

# What is a Savanna?

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The characteristics and limitations of language in the formulation of thoughts seem to me to be a powerfully important aspect in understanding the nature of our landscapes. One of the more important aspects of the use of language, particularly in trying to understand living landscapes, is how oral and written languages differ in their impact on communication. We users of a written language and children of the enlightenment are constantly driven to arrange limits or borders on almost all things, because written words necessarily have limits or borders with mandated hard and fast definitions. Consequently, our understanding of natural systems is constituted by the compilation of piles of facts and figures, models with dimensions, and places with edges---all described with defined words.

Understandings borne of unwritten languages, on the other hand, can make it easier to see the circles or cycles of nature, easier to comprehend the infinities and paradoxes, the insensible but meaningful blends. Indeed, users of oral languages can be confounded by lines and borders, and tend to see them as interruptive of understanding. Nature itself is poorly described by the reduction of its essential aspects and interlinks to lines and borders.

Bearing in mind that English and German are in the same language class, consider that there were no fewer than 26 language classes in North America prior to settlement. The Algonquin Class alone included languages spoken by the Shawnee, Illinois, Miami, Wampanoag, Ottawa, Ojibwe, Potowatomie, and many more. The diverse manifestations of wooded landscapes in North America were accommodated nomenclaturally, if you will, by a great diversity of languages. We are attempting to apply the word *Savanna* consistently across the region and the country; we even imagine that such an attempt is within the realm of science.

Landscapes with trees on them are described in American English with only a few words at our disposal. Forest, woods, and savanna, are the words most commonly deployed by contemporary ecologists and there is some rather robust debate as to how they differ "scientifically." Numerous papers, for example, have been published by scientists who claim to have the last word on how one discriminates between "forest" and "savanna."

The American Heritage Dictionary of the English Language defines *savanna*:  
*Savanna*: "A flat, treeless grassland of tropical or subtropic regions."

Merriam Webster's Collegiate Dictionary: *Savanna*: "1: treeless plain esp. in Florida. 2: a tropical or subtropical grassland containing scattered trees and drought-resistant undergrowth."

Ecologists tend to deploy the word savanna to describe a tree-dominated landscape that is neither forest nor prairie. Savannas are generally codified with adjectives that indicate which trees are the dominate features, to wit: Bur Oak Savanna, Black Oak Savanna, Jack Pine Savanna, *etc.* Such definitions are usually amplified by some declaration that describes canopy closure. It would seem that, in the minds of most, forests exhibit total canopy closure, while the canopy cover of savannas is argued to have a smaller percentage of full closure. According to twentieth century doctrine, timbered lands once wide open prior to western settlement "succeed" to forest if post-settlement development proceeds to full closure---even though the floristic composition itself does not change other than to become progressively depauperate. Because the orientation is trees, such landscapes are viewed almost as homologs of the "gap phase replacement" that occurs in a forest when a great tree falls down.

The word savanna---probably originally sounding something like *zabaana*---comes to us by way of Spanish, from an Arawak-speaking people, the Taino, of the West Indies; it referred to "a flat grassy plain on the coast." Arawakan is a broad linguistic class spoken by many native peoples of South America. We also get the word *tobacco* from the Arawakan speaking peoples. It seems to me an awkward etymology that a word from a language not even spoken in North America would become one of such contention in our attempt to define the timbered terrains of the Midwest. It is even stranger that the original meaning of the word was used to describe a place that had neither trees nor hills.

Among ecologists of the Midwest today, the word *savanna*, sometimes spelled *savannah*, has become the default word to categorize those places that seem different from places like "woods" and "forest," wooded conditions to which English words already had been applied. Also, words of German extraction, such as *der Wald* or *der Forst* or *die Waldung* may have seemed too closely translatable to "woods" or "forest," places for which 18th and 19th century people of the Old World already had too neat a concept to include the kind of wooded landscapes with open-grown trees they encountered in the grassland biomes of the New World.

