

Merritt Island National Wildlife Refuge

Junior Refuge Ranger Booklet





So you want to
become a Junior
Refuge Ranger?

Complete this activity booklet and return it to the Visitor Information Center where a staff member or volunteer will review it with you then you will receive your official

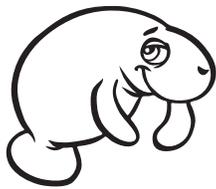
**Merritt Island
Junior Refuge Ranger Badge!**

Earning Your Junior Refuge Ranger Badge

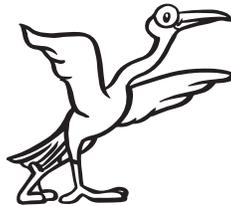
To earn your badge and certificate, complete all the activities required for your age class. When you have completed all the requirements to become a Junior Refuge Ranger, bring your completed booklet to the Visitor Center, Merritt Island National Wildlife Refuge. A staff member or volunteer will review the booklet with you and award you a certificate and badge.

Age Classes

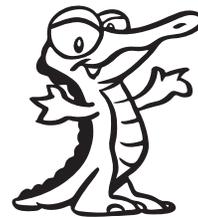
There are symbols located at the bottom of each page to show what ages the activity is best suited for.



Manatee (ages 4-7):
Complete at least 6
of the 21 activities.



Crane (ages 8 -10):
Complete at least 8
of the 21 activities.



Alligator (ages 11+):
Complete at least 10
of the 21 activities.

Wildlife Viewing Tips and Ethics

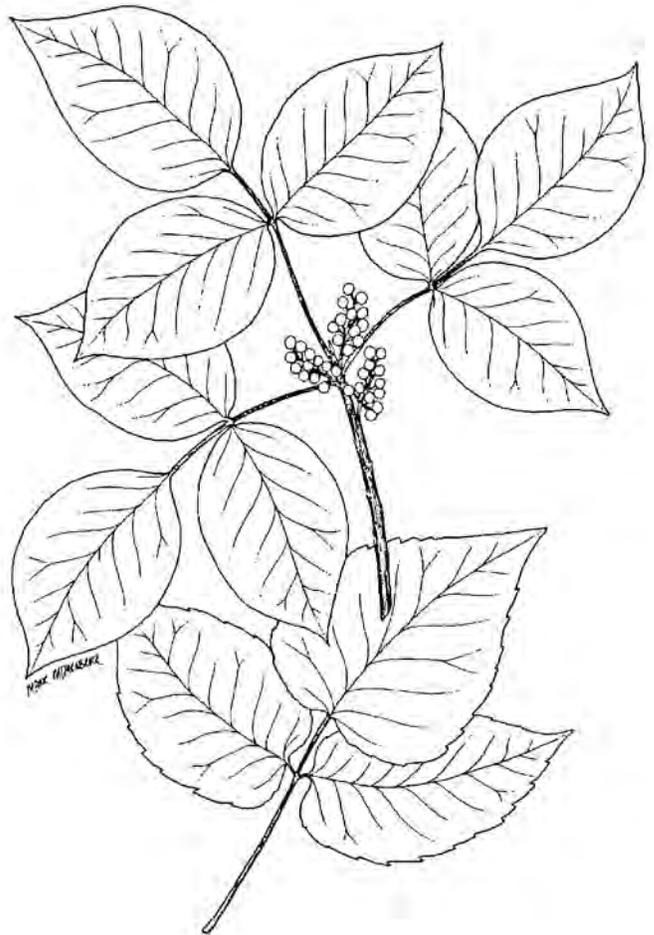
- Be considerate and respectful of wildlife.
- Move slowly and quietly, enjoy wildlife from a distance.
- Do not feed or disturb wildlife.

Rules and Safety Information

- Take an adult with you as you do these activities.
- Stay on refuge boardwalks and trails.
- Wear sunscreen and drink plenty of water.
- Learn what poison ivy looks like. (page 3)

Booklet Activity Checklist

- Refuge Video – page 5
- Refuge Map – page 6
- Refuge Fun Facts – page 7
- USFWS Emblem Color Page – page 8
- Nature Notes – page 9
- Climate Change – page 10
- Black Point Wildlife Drive Search – page 11
- Manatee Deck – page 12
- Prescribed Fire – page 13
- Wildland Fire Protective Gear – page 14
- Tools Wildland Firefighters Use – page 15
- Let's Go Hiking! – page 16
- Gopher Tortoise Color Page – page 17
- Habitat Comparison Activity – page 18
- Shadow Catching – page 19
- All Plants Have Special Features! – page 20
- Pishing – page 21
- Bird Olympics – page 22
- Scrub Jay Coloring Page – page 23
- Scavenger Hunt – page 24
- Seek and Find – page 25



Poison Ivy

Leaves of three? Let it be!

