

Historical Background of The Blue Mounds Region

by Bob Wernerehl

When developing a good stewardship plan for a property in southern Wisconsin, one that fully considers native biodiversity, it is necessary to know what was here prior to settlement of the area by European immigrants. In general, what was here then still works best today, as these are the plants and animals best adapted to our specific climate and soils. Biotic communities change slowly, over hundreds and sometimes even thousands of years. More rapid change generally leads to a significant reduction in plant and animal species, a process that may be called “bio-simplification.” This can be caused by volcanoes or glaciers, but more often the causes are of human origin.

In thinking about native ecosystems in southern Wisconsin the Native American inhabitants and their influence for the past 11,000 years should always be kept in mind. So often our thinking of North America’s Pre-Columbian landscape is colored by romantic notions of vast wilderness and a forest primeval inhabited by scant populations of nomadic tribes who lived in Eden-like, idyllic harmony with nature with little effect on the landscape. For much of North America and especially southern Wisconsin this was not at all the case. Pre-Columbian southern Wisconsin was filled with settlements of Native Americans who altered their environment primarily with fire and hunting, and to a small extent by cultivation of crops in river bottoms. Their common and frequent use of fire created a very open landscape that is hard to imagine when looking at the dense forests and thick brush covering much of the hills of western Dane and Iowa counties today. In addition, their highly effective hunting abilities greatly limited large animal populations, causing bison to be rare in southern Wisconsin, elk scarce, and deer relatively uncommon, at least by today’s standards.

After thousands of years this human influence resulted in the floristically rich, aesthetically appealing and highly diverse landscape of prairie, savanna, open oak woodland, bottomland forest and pine relics that the first European explorers and settlers found upon their arrival to the area. Those that left written records nearly always described this landscape as striking and appealing. We will explore their descriptions in the next two sections.

Southwestern Wisconsin in the 18th Century

18th century accounts of Southern Wisconsin include two that describe a large, well established village of Sauk Indians at what we now call Sauk City. As described in the account of 1766 by the Englishman Jonathan Carver, who was traveling down the Wisconsin River, the village was:

“...the largest and best village I ever saw. It contains 90 lodges, each large enough for several families...The streets are regular and spacious so that it appears more like a civilized town than the abode of savages. In their plantations, which lie adjacent to their lodges and which are neatly laid out, they grow great quantities of Indian corn, beans, melons &c. so that this place is esteemed the best market for traders to furnish themselves with provisions of any within 800 miles of it.”

(Please note that in all quotations the original spelling, capitalization and punctuation are used without alteration from the editions cited below).

Such a large settlement would have had hunting parties over all of southwest Wisconsin. Carver reported their warriors traveling to Illinois and Missouri. As Native Americans frequently used fire to improve hunting and make travel easier, fire frequency would have been high during the time of this settlement (Bonnicksen, 2000, Gartner, 1997). Carver stayed at the Sauk village for a day and traveled, apparently, to the top of Blue Mounds or Brigham Park. He wrote a classic description of the almost treeless prairie in southwestern Wisconsin:

“Whilst I staid here, I took a view of some mountains that lie about fifteen miles to the southward and abound in lead ore. I ascended one of the highest of these and had an extensive view of the country. For many miles nothing was to be seen but lesser mountains which appeared at a distance like haycocks, they being free from trees. Only a few groves of hickery and stunted oaks covered some of the vallies.”

What Carver saw the next day is telling:

“On the 10th of October we proceeded down the river and the next day reached the first town of the Ottagaumies. This town contained about fifty houses but we found most of them deserted on account of an epidemical disorder that had lately raged among them and carried off more than one half of the inhabitants.”

Six years later a fur trader, Peter Pond, traveled the same route and reiterated Carver’s impression of Sauk City. He also stopped at the next village down river. It was still being hit by diseases. He wrote:

“As I approached this village, I saw a number of long, painted poles on which hung painted dogs, belts of wampum beads, silver bracelets and other articles. They told me they had just suffered a sweeping sickness that had killed a great number, and they were offering the articles as sacrifices to appease the spirit who was angry with them...” (Seno, 1989)

The Europeans brought both war and disease, decimating a once flourishing native population. Estimates of Native American populations in Wisconsin range as high as 70,000, prior to European contact (Gartner, 1997). The French fought many battles with the Fox Indians in the upper Midwest in the 18th century. These include at least five in Wisconsin: 1716 at Lake Butte des Morts, 1728 at Green Bay, 1729 on the Fox river, 1731 on the Wisconsin River, and 1733 at Green Bay. But it was probably disease that caused the greatest reduction of the numbers of native inhabitants. The nearby Hurons of southern Ontario saw their population cut in half by disease between 1634 and 1640 (Calloway, 1997). As trade routes of Wisconsin tribes included southern Ontario, disease would have easily spread into Wisconsin at this time. Indeed, the widely traveled geologist and naturalist David Dale Owen in 1852, after seeing southwestern Wisconsin commented:

“The whole combination suggests the idea, not of an aboriginal wilderness inhabited by savage tribes, but of a country under a high state of cultivation and suddenly deserted by its inhabitants.”