Early inhabitants of the prairies tended to refer to the rather small, isolated tracts of trees as "groves," the more colloquial definition being a small wood, orchard, or group of trees. The original land surveyors, tasked to identify good agricultural soil, water, and the availability of wood usually referred to them as "timber" or sometimes "barrens." Such terms have spawned several articles on just what these early surveyors were seeing, such as one by Mike Homoya, *Indiana Barrens: Classification and Description*, published in *Castanea* 59: 204--213 in 1994.

The word “prairie” itself comes to us originally from the Latin 3<sup>rd</sup> declension noun *pratum, prati*, meaning plain, and then *prairie* by way of the French---the first Europeans who described the country. We could just as easily have adopted the French words for our Midwestern woodlands, like *la foret*, or even *la bois*, or perhaps the Gallic derivative of the Latin, *silva, silvae*. All perhaps were too closely associated with English equivalents. Then of course, there is Spanish. We certainly have adopted the word *rio* for places with rivers in them. Why not *el bosque*, one of their words for forest. Well, one could go on and on with this *ad nauseam*, of course, and at a rational level it would not really matter except that we have now attempted to attach a “scientific” meaning to a single colloquial word that is supposed to apply to all timbered communities that do not evoke the image of an Old World temperate forest or grassland.

So, it is the view of some learned scholars that a savanna is a wooded plant community that has less than 30% tree canopy cover. Others say 40%, some others 50%, and so on. Most have suites of data and refereed papers to back them up. Given the acceptance of any particular percentage, then, what would be called all the other wooded assemblages? Would they be *forest*? Even scientists would have trouble defaulting everything else to “forest” or even among words such as “open oak woodland,” or “barren,” which, to be consistent, must have their own “scientific” diagnoses.

The general perception with us Cartesians is the “plant communities” are analogous to taxonomic entities such as families, genera, and species. There have even been attempts, mostly by Europeans, to express plant communities as Latin epithets, for example: *Scheuchzerio-Caricetea nigrae*, a kind of peat bog, or *Oxycocco-Sphagnetea*, another kind of bog, *etc.* all based upon “dominant” vegetation. But as Wilhelm & Rericha, in their book *Flora of the Chicago Region---a Floristic and Ecological Synthesis*, published by the Indiana Academy of Science in 1917 point out:

*Evolution occurs within the temporal framework of the species and . . . each species is independent genetically from all other species. While species evolution can go on within communities of plants, the plant community itself is not governed by a double helix of DNA and sexual reproduction. The foundational configuration and characteristics of plant communities are patterned artifacts of surficial geology, soil parent material, temporal factors, physiographic province, climatic influences, the singular arrays of phytogeography exhibited by individual organisms, and Holocene-aged experience with human culture.*

I will not get into the theory that savannas are just Eastern deciduous forest aspirants, merely in an “successional” phase. Indeed, the idea that oak and hickory woodlands of the Midwest and the interior highlands are merely arrested stages on their way to the vegetation maximum, Beach-Maple Forest Primeval, ignores biome-level abiotic factors and vegetational history. Why could we not just as easily say

that Eastern deciduous forests are senescent phases of Midwestern forests? Either view would be reflective of the regional or dogma-centric tendencies of western scientific thinking.

Ecology as a science was born about 1899 with the articulation of “natural succession by H. C. Cowles during the era of the Hudson River School of Art. This doctrine is exemplified by the “forest primeval” as a cultural imprint, a deep dark place beyond the pale where no man enters. John Muir grew up in this era and was quite instrumental in formulating the idea of “wilderness,” which implies that such a place is pure and undirtied by the presence of man. Inhabitancy by native peoples was not a problem inasmuch as they were regarded as “savages,” scarcely human it at all. Cowles and other early ecologists regarded human intervention in a landscape as interruptive of “natural succession.” This is discussed at some length by Wilhelm & Rericha in 2007 in their *Timberhill Savanna Assessment and Landscape Management* published by the Conservation Research Institute, which is available on that website.

