U.S. Fish & Wildlife Service

Edwin B. Forsythe National Wildlife Refuge

Junior Refuge Manager Activity Guide
Osprey Edition (Ages 8+)

©Nick Kontonicolas

You can be a JUNIOR REFUGE MANAGER!

You can be a Junior Refuge Manager by doing the activities in this book. You will learn all about the Edwin B. Forsythe National Wildlife Refuge as you explore its many habitats, plants, and animals.

Just like Refuge Managers, Jr. Refuge Managers value the homes that refuges give wildlife. Refuges are special places for you to experience the joy, awe, adventure, and mystery of the world we live in.

To become a Jr. Refuge Manager, you have to complete **at least 6** activities, read and sign the pledge, and then show your booklet to a refuge staff member or volunteer. Then you will receive a certificate and badge showing you are an official Edwin B. Forsythe Junior Refuge Manager!

A Note to Parents:

This is an activity book designed for children, but we encourage families to discuss the topics together. There are two books designed for different age groups, but many of the activities overlap so do not worry if you have children in both groups. Please allow children to self-select activities and use their own words. Take your time—it is not required to complete this book in one visit.

As always, take care to stay on marked paths, avoid poison ivy, and place trash in garbage cans. Ticks occur all year (they are most active during warmer months); when hiking tuck pants into socks, use insect repellent, and do a tick check after returning home.

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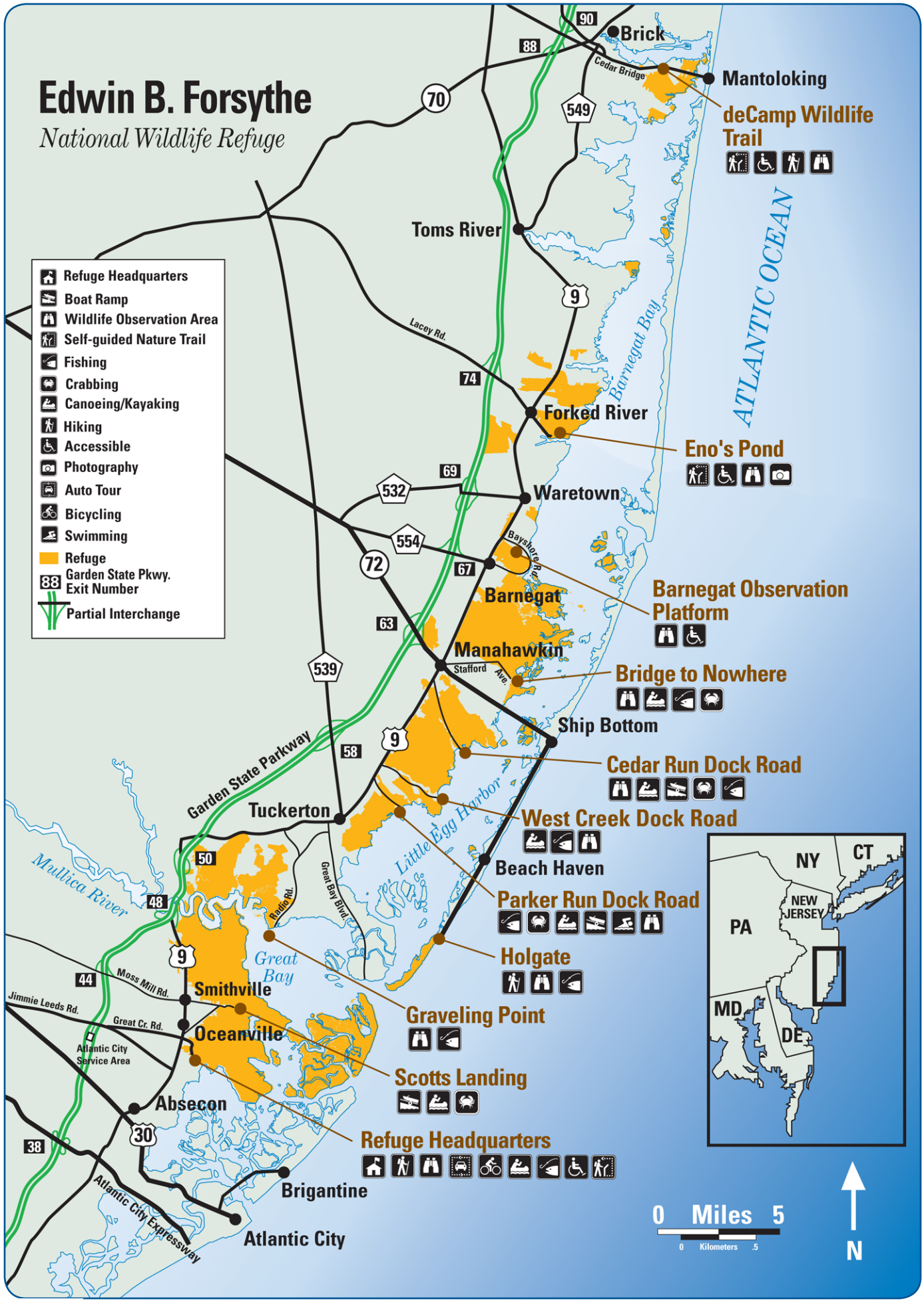
Borrow an Adventure Backpack while you're here!