Perhaps it was because of disease that the Sauk village broke up around the start of the 19th century and moved to Rock Island in the Mississippi. This drastic reduction of population of Native Americans in the 17th and 18th Centuries most likely led to decreasing fire frequency in the region and affected the accounts of early settlers and land surveyors in the 1830's. What they saw was a land already influenced to some extent by less frequent fire set by fewer and fewer Native Americans. The displacement of the Indian tribes was almost total following the Black Hawk War of 1832, the major battles of which took place in Wisconsin. The removal of the Sauk, Fox, and other tribes at the end of the war opened the door for very rapid settlement by Euro-Americans who quickly and entirely transformed the land.

Southwestern Wisconsin in the 19th Century

Early 19th century accounts that described the landscape around Blue Mounds are few and far between. We are lucky to have some skilled observers who did describe the region. Juliette Kinzie, the wife of the Indian Agent at Fort Winnebago (Portage), traveled with a party to Madison, then to Blue Mounds in early March of 1831. In her text, the land is described as almost entirely open prairie. When they left Madison she wrote:

“Our road, after leaving the lake, lay over a ‘rolling prairie’ now bare and desolate enough...Sometimes the elevations were covered with a thicket or copse, in which our dogs would generally rouse up one or more deer.”

The land south of Blue Mounds, through which they next traveled, was described as “A rolling prairie, unvaried by forest or stream—hillock rising after hillock, at every ascent of which we vainly hoped to see a distant fringe of ‘timber.’”

Englishmen George W. Featherstonhaugh was hired in 1834 by the U.S. Government as its first geologist. In 1837 he described the land as he traveled from Madison to Blue Mounds giving a very clear picture of the dominant prairie and oak savanna in the region and the scattered nature of oak forest:

“We got into one of the most exquisitely beautiful regions I have ever seen in any part of the world. The prairie that had hitherto been distinguished by a regular rolling surface, here changed its character, and took the form of ridges somewhat elevated, which frequently resolved themselves into masses of gracefully-rounded hills, separated by gentle depressions, that occasionally became deepened valleys. In whatever direction our eyes were turned, the most pleasing irregularities of surface presented themselves. But that which crowned the perfection of the view, and imparted an indescribable charm to the whole scene, from the knoll where we stood to the most distant point, was the inimitable grace with which the picturesque clumps of trees, that sometimes enlarges themselves into woods, embellished this rural landscape from the hand of Nature... America will justly boast of this unrivaled spectacle when it becomes known, for certainly it is formed of elements that no magic could enable all Europe to bring together upon so great a scale.”

One common criticism of historical accounts is that they were written in order to sell books and thus cast an overly positive light on the landscape. This was probably not the case for Featherstonhaugh as he was being paid for his accounts, regardless of any eventual sale of material. He was often caustic. Shortly before he made the above description he had just written a very sour account of his stay at Rosaline Peck's inn in Madison, the only building there at the time!

William Rudolph Smith, a gentleman traveler from Philadelphia, spent an entire summer in Grant, Iowa, Lafayette and Dane Counties in 1837. He described this same area of land as he traveled from Blue Mounds to Madison:

“From the Blue mounds the road passes through alternate prairie and wood, crossing one of the head waters of the Sugar river, until within eight miles of the Four lakes, where the traveller leaves the Military road, which trends to the north-east, immediately after emerging from a considerable tract of oak openings, and again entering the prairie.” (Pg. 55)

He described the open character of the oak openings in the region:

“The prairies may be passed over in any direction in a wheel carriage with ease and safety: the groves surrounding, and interlacing, and sprinkling, and dotting the vast ocean of open field, can be threaded as easily with a carriage, as if you were driving through a plantation of fruit or forest trees, set or growing irregularly. The undergrowth is generally of small bushes readily passed over, ... the strawberry literally covers the prairies and the groves.” (Pg. 16)

About the overall lack of forest he states:

“...there is a want of timber...generally speaking, in the rich prairies the groves of timber are small and scattered, not affording sufficient wood for more than one or two large farms, for many miles in extent.”

