



# Junior Forest Steward Educator/Helper Guide

(Updated 3/21/07)



Welcome to the Junior Forest Steward Program (JFSP) and thank you for your willingness to serve as a youth educator or helper. Pennsylvania youth often know very little about the forests and natural areas that cover the state, and they need willing adults to facilitate learning opportunities. You do not need to be an expert about forests or forestry for this project with youth, but an interest and willingness to learn right along with youth is required! The Junior Forest Steward Program is most suitable for children ages 8 - 12 years old.

The JFSP is very flexible. It involves youth reading the Junior Forest Steward publication (individually or as a group), discussing the questions, and then participating in a forest stewardship activity. This guide contains a list of suggested activity ideas, but you can design your own activity as well. After you complete these three steps, submit the “Tally Sheet” to receive a Junior Forest Steward patch for each participant. It is that simple! However, the benefits are potentially far reaching. This program encourages youth understanding about forest stewardship, collaborative learning through discussion, and hands-on learning through activity. It raises awareness of stewardship concepts and the importance of being a steward of the natural world. Today’s youth will be responsible for the forests that give Pennsylvania its very name, and they will pass them on to future generations.

## *Reading the Junior Forest Steward Publication*

The Junior Forest Steward publication uses a series of “key” topical questions and answers with additional “thinker” questions (without answers) to encourage discussion and thought. The key questions are in a large, colorful font on each page, and a green acorn (🌰) precedes each thinker question in the text or photo captions.

The key questions present the critical content about forest stewardship that youth should learn. They may read these individually, or read and present them to one another in a group. Reading aloud or silently is fine; whichever works best for the group and situation. The reading level of this publication is Grade 5, but this does not mean that younger children cannot understand these concepts and that older youth will not be challenged to think as well. Read the key questions in the order presented. They start with very basic information and progress to more abstract concepts based on the initial information. This guide also provides a glossary and further reference information about forest stewardship is available at:

<http://sftrc.cas.psu.edu/JuniorForest.html>

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## *Discussing the 🌰 “Thinker” Questions and Answers in the Junior Forest Steward Publication*

Use questions preceded by a green acorn (🌰), or “thinker” questions, to initiate discussion among group participants or to get individuals thinking about what they have just read. These are more than yes/no questions, and many do not have one correct answer. You might assign specific questions to a small group to discuss and answer, or you may ask individuals to write their responses as they read the publication. Again, do what works best for your group and situation, but encourage sharing among youth so they can experience different perspectives and views on forests and wildlife. Here are some answers and thoughts about each of the thinker questions listed in order by page.

### **Page 2**

#### **🌰 (Column 3) Do you care about forests? Why?**

This question is first to encourage participants from the start to think about how they care or feel about forests. It is not a yes/no question. It is an opportunity for youth to discuss what they like or dislike about forests and why these things are important to them. Do not let them resort to an “I don’t know why” response; attempt to draw out why they feel the way they do.

#### **🌰 (TOTAL MAKEOVER) Can you find at least five seasonal differences between these two pictures?**

There are many *visual* differences between these two seasonal pictures. They include green plants on the forest floor in the summer, a blanket of snow on the ground in the winter, green leaves on many trees in the summer, darker shade in the summer forest, snow on the tree branches in the winter, and better visibility through the forest in the winter. *Nonvisual* winter differences might include frozen ground, frozen water in streams, colder air temperatures, hibernating insects and wildlife, and little or no tree growth in the winter. These nonvisual differences are more abstract and challenging; however, they will excite deeper reflection and thought.

#### **🌰 (TOTAL MAKEOVER) Which of the four seasons (spring, winter, summer, or fall) do you like best? Why?**

Obviously, there is no right answer to this question, but have the participants explain why they find their favorite season preferable and what they enjoy doing during that season. Their answers may surprise you, and while their answers may have nothing to do with the outdoors at all, try to relate them back to the things that are happening outside during their favorite season.

### **Page 3**

#### **🌰 (WILDLIFE SIGNS) Can you match each wildlife sign in the pictures below with the six animals that made them?**

Photo 1. An eastern chipmunk (E) was chewing on these acorns. Acorns such as these provide food for many wildlife species such as deer, turkeys, bear, and squirrels. Judging that the acorn on the left is not completely eaten, perhaps the chipmunk was scared off by a fox trotting through

the woods, looking for its next meal. Chipmunks have three different calls from which they earn their name. The loudest is a “chip” call that sounds like that of a bird.

Photo 2. This may be the hardest to identify of all the wildlife signs shown here. Animal feces (“scat”) indicate the presence of a species in the area. This is coyote scat (A). It has hair and bones from the coyote’s last meal sticking out and is about 4 inches long. Many wildlife studies use scat to determine foods eaten and their relative importance in the diet of a specific wildlife species.