The fact that American English evolved from Plymouth and Charleston, westward, rather than from Kentucky or Illinois eastward, may be a factor in the manifestation of this orientation. In practice, we are most comfortable applying the word forest only to the kinds of woods early 20th century ecologists associated with the eastern United States and the Appalachians. In the Midwest, such woods are best expressed by those closed canopy maple and beech forests that have gone unburned since before ecology became a science, or at least in the memory of anyone living or since the time of early 20<sup>th</sup> century ecologists.

I might add that we have somewhat similar problems in attempting to classify peatlands and certain minerotrophic wetlands as either “bog” or “fen.” Too often it seems that people are beguiled by their language into thinking that the world is fully describable with colloquial words such as bog or fen, marsh or swamp, woods or forest, black or white. The living world is not easily described in black and white, but actually exists in a full spectrum of color, even colors that our eyes cannot see. This business of plant community classification is far more a matter of linguistics than of science. Once one is out of the full factorial of permutations of binomials and trinomials involving forest, savanna, bog, fen, prairie, wet, mesic, dry and a few others, we are out of words. The catalogue of English words is not, however, the actual limiting factor in the almost infinite permutation of landscape arrays in the English-speaking world.

I thought for a while that maybe the “savanna” question had been resolved when Steve Packard announced 30-odd years ago at the Savanna Conference in Bloomington, Illinois, that savannas are those places that are characterized by “trees with big nuts.” Many of the learned professors and writers of papers, dozens of them, took a dim view of such childishness. For me, however, it is a definition that would work well enough but, alas, it does not sound “scientific.” Written languages work well for the prosaic, for describing bridges, airplanes, and other artifacts made by man, but they disintegrate in effectiveness according to the degree an idea includes love, feeling, even history, and

the warp and weft of the biotic and abiotic manifestations of a living earth. Hence the evolution of poetry, music, and art---its quality seemingly directly proportional to our culture's proclivity for written words. How such sublimity is responding to the "magic" of the computer and its offspring remains to be studied.

The extent to which the realization that definitions begin to fail is the extent to which one is aware of the subtle differences each acre of earth imparts to its indigenous plants, animals, and even long-term human cultures. Perhaps it's just that I am an old guy, but I do fear that our capture by the intelligence of algorithms will cause us to become unlinked to the beauties and complexities of the natural world along with our interest or even capacity to know remnant landscapes and seek to care for them.

These subtle differences between and among the multitude of remnant landscapes are often regarded by indigenous peoples as embodying a local guardian spirit or numen. So, the problem for those of us who are trying to discern the nature of our native vegetation lies in how we can blend disciplined, even dispassionate, assessments of information and data with the evidently numinous aspects and singularities of particular places.

I should probably insert here an observation on the nature of science in its contemporary mode as a tool for understanding nature. Whatever the personal conflicts between the Newtonians and the Cartesians, both agreed that "good science" is based upon repeatable, measurable, and statistically significant observations. In my view, however, such science is, by its very nature, poorly constituted to integrate unrepeatable observations, however accurate, effective cultural traditions, anecdotes, and even common sense. Consequently, the science of "The Enlightenment" can inform us only of facts that can be re-measured. It cannot inform us about the immeasurable singularities so ubiquitous and interlinked in nature. At the same time, understandings borne largely out of intuition or feelings are just as limited. They are informative only in proportion to the amount of repeatable observation integrated into the formation of the intuitions or feelings.

Genuine knowledge and wisdom seem most substantially constituted from a balance of emphasis on both the *mythos* and the *logos*. Certainly, in any attempt to understand our Midwestern timbered lands, we must begin with the sure knowledge that the words of our language are limited and that it is impractical either to invent an infinite number of them or to make their use so broad as to have little meaning. As we realize this, we are chastened by dogmatic declarations as to the applications of such words as savanna or forest and are accordingly comfortable in our ability to communicate with one another on a colloquial level. For example, I might tell a colleague that the other day I was in high-quality dry mesic upland forest---a completely articulate way to set the stage for discussion as to what I might have seen there or expect to see there.