If either the Headquarters Building or Friends of Forsythe Shop are open during your visit, you can sign out an Adventure Backpack filled with supplies such as binoculars, tape measure, pencils, sketch paper, bug boxes, and more!

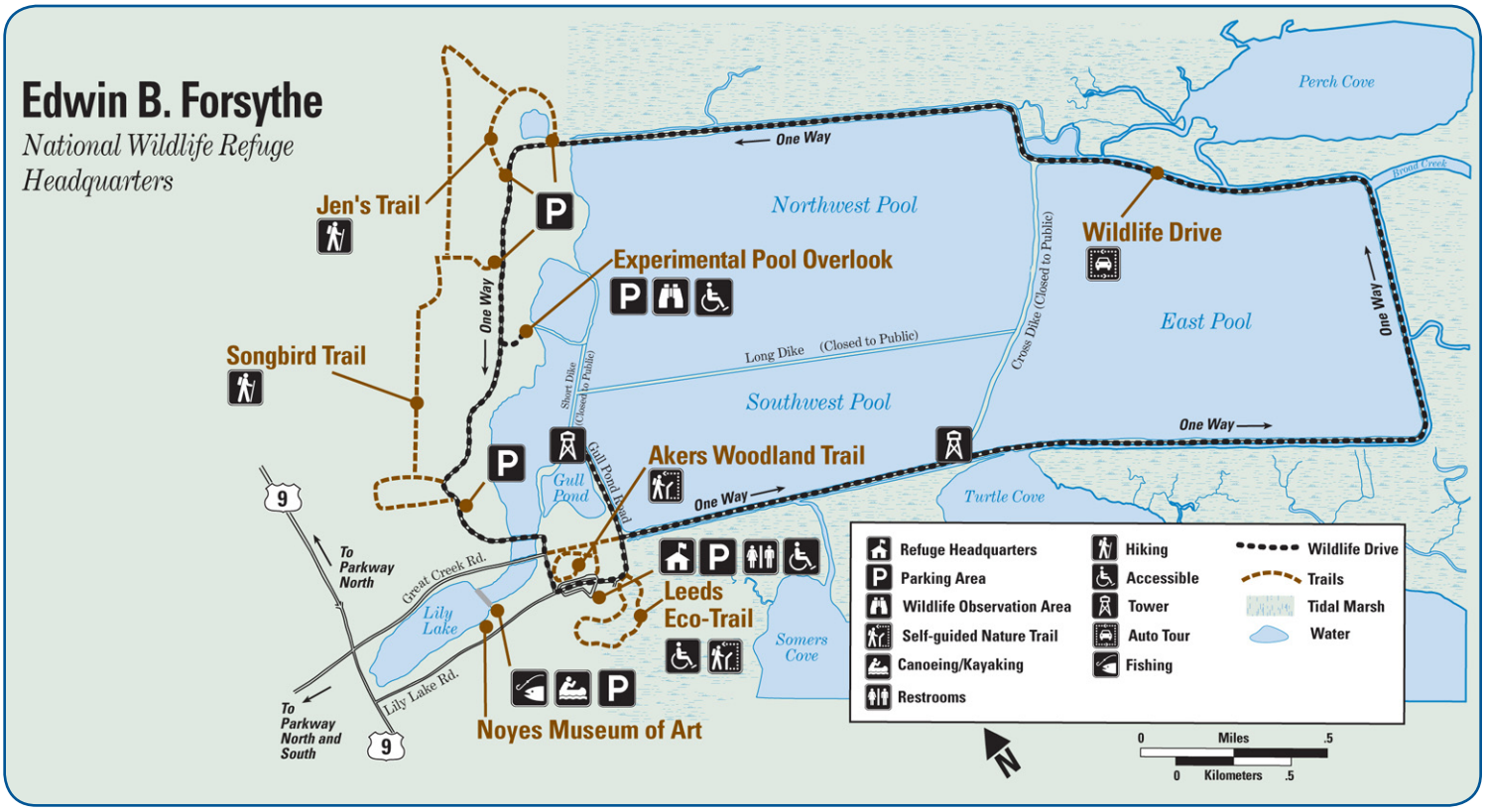
Backpacks are available during normal business hours:

