

Junior Refuge Manager

Reelfoot National Wildlife Refuge



Mallard Ducks at Reelfoot NWR, credit USFWS/Drew Wirwa

This Activity Book Belongs To:



How Do I Become a Junior Refuge Manager?

You've already completed the first step – picking up a Junior Refuge Manager Activity Book! The next step is reading through your book and completing the activities inside. The number of activities you will need to complete in order to earn the Junior Refuge Manager badge depends on how old you are:

If you are 5-7 years old, complete three activity pages.

If you are 8-10 years old, complete five activity pages.

If you are 11+ years old, complete eight activity pages.

Checklist

- Activity #1: Visitor Center Discovery**
- Activity #2: Take a Hike**
- Activity #3: Wetland Scavenger Hunt**
- Activity #4: Habitat Detective**
- Activity #5: Wildlife Observation**
- Activity #6: Stewardship Project**
- Activity #7: Waterfowl Management**
- Activity #8: Migratory Waterfowl Routes Map**

A Junior Refuge Manager is a person who...

- Cares about the conservation of native wildlife and its habitat

- Is knowledgeable about the wildlife and plants that the refuge is protecting

- Recognizes the importance of refuges for both wildlife and the community

- Is environmentally conscious—does “green” things

- Always follows the Carry in, carry out, leave no trace guidelines

- Is ready to share this information with others to make a difference

The United States Fish and Wildlife Service: *‘working with others to conserve, protect, and enhance fish, wildlife, plants, and their habitats for the continuing benefit of the American people.’*



Refuge Biologist banding and releasing wood duck. Photo credit: Tara Dowdy

Can you imagine going on a trip from Canada to Louisiana, or from Alaska to Mexico, without eating? Reelfoot National Wildlife Refuge was created for the purpose of providing migratory birds and waterfowl much needed places to spend the winter, to rest, and to feed.



Waterfowl at Grassy Island, credit USFWS/Tara Dowdy



Wetlands like the one pictured above are among the most productive habitats in the world, credit USFWS/Diane Borden-Billiot.

What is a National Wildlife Refuge?

The West TN National Wildlife Refuge Complex consists of Reelfoot, Lake Isom, Hatchie, Chickasaw and Lower Hatchie National Wildlife Refuges and is a part of the National Wildlife Refuge System that includes more than 560 refuges all over the United States of America. This network of lands and waters is the largest in the world that is set aside for fish, wildlife, and plants.



Mallards in corn, credit: Drew Wirwa



Reelfoot National Wildlife Refuge, credit USFWS/Bron Thompson

What does a refuge manager do?

He or she, along with his/her staff, maintain and protect refuges for plants, wildlife, and people.

Would you like to work at a National Wildlife Refuge?

There are many jobs to do, such as biologists, wild-land firefighters, environmental educators, law enforcement officers, visitor center specialists, maintenance workers, and refuge managers. The first step is to learn about wildlife, their habitat, and how we can protect them. Start by becoming a Junior Refuge Manager!

Carry In, Carry Out! Leave No Trace!

The West Tennessee National Wildlife Refuges are my home! Please help protect me and my home by always following the **Carry In, Carry Out** guidelines. Thank you for keeping the refuges healthy and beautiful.

- Plan ahead, know rules, and check for area closures before you head out
- Take dogs to approved areas only and always keep them on a leash
- Leave what you find: take only pictures and leave only footprints
- Carry your trash out with you when you leave
- Respect wildlife and do not feed or touch them
- Always stay on the trails and in open public areas

What else can you do to make sure you Leave No Trace?

Did you know?

Pelican Island in Florida was designated as the first National Wildlife Refuge in 1903 by President Theodore Roosevelt, and since then the Refuge system has grown to include millions of acres.

That's a lot of land!

The National Wildlife Refuge System is a part of the United States Fish and Wildlife Service, which is a federal agency. **The Fish and Wildlife Service has an important mission:**

The mission of the U.S. Fish and Wildlife Service is working with others to conserve, protect, and enhance fish, wildlife, plants, and their habitats for the continuing benefit of the American people.

Activity #1: Visitor Center Discovery

What Can You Learn at the Visitor Center?

The Reelfoot National Wildlife Refuge has many things to see and do, including exploration of the Visitor Center which offers a variety of interpretive exhibits and videos where you can learn more about the West TN Refuges, wetlands, birds, & water management. Tell us what you discover today!

