

Time Frame

4 Class periods +
Interview Work +
Library Research

Key Words

Private Forest
Family Forests
Watersheds
Endangered Species Act
Clean Water Act
Stewardship

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OVERVIEW

The significance of Private Forests in the U.S. has students study the history of private forests and the values these lands have to the United States. Students will also examine family forests in America, and take a closer look at the challenges facing private forestland owners.



Private Forestland Tour: Maple Syrup Days, March 20, 2005, located on Jack Wohlstader's Tree Farm in Illinois. (Photo courtesy of Jack Wohlstader).

OBJECTIVES

National Council for History

The students will conduct historical research; obtaining historical data. (Historical Thinking, Standard: 4B)

The students study the economic boom and social transformation of postwar United States. (U.S. History - Era 9, Standard 1)

Students examine economic, social, and cultural developments in contemporary United States. (U.S. History - Era 10, Standard 2)

The student will utilize visual and mathematical data presented in charts. (Historical Comprehension, Standard 2)

National Standards for Social Studies

Students use data and apply skills in analyzing human behavior in relation to its physical and cultural environment. (Standard 3: People, Places, and Environments)

LESSON PLAN

Teacher Preparation - Download and print Module 10 Teacher & Student PDFs using Adobe Acrobat.

Day 1 activity: Make copies of the Essay, Worksheet 1 and Worksheet 2 for each student in your classroom (**Student Pages 1-9**). Make an overhead copy of the Ecosystem Service chart (**Teacher Page 5**).

Day 2 activity: Make copies of Worksheet 3 (**Student Pages 9-10**) for each student in your class. Read the Worksheet 3 Teacher Instructions (**Teacher Page 6**). You may want to set aside computer class time for this worksheet.

Day 3 activity: Make copies of Worksheet 4: "Family Forest Story – 'Tree Farming' in the U.S.," Interview - Student Directions, Interview- Student Checklist, and Interview Permission Form for each student (**Student Pages 12-17**). Read the Teacher Instructions (**Teacher Page 7**) and be sure to read the "things to consider" section. (You may want to make a list of a few local tree farmer(s) or private forestland owner(s) and their contact information to give to the students.)

Day 1

Set the stage for this activity by leading a short group discussion answering the following questions:

- What do you know about private forest land?
- What are private forests?
- What are the uses of private forests?
- Why do people own private forests?
- How many people do you think own private forests?
- Are most forested lands in the U.S. owned by the government or by individuals and companies?
- How about in your state?
- What products do we use that come from private forests?

Discuss Ecosystem Services (using Chart, **Teacher Page 5**).

- What are Ecosystem Services?
- What services do forests provide?
- Can the students think of other ecosystems and what they might provide?

Now **read** the essay, "Understanding Private Forests & Family-Owned Forests" (**Student Pages 1-6**) together as a class (silently at desk or out loud). Then complete Worksheet 1, "Family Owned Forest Facts." (**Student Pages 7-8**). Assign Worksheet 2: Keywords (**Student Page 9**).

Day 2

Discuss: Worksheet 3, "Teacher Instructions" (**Teacher Page 6**) Lead discussion with students.

Assign: Worksheet 3, "Reasons for Owning Family Owned Forests" (**Student Pages 10-11**)

Day 3

Read: Worksheet 4: "Family Forest Story – 'Tree Farming' in the U.S." (**Student Pages 12-14**)

Assign: Worksheet 4 "Interview a Tree Farmer or Private Forestland Owner" (**Teacher Page 7 and Student Pages 15-17**)

Day 4

Teachers can choose from three assessment activities.