Photo 3. Male white-tailed deer (D), called “bucks,” drop their antlers each year in late winter. Many people enjoy looking for dropped antlers, called “sheds,” during the spring and summer. If people do not find, them however, they do not go to waste. Small rodents such as mice chew on sheds for calcium needed in their diets.

Photo 4. Animal homes are wildlife signs too. This is the burrow of a woodchuck (F) (sometimes called “groundhogs”). Woodchucks often make their burrows in the woods near fields or other openings. Discuss other types of animal shelters such as nests, den trees, snags, caves, and lodges.

Photo 5. A black bear (B) made the marks on this beech tree trunk. Black bears often mark their territory in this way while they are sharpening their claws and stretching their bodies. This is a sure sign that a bear has been in the area. Claw marks on “bear trees” may be many feet off the ground.

Photo 6. Only a bobcat (C) could make these tracks. There are two tracks in this photo; the first track was made by the cat’s front foot and the second by its back foot as it walked along. The size of the track (about 2 square inches) and its four toe impressions without claw marks are what give this track away. A bobcat’s claws are retractable and do not stick out while walking. Animal tracks show up best in damp mud, as shown in the photo, and in the winter snow.

### ***(Column 3) What wildlife do you like to watch?***

Most forest stewards enjoy observing wildlife in the forest and seek to improve the wildlife habitat on their property for specific species. Some stewards will focus on improving habitat for a single or “featured” species. Other stewards seek to improve habitat for a small group of species or a large diversity (a “community”) of wildlife species. It is useful to get youth talking about what wildlife species they enjoy watching and for them to hear what others think and value.

## **Page 4**

### ***(Column 1) Can you think of some ways they could do this [improve a forest for recreation]?***

First, have participants think about a particular type of forest recreation, one in which they have participated or simply one that interests them, for example, mountain biking. Then have them think about what they might need to carry out this activity. For the mountain biking example,

you need safe, stable trails. You might also need water control structures, like a culvert, to divert water under a trail. This will protect the trail from erosion and keep the water clean. You may also need a place to park a car to access a bike trail. You might also need to thin some of the trees along a trail to improve visibility into the woods and reduce the hazard of falling dead branches – what about rest areas, signage, or places to stop and enjoy a vista. Have your participants think through the needs and requirements of a forest recreational activity that interests them and share these with others. There is no one right answer for this question, only a range of considerations and possibilities to discuss.


 **(CLOSER LOOKS)** *Can you match these objects, or things, with the correct pictures below?*

Photo 1. This is a close-up of a mushroom cap (A). Mushrooms are fungi that break down dead plant and animal tissue in the forest and return nutrients to the soil and other living creatures. Without fungi, the forest would be full of deadwood and plants and the soil would be too poor for new plants to grow. Mushrooms are also important sources of food for many animals. People enjoy eating mushrooms, but they must be careful. Some mushrooms are deadly to people, other mushrooms are tasty and nutritious. You need to know exactly what you are picking before you attempt to eat mushrooms from the forest. The magnification of this photo is approximately three times the actual size.

Photo 2. This is a close-up of a thistle flower (B). Many wildflowers grow in the forest; this one has prickly stems and leaves. Some forest stewards know when and where each type of wildflower blooms in their woods. The magnification of this photo is approximately two times the actual size.

Photo 3. This is a close-up of a wild turkey's tail feather (D). It dropped from a turkey that was searching in a small forest opening for insects to eat. The patterns on birds' feathers help provide camouflage, or protective coloration, from predators. Turkeys are large birds that have keen eyesight. They usually see you coming and disappear long before you see them! The magnification of this photo is approximately three times the actual size.

Photo 4. The fur or hair color of an animal is usually a mixture of several colors and different hair types and can vary by season. This is a white-tailed deer's (E) winter coat (fur). Many of a deer's winter hairs are hollow to provide insulation from the cold. There is little change in magnification of the hair in this photo; it is close to actual size.

Photo 5. A pine cone (C) is where the seeds of pine trees form, and when their woody scales open (as shown in the photo), the seeds fall to the ground. Many animals such as birds, insects, and rodents eat these seeds, called pine nuts. There is no magnification of the cone in this photo; it is close to actual size.

Photo 6. The cap of an acorn (F) has an outer covering of overlapping flaps, or bracts. The cap helps protect the end of the acorn and holds it to the tree. Acorns take from one growing season (white oak group) to two growing seasons (red oak group) to mature. The magnification of this photo is approximately three times the actual size.