Watch a Video!

I watched the video about:

I learned that:

Explore the Exhibits!

One exhibit I liked was:

I learned that:



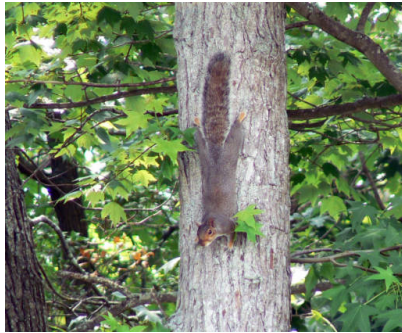
For more info on the Junior Duck Stamp Program and contest guidelines, follow the link below:

<https://www.fws.gov/birds/education/junior-duck-stamp-conservation-program.php>

Like to draw or paint?
Want to help with the conservation effort?
Your artwork could appear on the next Junior Duck Stamp!

Activity #2: Take a Hike or a Drive!

The best way to learn more about the refuges is to head out on the trails! Grab a brochure with a map from the Visitor Center or the nearest kiosk and pick a route.



Eastern gray squirrel, credit USFWS

Need a suggestion?

The Grassy Island Wildlife Drive and viewing tower are all great places to see songbirds and other wildlife in the spring.

The Long Point unit is a wonderful place to see waterfowl & bald eagles in the wintertime, or shorebirds in spring!



Visit viewing towers to get a better view of wildlife!



What area of the refuge did you visit?

Tell us where you went on the refuge(s) and what you did.

Example: I visited Long Point and observed 300 ducks and watched 7 bald eagles from the observation deck!

Draw or write about something you saw on one of the refuge:

Bird Identification

New to the refuges? Here's a quick introduction to some of the migratory birds you can find on the refuges at various times of year.



Bald eagle- A large sized raptor usually dark brown with a white head and tail. Juveniles are mostly brown with a variety of white mottling. A bald eagle's wingspan is typically 6 feet across, and their nests can reach over 6 feet across, depending on the age of the nest! Credit Tara Dowdy



Greater White-fronted Goose - Commonly known as the "specklebelly" these medium sized brown geese are highly prized by hunters for their excellent taste when cooked. They also have a distinctive call or "honk" compared to other types of geese, credit Jeff Cole.



Northern Pintail - A medium sized duck. The male, pictured above, has a long, white neck, brown head, and distinctive green feathers in the wings, credit Jeff Cole.



Prothonotary warbler - A large, heavy-bodied warbler with a big head and bill. It has shorter legs and a shorter tail than other warblers. Its bill is heavier and longer than most warblers, credit David Haggard.

Key Vocabulary

biologist - A scientist who studies living things.

carnivore - An animal that feeds on other animals.

conservation plan - A written plan that describes actions that may be taken to manage, protect, and preserve ecosystems.

drake - A male duck.

ecological threat - Something that can harm ecosystems like drought, cutting down trees, pollution, invasive plants and animals, and human development.

ecosystem - All of the living and non living things found in a certain area.

flyway - A route regularly used by large numbers of migrating birds.

habitat - The natural home of a plant or animal. Waterfowl live in wetland habitats.

hen - A female duck.

invasive organism - In an ecosystem, an invasive organism is any living thing (plant or animal) that causes harm to a habitat where it is not normally found.

levee - A natural or man made raised area of earth along side a canal or river.



Would you like to become a Biologist, Ranger, or a Refuge Manager? You can start by studying biology and/or conservation and volunteering on a refuge near you, credit USFWS/Tara Dowdy.

migration - The movement of animals from one place to another.

predator - An animal that eats or “preys,” on other animals. For example, wolves are predators of deer.

