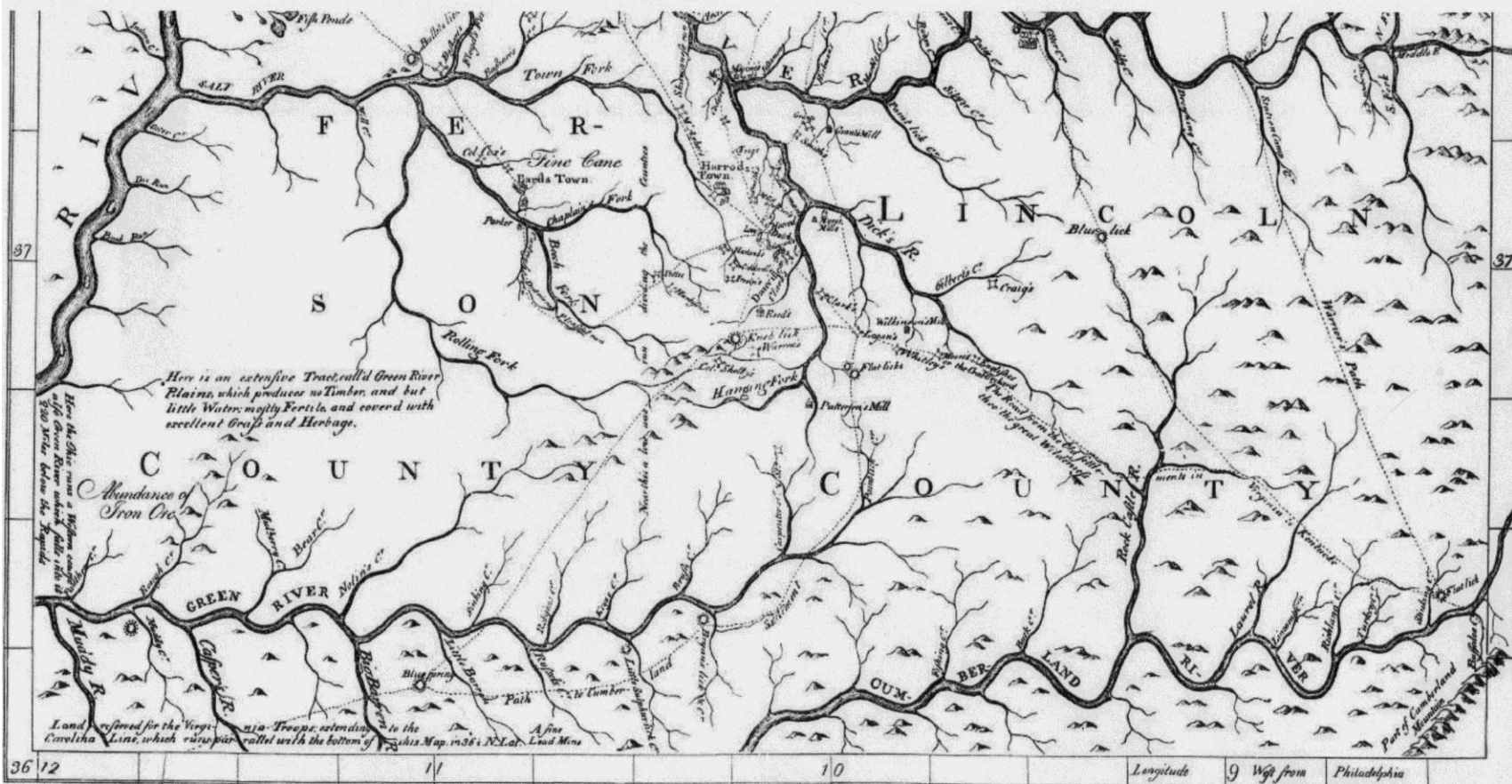


Historical Notes on the Big Barrens in Kentucky. Julian Campbell, July 2012

This is a continuing effort that will be extended eventually to the barrens of Indiana, Illinois and Tennessee. The style is not yet completely consistent, and typographical errors may still occur—the interpretation of old original language is a special problem that still needs refinement in some places. The sequence is chronological with respect to the original writings, except that sources with more floristic data are grouped together, beginning on p. 37. Bibliographic references are detailed at the end of this document, together with sources that are not used here but relevant to overall planning for the barrens—another continually growing aspect. I made an initial collection of these materials for Mammoth Cave National Park in the late 1990s, with special attention to barrens in or near the park in Edmonson, Hart or Barren Counties. However, that technical report for their fire management planning became somewhat buried in their bureaucracy. Earlier, Baskin & Baskin (1981, and unpublished) and Baskin et al. (1994) had summarized several early descriptions of the Barrens Region in general (see also Ray 1997). These quotes are mostly repeated here, especially those with more details of localities, habitats, fires and species.