## Page 5

### **(WATER EVERYWHERE)** *Where does your drinking water come from?*

Most youth will respond that their drinking water comes from the tap, a store, or a bottle, but in reality, almost 80 percent of the drinking water used in Pennsylvania ultimately comes from forested watersheds. A watershed is the land area water drains through, or passes under, to arrive at a body of water such as a stream or pond. Drinking water is often pumped from groundwater wells, or taken from springs. Many homes also get their water from public and private water companies, but where do these companies get their water? It usually comes from wells, reservoirs, or rivers near forests. Wherever one's drinking water comes from, there is usually a connection back to the forest. Try to trace their water back to its source during the discussion.

## Page 6

### **(TREES EVERYWHERE)** *Can you think of things that might damage young trees?*

Young trees are subject to damage from many living and nonliving things. Insects, diseases, fungi, and browsing animals such as deer are just a few of the living things that take a toll on young trees. High winds, acid deposition, air pollution, fire, and ice storms are examples of destructive nonliving things. People generally do not plant trees in the forests of Pennsylvania; we rely on the natural growth of new trees from seeds, stumps, and roots. This natural growth, called natural forest regeneration, sometimes needs protection. Forest stewards pay close attention to forest regeneration. If there is not enough in their woods, they often seek to correct the situation if they can. A good example of this is using a deer enclosure fence to protect an area from overbrowsing by high populations of deer.

## ***Suggested Junior Forest Steward Activities***

The keyword in regard to the suggested Junior Forest Steward activities is *flexibility*. You are free to choose or adapt one of the activities suggested below or design your own. The point of doing an activity is to engage youth with forests and involve them in doing something positive for the forest. This is what the stewardship concept is all about helping, improving, enhancing, promoting, encouraging, and/or maintaining the forest for others – today and for tomorrow. Below is a list (not exhaustive) of suggested activities. You and your group only need to carry out one activity to complete the requirement for the JFSP. You may need to find people to assist you in your activity. Members of the Pennsylvania Forest Stewards (Volunteer) Program, DCNR county service foresters, members of the Society of American Foresters (SAF), county-based Penn State Cooperative Extension educators, conservation district personnel, state park environmental educators, private consulting foresters, wildlife conservation officers (WCO), and foresters who work for a private company may all be of assistance to you. Do not hesitate to ask others for help, and you may call the Penn State Forest Resources Extension Office at 1-800-235-9473 if you need help finding someone in your area. If you choose to do something other than one of the suggested activities, make sure you describe it on the Tally Sheet you send in.

### *Some Suggested Activities*

- 1) Visit a Pennsylvania Forest Steward in his/her woods or another location. Have the participants “interview” the steward (with assigned questions, if necessary) about what he/she is doing to care for their forest.
- 2) Press a collection of the leaves from 10 forest trees and label them in a display for others to learn from and enjoy. Note several forest products the trees may provide.
- 3) Construct a brush pile to improve wildlife habitat in a forested area.
- 4) Put up bird boxes in a young forest to provide shelter for birds that need tree cavities.
- 5) Help construct a recreational trail that allows others to enjoy the forest.
- 6) Visit a DCNR Pennsylvania State Park or State Game land and learn from the land managers what stewardship practices they are using.
- 7) Learn about invasive weeds and help eliminate some from a forested area.
- 8) Pick up litter and trash in a forested area to help a forest steward.
- 9) Plant recommended trees and shrubs to provide food and shelter for wildlife.
- 10) Visit your local library or search online to determine if any rare or endangered species of plants or wildlife exist in the forests of your region of the state. Share your results with others.
- 11) Visit an active logging site where a professionally managed timber harvest is occurring, have the participants create a photo story of the visit. This may require special permission and some safety precautions.
- 12) Help put up educational signs along a forest trail.
- 13) Help a forest steward collect tree seeds or plant trees in their woods.
- 14) Plant native Pennsylvania tree seeds in peat pots and observe their growth. If possible after they germinate, plant the trees in a suitable location and protect them from deer browsing.
- 15) Write and perform a play about the importance of forests to Pennsylvania’s citizens
- 16) In the early spring, visit a forestland owner who makes maple syrup in their “sugarbush,” and learn how they make maple syrup every year and care for their maple trees.
- 17) Write a letter to the editor of a local newspaper about the need for practicing stewardship when caring for and using the forests of Pennsylvania.
- 18) Create your own activity.