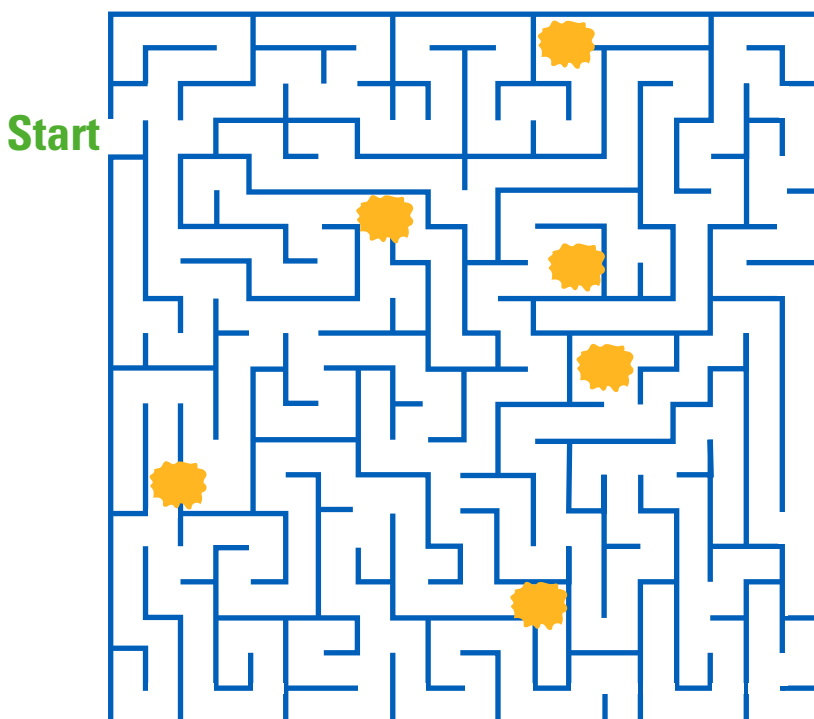
prey - An animal that is hunted or killed by another animal. For example, mice are prey for snakes.

raptor - Medium to large sized carnivorous bird with very sharp claws (talons) and curved or hooked beak. Examples include owls, hawks, falcons, eagles, and kestrels, among others. Also called “birds of prey.”

waterfowl - Birds that spend most or all of their time in and around water. Most people consider ducks, geese and swans to be “waterfowl.” They have webbed feet, waterproof feathers, and are very strong swimmers!

wetland - Land that is usually covered with shallow water and is home to many types of plants and animals that are found in or near water.

Native species are looking for room to expand throughout refuge habitats. Help them find their way while avoiding invasive species, which can crowd them out and/or use their food.



Safe habitat

Nice job! Native species will thrive here.

 **invasive species**

Activity # 3: Wetland Scavenger Hunt

Have you seen any of the creatures or features below on the refuge(s) today? _____

On the line beneath each photo, label each with the word or words that you think best describes them.