I can assure you from my own studies, however, that each tract of something we could describe meaningfully as such is unutterably unique from each other in the coterie of species, even trees, that inhabit it. There are of course ordination techniques that can distinguish it from similar paradigms, but very soon we are again out of words.

Rather than being enslaved intellectually to the number one good definition of “savanna”, we can free ourselves to examine the arboreal manifestations of a particular place irrespective of what we call it. At the end of the day, however, we need to back off a step and appreciate that, with respect to the so-called savanna and other wooded plant “communities”, we are focusing on a biological aspect of the landscape that is both large and easily identified, namely, trees. In fact, the size and conspicuousness of trees belies the fact that there may be, and are, other perhaps less romantic biological aspects that are as informative, or even more so, about Midwestern timbered lands than trees, namely the grasses and sedges, bees, kinds of beetles, or kinds of birds.

Of course, the big question for most of us is: What is the optimum vegetational development likely to be in the place that we are trying to understand and manage? Which assemblages of plants and animals sustained the highest native biodiversity and supported local *natural* processes? And: What is natural?

I had an opportunity a number of years ago to visit Walpole Island, Ontario, which the native people there call *Mnisenh*; it is also called *Pkejwenong* (place where the waters divide). *Pkejwenong* is a large delta island in the St. Clair River, whereupon there resides the nishnaabeg of three remnant tribes: *Jibwe* (Ojibwa), *Daawaa* (Ottawa), and *Boodewaadmii* (Potowatomie). All of these people speak languages of the Algonquian class. For thousands of years the languages spoken in the Midwest were probably largely Algonquian in their sounds. Words that sound something like Mississippi, Muskingum, Maumee, and Michigan: *Tecumpse*, *Chaubne*, *Michiqueniqua*, and *Wehepehyerhesenwa*. Notice that labial consonants are common; the lips touch. Listen to words of languages derived from the Iroquoian Class, another language group spoken in the Northeastern United States: *Onondaga*, *Ticonderoga*, *Huron*, *Oneida*, and *Cayuga*. The lips do not move very often and rarely meet.

During that day on *Pkejwenong*, I was privileged to be able to speak with Reta Sands, a Jibwe woman, who one day, I felt sure, would be a tribal elder. She speaks the Jibwe tongue, and knows many of the ancient stories and songs of her people. It is well documented that Walpole Island contains perhaps the finest and largest lake plain “savannas” in the Midwest. The people of the Walpole Island have been firing it annually, as per tribal tradition, from time beyond mind. The treed places in the island are many and varied. Canopy covers that consist of single trees per acre to closed canopy blend insensibly; certainly, a dizzying array of “canopy closures” that would confound our plant community scribes and pharisees.

In almost all instances, the floristic composition is amazingly rich, with readily apparent species, various cohorts of which flower throughout the growing season. On a single field trip in August, I recorded 248 native species! Actually, more than 800 species of vascular plants, 97 considered rare in Ontario, are known from the island; a total of 146 species of birds have been recorded as breeding or potentially breeding there, 28 of which are considered rare in Ontario.

Listen to the ancient sounds of the Algonquian words Reta spoke when I asked her about this plant and that: *mshkode-miizhmizh* (Red Oak), *hgaakmizh* (Bur Oak), *zhiigmewanzh* (Red maple). These are the sounds, or variants of them, that filled the air over our lands for thousands of years. Words like “prairie” and “savanna” suddenly sound kind of foreign and inappropriate. Their roots did not grow here. In my view there are some key differences between words that are passed on to the next generation orally in a specific place, and those that are passed on as written entities available for anyone anywhere to read.