- Application and Integration Exercise (**Teacher Page 8; Student Pages 18-22**)
- Test (**Student Pages 23- 24**)
- Reflective Exercise (**Student Page 25**)

Use the Answer Key to check answers (**Teacher Pages 9- 13**)

CLASS EXTENSIONS

- **Arrange a field trip** to visit a local private forest or tree farm and meet with a local forestland owner to view their land, participate in hands-on activities, or view current forest research, etc.
- **Invite a forester** employed by federal, state or local government **into your classroom** to discuss their job in relationship to private forestland owners, the help they offer local forestland owners, and the types of management plans they might suggest to local forestland owners.
- Have students **submit** their **interview article** (“Interview a Tree Farmer or Private Forestland Owner”) to a local Tree Farm System or one of the Private Forest Associations in the “Links” section below to see if they can be published in the next newsletter.

Team Teaching Possibilities

Technology: Students could conduct Internet research in their technology class. Students could also create a graph (using Excel) with the information in the charts from Worksheet 1 or Worksheet 2.

English: Students could write a biography of a private forest land owner or the land owner’s family.

Math: Complete Worksheet 1 and/or 2 in Math class.

Science: Have students learn more about watersheds in their community and research the ecological benefits of private forests in their area (ecosystem services).

Or have students conduct a watershed activity, “Down by the River” provided by the Missouri Department of Natural Resources – <http://www.watersheds.org/teacher/water02.htm>

LINKS

Forest History Society--Bibliographic resources on private forests and environmental history <http://www.foresthistory.org/Research/Biblio.html>. Ordering Resource for: *American Forests: A History of Resiliency & Recovery*, *The Greatest Good* film <http://www.foresthistory.org/Publications/>. Photo resources, Photo Galleries by Subject: Tree Farms; <http://www.foresthistory.org/Research/FHSPhotoGalleries.html#Treefarms>.

American Forests has developed a process called Regional Ecosystem Analysis (REA), which uses a combination of data to measure a region/city's tree canopy and calculate the value of the services trees provide in terms of the work they do to clean the air & water in that community (many areas available). This may provide an excellent extension resource to help students understand the actual value of trees to our ecosystem.

<http://www.americanforests.org/campaigns/ecological%5Fservices/>

American Tree Farm System- Provides a list of state forest programs:

<http://www.treefarmssystem.org/cms/pages/35.html>

Association of Consulting Foresters of America, Inc. – Provides standards for the consulting foresters and educates & assists landowners in good forest stewardship. The ACF is organized into state or multi-state chapters located in most forested regions of the U.S. and may be a helpful resource for finding a private landowner to interview. <http://www.acf-foresters.org>

Ecosystem Services - offers good explanation and graphic on ecosystem services.

<http://ecology.botany.ufl.edu/ecologyf03/graphics/EcosystServ.jpg>

HistoryLink.org, The Online Encyclopedia of Washington State History. This site offers a variety of Forest History Activities. Activity 8 is on debating land use: http://historylink.org/wfpa/13-activity8-what_picture_do_you_like.pdf

LINKS (continued)

The National Christmas Tree Association: has a science curriculum online <http://www.realtrees4kids.org/>, as well as a feature where you can put in your zip code and find a nearby Christmas tree farm <http://www.christmastree.org/home.cfm>.

Natural Inquirer, "Before & After: A Look at Our Land" (Activity about land use history in Jones County, GA.) http://www.naturalinquirer.usda.gov/pdf/6_28.pdf

Science NetLinks, "[Ecosystem Services - Water Purification](#)" uses the example of natural water purification to show students the services provided by healthy ecosystems.

Society of American Foresters - is the national scientific & educational organization representing the forestry profession in the U.S. SAF can provide a list of State Chapters; who could possibly provide a list of private forestland owners for interviews. <http://www.safnet.org>

Southern Research Station - *Compass*, quarterly science magazine contains an informational article "Private Landowners Hold the Key," <http://www.srs.fs.usda.gov/compass/issue6/03privatefull.htm>. This is an article about private landowner participation in the Conservation Reserve Program (CRP).

