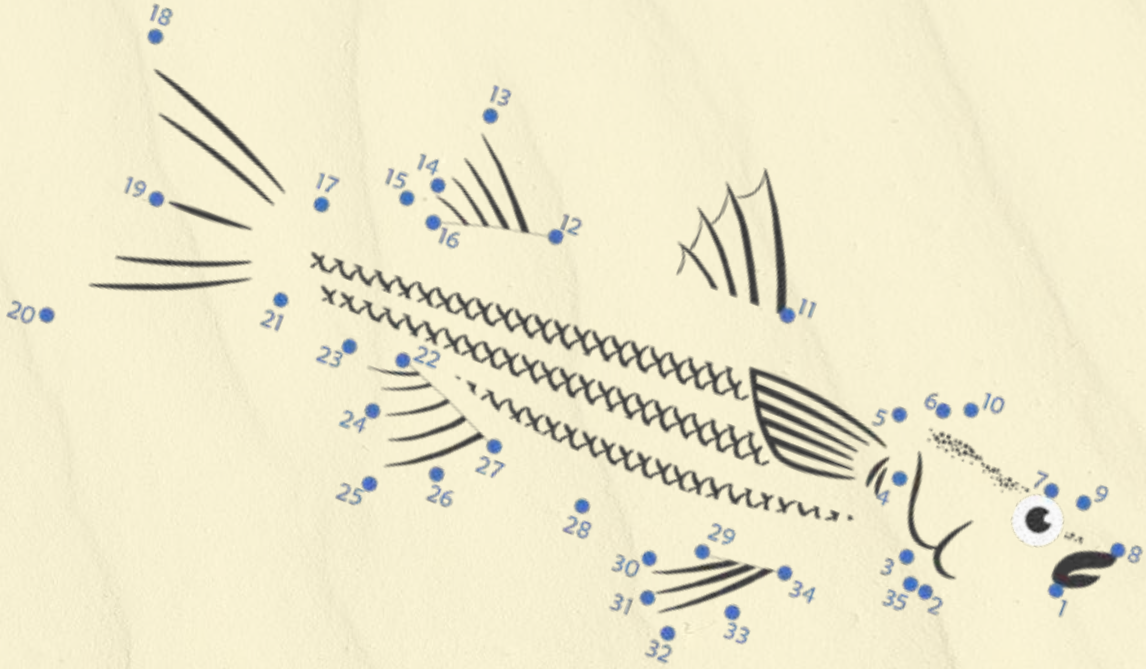
Yes No

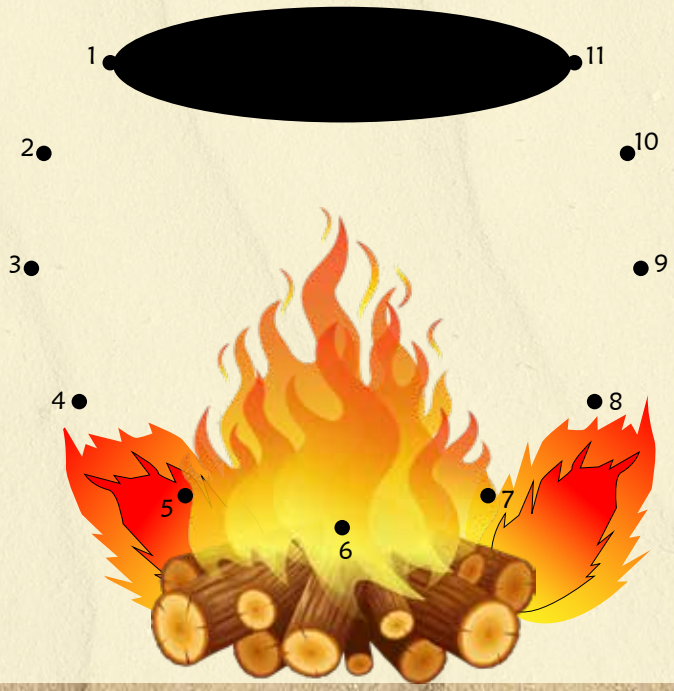
(Circle the correct answer)

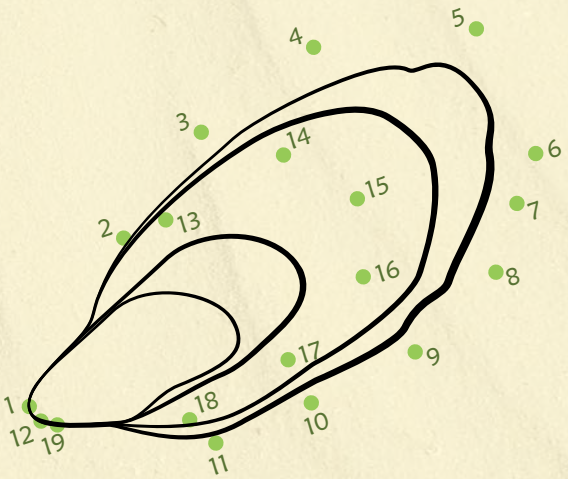
What is one possible reason people abandoned Shell Mound? *Unscramble the answer:* **MITAELC GAEHCN**

_____

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.