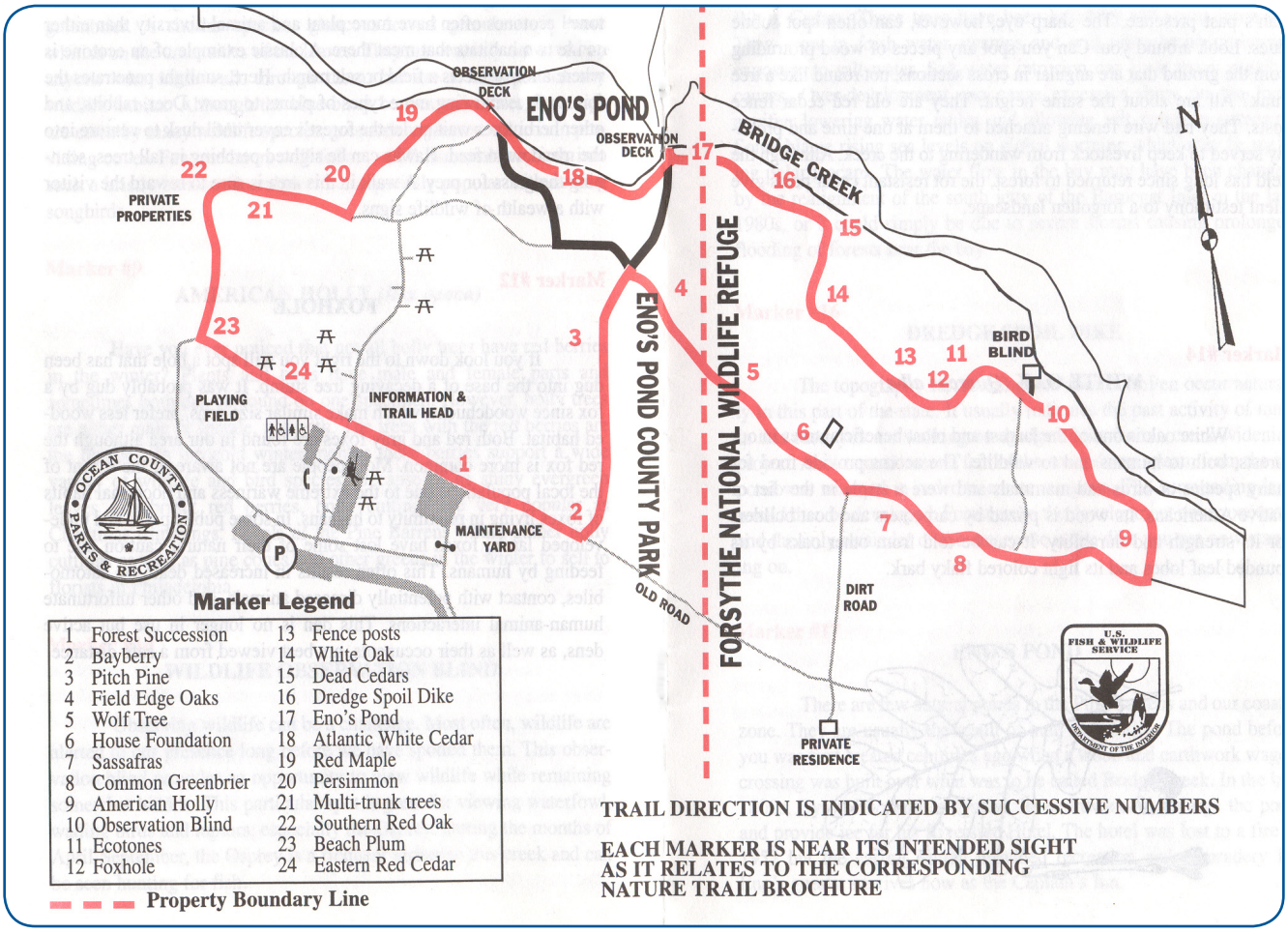
- Headquarters Building: Monday-Friday 10 a.m.-3 p.m.
- Friends of Forsythe Shop: Weekends Spring and Fall 9 a.m.-5 p.m.

(**Backpacks are helpful but not required for completing activities)


Edwin B. Forsythe
National Wildlife Refuge
Refuge Headquarters
Boat Ramp
Wildlife Observation Area
Self-guided Nature Trail
Fishing
Crabbing
Canoeing/Kayaking
Hiking
Accessible
Photography
Auto Tour
Bicycling
Swimming
Refuge
88 Garden State Pkwy. Exit Number
Partial Interchange
Brick
Cedar Bridge
Mantoloking
deCamp Wildlife Trail
Toms River
Lacey Rd.
Barnegat Bay
ATLANTIC OCEAN
Forked River
Eno's Pond
Waretown
Bayshore Rd.
Barnegat Observation Platform
Barnegat
Manahawkin
Stafford Ave.
Bridge to Nowhere
Ship Bottom
Garden State Parkway
Cedar Run Dock Road
Tuckerton
West Creek Dock Road
Little Egg Harbor
Beach Haven
Mullica River
Great Bay Blvd.
Radio Rd.
Parker Run Dock Road
Great Bay
Holgate
Moss Mill Rd.
Smithville
Jimmie Leeds Rd.
Great Cr. Rd.
Graveling Point
Oceanville
Atlantic City Service Area
Scotts Landing
Absecon
Refuge Headquarters
Brigantine
Atlantic City Expressway
Atlantic City
NY
CT
NEW JERSEY
PA
MD
DE
0 Miles 5
0 Kilometers 5
N