## *Glossary of Important Words and Concepts*

**Acid deposition**—precipitation (rain, snow, or mist) that is more acidic than normal forms as a result of pollution

**Aesthetics**—a forest value based on beauty, visual appreciation, and/or inspiration

**Community**—a collection of living organisms in a specific area that live and function together

**Conifers**—softwood trees, evergreens; trees that bear cones and have needle or scale leaves

**Corridor**—a strip of wildlife habitat, unique from the landscape on either side of it, that links one isolated area to another and allows certain species to move between separate habitat areas

**Den tree**—a tree with holes where birds, mammals, or insects such as bees may nest (also known as a cavity tree)

**Deciduous**—hardwood trees; trees that lose their leaves each autumn

**Ecosystem**—a defined area or community with living organisms and their interactions with their environment; includes the movement, change, and accumulation of energy and matter

**Edge**—the boundary between any two distinct natural areas, such as between open land and woodland; can be valuable wildlife habitat for some species, but can be problematic for others

**Endangered species**—species in danger of extinction throughout all or a significant part of their range; protection mandated by the United States Endangered Species Act (1973)

**Erosion**—the movement (and often loss) of soil particles by water or wind

**Featured species**—a favorite or preferred species that is the focus of attention in a management plan

**Forest**—a place dominated by trees and other woody plants.

**Forestland**—land covered with trees.

**Forest products**—things that people make from forest materials or use directly from the forest

**Forest stewardship**—the wise management and use of forest resources today to ensure their health and productivity for future generations; may involve helping, improving, enhancing, promoting, encouraging, and/or maintaining the forest

**Forest recreation**—the fun activities people do in the woods such as hiking, hunting, mountain biking, birding

**Forested watershed**—a watershed where most of the land is tree covered

**Land ethic**—the principles and values guiding our use and treatment of the land. Forest stewardship is a land ethic (see *stewardship*)

**Mast**—all fruits of trees and shrubs used as food for wildlife.

- Hard mast includes nutlike fruits such as acorns, beechnuts, and chestnuts
- Soft mast includes the fleshy fruits of black cherry, dogwood, and serviceberry

**Nonrenewable resources**—naturally occurring things that cannot grow again, reproduce, or be created in less than a person's lifetime and take usually much longer to be formed, such as oil, gas, and minerals

**Overstory**—the trees that form the top layer of the forest

**Rare species**—species that exist only in one or a few restricted geographic areas or habitats or occur in low numbers over a relatively broad area

**Regeneration**—(1) the young trees that will develop into the future forest; (2) the replacement of one forest stand by another as a result of natural seeding, sprouting, planting, or other methods

**Renewable resources**—naturally occurring things that can grow again, reproduce, or never run out, such as trees, wildlife, or solar and wind energy

**Sapling**—a small tree, between 2 and 4 inches in diameter and measured 4 1/2 half feet off the ground

**Scat**—animal droppings; feces

**Seedling**—a young tree originating from seed that is less than 4 feet tall and smaller than 2 inches in diameter at the ground level

**Silviculture**—the art, science, and practice of establishing, managing, and reproducing forest stands

**Snag**—a standing dead tree that provides feeding and/or nesting sites for wildlife

**Stand**—a grouping of trees that are uniform in regards to species composition (mixture), age, and condition

**Succession**—the natural predictable sequence of replacements of one plant community (and the associated animals) by another over time

**Understory**—the smaller plants (shrubs, seedlings, saplings, small trees and the herbaceous plants of the forest floor) within a forest found below the overstory

**Watershed**—an area of land that drains into a body of water. e.g. all the land from which a particular stream, pond, or river is supplied.

**Water control structures**—things such as water pipes, culverts, dams, dikes, channels, and retention/detention ponds

**Wetlands**—areas that are either transitional between land and water (where the groundwater is at or near the land surface) or areas of land that are covered by shallow water (such as marshes, swamps, bogs, and fens)

**Wildlife habitat**—the area where an animal meets its needs (food, water, shelter, space, etc.)

**Woodland**—see *forestland*

**Woods**—see *forest*

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*The Pennsylvania Junior Forest Steward Program Tally Sheet*

Educator/Helper Name (First, Last) \_\_\_\_\_

Street or PO Box \_\_\_\_\_

Town or City and Zip Code \_\_\_\_\_

Total Number of Youth in Your Junior Forest Steward Program: \_\_\_\_\_

Number of Boys \_\_\_\_\_ Number of Girls \_\_\_\_\_ Age Range \_\_\_\_\_

Name of School or Youth Organization (if applicable) \_\_\_\_\_

**Briefly describe your group's Junior Forest Stewardship activity. Please also indicate the date(s) on which you carried out the activity.**

**Describe at least one positive impact of *your* Junior Forest Stewardship Program.**

**Any other comments, concerns, or suggestions? Please share them with us! If you have a photo of your participants, we would love to see it. Simply attach it to this form or e-mail it to [sss5@psu.edu](mailto:sss5@psu.edu). (You may write on the backside of this page if needed.)**

**To receive your Junior Forest Stewardship Program patches, please return this completed form via mail to:**

Forest Resources Extension (Attn: JFSP)  
Penn State School of Forest Resources  
320 Forest Resources Building  
University Park, PA 16802-4705

Or fax to:  
814-865-6275

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