

SUGGESTED REFERENCES

■ James Woodford
The Wollemi Pine
Text Publishing, Melbourne, 2000

■ Hill, Ken
The Wollemi Pine: Discovering a Living Fossil
Nature and Resources, 1994

WEBSITES

■ *Wollemi Pine - The Dinosaur Tree!*
<http://www.rbgsyd.gov.au>

■ *Publications*
<http://www.rbgsyd.gov.au/html/wollemi/publications.html>

■ *The Wollemi Pine Recovery Plan*
<http://www.ea.gov.au/biodiversity/threatened/recovery>

NATIONAL SCIENCE EDUCATION STANDARDS

Science Content Standards:

- K - 4 Characteristics of Organisms
Organisms and Their Environment
- 5 - 8 Diversity and Adaptation of Organisms
Populations, Resources and Environments

CREDITS

EDUCATOR ADVISORY PANEL

Fred Barch, M.S.
Rosemary Botting, M.S.

Debra A. Murnan, B.A.
John A. Murnan III, M.S.

PRODUCTION CREDITS

WRITER/PRODUCER:
ASSOCIATE PRODUCER:
EDITORS:
NARRATORS:

Deborah Greenspan
Lee Kane
M.B. Chaney & Jon Glassman
Cyrilla Baer & Joshua Forman

SCIENCE SCREEN REPORT FOR KIDS®

Science Brought To Life In The Classroom

SCIENCE SCREEN REPORT FOR KIDS is a proud participant in the Presidential Awards for Excellence in Mathematics and Science Teaching. For more information visit www.nsf.gov/pa

1000 Clint Moore Road, Suite 211, Boca Raton, FL 33487
tel: 1.800.232.2133 email: info@ssrvideo.com
www.ssrvideo.com

COPYRIGHT © 2002 Allegro Productions, Inc. All rights reserved.

SCIENCE SCREEN REPORT FOR KIDS

VOLUME 12 ISSUE 2

ANCIENT TREE - MODERN WONDER



Accreditation Board
for Engineering
and
Technology



Presidential Awards
for Excellence in
Mathematics
and
Science Teaching



Junior Engineering
Technical Society
www.jets.org

SYNOPSIS

The Wollemi Pine is one of the rarest plants on earth. Thirty-nine living specimens have been found at the bottom of a gorge in Australia, and no other specimens have been found anywhere else in the world. To scientists, the Wollemi Pine is a green dinosaur - a tree that was thought to be extinct for fifty to one hundred million years. It holds questions for researchers about its uniqueness and how it was able to survive.

This edition of SCIENCE SCREEN REPORT FOR KIDS looks at the Wollemi Pine, revealing what researchers have learned about this ancient tree. It also explores the variety of efforts underway to prevent its extinction including advanced plant propagation techniques, seed gathering, DNA testing, and the use of controlled burns to prevent fires. The program discusses some of the things scientists hope to learn from studying the Wollemi Pine.

CURRICULUM UNITS

- BIOLOGY
- BOTANY
- EARTH SCIENCE
- GEOLOGY
- PALEONTOLOGY

RUNNING TIME

14:42

BACKGROUND

While called a pine, the features of the Wollemi differ from those of any pine that is now living. Scientists believe that it flourished in the Australian landscape from 200 to 50 million years ago. When it was found, researchers felt as though a fossil had come to life. Though no identical fossil record exists, this extraordinary tree is much closer in composition to fossils of trees and their seeds, leaves, and cones than it is to any living plant.

This report explores what researchers have learned about these green dinosaurs and what is being done to learn more about their survival mechanisms and other secrets they may hold. Researchers are also working hard at preventing the Wollemi's extinction.

At 120 feet or about 36 meters tall, these ancient trees tower over everything else in the forest. The trunks are ten feet around and covered with a strange bubbly bark. It is often difficult to isolate single trees because younger trunks grow from older trunks that have fallen. Some older individuals have as many as sixty separate stems. In many cases the original trunk has rotted away. What looks like many trees is in fact a single individual.

While monitoring the grove, researchers discovered that seedlings were not surviving. In efforts to understand why, scientists studied the DNA of the Wollemi Pine and learned that all of the adult trees in the grove were genetically identical. They began to collect seeds and to conduct cloning experiments with the hope of increasing the number of Wollemi Pine, both inside and outside the grove.

Steps are also being taken to preserve the trees that now stand. Visitors are required to wash their shoes before entering the area so that germs will not be brought in. To prevent fire, helicopters drop balls that ignite on contact and burn off the dry underbrush surrounding the grove.

The program also talks about some advances already made. Over fifty species of fungi, some completely new to science, co-exist with the Wollemi, mostly in nodules on the roots. But it's a fungus living on the stems and leaves that has caused the most excitement. It produces taxol, a powerful drug used against cancer. No one knows what other secrets the Wollemi harbors in its ancient cells.

CAREER POSSIBILITIES

- BIOLOGIST
- BOTANIST
- EARTH SCIENTIST
- ENVIRONMENTALIST
- GEOLOGIST
- HORTICULTURIST
- LAND/RESOURCES MANAGER
- PALEONTOLOGIST

VOCABULARY

- Canopy:** a protective covering, as the uppermost branchy layer of a forest
- Conservation:** planned management of natural resources
- Defect:** blemish, fault, imperfection
- DNA:** nucleic acids that tell a cell how to reproduce itself
- Extinct:** no longer existing or alive
- Fossils:** the remains of very ancient plant or animal life
- Fungi:** spore-producing plants that lack chlorophyll
- Genetic:** relating to heredity
- Germinate:** to cause to sprout or develop
- Gorge:** a narrow, steep-sided canyon or part of a canyon
- Grove:** a small wood or stand of trees, usually without underbrush
- Hormones:** substances produced by the body and transported in tissue fluids to stimulate cells or tissues
- Humidity:** the amount of moisture in the air
- Identical:** being the same; exactly alike
- Ignite:** to set on fire or catch fire
- Inbred:** produced by breeding closely related plants or animals
- Monitor:** to watch or observe for a special purpose
- Nutrient:** a source of nourishment
- Observation:** the act of recognizing and noting a fact or occurrence
- Remains:** parts that were not destroyed

CRITICAL THINKING EXERCISES

1. After showing the video, ask your students the following:
 - a| What is different about these trees?
 - b| Why do scientists feel like it's a fossil come to life?
 - c| What methods are being used to grow new trees?
 - d| Why do scientists want to sell baby Wollemi Pines?
 - e| The Wollemi Pine has existed for a hundred million years. Why do scientists think it needs help now?
2. Discuss the lack of genetic variation in the Wollemi. Why is genetic variation necessary?
3. Discuss different ways of growing new plants.
4. Have students research other living fossils: the Ginkgo Biloba and the Dawn Redwood.
5. Have students grow new plants from cuttings and seeds and compare them to the parents.
6. Arrange a visit to a nearby botanic garden or plant nursery.