

## BURNT OAKS (IS THAT A GOOD THING?)

The bottom 90% of this oak was hurt by fire. Indeed, the lower branches were killed on many tall oaks—treasures of the Somme savanna.



This apparent destruction resulted from an intentional controlled burn.

Burning trees—it's a bad thing—yes?  
Or is it nature?

And if it is nature, then what does “nature” mean?

This controlled burn was in the fall of 2010. When Dara lit it (see below) the wind was...



...from the southwest and blew the heat into many trees, oaks among them. Interestingly, the flames in many cases weren't enough to burn the hanging dead leaves. You wouldn't have noticed the impact on the trees last fall.

But in spring 2011, when the time came for new leaves to push last year's dried brown out of the way, all those stressed lower branches kept their dead leaves. Only the very tops of some trees sprouted new leaves.

Another part of the puzzle: scarlet oaks burned, but the larger bur oaks showed little such damage. For thousands of years, bur oak was probably the only common large tree in this savanna. Of all trees, bur oak is the soldier that faces down fire at the edges of the groves. Scarlet oak is adapted to burns too, but in a very different way. Instead in putting its major investment into thick bark for protection, it often sacrifices its whole top; its adaptation strategy is that of vigorous re-sprouting. Many woody savanna species are like that, including hazelnut and wild plum. Their fresh post-burn sprouts make these trees and shrubs as dense as ever, but short enough to mingle with the wildflowers, after a good burn.

The photo below shows a striking contrast between two oaks:



The larger tree is a scarlet. Its whole bottom burned off. Nestled within that scarlet is a bur. Even its lowest branches withstood the fire just fine—even though they were surrounded by burned scarlet oak branches. Assuming continued burns of this area, we can expect the scarlet to shrink back, possibly being shrunk to a vigorous shrub, while the bur oak will grow, expand, and take its place as a large tree.

Here's a slightly different example of the same story:



Here are four oaks, more or less in a line. They are on the northeast edge of a grassy opening. In other words, the prevailing southwest fire winds will blast fire into this edge on most burn years. The second tree from the left is a bur. The other three are scarlets. All of the scarlets have lost most of their lower branches. The one all the way to the right has few leaves at all. The bur oak hasn't even lost a lower branch. Over the years, with continued burns, we can expect this grove to evolve from mostly scarlet to mostly bur. The majority of the scarlets will probably end up as shrubs.

Young burs, like scarlets, are also re-sprouters. Here's a young bur oak:



Notice last year's, now dead, young trunks. Below ground, there's a vigorous root system. Above ground, this tree is starting over. In the savanna and shrub prairie, an oak may start again and again, decade after decade. It's adapted to keep trying until conditions are right for its trunk to get big enough to survive a fire, although 100 or 200 years hence, it may burn off, and start again. That's part of the savanna dynamic that in the long run works for so many species of plants and animals.

But today there's double jeopardy for such re-sprouting oaks. Somme Prairie Grove, like most preserve areas has an over-population of white-tailed deer. On many sites, every young oak is eaten back like the one shown below:



Much of the new trunk and most of the leaves are gone. Oaks have successfully interacted with deer for millenia, but today's excessive populations are a severe strain, as the deer come back and eat down the shoots again and again.

The photo below shows a bur oak a few years older.



This one was young and **small enough** that all its finer branches got singed, but the main trunk and older branches were **large enough** that they were armored against the fire. They're putting out another year's growth of new branches and leaves. Before long, this tree will be able to withstand very hot fires—and just keep growing bigger.

In this same photo, look down and to the right. At the bottom is a scarlet oak that was entirely burned off again this year. Fifteen years ago, both of these oaks were the same size. Then, for many years, stewards put a wire cage on the oak to the left, to protect it from deer. Otherwise it would be just a re-sprout again today. The northern parts of this Somme Prairie Grove had most trees cut, back when this area was a farm. By protecting some of the trees, especially the keystone bur oaks, restoration is re-restoring a sustainable and natural structure and mix of species.

Natural? The word “natural” like the word “good” has many meanings. (For more about the history and meanings of the word nature, go to our exciting footnote<sup>1</sup>.) Ecologically, if most of the species that have thrived in a place for thousands of years can

continue to reproduce and interact, that is nature. If most species are being lost from the system (as is gradually happening to most unmanaged “preserves” today), that is degradation.

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#### <sup>1</sup>What is nature?

This is a surprisingly tough question. And lack of understanding of it has caused a great deal of trouble for people trying to explain why nature needs fire, deer control, or weed pulling. The dictionaries mostly do not have the ecological definition clearly spelled out. They also do not include the fairly common popular misconception that nature simply means something that's left alone. But there is in fact a clear and consistent definition of “nature” that has long been used in conservation. This definition is true to many of the dictionary definitions and is true to the ultimate origin of the word.

The Indo-European antecedent of the word nature originally referred to sexual reproduction. The current day-to-day words that descended from that Indo-European original are a fascinating lot, and tell us a good deal about the word nature. As language has changed, the root word has spawned three separate groups of words that, when you look carefully, have a common theme. One group includes generate, genuine, genital, gene, and genus. Another somewhat racy group includes quim, queen, come (when it means orgasm or seminal fluid), king, cock, kind, and kindergarten. The last group includes the more celestial nativity, native, natal and of course, nature.

What all these words have in common is best captured by one of the definitions of the word genuine: “proceeding from the original stock.” These words are about reproduction and relatedness. “The king” was originally defined as the true descendent or reproduction of the previous king.

Thus this history of nature focuses on the word nature as used by The Nature Conservancy, the Illinois Nature Preserves Commission, the Natural Areas Association, the Illinois Natural Areas Inventory, or the charter of the Forest Preserve Districts, which reads:

“to acquire and hold land for the purpose of protecting and preserving the flora, fauna, and scenic beauties within such district and **to restore** and restock, protect and preserve the **natural** forests and such lands together with their flora and fauna as nearly as may be, in their **natural** state and condition...”

Nature is preserved if the plants and animals that have long reproduced in a place continue being born, and continue to change and evolve as they always have. Nature is not preserved if most species are lost. If the genuine native species continue to generate their own kind through their genes, then nature proceeds.