State and Private Forestry, USDA Forest Service - State and Private Forestry programs bring forest management assistance & expertise to landowners. They may also provide teachers with a list of private forest owners that might help with the interview activity. <http://www.fs.fed.us/spf/>

REFERENCES

- * MacCleery, Doug. *American Forests: A History of Resiliency & Recovery*. Durham, NC: FHS, 2002.
- * Forest Learn. OR Department of Forestry, <http://www.forestlearn.org/forests/ofpa.htm> (October 2006).
- * American Tree Farm System. http://www.treefarmssystem.org/cms/pages/69_1.html (September 2006).
- * USDA Forest Service http://www.fs.fed.us/woodlandowners/publications/nwos_draft_tables_july_2005 (December 2006)
- * Goldsboro News–Argus, Associated Press Article. "Fear the woodpecker: Concerned about development restrictions landowners clear cut their lush woods." September 24, 2006.

Ecosystem Services

(Processes by which the natural environment produces resources useful to humans.)

Forests
provide
many
Ecosystem
Services

Flood Damage Control:

- Forests help catch, store, absorb and slowly release excess water - runoff waters.
- Forests also help lessen the height & duration of flood waters, and help protect residential areas from feeling greater impacts of flooding.

Help reduce Global Warming:

- Forests remove Carbon Dioxide, a greenhouse gas, from the atmosphere.
- Remove other air pollutants.
- Trees produce Oxygen.
- Trees act as giant filters that clean the air we breath.

Water Purification:

- Forests help purify water.
- Excess nutrients, sediments, & contaminants are removed from water as it moves through the forest ecosystems.
- This natural water purification process provides clean water for drinking, recreation, wildlife habitats, & industrial use.

Other Forest Benefits:

- Help reduce noise pollution.
- Provide wildlife habitats.
- Provide recreation.
- Can increase property values.
- Act as windbreaks.
- Provide shade and help regulate temperatures in both summer & winter.

(Teacher Instructions – Day 2 Activity)

Worksheet 3: Teacher Instructions

- Discuss the following questions with students:
 - Why do you think people would want to own private forestlands? (write the reasons on the board/overhead/etc)
 - Would you want to own a private forest? Why or Why not?
- Pass out Worksheet 3 (**Student Pages 10-11**) and have students look over the charts.
- As a class, define a few words: **Aesthetic**, **Land Investment**, and **Family Legacy**.
Aesthetic – “of or relating to beauty or what is beautiful” Forestland may be thought of as beautiful or pleasing to look at and that is the reason to own it.
Land Investment – “purchasing land that may increase in value in the future” The land itself may have resale value and the trees on the land may increase in value as well.
Family Legacy – “From a previous generation.” Forestland is passed down from one generation of a family to the next.
- Discuss the choices listed in the chart and compare them with the choices you came up with as a class. Discuss the following:
 - Do you think the survey missed any important reasons?
 - Would you have given different choices?
 - If yes, why would you have given different choices?
- Assign: Worksheet 3 (**Student Pages 10-11**)

(Teacher Instructions – Day 3 Activity)

Worksheet 4: Family/Private Forestland Owner Interview

- Have students read “Family Forest Story: ‘Tree Farming’ in the U.S.” (Student Pages 12-14)
- Assign: Worksheet 4 - Interview a Tree Farmer or Private Forestland Owner
- Pass out Worksheet 4 Interview Student Directions, Interview: Checklist, & Interview: Permission Form, and go over the assignment with students (Student Pages 15-17)

Things you may want to consider or do before assigning this project:

- FYI: this project may take 2-3 weeks (mainly outside of the classroom) to complete (need to allow time to set up and complete interviews, allow extra time if students have to locate a tree farmer on their own).
- You may want this project to be a group assignment.
- You may want to have a list of a few local tree farmers or private forestland owners and their contact information (by phone or e-mail) to give to the students (this would shorten the amount of time necessary for this project).

Where to find this information?

The **Association of Consulting Foresters** (ACF) educates and assists landowners in good forest stewardship. ACF is organized into state or multi-state chapters located in most forested regions of the U.S. and may be able to help you find a local forestland owner in your area. For more information visit their website <http://www.acf-foresters.org>. Once on the ACF website, in the left side column click on the “Find an ACF Forester” link to find more information on your state. You might also consider that most state tree farm programs are arranged with district coordinators who oversee the program in a group of counties. Any state tree farm leader could put a teacher in touch with a district coordinator who in turn could line up a meeting with a tree farmer in the county where the school was located.