National Wildlife Refuge System



Can you count how many wildlife refuges are in your home state? _____

How many are there in Florida? _____

Refuge Video

I watched a video, and the name of it was _____.

Refuge Rangers manage habitat, an area that consists of enough food, water, shelter, and living space for plants or animals. Merritt Island NWR has _____ main types of habitat: prairie, pine flatwoods, scrub, and wetland.

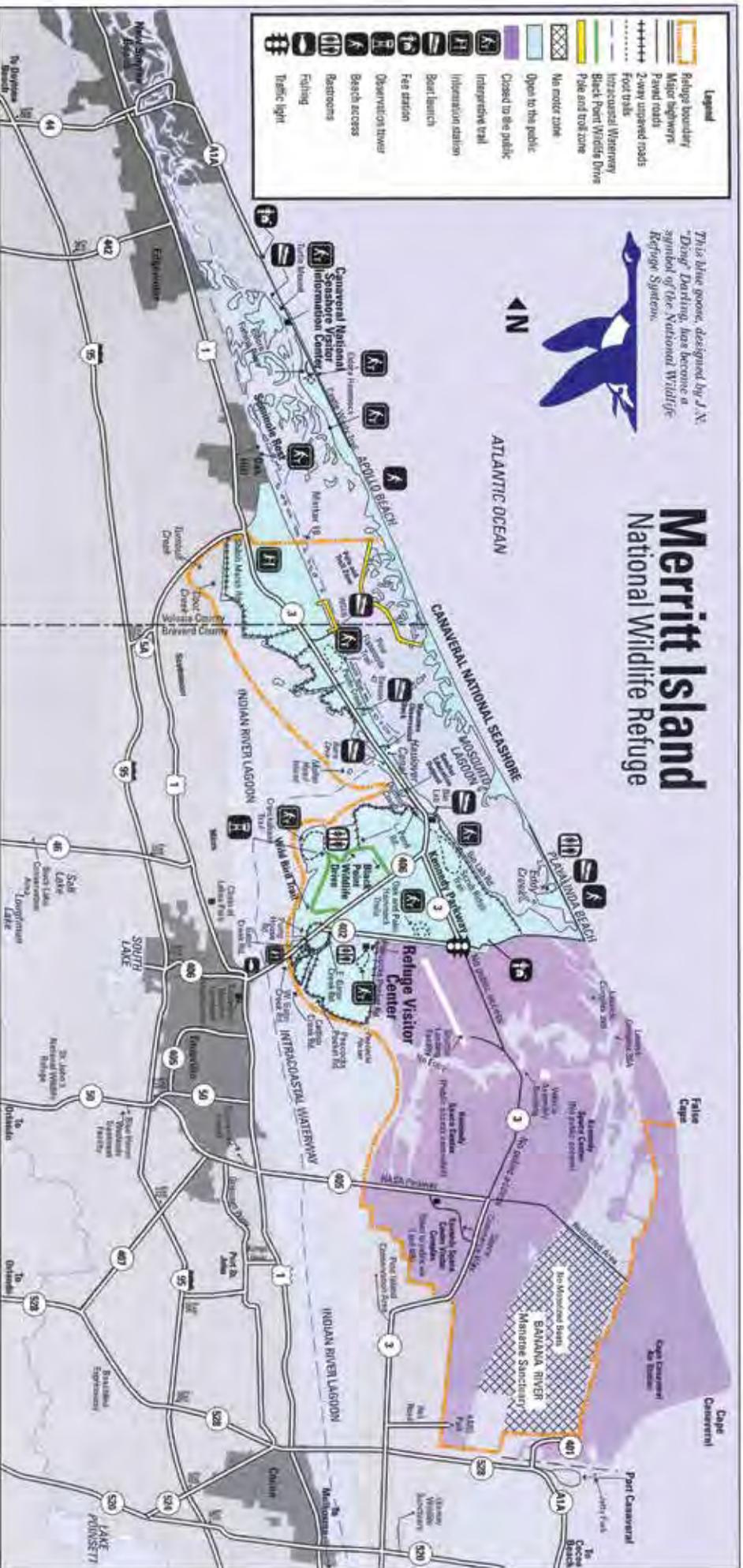
Choose one of the habitats to investigate, and begin your fact finding mission by answering the questions below. (Suggested habitat: Scrub Ridge Trail)

1. Describe what the habitat looks like. What kinds of plants are present?
(Trees, grasses, bushes, wildflowers)
2. Name or draw any animals you see or hear.
3. What would the animals in this habitat eat?
4. Where do the animals in this habitat seek shelter?
5. Determine if there is enough space for all the animals in this habitat to live.
(Note: some animals gather in large groups and may appear cramped. In this case, does the group have enough space to move?)

Please write your answers below:



Refuge Map



Refuge Fun Facts!