Brackets [] enclose my interpretive notes; c = central; e = east; n = north; s = south; w = west. Note that, in interpreting the following accounts, *Quercus marilandica* was commonly called *Q. nigra* before 1900; its common names apparently included “black oak” in some early accounts (e.g., the Michauxs), and also “black-jack” and “barren oak” (e.g., Gray 1889). The true *Q. nigra* (our modern “water oak”) was then known as *Q. aquatica*. *Q. velutina*, our common “black oak” today, was often regarded as just a variety of *Q. coccinea*, or sometimes made a species, *Q. tinctoria*. *Q. shumardii*, our “shumard oak,” was generally not distinguished, and it was probably confused with *Q. palustris*, *Q. coccinea*, *Q. rubra* and *Q. velutina*; it may have been called “pin oak” in some cases (Campbell 1989).

John Filson (1784): "This Map of Kentucke..." The following is written between Rolling Fork of Salt River and Green River: "Here is an extensive Tract, call'd Green River Plains, which produces no timber, and but little water; mostly Fertile, and covered with excellent Grass and Herbage." Also, in the text of his book (p. 20): "...towards Salt River, a great territory begins, called Green River Barrens, extending to the Ohio. Most of this is very good land, and level. It has no timber, and little water, but affords excellent pasturage for cattle." The southern half of this map is provided below.

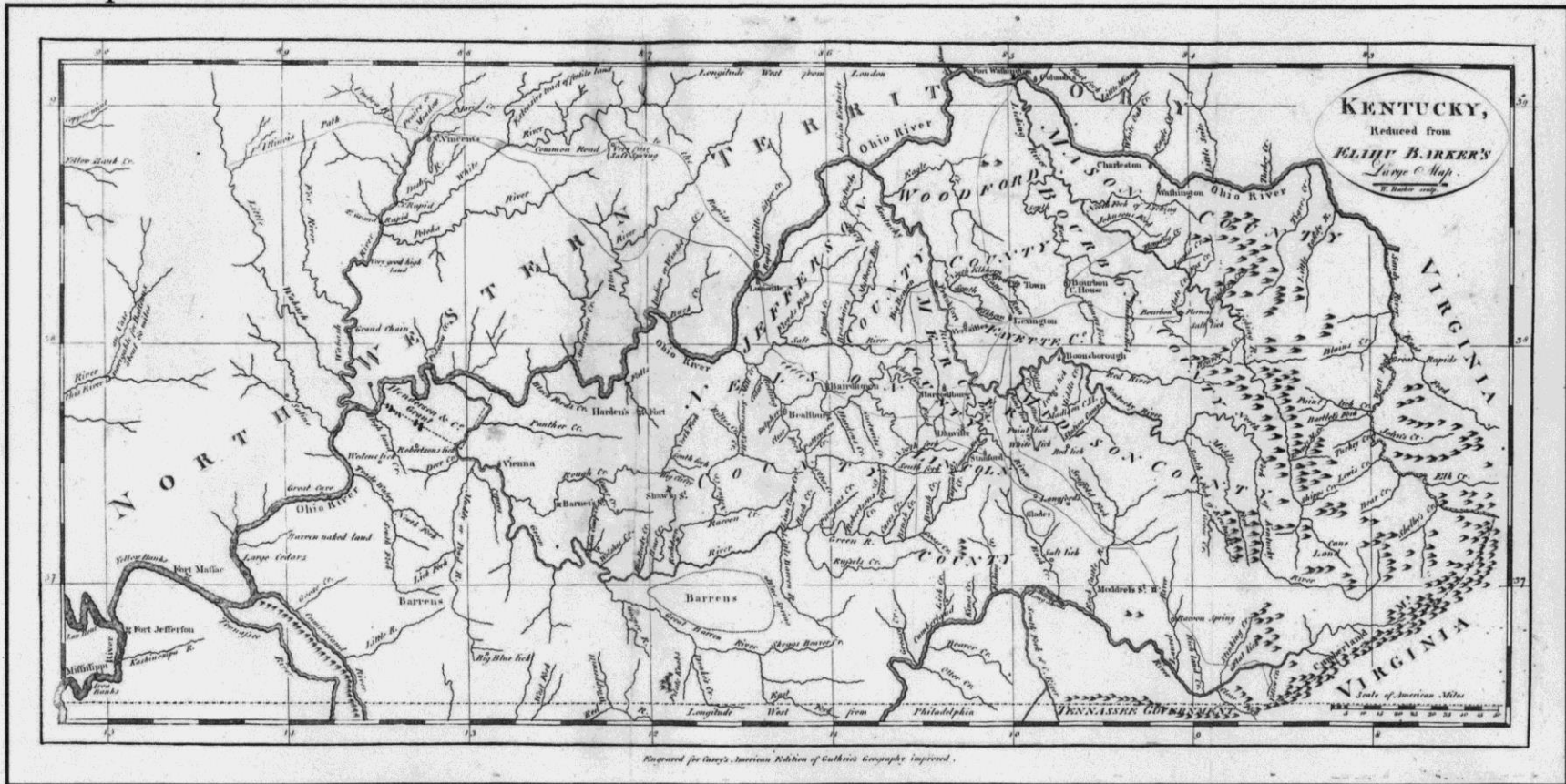


Philad^a Engrav'd by Henry D. Poffel, & Printed by T. Rook for the Author 1784

This map is a reproduction of an original in the collections of The Filson Club. Reprinted for The Filson Club, 1990.