Trail Maps


Edwin B. Forsythe
National Wildlife Refuge
Headquarters
Jen's Trail
Songbird Trail
Experimental Pool Overlook
Akers Woodland Trail
Leeds Eco-Trail
Noyes Museum of Art
Wildlife Drive
Northwest Pool
East Pool
Southwest Pool
Perch Cove
Turtle Cove
Gull Pond
Lily Lake
Somers Cove
Great Creek
Long Dike (Closed to Public)
Short Dike (Closed to Public)
Gull Pond Road
Cross Dike (Closed to Public)
Great Creek Rd.
Lily Lake Rd.
To Parkway North
To Parkway North and South
One Way
Refuge Headquarters
Parking Area
Wildlife Observation Area
Self-guided Nature Trail
Canoeing/Kayaking
Restrooms
Hiking
Accessible
Tower
Auto Tour
Fishing
Wildlife Drive
Trails
Tidal Marsh
Water
0 Miles .5
0 Kilometers .5
N


ENO'S POND
OBSERVATION DECK
OBSERVATION DECK
BRIDGE CREEK
PRIVATE PROPERTIES
PLAYING FIELD
INFORMATION & TRAIL HEAD
MAINTENANCE YARD
ENO'S POND COUNTY PARK
FORSYTHE NATIONAL WILDLIFE REFUGE
OLD ROAD
DIRT ROAD
PRIVATE RESIDENCE
BIRD BLIND
OCEAN COUNTY PARKS & RECREATION
U.S. FISH & WILDLIFE SERVICE
N
Marker Legend
1 Forest Succession
2 Bayberry
3 Pitch Pine
4 Field Edge Oaks
5 Wolf Tree
6 House Foundation
7 Sassafras
8 Common Greenbrier
9 American Holly
10 Observation Blind
11 Ecotones
12 Foxhole
13 Fence posts
14 White Oak
15 Dead Cedars
16 Dredge Spoil Dike
17 Eno's Pond
18 Atlantic White Cedar
19 Red Maple
20 Persimmon
21 Multi-trunk trees
22 Southern Red Oak
23 Beach Plum
24 Eastern Red Cedar
Property Boundary Line
TRAIL DIRECTION IS INDICATED BY SUCCESSIVE NUMBERS
EACH MARKER IS NEAR ITS INTENDED SIGHT AS IT RELATES TO THE CORRESPONDING NATURE TRAIL BROCHURE

Inspect an Insect

Tools: pencil, insect ID book, bug boxes

Spot: Aker's Trail, Jen's Trail, Songbird Trail, Eno's Pond, deCamp Wildlife Trail

View bugs in their natural setting...

• Gently place one bug in your bug box, and view it through the magnifying lid.

Some hints for finding and collecting bugs:

1. Listen carefully for bug noises and look for movement to find where they are hiding.

2. Turn over rocks, leaves, and logs that look like they have been in the same spot for a while. Is there a bug hiding under it?

Where did you find your bug?

_____

What is it doing?

_____

What do you think it eats?

_____

What would you like to know about this bug?

1._____

2._____

3._____

• What do you see in your bug box?

Draw what you see here:

If you can, label the insect's body parts on your picture!

Do you see wings?_____

Do you see legs?_____

How many?_____

Are any parts moving?

_____

Which parts?

_____

_____

_____

Can you identify (name) your bug?_____

• Release...Gently put the bug back where you found it. Remember to put rocks and logs in the same spots you found them!

"Be kind to everything that lives."~Omaha Proverb

Pishing

Tools: pencil, bird ID book, binoculars, your mouth!

Spot: Aker's Trail, Jen's Trail, Songbird Trail, Barnegat Observation Platform, Eno's Pond, deCamp Wildlife Trail

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.

3. Different calls work with different birds. 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 OK, what do they look like?_____

_____

"Keep a green tree in your heart and perhaps a singing bird will come."
~Chinese Proverb

Camera Game

Tools: pencil, blindfold, partner

Spot: Any part of the refuge!

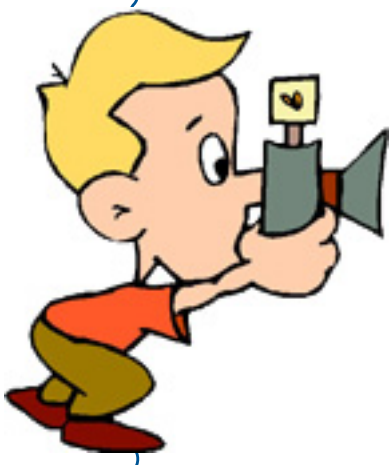
You should take turns as camera and photographer.

- The cameras will close their eyes (or wear a blindfold). Then the photographers will carefully lead them a short distance looking for something to take a picture of. (**Be sure to stay on the trails, and walk very slowly. You do not want your camera to trip over anything.)

- When the photographer finds a good picture they will tap the camera's shoulder once to signal them to open their eyes for **3** seconds. Then the photographer will tap the camera's shoulder twice, signaling the camera to shut their eyes.