The bald eagle was chosen as a national symbol of the United States in 1782.

A bald eagle's eyesight is five to six times sharper than a human's.

The largest bald eagle nest on record was in Florida and measured 9.5 ft. (3 m) wide and 20 ft. (6 m) high. It weighed almost three tons.

Bobcats are excellent swimmers.

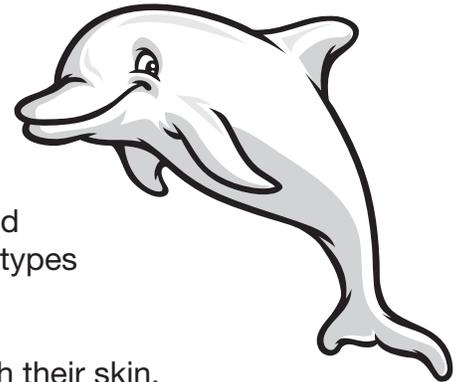
A female bobcat is called a Queen.

Alligators only eat about once a week.

The alligator became the official state reptile of Florida in 1987.

A group of hawks is referred to as a cast or a kettle.

All dolphins are carnivores (meat-eaters). Small dolphins eat fish and squids, while large dolphins like orca eat seals, sea lions and other types of dolphins and whales.



Frogs don't drink water through their mouths; they absorb it through their skin.

The monarch butterfly is the only insect that migrates 2500 miles.

Grey squirrels are pregnant for about a month and a half and typically give birth to a litter of 2-3 pups.

The gopher tortoise is a keystone species

Gopher tortoise burrows can be up to 10 feet deep and 40 feet long.

Gopher tortoise burrows are very important to the animals around them. They are also used by more than 350 different species, some of which are indigo snakes, Florida mice, gopher frogs, burrowing owl and rattlesnakes.



USFWS Emblem



Color in the USFWS Emblem according to the numbers:

1 - Blue 2 - Tan 3 - Orange 4 - White 5 - Yellow



Climate Change: What Am I?

Directions: I am an animal at Merritt Island NWR that is affected by climate change. Draw a line from my picture to the words that describe me and the impact of climate change on my species.



Sea Turtle

I am a bird species that needs open scrub habitat so I can defend my nest against snakes that like to eat my eggs. There is very little habitat left for my kind, and rising sea levels will mean even less habitat for us to survive.



Beach Mouse

I am a marine mammal. I can eat 100 lbs. of plants a day. Warmer water and different salt levels change the plant life in my habitat. It is getting harder to find enough food.



Florida Scrub Jay

I'm a small mammal and I live in a burrow under the dunes on the ocean shore. Extreme storms sometimes flood and kill a whole colony. Merritt Island is the last stronghold of my species.



Florida Manatee

I am a reptile that lives in the ocean, but I return to the place where I hatched to dig a nest in the sand and lay my eggs. Rising seas, stronger storms and erosion mean my eggs may have less of a chance to survive.



Black Point Wildlife Drive Search

How many can you see?



Bobcat



Tri-colored Heron



Brazilian Pepper (Non-native)



Indian Blanket



White Pelican



Sable Palm



Saw Palmetto



American Coot



Black Vulture



Roseate Spoonbill



Feral Hog



Red-Winged Blackbird



River Otter



Alligator



Gulf Fritillary



Great Blue Heron



Marsh Rabbit



Manatee Deck



Find the thermometer that measures water temperature.

What is the temperature of the water? _____

Is it warm enough to see manatees today? _____



Manatee Information

Number of manatees observed: _____

Number of adults: _____

Number of calves: _____

In feet, how long is a newborn manatee? _____

Count the number of:

Motorized boats _____

Non-motorized boats _____

People watching manatees _____

How many of the manatees observed have the scars from boat propellers? _____



Prescribed Fire

Prescribed fire benefits many different types of wildlife by:

- Opening sandy areas for animals to make burrows
- Adding minerals and nutrients which help plants to grow
- Keeping plant height low so scrub jays can observe their predators in the open
- Preventing large wildfires, making it safer for humans

Here are a few animals that benefit from prescribed fires on the refuge.

Can you name some of them?



Choose the correct animal name from below, and place the letter in the box under each picture.

A. Gopher Tortoise B. Beach Mouse C. Eastern Indigo Snake

D. Florida Scrub Jay E. Bobcat



Wildland Fire Protective Gear

Wildland firefighters carry a lot of tools and protective gear for their use and safety.

Match the arrows in the picture with the correct word below,
then place the letter in the arrow on the picture.

- A. Helmet B. Gloves C. Drip Torch D. Radio
E. Fire Resistant Pants F. Fire Resistant Shirt G. Fire Pack



Wildland Firefighter Tools

Here are some of the tools that wildland firefighters use to fight wildfires and conduct prescribed burns.



