

# Forestry in the Classroom Series



## Forestry Related Careers



An Educational Series for Grades 4, 5 and 6

# Tree-Related Careers

Some jobs are obviously related to forests and trees. You might think of forest rangers, lumberjacks, and Christmas tree sellers. But the creation and management of forests, timber, parks, and tree and wood products requires people with a wide variety of skills to work together. As you'll see from the following list, many people combine their love of the woods with other interests and abilities to do their part for the trees.

## ACCOUNTANT

All accountants must adhere to generally accepted accounting principles. But because trees are living organisms, their value is in constant flux and communicating the worth of forest assets at true market value is a real challenge.

## Silviculturist

Like their counterparts the urban foresters, silviculturists devote their careers to the cultivation and care of forests. Silviculturists look at stands of trees covering between 10 and 30 acres and determine the volume for commercial output, taking into account the factors of disease, soil, water, climate, and diversity of species. To enjoy this career, you need to like working in the woods with maps and compasses.

## Garden Consultant

Many landscape and garden designers have transformed a personal passion for gardening into a career that sustains them. Practical experience, a wealth of knowledge, and an eye for beauty are the only requisites for a career as a garden designer, although an ability to market, network, and establish a client referral base is essential to a steady career.

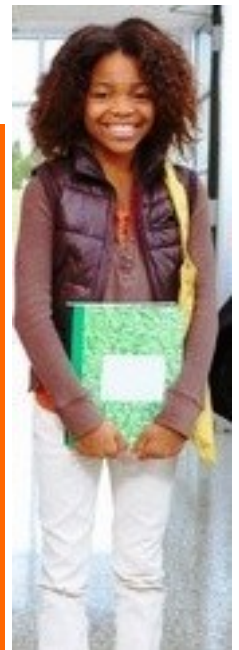


## Lumber Harvester

Loggers and millers embrace this industry as a way of life because the work is done in the forests and requires extended periods of time away from home. Work is hard and very physical. It is all outside, although some areas of the mill are sheltered. It is highly intense and not without danger.

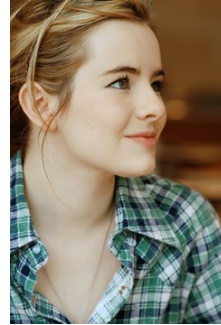
## Forest Pathologist

Forest pathologists, with all the dedication of a physician, work to isolate the causes of tree disease and find cures for even the most virulent illnesses that threaten forests. They have to understand botany, fungi, insects, ecology, and soil types; be well-rounded; and understand the environment in which trees grow. In addition to fieldwork, tree pathologists use computer modeling to study the progression of tree diseases.



## Soil Scientist

There are two major categories of soil scientists: researchers and educators. Researchers study topics such as the effects of grazing on national parks or population pressures on urban areas, pesticide use, and water management. They classify soils using chemical analysis, conduct experiments on plant growth, and develop new methods for maximizing the productivity of the land. Much of their work used to involve surveying orchard and farmland soils for pesticides and other toxic elements, but the focus is shifting to studies involving water quality and wetland restoration.



What kind of job can I get?

## Wildland Fire Manager

Although fire managers do fight wildland fires much of their work tackles prevention through prescribed burning and other fire-management techniques. Fire management is a team effort that includes professionals such as timber managers and biologists along with the technical expertise of firefighters and fuels managers, along with those who work the educational front lines teaching children about fire safety.

## Lawyer

Attorneys who specialize in tree or green-industry law handle cases or contracts for a variety of related professionals, including contractors, arborists, landscape architects, and pest control advisers. While most attorneys have handled at least one tree case in their careers, few are able to make a career of it. The trend toward tree and green-industry law is increasing, but those who want to specialize in trees full-time will likely need to form their own practice. Handling cases in related areas such as construction and real estate law may also be necessary to round out a full-time practice.

