

Directions: Read the article “**There’s More to Forests than Trees; There’s a World of Hidden Wildlife**” and read the poem “**The Leaf and the Tree,**” then answer the questions that follow.

**There’s More to Forests than Trees;
There’s a World of Hidden Wildlife**

Dead trees are crucial to forest life; a single fallen log can harbor dozens of different species.



Clinging to dead wood, a deer mouse searches for truffles and other fungi that have taken root on and near the decaying log.

by Jay Heinrichs

What came first, the tree or the log? A simple question if there ever was one: a log is a dead tree. But see beyond the tree to the forest, and the question grows infinitely more complicated. An increasing number of researchers say that, in terms of the whole forest, the log is father to the tree. A dead trunk is a participant in a vital process that goes on even after the wood crashes to the ground.

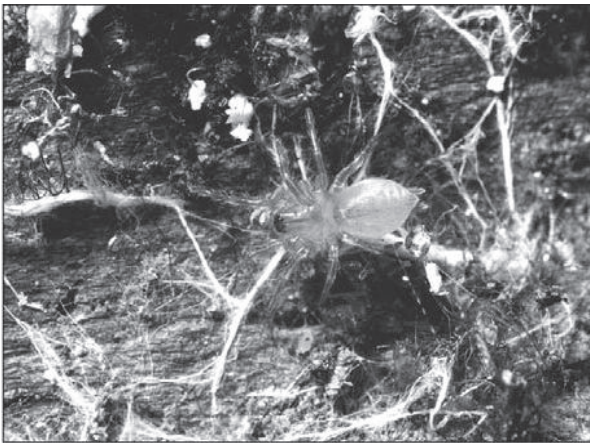
Unseen by the casual observer and as yet poorly understood by the scientist, a hidden world of birds and insects, tiny

microbes and shy animals contributes to the death of a forest and the life of its successor. The fulcrum¹ of this vast living machinery is the log. Seething with plant and animal invaders, it bursts forth with a forest’s next generation. The log is thus as much a symbol of life as it is of death. “The forest is a living organism,” explains biologist Chris Maser. “As part of that organism, the fallen tree is only superficially dead; it supports the larger being.”

In an earlier phase, of course, the log is that triumph of self-contained organisms, a living tree. A thriving white pine in the Northeast, for example, may reach maturity after a century, when it towers over other trees and plants. But, paradoxically, when the pine passes its prime, its association with the rest of the forest becomes even more lively.

A healthy tree is mostly impermeable to the outside world; the bark, which contains a potent natural fungicide, presents a formidable barrier to enemies. Boring insects find it tough, and its waterproof qualities keep moisture in. As time goes on, however, the barrier begins to break down. The bark loosens from the tree, and bark beetles find entry. They bore a labyrinth into the protein-rich inner bark and lay eggs for their wood-chewing larvae. Fungi and bacteria hitch a ride on the beetles. The tiny microbes contain enzymes that begin dissolving the wood cells, making chewing even easier for insects.

¹ **fulcrum:** central support



And the invasion begins. Decades before the pine ever falls, the surrounding forest is preparing it for fallen logdom. At the same time, the tree becomes an increasingly important wildlife host. A downy woodpecker bores into it to find insects. A rotting cavity begins to form—an ideal nesting site for a pair of flickers. The hole admits the outside world to the center of the tree, and heart rot begins to set in. The trunk is now structurally unsound. A fierce spring storm bends the pine too far, and with a vicious crack most of the tree falls to the forest floor.

Crawling across the underside of a fallen tree, a spider encounters a forest of fungi mycelium (left). Researchers have found that some fungi release a chemical that stimulates the growth of seedlings in a woodland.

According to Chris Maser, this is when the *real* action begins. The 49-year-old wildlife research biologist, formerly with the Interior Department in Oregon, believes the fallen tree serves as a locus for creatures that in turn are crucial to the renewal of the forest. He and retired Forest Service mycologist² Jim Trappe have pioneered in research revealing this strange relationship between small mammals, young trees and so-called “dead” logs.

Although the most intensive studies have been conducted in the old evergreen forests of the Northwest, new data are beginning to indicate that the discoveries of Trappe and Maser may hold true in temperate forests around the world. As more people look into ecosystems elsewhere, they seem to be reaching one common conclusion: the fallen log is not just an element of the forest but a participant in its many functions.

² **mycologist:** a biologist dealing with the study of fungi

The Importance of Old Growth

NOWHERE are logs more important to the self-renewal of forests than in the Pacific Northwest. There, ancient stands of evergreens called “old growth” serve as laboratories for investigations into the role of fallen trees in forest ecology. The resulting discoveries are more than interesting bits of science; a research-inspired debate over whether to let dead trees lie has become a controversial environmental issue in the Northwest today.