Credit: Jeff Cole



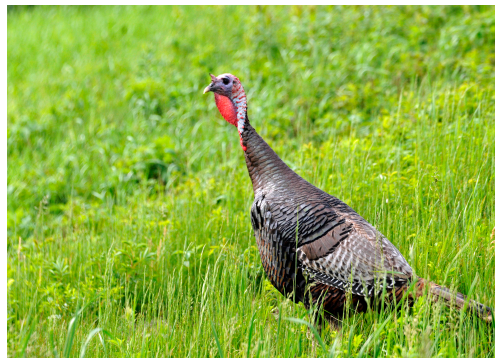
Credit: USFWS/Tara Dowdy



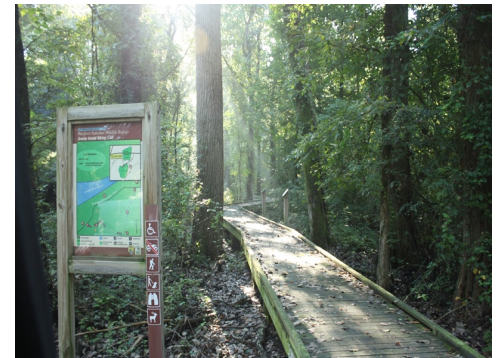
Credit: Jeff Cole



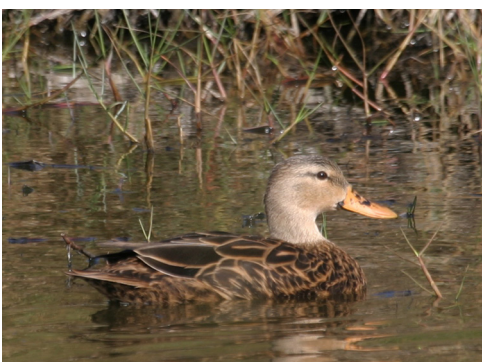
Credit: USFWS/Diane Borden-Billiot



Credit: USFWS



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Credit: Jeff Cole



Credit: USFWS/Diane Borden-Billiot

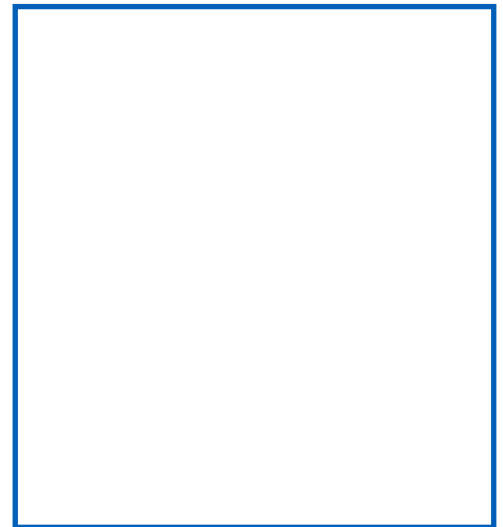
Activity #4: Habitat Detective

Refuge managers maintain and protect the habitat that plants and animals use. What is a habitat? A habitat contains all the resources that an animal or plant needs to survive: food, water, shelter, and space. Habitats come in different types depending on where they are. Some of the habitat types on the refuges include swamps, bottomland hardwood forests, lakes, and ponds. Choose a habitat type to investigate and write down what you learn. Remember to **Carry in, carry out, and leave no trace!**

Draw an animal that you see in the habitat.



Draw a plant that you see in the habitat.



What does the habitat look like?



Moist soil impoundments on Reelfoot National Wildlife Refuge, credit USFWS/Tara Dowdy

Do you think that all the plants and animals in the habitat have enough space? If not, how do you think we could help them get more space? What do you think animals eat in the habitat?

Activity #5: Wildlife Observation

You can learn more about wildlife by observing them in their natural habitat!



Raccoon, credit USFWS/Diane-Borden-Williot.

Biologists working on wildlife refuges watch animals to learn where they live, what they eat, when they migrate, and how they raise their young. All this information can help a refuge manager make decisions about how to run the refuge.

Head out on the trails and find an animal to observe and see what you can learn.

Rules for Habitat Observation

- Remember, you are a visitor in the animal’s home. Be respectful of their habitat!
- Don’t make loud noises or yell when you see an animal.
- Don’t get too close to animals—always stay on the trails and boardwalks.
- Remember to **Carry in, carry out and leave no trace!**

Location: _____

Date: _____ Time: _____

Length of observation (5 minutes? 10?): _____

Type of animal or plant: _____

Was the animal moving?

If so, how did it move, and where was it going?

Was the animal with other animals?

If so, were they the same kind of animal (such as a flock of birds) or different kinds of animals?

Was the animal eating? Could you tell what it was eating?

Activity #6: Stewardship Project

Now that you have learned all about the Reelfoot National Wildlife Refuge and what it means to the plants and animals that live here, you have an important project to complete! Being a steward of something means that you take care of it and protect it. We want you to do something to make the refuge a better place for the plants, animals, and future visitors who come here.

Project ideas:

- Pick up and throw away 5 pieces of trash.
- Give a short manager program for your family or friends.
- Remind someone (kindly!) about the **Carry in, carry out** rules if they have forgotten.
- Or get creative and think of your own project!

Write down what you did below. What was your project, and how did it help plants, animals, and/or people at the wildlife refuge?

What do you think a good steward does...

Below, draw a picture of yourself doing something to help a Refuge. Examples would be picking up trash, speaking to others about good things the Refuge is doing, watching wildlife from a distance, planting trees and other native plants, clearing invasive species of plants, volunteering your time to help a Refuge with projects such as clean-up days, etc.

Activity #7: Waterfowl Management

This is it! You are almost there! Only one more project left and you will have earned your official Junior Refuge Manager badge!

All three of the National Wildlife Refuges found in the West TN complex were created for the benefit, management, and protection of migratory waterfowl. This timeline shows the history of waterfowl and migratory bird management enacted by the Federal Government and the U.S. Fish and Wildlife Service. Review the information below and then complete the last activity on the following page.

1913

The Federal Migratory Bird Law gives federal government authority over hunting of migratory birds and the first migratory bird hunting regulations were adopted.

1916

Treaty signed between U.S. and Great Britain (representing Canada) to protect migratory birds.

1920s

U.S. Geological Survey (USGS) Bird Banding Laboratory was established.