Helicopter



Fire Truck



All-Terrain Vehicle



Rogue Hoe



Terra Torch



Let's Go Hiking!

Circle the items you think you might need when going on a hiking adventure at Merritt Island National Wildlife Refuge.



Gopher Tortoise Coloring Page

The gopher tortoise here at Merritt Island National Wildlife Refuge is known as a keystone species, a species that has a major influence on the way an ecosystem works. Gopher tortoises dig burrows that are used by many animals such as the beach mouse, the Eastern indigo snake, dung beetles, rabbits, skunks, and lizards, for shelter and protection. If all the gopher tortoises stopped digging burrows, then these animals would not have a place to live. Next time you see a gopher tortoise, remember how its hard work helps other species.



Habitat Comparison Activity

Let's take a hike! OAK & PALM HAMMOCK TRAILS

The word hammock is a Native American term used to describe a cool, shaded place. These hammocks are formed where there is a slight rise in elevation creating more moist soil.

Oak Hammock Trail: As you enter the trail, to the right of the kiosk you will see a large patch of Boston ferns and laurel oaks. Prior to the formation of the refuge, this was once a mobile home park where people planted the ferns and citrus trees. The soil here is dark, indicating a large amount of organic matter and moist soil.

Palm Hammock Trail: This walk will take you through four unique habitats in a short two miles. The first habitat encountered is the oak hammock. The soil here is moist but not wet with the live oak providing shade for various understory plants. Watch for armadillos rooting for insects in the soil. Overhead, listen to the warblers and vireos as they flit through the trees during migration seasons. Walking quietly may reward you with a sighting of the elusive bobcat. Stepping out of the oak hammock, suddenly the sky is unobstructed. You feel the sun beat down on you warming your body and drying the soil.

Scrub Habitat: This is Florida's most endangered habitat. You will notice the dominant plant is now the saw palmetto. Many of these saw palmettos show scorching from a recent fire. Fire from frequent lightning strikes shapes this ecosystem enabling scrub species like Chapman's oak to survive. Watch along the trail for the burrows of the endangered gopher tortoise.

Moving out of the scrub, you enter a small section of palm hammock before entering the marsh habitat. Stepping onto the boardwalk, you notice the soil here is black and wet. The moisture-loving red maple, wax myrtle, and red bay thrive in this area.

Finally, leaving the boardwalk through the marsh, you enter the looped path through the palm hammock. Here you feel the cool shade provided by the cabbage palms. Below the palms you see the shiny leaves of wild coffee. Note the soil here is dryer than the marsh but not as dry as the scrub.

How many habitats did you walk through? _____ Did you see any birds? _____

Did you see an endangered gopher tortoise burrow? _____



Shadow Catching

Look for things that have “cool” shadows.

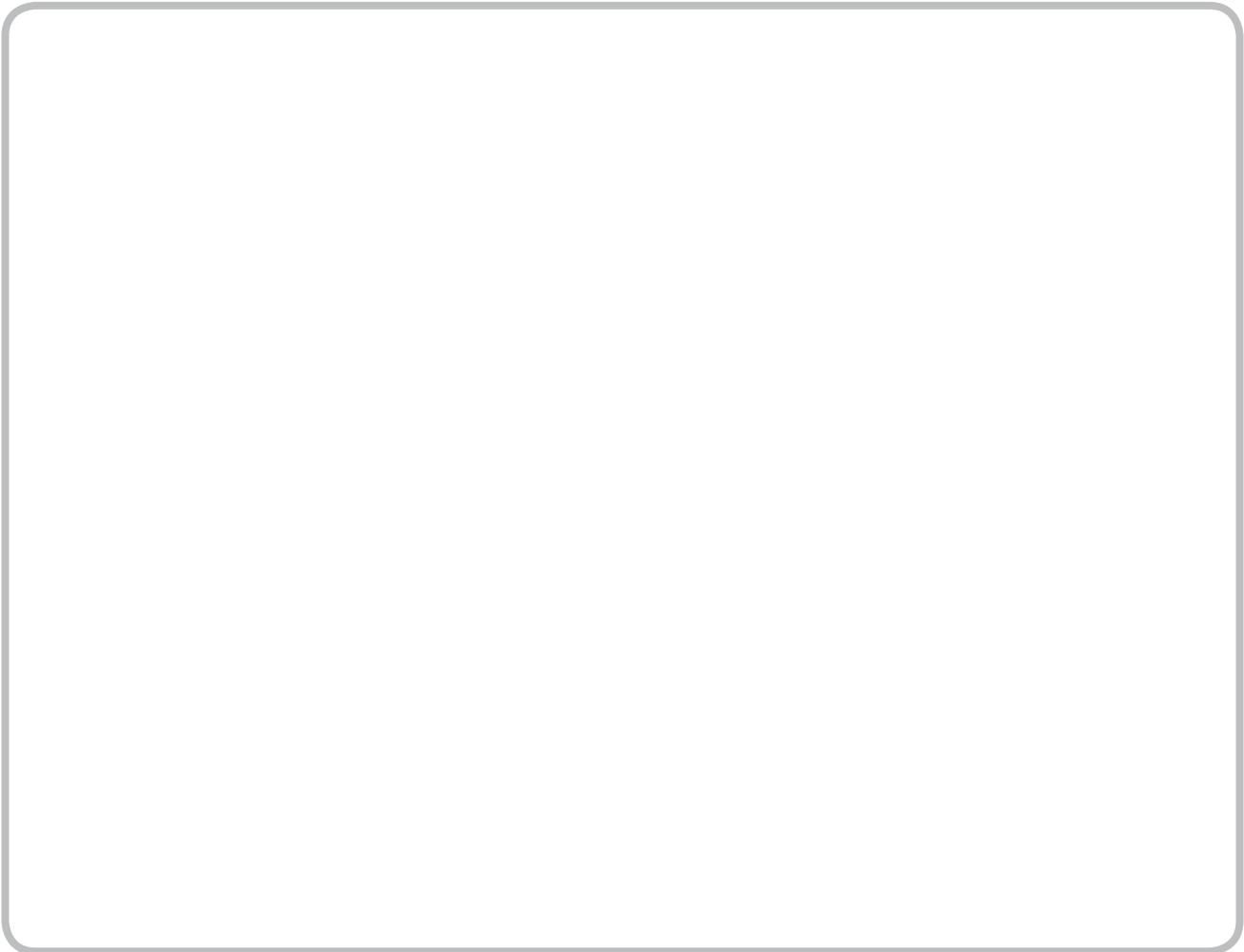
Stop at a sunny spot.

