



Discovering Alabama

Teacher Guide

White-tailed Deer

Suggested Curriculum Areas

Social Studies
Science
Environmental Studies

Suggested Grade Levels

4–12

Key Concepts

Wildlife Conservation
Natural Habitat
Carrying Capacity

Key Skills

Critical Thinking
Forecasting
Communication
Comprehension

Synopsis

The white-tailed deer, today a favorite game animal, is historically significant in the development of our nation and the emergence of the concept of environmental conservation. Yet, many youth today have little opportunity to see and learn about the white-tailed deer in the wild. Our society today is largely urbanized. In fact, with urban growth rapidly supplanting the native wilds of communities across the nation, the white-tailed deer is now often seen invading the woodlots, yards, and roadways of residential districts. The accelerating expansion of human habitat has become a major issue affecting the conservation of wildlife habitat.

Meanwhile, most students are introduced to the term conservation in the context of more popularized concerns. For example, schools often promote conservation by encouraging recycling and by conducting litter clean-up days. Thus many students graduate from high school with no knowledge of the grand story of the history of conservation in America, the special history of wildlife conservation, and the great importance of conserving wildlife habitat.

This video examines the changing relationship between white-tailed deer (*Odocoileus virginiana*) and people (*Homo sapiens sapiens*) from Alabama's settlement period to the present. It recounts the near extinction of deer in the state in the early 1900s and highlights the subsequent recovery of Alabama's deer population as a result of early programs for wildlife conservation. Guest experts provide added commentary on the management of deer, the restoration of Alabama's deer population to record numbers today, and related issues confronting Alabama conservationists.



THE UNIVERSITY OF
ALABAMA



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Alabama Department Of
Conservation and Natural Resources
State Lands Division

Before Viewing

1. Write the word *conservation* on the blackboard (flip easel or other means of presentation) and ask students to think quietly for a moment and consider the term. Have each student write a brief composition describing his/her interpretation of the meaning of this word, to include their views about how the term may be relevant to their lives.

2. Place students in small groups to discuss their interpretations and work together to produce a collaborative description/definition of *conservation* for their group. Ask each group to briefly present their collaborative description to the class. Remember: As discussed in the **Synopsis**, student ideas about conservation are sometimes associated mainly with such daily consumer issues as waste disposal, energy use, etc. Therefore, some students might overlook wildlife in their ideas about conservation. That's okay—this video/Teacher Guide and others in the *Discovering Alabama* series can help students learn much more about *wildlife conservation* and its significance in American history.

Introduce the video by explaining that it is about the white-tailed deer and how this animal is part of Alabama's history of *wildlife conservation*.

While Viewing

Have students note how Alabama's deer population has changed over time, and how efforts for *wildlife conservation* have played an important role.

Video Mystery Question: In early Alabama, the natural predators of white-tailed deer included such animals as red wolves and cougars. Today Alabama deer are more likely to be the unintended prey of what creature?

Answer: *Automobiles* or, in the words of the video, "a Dodge Ram or a Toyota Tacoma" (no brand-name promotion intended, of course).

After Viewing

1. Return students to small groups. Have them consider the video and make any related revisions they feel might be appropriate for their descriptions of *conservation*. Let each group report their revisions to the class. Discuss these revisions, making sure to emphasize the important conservation priority to protect *natural habitat*.

2. Part of the purpose of this video and Teacher Guide is to promote a fuller understanding of *conservation*, to expand upon students' sometimes limited ideas about this term, and to include an appreciation for *wildlife conservation* and the importance of *natural habitat*. Use the *Discovering Alabama* video "Wildlife History" and its Teacher Guide to reinforce this aim in the context of American history and the historically significant American conservation movement.

Extensions

1. To reinforce and broaden students' understanding of the important values of natural habitats, use such *Discovering Alabama* videos as "Alabama Forests," "Alabama Rivers," "Alabama Soils," "Longleaf Ecosystem," "Red-cockaded Woodpecker," "Red Hills Salamander," and "Alabama's Natural Diversity" together with their respective Teacher Guides.

2. To further examine trends in land-use change that are impacting natural habitats in Alabama, use such *Discovering Alabama* videos as "Flint River," "Fort Morgan," "Weeks Bay," "Village Creek," "Cahaba River Watershed," "Tuscaloosa County," and "Lee County," together with available Teacher Guides.

Philosophical Reflections

As the video explains, today hunters are the major means of population control for white-tailed deer. Experts featured in the video note that such population control is a primary justification for hunting as a lawful conservation practice and that opponents of hunting may sometimes fail to realize hunting's conservation role. The expert's comments also include the observation that hunters themselves would therefore be wise to emphasize hunting's conservation aspect, rather than considering hunting as simply recreational sport.