## GIS Professional/Technician

Those working in forestry have a new tool to help them gauge the effects of environmental changes. GIS technology can re-create a forest inside a computer, where complex data can be sorted and analyzed to provide different views into the future. Scientists using GIS technology can create accurate, three-dimensional visual images or maps of forests and test various scenarios before they occur. It's a good career for people who like technology but don't want to sit in the back room programming.



# Careers in Forestry and Natural Resources

Jim Smith, Senior Research Technician, Weyerhaeuser Company

## What attracted you to your current field of study?

My interests in logging, forestry, fisheries, wildlife, and the outdoors

## Have your expectations been met?

I have far surpassed the expectations that I had while in college.

## What do you like best about the field?

The variety in the work I have done and the challenges of working on new products in R & D environment.

## What are some personal challenges you have faced in your field?

Field work in inclement weather conditions, uncertainty of employment because of cutbacks, and balancing heavy workloads.

## What does the future hold for your chosen field?

As long as people use wood products, there will be a need for forestry and wood technology people, especially in new product development.

## What things can students do to prepare for a career in this field?

To get a good job in a major corporation, education is one of the keys to get your foot in the door. Once there, how you do your job will dictate how far you will go in it. In the wood products business, math, science, writing, and computer skills are all very important. Work ethic is the most important.



Bob Eaton, Chief at the Division of Fire Management, U.S. Fish & Wildlife Service



## What attracted you to your chosen field?

I have always had an interest in nature and working in the natural resources field. I developed my love for the outdoors growing up as a Boy Scout and camping every month.

## What is the future outlook for your profession?

I think the future is very bright for those individuals that gain as much knowledge as they can in the natural resources field and then learn how to articulate, collaborate, and coordinate the issues and concerns with all the partners involved. Issues are not just local in nature. As I learned from one of my NCSU professors years ago, "Everything is connected to everything", so

when you make decisions affecting the natural resources, it spreads over many, many miles of the landscape.

## What does the future hold for your chosen field?

There are more and more demands on the natural resources with increasing populations and with folks leaving the large metropolitan areas trying to get back to nature. This shift creates challenges for our future natural resource leaders who will have to learn to think outside the box to keep everything balanced.

## What advice would you give to students entering the field?

Students need to get the basic foundation of a natural resources integrated academic curriculum. Communication skills (public speaking and writing) are an absolute necessity to advance in this field. Science is defined quantitatively, so the more math and statistics that you can take then the better prepared you will be. The last thing I would leave with potential students is: PASSION and hard work, hard work and more hard work. You got to have the passion to endure the long hours, low pay, hard work, harsh environmental conditions, etc.

## What They Have to Say

Kathryn Haber, Wilderness Therapy Guide for Summit Achievement

### **What attracted you to your chosen field?**

I have a passion for working and living in the woods. Going out into the woods has always been a form of therapy for me and I thought by working in Wilderness Therapy I could share my love for nature and how it has helped me with others.

### **What do you like best about the field?**

I love this field of work for so many reasons. The outdoors is truly an amazing place for any type of kid. It pushes and affects people in different ways and I love watching the therapeutic process take place out there.

### **What are some personal challenges you have faced in your field?**

Some personal challenges that I've faced in the Wilderness Therapy field is the schedule, I work an 8 day on and then 6 day off schedule which basically gives you a double life. When on shift you never know what's going to happen so some shifts are easy and then others are mentally draining. We get some tough kids that walk through the door and learning how to deal with each problem and deal with conflict can be difficult.

### **What does the future hold for your chosen field?**

I see a lot of changes in Wilderness Therapy in the future. It is an ever changing industry, still fairly new but becoming more well-known. I feel like it'll become a more popular method for teen therapy.

### **What things can students do to prepare for a career in this field?**

I think that taking classes in psychology and outdoor education can definitely be helpful. Also, being flexible, a quick decision maker, and able to take things in stride are traits important to longevity in this field.



Melanie R. Kirk, Urban and Community Forestry, Texas Cooperative Extension



### **What do you like best about your chosen profession?**

The opportunity to educate people on the importance of trees in areas where people live, work, and play.