Look for shadows made by small (flowers, grass, leaves) or large (tree, branch) objects.

Place your paper so that a shadow falls on it, and trace it in the space below (if the whole shadow does not fit in the box, just trace part of it).

Describe the object that made this shadow.

Do you know its name? _____



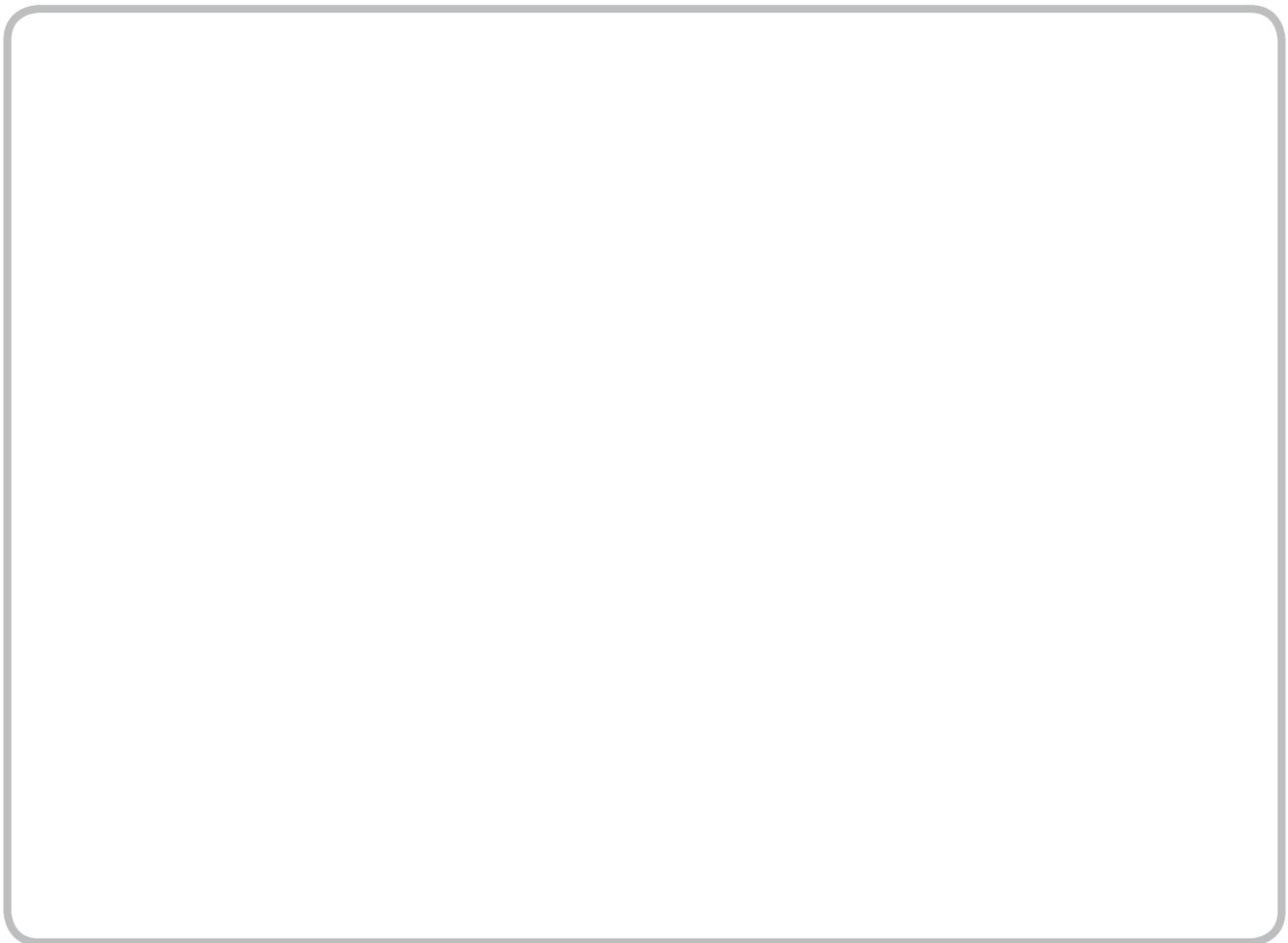
All Plants Have Special Features

All plants have special features called adaptations which help them survive in what can be a very harsh environment. Waxy, hairy leaves help to retain water; deep roots enable the plant to grow after a fire or during a drought; thorns/spines prevent animals from eating the plant.



Find a plant you really like. Look at it as though you've never seen it before! Use the eye of a photographer to take "pictures" in your mind of the parts of the plant. Use an artist's eye to see colors, shapes, and textures. Use an ant's view to examine the leaves, flowers, or seeds. Step back to see the plant sway in the wind.