I think there are two important differences. First, the very nature of the words, and second, the manner or context in which they are passed along. With respect to the first difference, I am reminded of an anecdote from the life of Tecumpse, the great leader of the Kispokote sept of the Shawnee people. Shawnee is also an Algonquian tongue; they tend to lisp some of the consonants, so Tecumpse probably sounded something like “Tecumpthe.” One of Tecumpse’s younger brothers, Lowalowethica, later to become Tengskwetawa (Open Door – The Prophet), was fascinated by the books that white settlers were carrying down the Ohio River. Lowalowethica pointed out to Tecumpse that these white men could tell what another one said by simply looking at marks on paper. This interested Tecumpse a great deal, and may have been one reason he later befriended a literate white man named Galloway, who built his farm in the place where Tecumpse had grown up. When Tecumpse showed his older brother, Chicksika, these words, Chicksika was appalled! Chicksika was already annoyed with the whites, who he said is like a beast that is always hungry, and what it eats is land.

He asked his younger brother “How can you trap a word from out of the air and make it always mean the same thing? Put edges on it that you cannot see, like he does the land?” Indeed, it has always been hard for whites to translate Indian discourse into written languages. It seems to come out poetically, what we might interpret as flowery and filled with metaphors. Spoken words were nuanced with timbre in the voice replete with facial nuance and other animated coincident behavior. The strength or nature of the words in part were attached to the speaker and his reputation. One could gauge the speaker’s countenance, look into his eyes.

Chicksika pointed out that one cannot look into the eyes of the writer to see if he had been listening to bad birds. And not only that, anyone could read the words even if the elder knows they are not ready for them. To him, this explained why the White Man

had such inexplicable, even dreadful behaviors with respect to the land and the Shawnee. Tecumseh, himself, later pointed out that the white valued a certain written document even more than his bible, namely title to a surveyed and bounded piece of land.

Written word, in contrast to words spoken by a beloved and trusted elder, must stand alone, without context other than the recorded circumscriptions of scholars of the language. In prosaic discourse, the word has a meaning that practitioners of written words attempt to replicate consistently with each iteration, in a sense to quantify them scientifically. Only poets, singers, and painters can escape the hide-bound limits of written discourse, while we ecologists feel compelled to define “savanna” quantitatively, once and for all, and preferably for all places.

Another difference between oral and written tradition is that in the oral tradition, the young ones learn words and ideas only from elders when the elders think they are ready to understand. On the other hand, written words and ideas are available to anyone with a knowledge of phonics, irrespective of their cultural development or maturity, and commonly with little or no knowledge of the character or reputation of the writer.

Let us go back to Walpole Island, *Pkejwenong*. It soon occurred to me that Reta would have words that applied not only to individual plants but to plant communities, or at least assemblages, as well, so I decided to ask her: “What is your word for prairie?” “Well, you must know that one of our words for fire is *ishkode*. Our word for the prairie is *mshkode*, which means: the burned over bare land.” She moved her extended arm, palm down, in a flat arc before her.

Intrigued, and acutely aware of the current controversy over “what a savanna was”, I pointed to the place where trees were, and asked, “What do you call that over there, where the trees are?” Remember it ranged in density from a solitary tree to closed canopy---but all underneath was rich and beautiful from the annual fire. “We call that *mtigwaaki*, our word for forest,” she said helpfully. My initial reaction was one of disappointment. For here was an area dominated by a variety of trees, characterized by a forb-rich, graminoid ground cover, that burned annually, and she had seemed to announce that it was merely a “forest”.

I do not actually know what I had expected her to say. Maybe something that translated into “the burned over bare land with trees that bear big nuts.” It would have been more romantic and would have vindicated Steve Packard! Slightly crestfallen, I queried her further, still deeply interested generally in the linguistic connection between people of long local inhabitancy and their land. At the end of the day, back in the heart of the little town, behind some buildings, I noticed a small tract of unburned woodland, grown up underneath, dark---just like a contemporary Midwestern “forest”. It looked so different from the rest of the island.



Almost as an afterthought, I asked Reta, "What do you call that?" I feared she would reproach me for inattentiveness and reiterate merely that it was *mtigwaaki*. Instead, her countenance changed; she shivered involuntarily. "Oh!" she said, becoming a little agitated. "That we call the *goodaakwak*! I learned that word from a song as a young girl. It means a very frightening place. But there is a word even more terrifying than *goodaakwak*, and that is *aakwaagwak*, which is the edge of the *goodaakwak*."