You can find the contact for your state, the **head of the state committee** of the American Tree Farm System, <http://www.treefarmssystem.org/cms/pages/35.html>.

You may try the **Society of American Foresters' Certified Forester Program** to “search online” for a forester that could you help locate a local forestland owner, <http://www.safnet.org/certifiedforester>.

Or you may consider contacting your **Local State Forester** (at <http://www.stateforesters.org/SFlist.html>), to help find a local tree farmer or private forestland owner in your area.

Or you may try locating a **State Forestry Association** in your state; your local State Forestry Association may help you find a local private forestland owner.

(You may also wish to contact any or all these people, if you have specific questions about tree farming in your state or if you would like them to come into your class and speak as an extension activity.)

- You may want to have each person or group present their essay, documentary, or oral history to the class.
- You may want to consider contacting 2 or 3 local tree farmers or private forestland owners to have them come into your classroom for interviews instead of having the students call these individuals to conduct the interviews.

(Teacher Instructions – Assessment 1)

ASSESSMENT 1: Application and Integration Exercise **Investigative Report**

- Have students read “Private Forestlands and the Challenges They Face.” (Student Pages 18-20)
- Assign Investigative Report (Student Pages 21-22)
- Pass out Investigative Report Student Directions and Student Checklist (Student Pages 21-22). Read the student directions together as a class and go over the assignment with students.
- After the students have turned in their reports, have each student give a three-minute synopsis of their findings. Then lead a discussion on the issues facing private forestland owners.
 - What do the students think is the greatest obstacle private forestland owners face? And what would the students recommend for overcoming this obstacle?
 - After completing all of these activities, what do the students think of private forestland owners? Would they like to own forestland?

Things you may want to consider or do before assigning this project:

- You may want this project to be a group assignment.
- Give students a list of places to look for this information:
 - Information about potential topics:
<http://conserveonline.org/workspaces/privateforests/forest101/>.
 - Endangered and Threatened Species on your Land? answers eight common questions on the issue of having endangered species on your land. <http://www.dnr.state.wi.us/org/land/er/landowner/>
 - Threatened and Endangered Species and the Landowner, this web publication from the US Forest Service answers common questions related to threatened and endangered species issues.
<http://www.na.fs.fed.us/spfo/pubs/wildlife/endangered/endangered.htm>
 - 2005 Forest Health Highlights, <http://www.fs.fed.us/r6/nr/fid/news.shtml>
 - Website listing of insect/pest notes.
http://www.oregon.gov/ODF/PRIVATE_FORESTS/fh.shtml#Forest_Insects
 - Global Institute of Sustainable Forestry article on forest insects,
<http://research.yale.edu/gisf/assets/pdf/ppf/flyer.pdf>
 - You may consider contacting your Local State Forester (at <http://www.stateforesters.org/SFlist.html>), to help find a local private forestland owner in your area to interview or to ask questions about issues facing private forestland owners in your area currently.
 - Society of American Foresters (SAF) offers national positions on a variety of forest policies which may be a useful source for various issue topics.
<http://www.safnet.org/policyandpress/policy.cfm>

(Teacher Page)

TEACHER'S ANSWER KEY

Worksheet 1: Family Owned Forest Facts - Answers

Table 1: Area and number of family owned forests in the United States* by size of forest landholdings, 1993.

Size of Forest Landholdings (Acres)	Area (Acres) Thousands	Area (Percent)	Ownership (Number) Thousands	Ownership (Percent)
1-9	16,509	7.0	5,603	60.3
10-49	57,342	24.2	2,534	27.3
50-99	42,729	18.0	642	6.9
100-499	78,461	33.1	472	5.1
500-999	17,532	7.4	29	0.3
1000-4999	17,797	7.5	13	0.1
5000+	6,872	2.9	3	<0.1
Total	237,242	100.0	9,296	100.0

* Numbers above are for the continental U.S. and exclude Alaska and Hawaii.