Draw your plant below, remembering not to pick or collect any plants. They provide homes for wildlife!



Pishing

There is a bird call you can do with no special tools. You only need your MOUTH!

When you want to attract birds to you, make a “pishing” noise. This sound makes an “alarm call” that many kinds of birds know. After hearing it, they may fly near you to see what’s happening.

Here are some simple sounds you can start with:

The LOUD pish: PSH....PSH....PSH

The REGULAR pish: SSH....SSH....SSH....SSH

The HIGH pish: SSS....SS....SS....SS

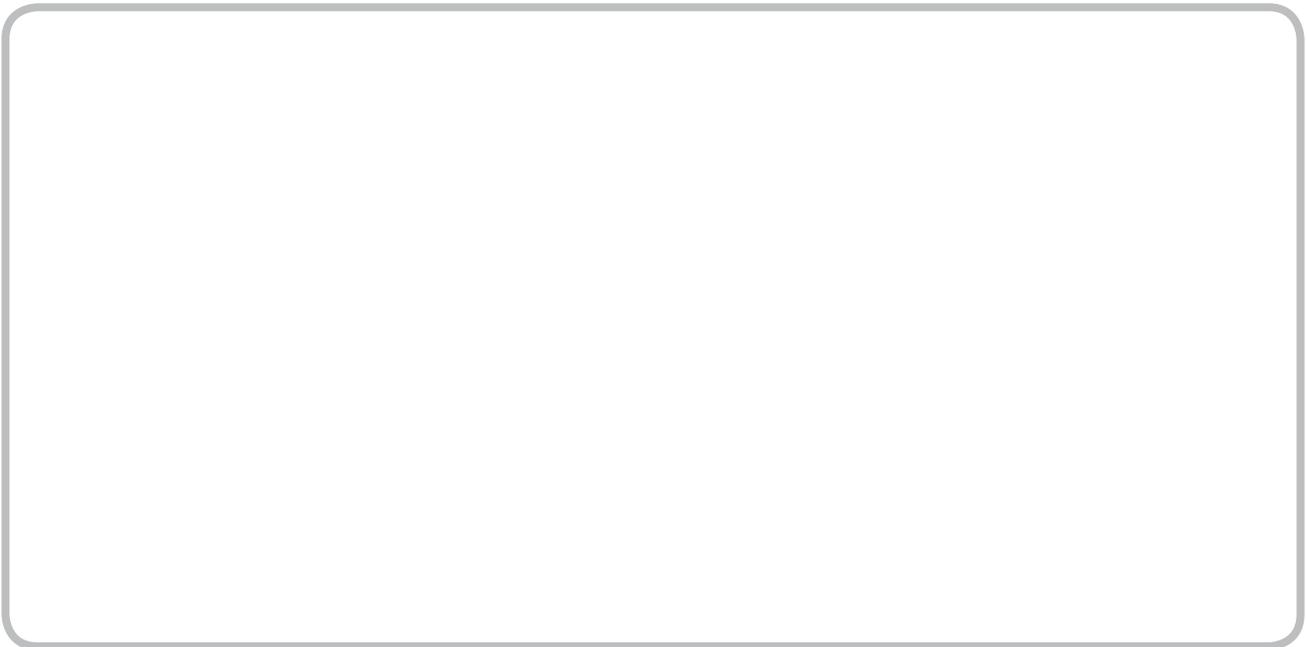
For best results, try this:

1. When you hear birds near you, stand still by bushes or trees to hide yourself.
2. Start pishing—stopping after three or four tries of making the same sound to listen for birds. When birds come close, stay quiet so you can get a good look at them. Different calls work with different birds.
3. Try other beats to find the calls that attract the birds where you are.