Later "...as for fire wood, a sufficiency may always be readily obtained within a short distance of any farm; and if the annual fires on the prairies are prevented or subdued by the care and exertions of the settlers, the timber of the country is of the most rapid growth." (Pg. 6)

Smith was observing the start of the rapid forest growth in Southwestern Wisconsin. Many other observers noted this phenomenon of the woods growing quickly after fire suppression. John Muir in the 1850's in Marquette County wrote:

"Within 3-4 years almost every quarter section of government land was taken up...and in a very short time the new country began to look like an old one... As soon as the oak openings in our neighborhood were settled, and the farmers prevented running grassfires, the grubs grew up into trees, and formed tall thickets so dense that it was difficult to walk through them and every trace of the sunny openings vanished."

In the newspaper The Baraboo Republic in 1859 it was reported that...

"In the timbered areas in the western end of the Baraboo valley, the pioneers are obliged to wear buckskin or other very strong material for pants since there is such a formidable undergrowth of plum, wild crabapple, prickly ash, briars and vines."

Despite this rapid growth, some savanna character to the land was maintained, in part through pasturing cattle and in part through farmers continuing the tradition of fire. Columbia County, just north of Dane County, was added to the fire control zone of the Wisconsin Conservation Department (now WDNR) in 1956. For generations before, fires were allowed to burn uncontrolled. Game warden Jim Chizek reports when fire control first went in to effect, "*Citizens were incensed when rangers and wardens entered their lands uninvited to fight fires they deliberately set to 'green up the landscape.'*" Senior farmers in Iowa County report that in the old days fires burned all night through the woods. Sometimes they were set to produce a better crop of huckleberries, still found today near sandstone outcrops.

112 Years of Change in Southwestern Wisconsin - 1834 to 1946

Almost all of the woods in the Blue Mounds region are derived from fairly open oak savannas where fire was a common, often annual occurrence. Oaks have thick, fire resistant bark, and resprout readily if burned. The shade-tolerant, thin-barked maple, basswood, black cherry, ash, and ironwood are fire sensitive trees. The few places these trees survived were small areas located in fire-sheltered, steep, north-facing gorges generally on the north edge of the Military Ridge (now Highway 18-151). White pine relics occurred here as well along cliffs and rock outcrops. With those exceptions in mind, 99 percent of the remaining current forests were once either oak savanna or prairie.

How do we know what the land was like in former times? In addition to the written historical descriptions, the major source of information about the type and condition of the vegetation in the 1830's comes from the original Public Land Survey records that took place under the federal guidance of the General Land Office.

In Dane and Iowa counties these surveys took place from 1832-1835. Starting at the border with Illinois the surveyors measured square mile sections moving north. They set posts every half mile and mile, marked nearby "witness" trees for reference, recorded the diameter and species, and also the distance and compass bearing to each tree. They also recorded every tree directly on their survey line.

This information gives us the ability to determine whether the land was forest or prairie, and provides other interesting details. The surveyors were to select two to four sturdy, long-lived trees closest to each post as a witness tree. The crew would search up to 1000 feet away to find a tree if they had to. If no trees were present they had to raise a four foot mound of earth and set the post on top, and that was a lot of work. Knowing how distant these witness trees were from the section or half section corners, we can use a field-tested statistical method to tell how far apart the trees were in that general area.

These assumptions about forest density can be supported by the surveyors' requirement to record a general description of the land. These included comments such as "land rolling, second rate, thinly timbered." Any deviation from the usual was noted in the records. For example, it was noted when the survey crew entered or left a woods, marsh, or prairie. Sometimes they added notes regarding the presence of certain vegetation; such as rosinweed, leadplant, bracken fern, New Jersey tea (which they called red root), hazelnut and rattlesnake master.

These General Land Office Public Lands Survey records are preserved intact in the state office of the Board of Commissioners of Public Lands. The actual field books of the survey crews are there, as well as digitized images stored on computers. There are two other copies on Microfiche housed with other agencies.