Some of the most impressive forests consist of old-growth stands of Douglas fir trees ranging in age from 250 to more than 1,000 years. Beneath these giants lies an understory that provides habitat for a variety of animals, as well as fungi and insects that help renew young forests. “Old growth is an investment in the next stand,” says Chris Maser, a former federal biologist.

The investment is diminishing rapidly.

“There’s More to Forests than Trees: There’s a World of Hidden Wildlife” Paired Passage Set # 3a

Most of the precious little old growth that remains—some three million acres—is on federal land, where more than a square mile per week of it is being logged off to become lumber.

Efforts to save old growth by the National Wildlife Federation and other groups have focused on the role such woodlands play in sustaining long-term forest production and providing high-quality water and wildlife habitat. The United States Forest Service has created a plan that preserves pockets of old trees for the northern spotted owl, a species that depends on ancient forests for survival. But, conservationists fear, saving the species

in the short term may not keep old growth intact over the long run.

“We can’t just save islands of it,” says Rick Brown, a Federation resource specialist in Oregon. Brown advocates a reserve system that spans age groups of forests, including unmanaged stands that will become future old growth.

Short-sightedness could be disastrous, warns Maser. “By converting old growth to young stands, we’re redesigning forests,” he says. “We can’t duplicate what nature has been doing for centuries. And we cannot have a sustainable timber industry without a sustainable forest.”

Heinrichs, Jay. “There’s More to Forests than Trees; There’s a World of Hidden Wildlife.” From *National Wildlife* February/March 1988 issue, Vol. 26, No. 2. Copyright ©1988 National Wildlife Federation. Photographs by Dwight R. Kuhn.

Reference:

Heinrichs, J. (2006). *There’s More to Forests than Trees; There’s a World of Hidden Wildlife*. Florida State Department of Education Released Test. Retrieved March 7, 2013, Florida State Department of Education website:
http://fcats.fldoe.org/pdf/releasepdf/06/FL06_Rel_G10R_AK_Cwf001.pdf

The Leaf And The Tree

When will you learn, myself, to be
a dying leaf on a living tree?
Budding, swelling, growing strong,
Wearing green, but not for long,
5 Drawing sustenance¹ from air,
That other leaves, and you not there,
May bud, and at the autumn's call
Wearing russet, ready to fall?
Has not this trunk a deed to do
10 Unguessed by small and tremulous² you?
Shall not these branches in the end
To wisdom and the truth ascend?
And the great lightning plunging by
Look sidewise with a golden eye
15 To glimpse a tree so tall and proud
It sheds its leaves upon a cloud?

Here, I think, is the heart's grief:
The tree, no mightier than the leaf,
Makes firm its root and spreads its crown
20 And stands; but in the end comes down.
That airy top no boy could climb

Is trodden in a little time
By cattle on their way to drink.
The fluttering thoughts a leaf can think,
25 That hears the wind and waits its turn,
Have taught it all a tree can learn.
Time can make soft that iron wood.
The tallest trunk that ever stood,
In time, without a dream to keep,
30 Crawls in beside the root to sleep.

Edna St. Vincent Millay

¹sustenance: to support life and health

²tremulous: trembling, timid

Reference:

Heinrichs, J. (2006). *There's More to Forests than Trees; There's a World of Hidden Wildlife*. Florida State Department of Education Released Test. Retrieved March 7, 2013, Florida State Department of Education website: http://fcats.fldoe.org/pdf/releasepdf/06/FL06_Rel_G10R_AK_Cwf001.pdf

Answer the following questions using the text entitled "There's More to Forests than Trees; There's a World of Hidden Wildlife" by Jay Heinrichs.

1. Read this sentence from paragraph 4:

A healthy tree is mostly impermeable to the outside world; the bark, which contains a potent natural fungicide, presents a formidable barrier to enemies.

In this sentence, the word impermeable means:

- A. Permanent
 - B. Unable to exist
 - C. Unable to invade
 - D. Easily invaded
2. Which sentence best expresses the main idea of paragraph 2?
- A. "The fulcrum of this vast living machinery is the log."
 - B. "The log is thus as much a symbol of life as it is of death."
 - C. "A dead trunk is a participant in a vital process that goes on even after the wood crashes to the ground."
 - D. "Seething with plant and animal invaders, it bursts forth with a forest's next generation."
3. From the context clues in paragraph 5, the reader can infer that a flicker is:
- A. a type of beetle
 - B. a form of fungi
 - C. an insect
 - D. a type of bird
4. From the information in the article, the initial step in the breakdown of a healthy tree is when:
- A. bark beetles lay eggs into the bark
 - B. bark beetles bore into the bark
 - C. the bark begins to separate from the tree
 - D. the bark loses protein

5. Which of the following words does not describe the general tone of the article?
- A. Serious
 - B. Optimistic
 - C. Foreboding
 - D. Ominous

“The Leaf and The Tree”

Answer the following questions using the text entitled “The Leaf and The Tree” by Edna St. Vincent Millay.