{**REMEMBER:** This is your camera, and you can move the head and body to get neat shots—but be careful not to hurt your camera!}

- After each photographer takes a picture, cameras should draw what they saw in the picture frames below.



Adapted from: Sharing the Joy of Nature, Joseph Cornell, 1989

Find Your Birthday Tree

Tools: pencil, tree ID book

Spot: Aker's Trail, Jen's Trail, Songbird Trail, Eno's Pond, deCamp Wildlife Trail

Everyone can try to find a CONIFER tree their own age.

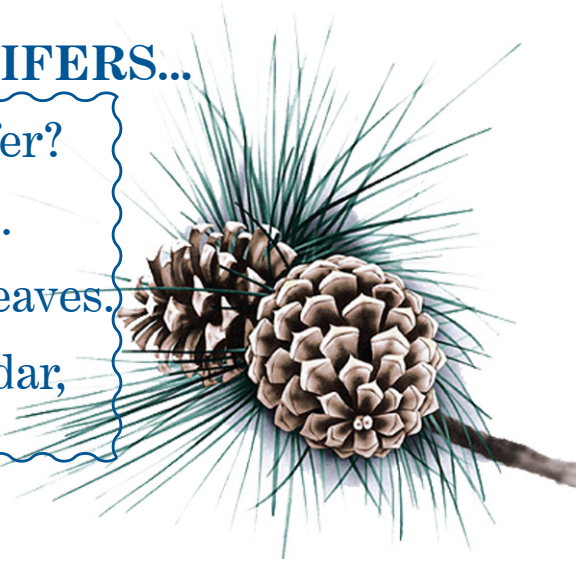
- First, write down the names and ages of everyone in your group:

	NAME	AGE
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

- Then keep your eyes peeled for **CONIFERS...**

What makes a conifer, a conifer?

- Conifer trees grow CONES.
- They have NEEDLE-like leaves.
- Examples: pine, Atlantic cedar, Eastern red cedar

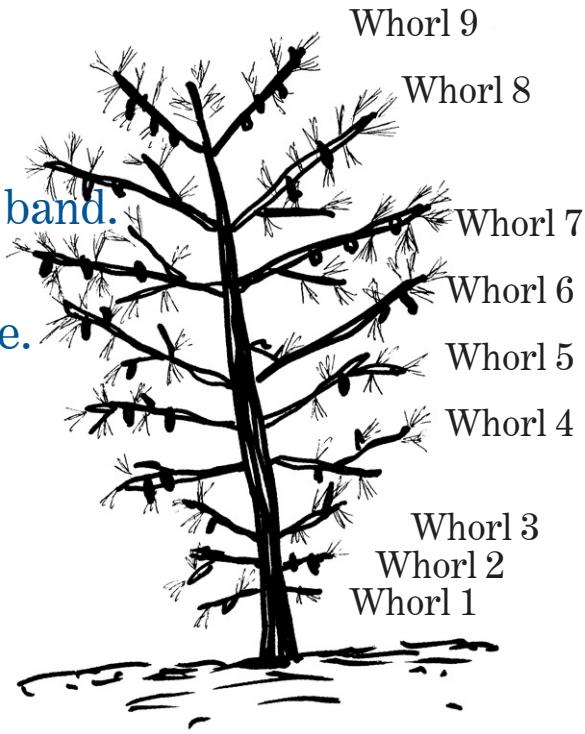


• Look for conifer trees that match the ages of all your group members...

It's easy to guess the age of a young pine or cedar...

• A WHORL is one year's growth of branches—you can see where they come out from the same band.

• Simply count the whorls of branches to guess the conifer's age.



Draw YOUR tree here and number the whorls:

How old is your tree?

_____

Count the whorls to find out! (Start at the bottom branches and count up the tree.)

"I have learned a lot from trees; Sometimes about the weather, Sometimes about the animals, Sometimes about the Great Spirit."~Walking Buffalo