Table 2: Area and number of family owned forests in the United States* by size of forest landholdings, 2004.

Size of Forest Landholdings (Acres)	Area (Acres) Thousands	Area (Percent)	Ownership (Number) Thousands	Ownership (Percent)
1-9	20,069	7.7	6,570	61.4
10-49	61,681	23.6	2,970	27.8
50-99	41,815	16.0	632	5.9
100-499	82,747	31.6	473	4.4
500-999	20,349	7.8	32	0.3
1000-4999	24,724	9.4	14	0.1
5000+	10,254	3.9	1	<0.1
Total	261,639	100.0	10,692	100.0

* Numbers above are for the continental U.S. and exclude Alaska and Hawaii.

These tables come from the USDA Forest Service, National Woodland Owner Survey and are draft figures. Designed for review purposes.

Worksheet 1: Family Owned Forest Facts - Answers

- 1) See **bolded** numbers in chart above.
- 2) in 1993? **60.3%**, in 2004? **61.4%**
- 3) in 1993? **7.0%**, in 2004? **7.7%**

(Teacher Answer Key, con't)

- 4) The majority of private forestland owners (61.4 percent) in the U.S own only 7.7 % of the private forestlands in the U.S.
- 5) There has been a small increase in the percentage of private forestland owners owning 1-9 acre plots in the U.S. From 60.3% in 1993 to 61.4% in 2006.
- 6) in 1993? **100-499**, in 2004? **100-499**
- 7) in 1993? **5.1%** in 2004? **4.4%**
- 8) There has been a small decrease in the percent of landowners owning 100-499 acres since 1993...from 5.1% in 1993 to 4.4% in 2004.
- 9) It appears that more people own smaller amounts of forestland (1-9 or 10-49 acres) since 1993. Therefore the trend seems to be for people to own smaller acres of forestland rather than the larger 50 acres or more plots of forestland. It also appears that once you get into ownership of much larger portions of forestland (500 or more acres) that the trend for ownership of these lands has remained constant since 1993.
- 10) Some possible answers may include.
 - Owners may be selling part of their land to developers and keeping part for themselves, thereby increasing fragmentation of the forest.
 - Owners may be selling part of their land to other individuals for a home site or other purposes, thereby decreasing the size of ownership.
 - Owners may be leaving their property to more than one child in their wills, thereby increasing the number of owners and decreasing the size of ownership.

Teacher FYI: (Actually having a larger acreage makes it easier to invest in managing forestland)

However, any reasonable answer may be accepted.

Worksheet 2: Answers will vary depending on the words the students selected. Students may use highlighted words from the essay and the definitions provided in the essay, just make sure the “you define” answer sounds like it is in their own words.

Worksheet 3: Reason to Own Family Forestland (Answers)

- 1) See pdf graphs on-line – [Wksht 3, #1, 2006](#)

(Teacher Answer Key, con't)

- 2) See PDF graphs on-line – [Wksht 3, #2, 2006](#)
- 3) “Aesthetic,” “Family Legacy,” and “Privacy”
- 4) “Aesthetic,” “Part of home or cabin,” and “Privacy”
- 5) Answers will vary as this is an opinion question.
- 6) Nature Protection, Privacy, Non-timber forest products, Firewood production, Hunting or Fishing, changed recreation into other recreation, and they separated Part of farm or home into two choices, Part of home or cabin, and Part of farm. Answers will vary but might include: The USDA Forest Service might have received feedback from local forestland owners that they owned their land for a reason not listed and therefore when they conducted the 2006 survey they added more options. The USDA Forest Service was looking for more specific information so they added more options.
(Teacher FYI: The USDA Forest Service actually made these changes and increased the number of reasons to reflect a few new interests (i.e. Non-timber Forest Products) and because of their desire to get a more refined understanding of some of the other topics (for example: separating Recreation into two choices - Hunting and fishing and Other recreation and dividing Part of farm or home into two choices - Part of home or cabin and Part of farm.)