1. Which word describes the overall mood of the poem “The Leaf and The Tree” by Edna St. Vincent Millay?
- A. Joyful
 - B. Hopeful
 - C. Frustrating
 - D. Contemplative
2. The word russet in line 8 refers to:
- A. An article of clothing
 - B. A color
 - C. A type of potato
 - D. A sound of leaves in the wind
3. The poem entitled “The Leaf and The Tree” by Millay primarily uses which of the following literary terms?
- A. Personification
 - B. Alliteration
 - C. Onomatopoeia
 - D. Hyperbole

4. What type of rhyme does Millay use in her poem "The Leaf and The Tree?"
 - A. Free verse
 - B. Internal rhyme
 - C. End rhyme
 - D. Eye-rhyme

5. In line 12, the best synonym for the word ascend would be:
 - A. To fall
 - B. To rise
 - C. To grow
 - D. To discover

Comparison of "There's More to Forests than Trees; There's a World of Hidden Wildlife" and "The Leaf and The Tree"

Answer the following questions comparing both passages.

1. Which line from the poem "The Leaf and The Tree" best describes the breakdown of a healthy tree?
 - A. "Time can make soft that iron wood."
 - B. "Wearing russet, ready to fall?"
 - C. "And stands; but in the end comes down."
 - D. "Crawls in beside the root to sleep."

2. Which of the following best describes the general theme of both texts?
 - A. "What goes around, comes around."
 - B. "All good things must come to an end."
 - C. "What goes up, must come down."
 - D. "Time heals all wounds."

3. Both Edna St. Vincent Millay and Chris Maser would agree that:
- A. Life is gloomy and death is final.
 - B. It's vital to preserve our trees and forests.
 - C. The life cycle of a tree is to be appreciated for its value.
 - D. Human interference is killing our trees and forests.
4. "Fungi and bacteria hitch a ride on the beetles." and "The fluttering thoughts a leaf can think." are examples of:
- A. Hyperbole
 - B. Symbolism
 - C. Personification
 - D. Theme
5. The article by Jay Heinrichs emphasizes "A dead trunk is a participant in a vital process that goes on even after the wood crashes to the ground." In Millay's poem, the narrator suggests this is true. What does Millay say is needed in order for "a vital process that goes on even after the wood crashes to the ground?"
- A. Fluttering thoughts
 - B. Wisdom and truth
 - C. A dream to keep
 - D. Adying leaf on a living tree

**FCAT 2006 Reading Released Test _ 2006 Florida Department of Education
Questions and Answers p. 36 and 37.**

Answer the following questions about "There's More to Forests than Trees; There's a World of Hidden Wildlife" and "The Leaf and the Tree".

1. If the article by Jay Heinrichs were reprinted in a science textbook, which title would be most accurate?
 - A. "Fallen Trees: Life Goes On"
 - B. "The Importance of Tree Bark"
 - C. "The Role of Tree-Eating Larvae"
 - D. "Tree Munchers: Insects of the Forest"

2. Chris Maser can be called a pioneer because:
 - A. Of his success in saving the northern spotted owl
 - B. Of the research he has conducted on forest renewal
 - C. He founded an organization to protect forests for wildlife
 - D. He has done intensive studies on temperate forests worldwide

3. According to the article, why is the Pacific Northwest important to the study of allen timber?
 - A. The region includes many Douglas fir trees with rotting cavities.
 - B. The region offers a sanctuary for many important animal species.
 - C. The region houses many logging businesses that support the studies.
 - D. The region contains many old trees that provide research opportunities.

4. With which sentence would Jay Heinrichs most likely agree?
- A. Nature does a better job of managing forests than humans do.
 - B. The Forest Service manages forests by preserving stands of old trees.
 - C. Conservationists and the federal government agree on forest management.
 - D. The United States timber industry has the most vital role in saving forests.
5. What do old growth forests in the Northwest have in common with forests all over the world?
- A. They contain pine trees and other evergreens.
 - B. They rely in part on the functions of fallen logs.
 - C. They are being studied by wildlife research biologists.
 - D. They face dangers from activities of irresponsible loggers.
6. In the poem, the narrator compares herself to a:
- A. leaf
 - B. cloud
 - C. tree trunk
 - D. lightning flash
7. Which phrase could be applied to both Chris Maser and Edna St. Vincent Millay?
- A. artistic perception of wooded areas
 - B. deep appreciation for the life cycle of trees
 - C. public promotion of timberland management
 - D. strong concentration on the ecology of forests