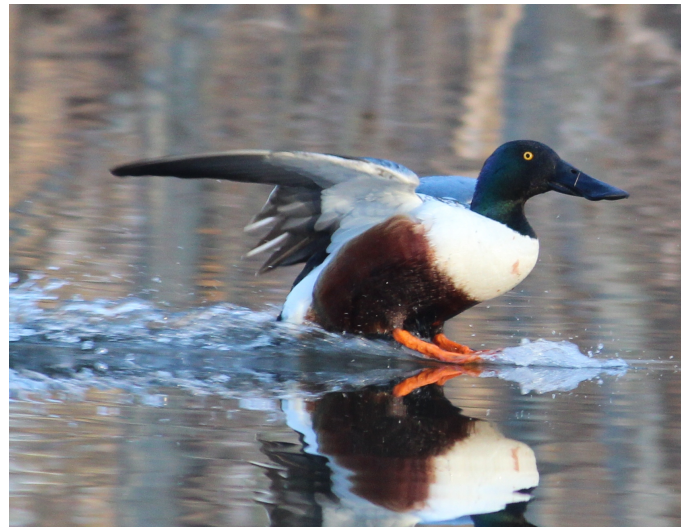
1934

Congress passes the Migratory Bird Hunting and Conservation Stamp Act (Duck Stamp Act) providing a source of funding for the acquisition and management of waterfowl habitat.

1935

The Waterfowl Flyways of North America were established relying on data from waterfowl banding.

Frederick Lincoln developed the Flyways concept. The concept gained widespread credence and is still applied in an administrative context with the annual development of migratory bird hunting regulations.



Northern shoveler, credit Drew Wirwa.

1936

Convention between the U.S. and Mexico for the protection of migratory birds and game mammals is signed.

1940

Fish and Wildlife Service is created by combining the Bureau of Fisheries and the Bureau of Biological Survey within the Department of Interior. Ira Gabrielson was named the first Director of Fish and Wildlife Service.

1951

Administrative Flyway system for waterfowl management adopted.

1986

North American Waterfowl Management Plan signed. Recognizing the importance of waterfowl and wetlands to

North Americans and the need for international cooperation to help in the recovery of a shared resource, the U.S. and Canadian governments developed a strategy to restore waterfowl populations through habitat protection, restoration, and enhancement.

The strategy was documented in the North American Waterfowl Management Plan signed in 1986 by the Canadian Minister of the Environment and the U.S. Secretary of the Interior; the foundation partnership upon which hundreds of others would be built. With its

update in 1994, Mexico became a signatory to the Plan.

1989

Congress passes the North American Wetlands Conservation Act. The North American Wetlands Conservation Act was passed, in part, to support activities under the North American Waterfowl Management Plan, an international agreement that provides a strategy for the long-term protection of wetlands and associated uplands habitats needed by waterfowl and other migratory birds in North America.

The Act provides matching grants to organizations and individuals who have developed partnerships to carry out wetland conservation projects in the United States, Canada, and Mexico for the benefit of wetlands-associated migratory birds and other wildlife.

Activity #8: Migratory Waterfowl Routes



It's all about location, location, location! The map above shows the different routes taken by migratory waterfowl. All of our West TN Refuges are located in one major flyway. Do you know which one it is? Look at the map legend to see which flyway we are located in!

_____ flyway.

Junior Refuge Manager Pledge

As a Junior Refuge Manager, I _____,

promise to learn as much as I can about nature
and the National Wildlife Refuge System.

I promise to protect and preserve the wildlife and plants
and to help keep the water, land, and air clean.

I will share what I have learned with my friends and family
so that they can help protect the refuge and our natural resources, too.

This hereby certifies that

has successfully completed the

Junior Refuge Manager Program

**at the Reelfoot
National Wildlife Refuge.**

Signed

Date



U.S. Fish & Wildlife Service

Reelfoot National Wildlife Refuges
4343 Hwy 157
Union City, TN 38261

Open Monday-Saturday 8:00 a.m. - 4:00 p.m.

For questions about the Junior Refuge Manager program, call: 731-538-2481

Bring your completed Activity Book to the Reelfoot NWR Visitor Center to receive your Junior Refuge Manager badge!

Or, mail a copy of your completed activity pages to:
Reelfoot National Wildlife Refuge
Junior Refuge Manager Program
4343 Hwy 157
Union City, TN 38261

Be sure to give us a return address so we can mail your badge and certificate to you!