Can you name the birds you found? _____

If not, that’s okay. What do they look like? _____

Draw a bird that you saw in the box below.



Bird Olympics

Challenge #1: Winging It!

See how your “flapping rate” compares with birds. Count the number of times you can flap your arms in 10 seconds.

BIRD WING BEATS/10 SECONDS

Crow	20
Peregrine Falcon	43
Hummingbird.....	700

I have a wing beat of _____

Challenge #2: What’s Your Wingspan?

See how your wingspan compares with birds. Have a partner measure your arm span.

BIRD WINGSPAN

Green-winged Teal	23 inches
Red-tailed Hawk.....	4 feet
Florida Scrub Jay	13.5 inches
Roseate Spoonbill	4 feet 2 inches
Bald Eagle	6 feet 6 inches

I have an arm span of..... _____feet _____inches

Challenge #3: Breath Control

Fish-eating birds dive underwater to chase and catch fish.
A cormorant can hold its breath for 15 minutes (900 seconds).

I can hold my breath for _____ seconds.

Challenge #4: Staring Contest: See how your stare stacks up!

An owl can stare for hours while hunting for prey.

I can stare for _____ minutes _____ seconds without blinking.

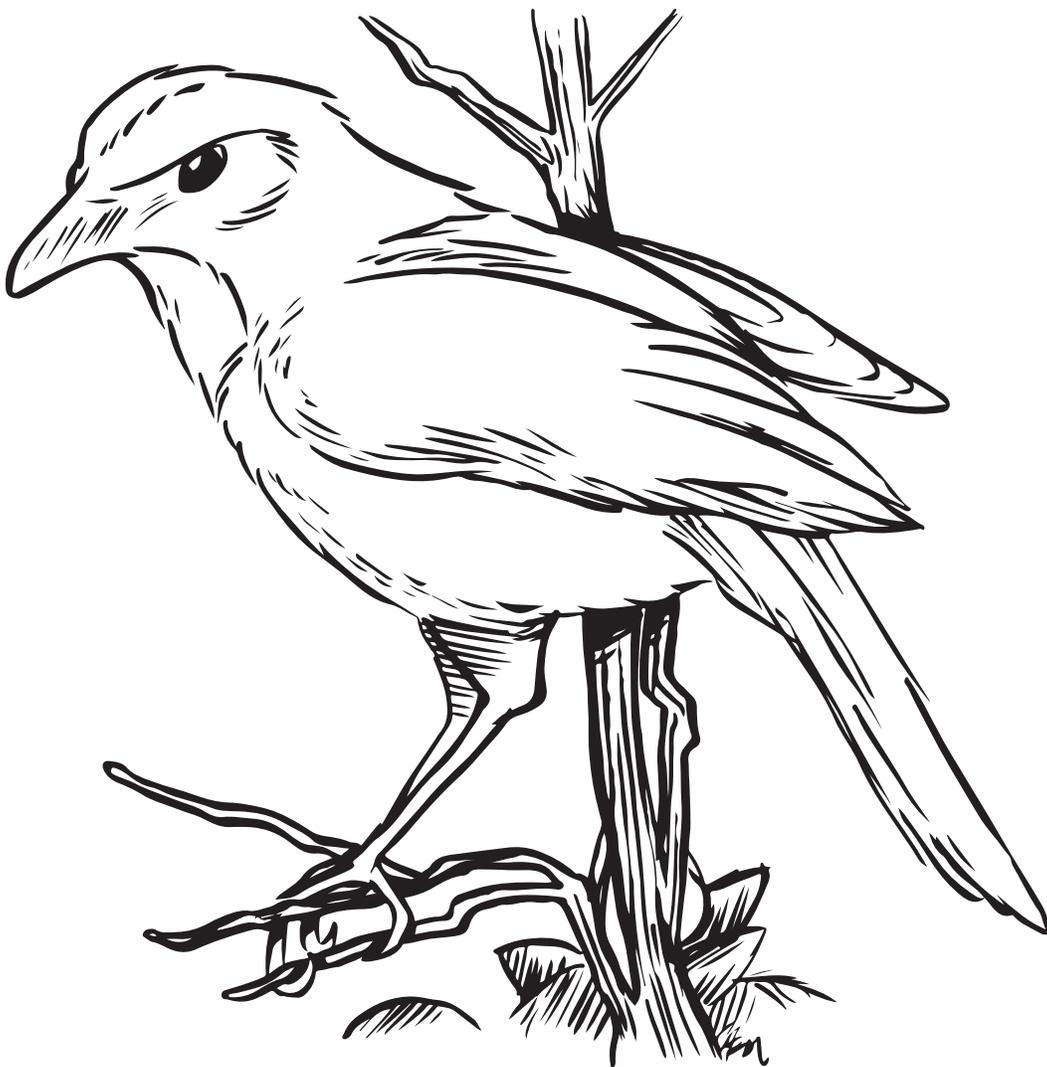
Adapted from: Flying Wild



Scrub Jay Coloring Page

The Florida scrub jay is found only in Florida scrub habitat, an ecosystem that exists here at Merritt Island National Wildlife Refuge. Scrub habitat has dwindled in the past several decades due to an increase in human population leading to habitat destruction. The refuge has made a strong effort at preserving Florida's remaining scrub through applying prescribed fire that mimics nature's frequent wild fires. Fire keeps the trees from growing too high and creates open, sandy areas which are just what the Florida scrub jay needs to survive.

Scrub jays eat a wide variety of acorns, seeds, insects, fruit and berry, tree frogs, snakes, lizards, and young mice.



Scavenger Hunt

I "Sense" a Scavenger Hunt

(circle what you find)



Can you see something:

Red Green Flying Wet Fuzzy



Can you hear something:

Birds Singing Insects Buzzing Wind Blowing

Can you smell something:

Flowers Scat (animal poop) Dead Grass



Can you use your senses to find:

A Nest A Spider Web Flowers A Hole in the Ground



Seek and Find

Merritt Island National Wildlife Refuge, established in 1963, has a unique partnership with Kennedy Space Center (KSC). The refuge is an overlay of KSC, managing 140,000 acres for wildlife and wildlife-based recreational activities.

Search below for words relating to the refuge and Kennedy Space Center.

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

ASTRONAUT
CLIMATE
HABITAT
HAMMOCK

KENNEDY
LAUNCH
NASA
NATURE

RANGER
REFUGE
ROCKET
SPACE