Certainly, the science of wildlife management provides clear rationale for hunting as a conservation practice. But science encompasses many fields and many areas of inquiry beyond the prevailing conceptions of wildlife management. From a broad perspective, legitimate issues also can be raised in regard to the "management" of human society. Topics of investigation might include, for example, the environmental consequences of a growing human population, the socioeconomic and health dynamics of vegetarian diets compared to non-vegetarian diets, and even such philosophical matters as considering what should be the proper ethical relationship of humans to animals. How do these considerations relate to the long-standing controversy pitting the views of hunting advocates against the arguments of PETA (People for the Ethical Treatment of Animals)?

Nature in Art

Many great artists prefer wildlife as the primary subject of their art. A well-known example is John James Audubon, for whom the Audubon Society is named. Audubon, like scores of other similarly inspired artists, was a strong advocate for wildlife and worked diligently to promote wildlife conservation. This profound link between wildlife art and concern for wildlife conservation is perpetuated by the Alabama Wildlife Federation through AWF's annual William R. Ireland, Sr. Youth Wildlife Art Contest. Contact AWF at <http://www.alabamawildlife.org> or (800) 822-9453 to learn more about this contest and get your students involved.

Community Connections

Give your class the opportunity to enjoy investigating wildlife and other aspects of natural diversity in your local community by implementing *Project Community—Promoting Conservation and Natural Science in Alabama Schools*, by using Alabama's natural diversity database, *Ask the Expert*, and by enjoying an online learning adventure via *Discovering Alabama's "Virtual Field Trip Series"* (currently being developed and scheduled for online access by August 2008). Or give your school the opportunity to systematically integrate science, social studies, mathematics and language arts throughout the year by adopting the innovative program *Discovering Our Heritage—A Community Collaborative Approach*. Visit the *Discovering Alabama* website, <http://www.discoveringalabama.org>, to learn more about these special programs for environmental studies and conservation education.

Complementary Aids and Activities

Project Learning Tree: activity: "Habitat Pen Pals." Contact: Alabama Forestry Association, 555 Alabama Street, Montgomery, AL 36104; also visit www.plt.org.

Project Wild: activity: "Shrinking Habitat." Available through Alabama Department of Conservation and Natural Resources, 64 N. Union St., Montgomery, AL 36130.

Learning through Legacy: activity: "Going, Going, Gone," K-2 Guide/Ecology Section. Contact: Legacy, Inc., Partners in Environmental Education, P.O. Box 3813, Montgomery, AL 36109; (334) 270-5921, www.legacyenvded.org.

Additional References and Resources

Managing Wildlife by Dan Dumont, Deborah Yarrow, and Greg K. Yarrow (1998). Contact: Alabama Wildlife Federation, 3050 Lanark Road, Millbrook, AL 36054; (800) 822-9453; awf@alabamawildlife.org.

"Saving Our Wild Places" by Doug Phillips, *Alabama Wildlife Magazine*, Summer 2006. Contact: Alabama Wildlife Federation, 3050 Lanark Road, Millbrook, AL 36054; (800) 822-9453; awf@alabamawildlife.org.

White-tailed Deer Ecology and Management compiled and edited by Lowell K. Halls (1984).

Biology and Management of White-tailed Deer in Alabama by Chris Cook and Bill Gray (2003).

Parting Thoughts

Wildlife ecologists use the term "population dynamics" in describing the changing status of wildlife populations over time. Understanding this term for white-tailed deer requires special attention to the concept of **carrying capacity** and its subcomponents **physical carrying capacity** and **biological carrying capacity**.

Physical carrying capacity refers to the simple premise that the number of animals on a given tract of land is physically limited by the acreage available. **Biological carrying capacity**, on the other hand, refers to the more operative rule that the number of animals able to live normal, healthy life spans on a tract of land is limited, not by the amount of space available, but by the available supply of biologically sustaining habitat. In other words, a given tract of land might have a physical carrying capacity of 100 deer, but might have suitable food, water, and cover to support a biological carrying capacity of only 25 deer.

Now, here's the rub, so to speak. When deer populations increase beyond biological carrying capacity, the resulting pressures on food supply and cover begin to pose threats to biological stability. Soon there is a troublesome rise in the incidence of deer malnutrition and stress. Eventually these problems of overpopulation cause widespread starvation and disease, sometimes leading to the devastation of entire deer herds.