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

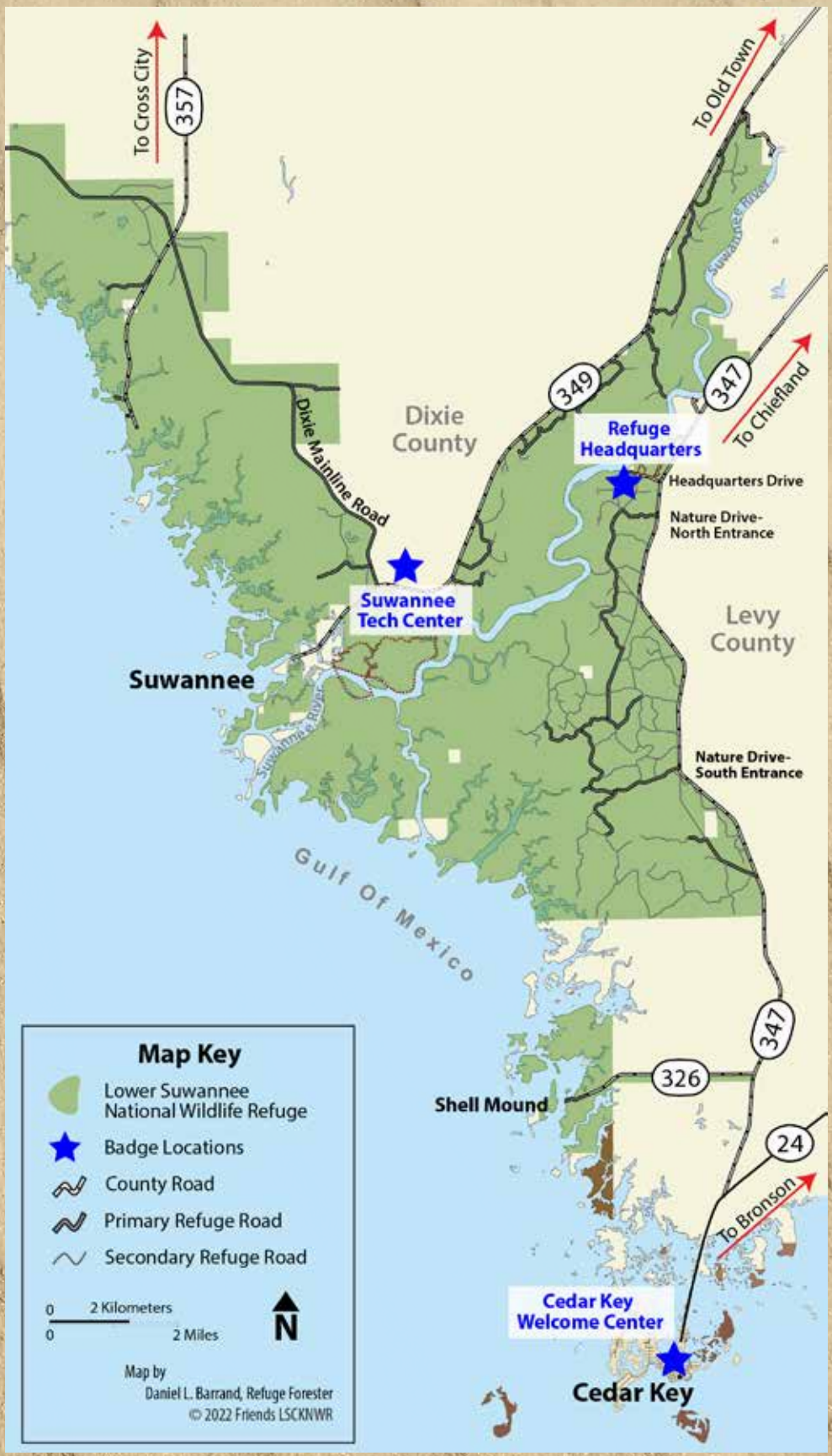
--- Levy County Access Points ---

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, _____ pledge to protect
Write Your Name Here

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

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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.