Watch for the Blue Goose

Each national wildlife refuge is identified by a posted sign with the emblem of a “blue” goose. It was designed by J.N. “Ding” Darling and has become the symbol of the National Wildlife Refuge System.



“Whenever you meet this sign, respect it. It means that the land behind the sign has been dedicated by the American people to preserving, for themselves and their children, as much of our native wildlife as can be retained along with modern civilization.”

—Rachel Carson

Look for signs with the Blue Goose, like the one above, as you explore the refuge. How many signs did you see?

Refuge staff sometimes comes across signs that need to be replaced. Did any of the signs you saw need to be replaced? If so, please write down, in as much detail as possible, where the sign is located in order for us to replace the sign.

THANK YOU for helping **YOUR** National Wildlife Refuge!

Merritt Island National Wildlife Refuge Junior Refuge Ranger

Read the pledge below, and turn it in at the Visitor Center.

I promise to help protect Merritt Island National Wildlife Refuge, my community and the earth. I will practice the “pack it in, pack it out” motto by not leaving any trash on the refuge.

I will not feed or disturb wildlife, pick plants, or disturb any living or non-living thing on the refuge. I will always show respect to others and to historical and cultural places.

I will continue to learn about Merritt Island National Wildlife Refuge and other refuges in our great nation. I will help teach others about the great resources found at Merritt Island National Wildlife Refuge and continue to learn about nature.

Junior Ranger Signature

Staff or Volunteer Signature



Visitor Center Hours:

Seven Days a Week: 9:00 am to 4:00 pm, November through March
Closed Sundays, April through October

Merritt Island National Wildlife Refuge

Contact Information:

P.O. Box 2683

Titusville, FL 32781

Phone: 321-861-0667/0669 Fax: 321-861-1276

U.S. Fish & Wildlife Service – Let's Go Outside

<http://www.fws.gov/letsgooutside>

www.fws.gov

Visitor Center longitude and latitude: N28.38.490 W080.44.144

<http://www.fws.gov/merrittisland/>

Email: Merrittisland@fws.gov

In case of emergency, call 321-861-7911 by cell phone.

Kennedy Space Center dispatch will send an ambulance or security.

Special thanks to ...

Merritt Island National Wildlife Refuge Fire Crew, Interns, Staff and Volunteers who gave generously of their pictures and time, freely sharing information from their special areas of expertise, and without whose kind help this Junior Refuge Ranger Booklet would surely have suffered.

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~CMF