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**SYNOPSIS:**

Look at the Wollemi pine, one of the rarest species of plant on Earth, previously thought to be extinct for fifty million years. See what researchers have discovered about this ancient tree and the questions it raises about how a species is able to survive. Learn what efforts are underway to prevent its extinction, including advanced plant propagation techniques, seed-gathering, DNA testing and the use of controlled burns to prevent fires.

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**CURRICULUM UNITS:**

Biology  
Botany  
Earth Science  
Geology  
Paleontology

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**CAREER OPPORTUNITIES:**

Biologist  
Botanist  
Earth Scientist  
Environmentalist  
Geologist  
Horticulturalist  
Land/Resources Manager  
Paleontologist

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**PROGRAM OVERVIEW:**

The features of the Wollemi pine differ from those of any other pine that is now living. Scientists believe that it flourished in the Australian landscape between 50 and 200 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 the composition of its seeds, leaves and cones to fossils of trees than it is to any living plant.

Standing 120 feet (around 36 meters) tall, with trunks ten feet around, these ancient giants tower over all the plant life around them. The trunks, covered with a strange, bubbly bark, grow from older trunks that have fallen, making it difficult to isolate individual trees. Some older trunks have as many as sixty separate stems.

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 are genetically identical. They began collecting seeds and conducting cloning experiments with the hope of increasing the number of Wollemi pines, both inside and outside the grove.

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**ISSUES AND CRITICAL THINKING**

After showing the program:

Ask your students...

What is different about these Wollemi pines?

Why do scientists feel like this discovery is a fossil come to life?

What methods are being used to grow new trees?

Why do scientists want to sell baby Wollemi pines?

The Wollemi Pine has existed for a hundred million years. Why do scientists think it needs help now?

Discuss the lack of genetic variation in the Wollemi.

Why is genetic variation necessary?

Discuss different ways of growing new plants.

Have students research other living fossils, such as the Ginkgo Biloba and the Dawn Redwood.

Have students grow new plants from cuttings and seeds and compare them to the parents.

Arrange a visit to a nearby botanical garden or plant nursery.

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**GLOSSARY:**

**Canopy-** A protective covering, as the uppermost layer of intermeshing branches in a forest.

**Conservation-** Planned management of natural resources so as to use them as efficiently as possible and not exhaust the supply.

**Defect-** A blemish, fault or imperfection.

**DNA-** Nucleic acids that contain the instructions for constructing proteins and other cells.

**Extinct-** An organism that no longer exists, having died out.

**Fossils-** The petrified remains of very ancient plant or animal life.

**Fungi-** Spore-producing organisms that lack chlorophyll. Note that fungi are separate from plants and belong to an entirely different kingdom.

**Genetic-** Relating to genes and heredity.

**Germinate-** To cause to sprout or develop, as a seed.

**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 ablaze or to 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 for an organism.

**Observation-** The act of recognizing and noting a fact or occurrence.

**Remains-** Parts of a system or area that continue to live and function after the rest is destroyed.

## The Wonders of Ecology & Conservation



**K4490DVD**

# ANCIENT TREE: MODERN WONDER



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