ASSESSMENT 1: Application (Answers)

Reports will vary, however, students should answer all questions for full credit.

ASSESSMENT 2: TEST (Answers)

1. Private Forestlands in the U.S.:

- Provide the majority of the country's forest products and services
- Help protect the main watersheds for many cities
- Provide wildlife habitat
- Provide recreational areas
- Help prevent land erosion in some areas

(Students should provide at least 3 answers similar to the above answers.)

2. Answers will vary but may include some of the following: lumber, cardboard, furniture, paper, pencils, picture frames, desks, fence posts, siding, firewood, and Christmas trees. (Students should list at least 6 items)

3. **Ecosystem Services** (students should name at least 3):

- Flood Damage Control: Forests help catch, store, absorb and slowly release excess water -runoff waters. Forests also help lessen the height & duration of flood waters, and help protect residential areas from feeling greater impacts of flooding.

(Teacher Answer Key, con't)

- Help reduce Global Warming: Forests remove Carbon Dioxide, a greenhouse gas, from the atmosphere. Remove other air pollutants. Trees produce Oxygen. Trees act as giant filters that clean the air we breath.
- Water Purification: Forests help purify water. Excess nutrients, sediments, & contaminants are removed from water as it moves through the forest ecosystems. This natural water purification process provides clean water for drinking, recreation, wildlife habitats, & industrial use.
- Other Forest Benefits: Help reduce noise pollution. Provide wildlife habitats. Provide recreation. Can increase property values. Act as windbreaks. Provide shade and help regulate temperatures in both summer & winter.

4. **c. 71%** Almost 71% of forestland in the U.S. is owned by private landowners or companies.

5. Answers will vary but may include: forestry consultants, lawyers, accountants, bankers, state forestry associations, State and Private Forestry branch of the USDA Forest Service, and the American Tree Farm System. (Students would need to name at least three sources)

6. Tree farming is a term that might be used by any forestland owner to describe their practice of growing and harvesting timber.

Or

Tree farming is growing crops of trees and trying to keep forested lands productive over time. (Or some variation of one of these answers.)

7. The American Tree Farm Association has a set of 9 standards for Tree Farm Certification. Students should list at least 3 of the 9 Standards below:

Standard 1: Ensuring Sustainable Forests

Standard 2: Compliance With Laws

Standard 3: Commitment to Practicing Sustainable Forestry

Standard 4: Reforestation

Standard 5: Air, Water and Soil Protection

Standard 6: Fish, Wildlife and Biodiversity

Standard 7: Forest Aesthetics

Standard 8: Protect Special Sites

Standard 9: Wood Fiber Harvest and Other Operations

8. Answers will vary, but should pertain to information discovered from the Interview Activity.

9. Answers will vary.

Assessment 3: Reflective Exercise (Answers)

Forest Products Industry in your state:

- 1) Define Timber Forest Products.

Timber Forest Products are any raw material yielded by forest trees, including cellulose, chemicals, and wood.

(Teacher Answer Key, con't)

2) What Timber Forest Products are created in your state?

Answers will vary

3) Is the Timber Forest Product Industry a leading industry in your state?

Answers will vary (if your state is listed in #5 then the answer should be YES)

4) What are the leading industries in your state economy?

Answers will vary. Use the 50 states website for assistance (<http://www.50states.com/>)

5) In how many states is the forest products industry a leading industry (in the top ten)? *Bonus Question: Name the states.

17 states (including paper products), 10 not including paper products industry

Alabama, Alaska (paper products), Arkansas, Delaware (paper products), Georgia (paper products), Idaho, Louisiana (paper products), Maine, Mississippi, Montana, Oregon, South Carolina (paper products), South Dakota, Vermont (paper products), Washington, Wisconsin (paper products), Wyoming

6) Would you like to own forestland in the future?

Opinion response...answers will vary.

7) If you owned forestland, what would you own it for?

Opinion response...answers will vary.