Unfortunately, the human species seems not to appreciate the implications of such population dynamics, as human populations rapidly fill the ever spreading reaches of urban/suburban sprawl that typify many communities today. Indeed, in today's consumer-driven world, community "progress" is often equated with the rate at which commercial development is expanding toward physical carrying capacity, all the while ignoring the rule of biological carrying capacity.

Are human communities somehow free from the rule of biological carrying capacity? What might be the ultimate consequence for communities that continue ignoring this biological contingency? What might be the consequences if such environmental indifference is perpetuated worldwide? And, as our society becomes more crowded, hurried, and subject to 24-hours-a-day noise, traffic congestion, and other sources of urban stress, what might be the consequences of exceeding **psychological carrying capacity**?

Oh yeah, I almost forgot. The idea of **psychological carrying capacity** is not my invention. In recent years it has become a topic of serious scientific consideration, with early research confirming that the idea has measurable validity—as any teacher with an overcrowded classroom, a politically mired school situation, and a rush-hour commute, already knows!

Happy outings,

Dr. Doug





Discovering Alabama

Activity/Information Sheet

White-tailed Deer

The Future of Natural Habitat in Alabama

In many ways, Alabama remains relatively unscathed by the sorts of environmental losses that typify other highly urbanized regions. But change is headed our way like a speeding freight train. The South today is the nation's fastest growing region and present trends indicate that Alabama will eventually join in this rapid growth.

Alabama's environmental future will therefore be affected by a range of complex issues. Protecting the state's natural heritage requires a frank analysis of these issues, together with a full assessment of how best to sustain Alabama's plentiful wildlands for the long term. While we can be proud of such conservation achievements as Alabama's Forever Wild Program, more will be needed in years ahead.

For example, Alabama needs a comprehensive statewide conservation plan with ample incentives for perpetuating abundant wildlands and waters throughout the state. Such a plan should be developed in concert with regional and county land use planning aimed at sustaining vital ecosystems.

Also, we should intensify efforts to promote increased education about Alabama's natural heritage. There are many educational initiatives underway, but Alabama would benefit from the support of state leaders willing to strongly and publicly promote greater environmental education.

Scores of additional needs could easily be listed, but if we are to learn from the growth-related problems of other regions, perhaps there is one overarching need. Alabamians must thoroughly consider the environmental implications of future population growth in our state. What will the landscape of Alabama be like 20, 50, or 100 years from today? Will we be able to maintain our rural countryside and keep our wildlands intact? Or will Alabama become like so many other places, developed and artificialized to the point of losing close connection with our native natural heritage? Now is the time, while we still have the opportunity, to plan for the kind of future we want for the abundant wildlands that have historically defined Alabama and Alabama's special quality of life. In protecting our wildlands we are protecting more than outdoor "attractions." We are sustaining a heritage that is fundamental to a way of life and to life itself. As expanding growth and change come to Alabama, this special heritage hangs in the balance.

Already many Alabamians are removed from any chance to catch the scent of the sweet shrub, to witness the tricks of the mud snake, or to listen to the arguments of frogs around a marsh at night. Indeed, for much of today's urban society, such experiences are relegated to times past and countrysides vanished. Yet, we in Alabama are blessed to have so much remaining of our remarkable heritage. Thus, we have the opportunity not only to experience Alabama's wild wonders but also to retain them for generations to come.

—Excerpted from "Saving Our Wild Places" by Doug Phillips, *Alabama Wildlife Magazine*, Summer 2006

White-tailed Deer Factoids

1. A fawn's spotted coat provides excellent camouflage and helps conceal it from predators.
2. At birth, most fawns weigh between 4 and 8 pounds.
3. Most females reach sexual maturity at 1.5 years of age, although some 6–7 month-old fawns may breed if habitat conditions are excellent.
4. The gestation period in deer varies from 195 days to 212 days with an average of 202 days.
5. The sex ratio of fawns at birth is typically 1:1 (male:female).
6. A healthy adult white-tailed deer may weigh more than 200 pounds, and sometimes as much as 300 pounds.
7. Deer are generally crepuscular (active at twilight), but movement patterns vary according to disturbance, weather, season, and habitat conditions.
8. Adult deer require 5 to 7 pounds of high quality food each day to meet their nutritional requirements.
9. Males develop maximum antler size between 5 and 7 years of age.
10. A deer population can increase at approximately 40 to 50 percent annually.
11. A deer's winter coat consists of hollow hairs that provide insulation against cold temperatures.
12. White-tailed deer can leap heights up to eight feet and can cover distances up to 30 feet in a single bound.