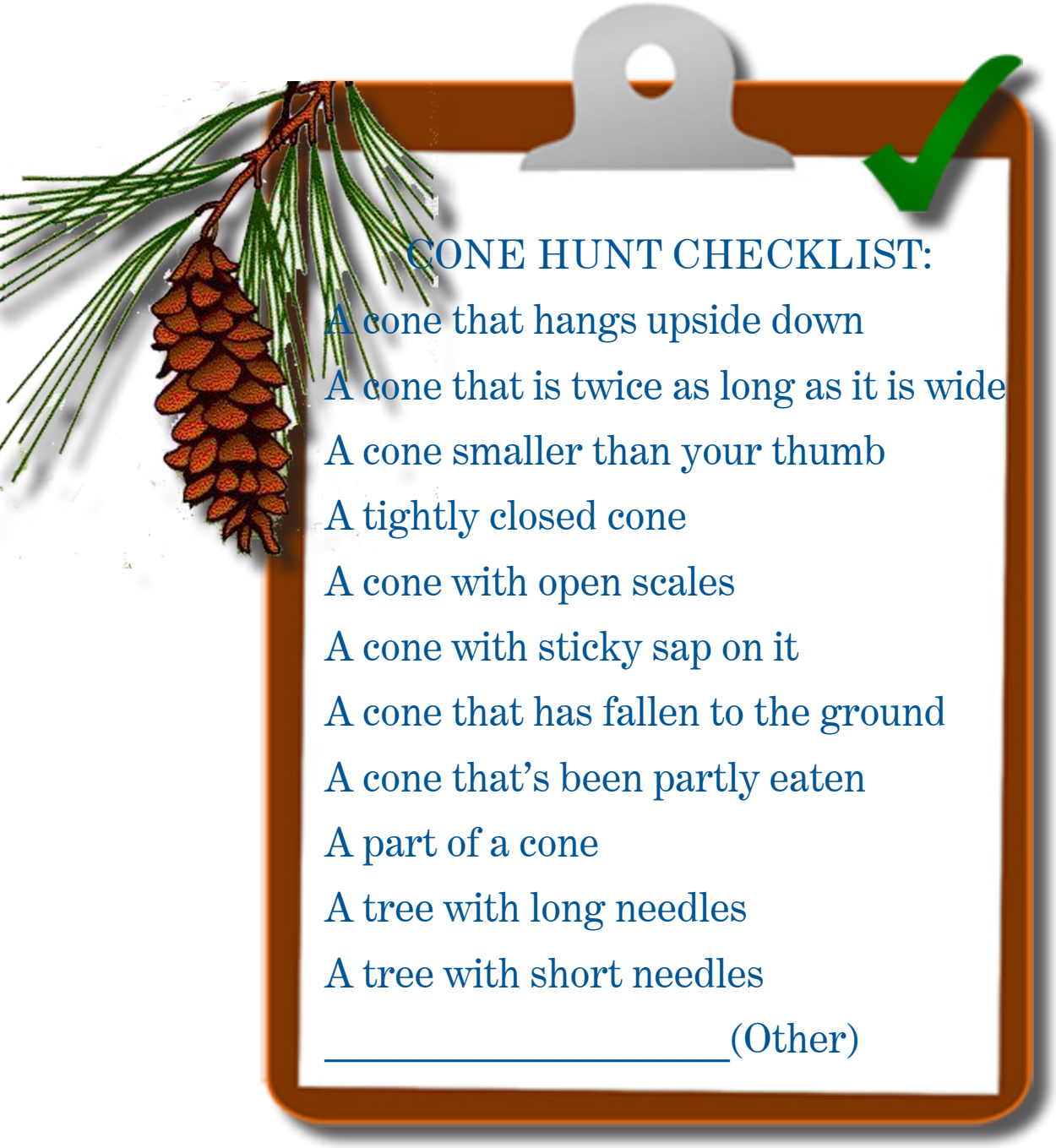
Got Cones?

Keep an eye out for CONES!

Tools: pencil, tree ID book

Spot: Aker's Trail, Jen's Trail, Songbird Trail, Eno's Pond, deCamp Wildlife Trail

As you explore the refuge, try to complete this checklist.



CONE HUNT CHECKLIST:

A cone that hangs upside down

A cone that is twice as long as it is wide

A cone smaller than your thumb

A tightly closed cone

A cone with open scales

A cone with sticky sap on it

A cone that has fallen to the ground

A cone that's been partly eaten

A part of a cone

A tree with long needles

A tree with short needles

_____(Other)

"Study nature, love nature, stay close to nature. It will never fail you."
~Frank Lloyd Wright

Adapted from: Hands-On Nature, 2000

Home Sweet Home

What do plants need in a home?

Tools: pencil, plant ID book

Spot: Aker's Trail, Jen's Trail, Songbird Trail, Eno's Pond, deCamp Wildlife Trail

Try to find these to complete the checklist...
(**Please don't pick or harm the plants.)

- ☐ • Find a group of plants that get a lot of sun. Can you name (or describe) these plants?

  _____

- ☐ • Find a group of plants that live in the shade all day. Can you name (or describe) these plants?

  _____

- ☐ • Find a group of plants that like wet soils. Where on the refuge are you?

  _____

- ☐ • Find a group of plants that like dry soil. Where on the refuge are you?

  _____

- ☐ • Find a group of plants that live in thin soil or near rocks.
- ☐ • Find a plant, such as a vine, that is using another plant to help it grow.
- ☐ • Find a fungus (mushroom). What color is it?

  _____

- ☐ • Find a fern.

If you were a plant, what would your perfect home look like? Draw it here:

Adapted from: Wild Adventures, 1999

Close Encounters

Tools: pencil, magnifying lense

Spot: Aker's Trail, Jen's Trail, Songbird Trail, Barnegat Observation Platform, Holgate Unit, Eno's Pond, deCamp Wildlife Trail

This challenge will use your senses.

- Hawk eyes: Be hawk-like and see all things big and small.

  Look as closely as you can at any **3** things you see. (Use a magnifying lens to get an even closer look!)

