

Disease - But Hope For The Chinquapin



OBJECTIVE: Students should understand the decline of chestnut species and what can be done to save them.

GRADE LEVEL: 5-11 **TIME NEEDED:** 40 -50 minutes

MATERIALS: web search ability or tree reference books that mention Ozark chinquapin and American chestnut decline.

BACKGROUND: Throughout the long history of our area after the ice age, many plants and animals have moved in to the area, thanks to natural processes. These species are considered to be a native. When people transport a plant or animal to our state, on purpose or by accident, it is called an exotic species.

The chestnut family has members in Europe, Asia, and North America. When Chinese chestnuts were brought to North America they had a disease known as the chestnut blight. The blight effectively girdles or strangles the plant by killing actively growing plant tissue in the trunk and stems. American chestnuts and Ozark chinquapins had no exposure or natural resistance to this blight. As a result the American chestnut has lost its throne as the dominant forest monarch in the eastern United States. Historically, Ozark chinquapins were very important to wildlife and settlers. Today, this tree has become obscure throughout its range.

Ozark chinquapins have highly nutritious nuts with low tannin content- the flavor of raw nuts is excellent. The nut's size makes them a menu preference for squirrels, bears, deer, turkey, mice, and even quail. The reliable annual nut production from chinquapins is more consistent than the 'hit and miss' acorn production provided by oaks.

People picked up on this and settlers quickly learned to collect the nuts for themselves. Raw or roasted the nuts were more than tasty; they were a staple during lean times and a saving grace. Their dependable production sometimes meant the difference between starvation or making it from the 1700's to the early 1900's. Chinquapin nuts were used to make candies, bread, soups, and cookies. Native Americans used the leaves and bark for medicines. Settlers used the tree's rot resistant wood for fence posts but admired its beauty in fine furniture and musical instruments such as fiddles.

Now blight has taken most of these useful trees from us. A few disease resistant trees exist. Some even thrive right next to disease ridden stumps with only pitiful sprouts to remind us of their true identity. These trees need our protection and encouragement.

If you find a live, healthy Ozark chinquapin:

- *Allow it to grow without being cut.*
- *Give it sunlight – cut competing trees and vines that might shade the chinquapin.*
- *Consider planting the seeds*
- *Report your tree to the Ozark Chinquapin Foundation. It may have crucial resistance that can help breed more disease resistant trees.*

Vocabulary:

Blight: A disease that kills growing tissue.

Exotic: A species that did not originate in an area.

Native: A species that has occupied an area for an extended time, or arrived by natural process.

Resistance: Immunity from a disease.

Tannin: Oak trees and oak relatives like beech, chestnuts and chinquapins produce tannic acids in their leaves, bark and nuts. Red oak acorns have high tannin content while chinquapins have the least.

ACTIVITY:

* **Warm up:** After examining what a chinquapin is, and how they differ from other trees (see the activity Determining Differences & Seeing Similarities: The Chinquapin Challenge) proceed by asking questions like, What can cause a tree to die? Besides cutting trees can people make a tree die? How might this happen? Define blight, Differentiate between native and exotic plants.

* **Activity:** The cause of the decline –blight: Have the students work through the work sheet singly or in pairs. Discuss answers as a class upon completion. Then work on the assessment.

ASSESSMENT:

- Create a poster or power point presentation persuading people to watch for Ozark chinquapins and encourage their growth.
- Find a way to share your work with people who hadn't heard of the Ozark chinquapin.
- Write a 2 paragraph (5 paragraphs for older students) opinion essay on the decline of the Ozark chinquapin. Use your web search findings and use information found there. The essay should express your opinion and feelings about what should happen to the Ozark chinquapin.

REFERENCES:

Don Kurz. 2005. Trees of Missouri Field Guide. Missouri Department of Conservation. Jefferson City Missouri.

Web Sites

www.ozarkchinquapin.com

www.arhomeandgarden.org/plantoftheweek/articles/Chinquapin_Ozark.htm



To Save the Ozark Chinquapin

Student Worksheet



Research Chinese chestnuts. Are they native or exotic?

When were they brought to the US?

What disease did they carry to North America?

What other tree besides the Ozark chinquapin is harmed by the disease?

Are Chinkapin oaks affected?

If Ozark chinquapins are affected by the disease and Chinkapin oaks are not, which one will be easier to find in the forest?

If a few Ozark chinquapin trees scattered across the state are found to be disease resistant what should we do for them?

How would we get people to do that if they do not know about the tree or its disease?

How can one tree thrive when it is surrounded by diseased trees? What makes it different?