### **What challenges face your profession?**

With the continued growth in urban populations it will become increasingly more difficult to convince the decision makers of our nation's municipal infrastructures to incorporate green into their developments.

### **What is the future outlook for studies in natural resources?**

Studies in natural resources have become more interdisciplinary than in the past. As our nation becomes more urbanized natural resource professionals are forced to partner with non-traditional groups and state agencies like; City and Park Planners, Developers, Transportation Departments, and Engineers in order to stay relevant to those they serve.

### **What advice would you give to students entering natural resources :**

In addition to the technical information that you are required to know, communication is the key to a successful career in urban forestry and natural resources as a whole. As a natural resource professional you will have to be comfortable and prepared to speak to people about what you do and it's importance... outreach is what we do.!

Go to [www.forestrycareers.org](http://www.forestrycareers.org) to see more profiles.

# Tools of the Trade

Foresters use many different tools in their profession. Some are as simple as a log book used to record field data. Some, such as GPS navigational tools, utilize satellites 12,000 miles above the earth. A forestry tool can be as small as a wedge prism or as large as a logging truck.

A **clinometer** is a pocket-sized instrument to measure tree height.



A **log scale stick**, or **Biltmore stick**, is a lightweight, sturdy piece of wood with graduated marks used to measure tree diameter, height, and total volume.



A **GPS receiver** is a tool that receives and processes signals from US government satellites orbiting the Earth. It is used to find location.



An **increment borer** is designed to remove a core of wood from a tree to assess the tree's growth rate, age and wood quality.



**Diameter tape**, is used to measure the diameter of a tree.



A **tally book** is used to record information when a forester cruises timber, identification of tree species, product class, diameter height, number of plots, legal description of the land, notes, etc. It is protected by a weather resistant cover.



A **wedge prism** is a wedge-shaped piece of glass ground to specific optical characteristics. The prism is used to determine a tree's basal area.



A forester uses a **laptop computer** to stay in touch with the office, send and receive e-mails, fill out forms online and keep track of information.



**Tree marking paint** is used for several reasons: to indicate if the tree is to be cut or left standing; to delineate property boundaries; or to signify trees for wildlife.



## Envirothon

Students in the ninth through 12th grades can compete in this problem-solving event. With the support of natural resource professionals, students are trained in the ways that real life environmental problems are solved.

Teams are tested on their knowledge of Kentucky's natural resources at five "in the field" test stations, each covering a separate topic addressing soils, forestry, wildlife, aquatics and a current environmental issue. Through hands-on experiments, analysis and use of critical thinking skills, the teams answer a set of questions at each station.

For more information, check with your local conservation district.

Where can we get involved in forestry related activities?

## FORESTRY with KY FFA

This course introduces the science of silviculture. The course includes career opportunities, tree identification, tree production, forestry management, timber harvesting, wood utilization and the environmental and ecological aspects of forestry. Content may be enhanced with appropriate computer applications. Leadership development will be provided through FFA. Each student will be expected to have a supervised agricultural experience program. Check it out!



## Kentucky 4-H has a forestry program!

4-H provides youth with hands-on, real-life opportunities to learn skills, gain knowledge, have fun, and make contributions in such areas as environmental education, community service, and current youth issues.

For more information on how to get involved in 4-H, please contact your county 4-H Extension Agent.

There are many careers that involve forestry. Use the word key below to find some of jobs you can do if you like trees and the tools you might use. Look up any words you don't know in a dictionary to find their meaning.

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

**Accountant • Arborist • Biltmore stick • Careers • Christmas Tree Farmer • Clinometer • Cooperative Extension Specialist • Diameter tape • Envirothon • FFA • Forest Pathologist • Forester • Garden Consultant • GIS Professional • Grant Writer • High School Teacher • Increment borer • Landscape Architect • Laptop • Lawyer • Lobbyist • Logger • Nature photographer • Nursery owner • Park planner • Researcher • Silviculturist • Soil scientist • Tally book • Tools • Tree trimmer • Urban planner • Wedge prism • Wildland firefighter**