  Draw those **3** things here:

- Wolf ears: Listen to the sounds around you.

  Cup your ears and turn your head to face the sounds you hear. Listen for two minutes.

  Can you name the sounds you just heard?_____

  How far away do you think they are?_____

• Cat paws: Use your sense of touch to discover new things (without hurting yourself or anything in nature).

Find one secret thing for your partners to touch with their eyes closed.

Can they guess what it is?_____

What is it?_____ __

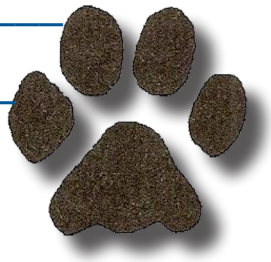
If you were to sleep here like a wild animal, what would you make your bed out of?_____

_____

If you were to make your clothes here, what would you use?

_____

_____



• Foxy nose: The nose knows!

Find **3** things in the area to smell.

Draw or write what you smelled here:

Have your partners smell one thing with their eyes closed.

Can they identify it?_____

What is it?_____

Adapted from: Wild Adventures, 1999

Habitat Exploration

Tools: pencil, plant and animal ID books

Spot: Any place on the refuge!

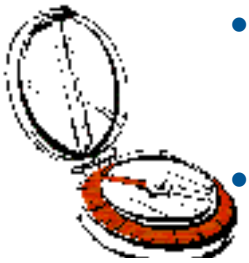
Refuge biologists manage wildlife habitat.

The Edwin B. Forsythe Refuge has 4 main kinds of habitats:

- 78% Salt Marsh,
- 17% Forest,
- 3% Grassland, and
- 2% Beach.

These habitats supply food, water, and shelter for plants and animals.

Choose **1** habitat on the refuge and start exploring...



- What habitat did you choose? What does it look like?

_____

- What plants do you see? Are there tall trees or grasses?

_____

- Name any animals you see or hear:

_____

- Where do you think the animals in this habitat eat? What do you think they eat?

_____

- Where do you think the animals find shelter?

_____

Draw a picture of the habitat you chose. Label where the animals can find food, water, and shelter.

Bird Olympics

Tools: pencil, yard stick, watch/timer, partner

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
Chickadee	270
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
Tufted Titmouse	10 inches
Green-winged Teal	2 feet
Short-eared Owl	3 feet 2 inches
Red-tailed Hawk	4 feet
Bald Eagle	6 feet 6 inches

I have a 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

Bird Safari

Tools: pencil, bird ID book, binoculars

Spot: Wildlife Drive, Barnegat Observation Platform, Eno's Pond

In this activity, you will watch birds in the wild.

Using the list below...

Check the boxes next to the bird behaviors you see. (It's OK if you do not see them all today!)

Then, write where you saw the bird.

If you can, identify the species.

	BIRD BEHAVIOR	LOCATION	ID
	Singing or calling		
	Preening (cleaning feathers)		
	Bathing in water		
	Soaring (flying, wings not moving)		
	Flying (wings beating)		
	Perched (sitting) on a limb		
	Swimming		
	Diving		
	Standing on the ground		
	Wading in the water		
	Feeding		
	Flying with food in its mouth		
	Climbing a trunk/branch		
	Perched on a wire or fence		
	A group of birds flocking together		

Adapted from: Flying Wild

Who's Who?

Tools: pencil, tree ID book

Spot: Aker's Trail, Jen's Trail, Songbird Trail, Eno's Pond, deCamp Wildlife Trail

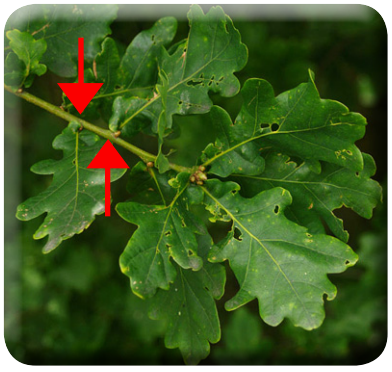
Use this "key" to figure out common plants you'll see near the refuge. (**This key is best used on the Aker's Woodland Trail, but similar species may found on other parts of the refuge.)

Find **3** plants you don't already know and use the key to name them.

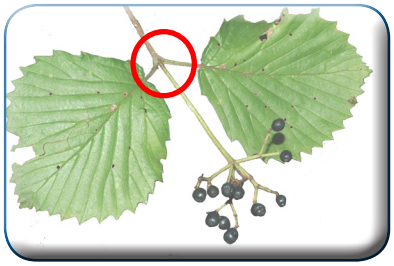
First learn about the leaves and branches you'll see,

Needle-like leaves

Scale-like leaves



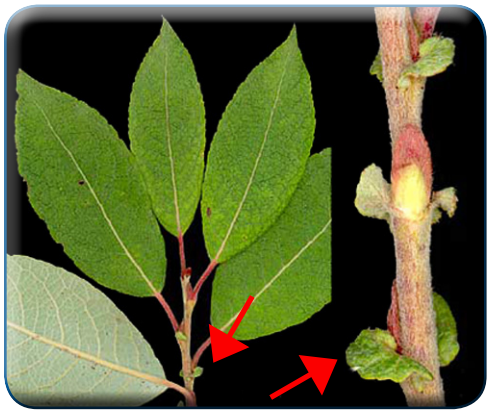
Alternate branching



Opposite branching

Compound leaf

Simple leaf



At the base of a leaf is a “stipule” where the leaf connects to the twig. You can tell a simple leaf from a compound leaf by looking for this stipule. The leaflets of a compound leaf will not have a stipule.