I later looked these words up in Richard Rhodes' Eastern Ojibwa, Chippewa, Ottawa Dictionary, published in 1985. According to Rhodes, who incidentally consulted Reta extensively in the writing of his dictionary, *mshkode* means "prairie" and *mtigwaaki* means "forest". Pretty straight forward. But, if I heard her words accurately, *goodaakwak* and *aakwaagwak* were not treated by Rhodes. He must have thought he had already dealt with the "forest" word, *mtigwaaki*. He did list *aakwaadak* as meaning to be dangerous. Evidently, these are words that are generally not much in use in common parlance today, coming to Reta only as she recollected childhood songs.

So what might they connote? *Good* – when attached to other words usually conveys the idea of being hooked or hung or caught. *Aakwa* – is the root of words signifying danger. Together they could evoke the idea of being tripped up or caught up, or slowed down or hindered by dense undergrowth. Also, people who spend their days in *mshkode* and *mtigwaaki* have small pupils, accustomed to a lot of light and great depth of field. Certainly, they would be unable to see into the *goodaakwak*, where an enemy might lie hidden in ambush and in which, at all events, the important "women's plants" had all been shaded away.

So, *goodaakwak* was a frightening place that one would approach with extreme caution, much less have much reason to enter. *Aakwaagwak*, the edge of the woods, is not listed either, but *aakaa*, a very similar sound to me, means, according to Rhodes, "what a hell of a place." This has implications for an interpretation of *mtigwaaki*. It is a three-syllable sound that means not only forest, but, by corollary, a safe place, an open place where people can hunt and gather with success and security. It literally means "the place where there is wood."

Interestingly, the "prairie on fire" does not have in it the root word *skoda*. Instead, it sounded more like "*pesitwa*", involving a completely different concatenation of phonemes. Rhodes also did not think to ask her this concept, but it was rendered in an older dictionary by Fr. Frederic Baraga, which he published in 1878. Linguists, when attempting to render another language commonly do not have the cultural awareness and certainly not the capacity to query on either most esoteric or very personal subjects other than those relating to hearth, home, and daily life.

What is important here for the contemporary student of Midwestern prairies and woodlands is that these communities probably represent Holocene-landscapes,

tended by indigenous peoples, *nishnaabeg*, whose relationship with the land nurtured a great diversity of plants and animals and provided ready availability of clean water, medicine, herbs, and other resources necessary for their sustained inhabitancy---all the necessities of life within walking distance.

Whatever one's view on the apartheid between Nature and Man, it is becoming ever clearer to me that such a distinction is confounding western Man's ability to see his role in the world and to understand and to comprehend the way the world, upon which he depends, works. Develop arcane, mathematically correct models of savanna and forest if you wish, if that is a goal unto itself. But if we wish to preserve and maintain the biotic and abiotic integrity and genetic diversity of the places with trees, then we must strive just as diligently to restore the Human cultural relationships with any specific landscape that has developed dependencies between the Human stewards of the earth and their charges.

We must learn to fear *goodaakwak*, and grow to feel comfortable with and learn to nurture *mtigwaaki*. Our management feedback should be driven by the resurgence and sustainability of local native biodiversity, rather than a *priori* requirement of specific tree density and canopy cover per se. If our management of the local biota, at any particular place, enhances their inhabitancy, then that particular slope or acre will in time describe for us the appropriate conformation of trees themselves at that spot.

Over the years I have grown ever more certain that academically smart people are great sources of facts but poor sources of wisdom. The plants and animals are not trained in doctrine, they are not tenure-tracked, they do not have egos, they do not lie or dissemble. They flourish if we are attentive and gentle with them; they languish and soon perish if we are not. So, it is important that we spend serious time learning their names and their languages lest they start to cry unbeknownst to us.