Each 36 square mile township contains 109 unique points of information. Using the information from these points, it is possible to map out in fair detail the general type of vegetation for each county. Bob Ellarson was one of the first to produce such a map, and he did it for Dane County in 1949. Bob was a keen student of Wisconsin flora and went on to become professor of wildlife ecology at UW-Madison. He was careful in his interpretation of the data choosing not to include two entire townships with questionable records. He also included other sources to round out his interpretation. The map he produced shows almost the entire western half of Dane County as either open prairie or oak opening, another term for oak savanna. Ellarson didn't give a precise definition of savanna but included only areas dominated by bur, white or black oak that were far enough apart to allow sufficient sunlight through so that prairie

grasses and forbs could be found. This interpretation was followed by Cottam and Loucks in 1965 in a map of the Early Vegetation of Wisconsin. Their map also shows all of Iowa County to be oak savanna and open prairie.

Ellarson's map also clearly shows that fire was the determining factor in the presettlement landscape. The only areas of maple-basswood forest large enough to map appear on the northeast of the large lakes Mendota, Monona and Kegonsa. These areas were sheltered on the leeward side of the lakes when dominant southwesterly winds carried fire across the landscape. Treeless prairie occurred on the least hilly land where fires were the hottest and could travel without barriers. Fire carries well on flat ground, but upon reaching a cooler and more humid north-facing slope it tends to die out. So savanna landscapes occurred most often on the hilly terrain where cooler and less frequent fires allowed some oak trees to survive.

At the same time, another able student of Wisconsin flora was conducting research in a woods in western Dane County known by many as the Madison School Forest, just a few miles southwest of Verona. The researcher was Grant Cottam, who went on to become a professor of plant ecology at UW-Madison. His study compared the oak openings of the 1830's to the type of oak woods he found in 1946.

To obtain an accurate numerical description of the 1830's, Cottam used the surveyors' records from 269 points in similar rolling, timbered upland around the school forest. He excluded points in open prairie, so he was only measuring the typical oak savanna of western Dane County. He used a mapping technique to determine the distance between witness trees the surveyors recorded at each point and averaged these distances. But because some distances were large, over 200 feet, Cottam felt this tended to exaggerate the degree to which the trees were scattered, so he used the median distance, the point at which half the distances were greater, and half were less. This gave a more forest-like estimate of the distance between the trees. Cottam used the numbers to calculate trees per acre.

For comparison, Cottam sampled the woods in the summer of 1946, counting and measuring trees in 100 10 X 10 meter quadrats within the 320 acre, relatively undisturbed School Forest. These data were compared directly to the information from the surveyors' records. The results are startling, and show a drastic change.

Table showing Madison School Forest in 1834 and 1946

Year of Sample	1834	1946
Trees per Acre	14.3	143.0
Basal Area per Acre	12.6	105.1

In 102 years, trees per acre increased TEN FOLD! And these trees were only very slightly smaller in diameter than the trees from 1834. Fourteen evenly spaced trees per acre (1834) are 55 feet apart whereas 143 trees per acre are 17 feet apart. This makes an enormous difference in the amount of light that reaches the forest floor.

The Madison School Forest, in 102 years, changed from a sunny savanna with frequent fire to a shady woods with hardly any fire. Cottam's study can be extrapolated to our entire region. This change has led to the disappearance of once common oak savanna plants such as shooting star, lupine, butterfly weed, New Jersey tea, prairie willow, Canada hawkweed, ox eye sunflower, Carolina vetch and many others. We get a clear picture of this by looking at an inventory of Dane County flora from 1892, when these plants were nearly all noted as common throughout the region (Cheney & True). What it shows is that our woodlands today are very different than they were 170 years ago.

Since 1946 we have seen yet another change as shade tolerant red and sugar maple, basswood, box elder, ironwood and white ash have begun an steady invasion, blocking out even more sunlight from the forest floor of the already shady oak woodlands. This is occurring all over southwestern Wisconsin and is causing the loss of oak woodland plants not able to tolerant the dense shade cast by these newer canopy members of the oak forest. Even the oak trees are no longer able to reproduce in this denser shade. Without the extra sunlight, oak trees, so characteristic of our wooded lands today and so important to a wide array of wildlife, could be mostly a thing of the past within a hundred years or so.

Summary

Southwestern Wisconsin was once an area of open prairie and savanna with occasional oak woodland north of the Military Ridge. The land was most likely more open in the 17th and 18th centuries and became more wooded in the early 19th century, probably as a result of European diseases reducing the presence of Native Americans and thereby reducing fire frequency on the land. After Euro-American settlement began in the 1830's, fire was much less frequent and most uncultivated areas grew quickly into dense oak forest--the situation we have today. Only active management can prevent these oak forests from eventually giving way to more shade tolerant maples, basswood, ash, and other hardwoods.

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