Lobed leaf

Leaf with sharp spines

Fine toothed edges

Vine with tendrils

Bristle-tipped lobes

1. Plant with needle-like or scale-like leaves.....go to #2
   Plant with broad leaves.....go to #3

2. Plant with needle-like leaves.....New Jersey Pine
   Plant with scale-like leaves.....Red Cedar

3. Plant is a vine with tendrils.....go to #4
   Plant is not a vine with tendrils.....go to #7

4. Vine with compound leaves.....go to #5
   Vine with simple leaves.....go to #6

5. Vine with 3 leaflets.....Poison Ivy(DON'T TOUCH)
   Vine with 5 leaflets.....Virginia Creeper

6. Vine has thorns.....Greenbriar
   Vine has no thorns.....Grape

7. Plant with simple leaves.....go to #8
   Plant with compound leaves.....go to #15

8. Plant with opposite leaves.....go to #9
   Plant with alternate leaves.....go to #10

9. Plant with egg-shape/round leaves, toothed edges.....Arrowwood
   Leaves 3-5 lobed, toothed edges.....Red Maple

10. Leaves lobed.....go to #11
    Leaves not lobed.....go to #13

11. Leaves with bristle-tipped lobes.....Black Oak
    Leaves with no bristle-tipped lobes.....go to #12

12. Leaves with shallow lobes.....White Oak
    Plant has leaves with deep lobes and leaves with no lobes.....Sassafras

13. Leaves with no teeth on edges.....Blueberry
    Leaves with toothed edges.....go to #14

14. Leaves with fine teeth on edges.....Black Cherry
    Leaves with sharp spines on edges.....Holly

15. Plant with compound leaves with 3 leaflets.....Poison Ivy
    Plant with compound leaves with 5 leaflets.....Pignut Hickory
    Plant with compound leaves with 7+leaflets.....Winged Sumac

What 3 plants did you find?

1._____

2._____

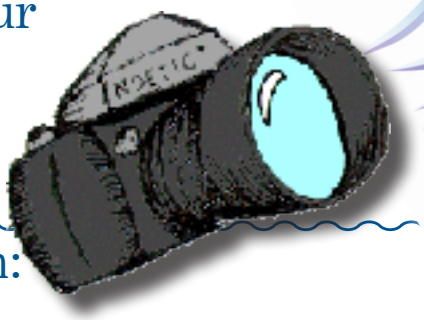
3._____

Snap Adventure

Tools: pencil, camera, tape

Spot: Any part of the refuge!

Capture your trip to the refuge in photos! Finish this checklist by taping in your finished photos...



☐ Birds flying over the salt marsh:

☐ View from high above (one of wildlife drive's towers or an observation platform):

☐ Favorite thing you saw today:

☐ Everyone in your group standing by a refuge sign:

Win a prize too!

- One photo for each age group will be chosen every month.
- Please only submit one photo per month, per child.
- Drop your entries off at refuge headquarters Mon.-Fri. 10 a.m.-3 p.m. Please include:
  - Child's name, age, date visited, and phone number where we can reach you.
- Winners will be announced the 1st of every month.
- Have fun! Be creative!

GOOD LUCK!!

Know Your National Wildlife Refuge

The Edwin B. Forsythe National Wildlife Refuge (N.W.R) protects 47,000 acres of southern New Jersey coastal habitats. The refuge has been set aside to protect plants, animals, and the wild places where they live. Many people come to this refuge to observe wildlife, take photographs, or to go hiking.

- Where is your hometown?_____
- How many times have you visited Forsythe N.W.R.?_____
- Draw an animal that you saw at the refuge today:

What animal is it?

_____

Where did you see it?

_____

- What interesting things did you see or do here at Forsythe N.W.R.?_____

_____

- What do you think makes Forsythe N.W.R. a fun and special place?_____

_____

Junior Refuge Manager Pledge

- I promise to leave only footprints and take only pictures while visiting the Edwin B. Forsythe National Wildlife Refuge.
- I promise to respect the plants and animals by not disturbing them or their homes.
- I will continue to learn about the Forsythe Refuge and other Refuges and share my knowledge with my friends and family.

_____

Jr. Refuge Manager's Name

_____ _____

Date Refuge Official's Signature

U.S. Department of the Interior

U.S. Fish & Wildlife Service

Edwin B. Forsythe National Wildlife Refuge

CONGRATULATIONS on becoming a Jr. Refuge Manager!

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August 2008