Jedidiah Morse (1793, p. 564): “In Nelson Country [now Hardin and Meade], northwest of Rolling Fork ... is a tract about 40 miles square, mostly barren, interspersed with plains and strips of good land... [These barrens] are covered with grass, and afford good pasturage.”

Elihu Barker (1795). A Map of the State of Kentucky from Actual Survey. J. Debrett, Picadilly, London, England. This was included in the 1797 edition of Gilbert Imlay’s “Topographical Description” of the western states.



Andre Michaux (1793-96 in Thwaites 1904, p. 64), in referring to his travels of June, 1795, noted: “The 23rd crossed the Barren oaks [about 30-60 miles from Nashville] and slept at [Drakes] Creek [s Warren Co.?]. There is no house in the interval. The Soil produces only black oaks [probably *Quercus marilandica*]. 30 miles. The 24th passed by Big Barren River. The man who keeps the Ferry is well supplied with provisons [?McFadden's ferry in e Warren Co.]. The distance is 3 Miles from [Drakes] Creek. Crossed the Barrens and slept on the ground without a fire and without allowing my horse to graze at large through fear of the Savages [c Barren Co.]. The 25th passed by Little Barren River, the first house 43 miles from Big Barren River [sw Green Co.]. Afterward passed by Green River 6 Miles from Little Barren River.”

In February, 1796 (p. 92), he noted: “The 12th passed through a country covered with grass and Oaks which no longer exist as forests, having been burned every year [between N Larue Co. and NW Hart Co.]. These lands are called Barren lands although not really sterile. The grasses predominate: *Salix pumila* [*S. humilis*], *Quercus nigra* [*Q. marilandica*], *Quercus alba* called Mountain White oak [*Q. stellata*?]. *Gnaphalium dioicum* [*Antennaria plantaginifolia*?] also grows there in abundance. It is called by the Americans White Plantain... The 13th of February traveled 37 Miles without seeing a House through the lands called Barren lands [from c Hart to s Warren Co.]. The *Salix pumila* that grows there in abundance is the same as that which is very common in the Illinois prairies...”

Louis-Phillippe, Duke of Orléans (1797, reprinted 1977, p. 110-111): from diary in Kentucky. “It [the Barrens] is a high and dry plateau, where trees are sparse and grass and shrubs plentiful. One sees only small, stunted trees, most of them oaks and hickories, and everywhere lush grass dotted with charming flowers.” [To be reviewed further.]

Francois Michaux (1805 in Thwaities 1904, p. 215-222): referring to his travels in August, 1802. His journey through the Barrens went from “Bears-Wallow”, in s Hart Co., to “Dripping Spring,” probably in se Edmonson Co., to the ferry of “one Macfiddit” (?= MacFadden) across Big Barren River, probably in w Warren Co., to “the oldest settlement on the road” at Mr. Kelsey's, probably on Drakes Creek in s Warren Co.

On the 25th August, he noted: “About 10 miles from Green River flows the Little Barren [SW Green Co.], a small river, from thirty to forty feet in breadth; the ground in the environs is dry and barren, and produces nothing but a few Virginia cedars [*Juniperus virginiana*], twoleaved pines [*Pinus virginiana*], and black oaks [probably *Quercus marilandica*]. A little beyond this [SE Hart Co.] commence the Barrens, or Kentucky Meadows.

“On the 27th August...about thirteen miles from Mr. Kelsey's crossed the line that separates the State of Tennessee from that of Kentucky [s Simpson Co.?]. There also terminates the Barrens; and to my great satisfaction I got into the woods. Nothing can be more tiresome than the doleful uniformity of these immense meadows where there is nobody to be met with; and where, except for a great number of partridges [bobwhite quail], we neither see nor hear any species of living beings, and are still more isolated than in the middle of the forests...

“The Barrens, or Kentucky Meadows [on the Pennyrile Karst Plain], comprise an extent from sixty to seventy miles in length, by sixty miles in breadth. According to the signification of this word, I conceived I should have had to cross over a naked space, sown here and there with a few plants. I was confirmed in my opinion by that which the country people had given me of the meadows before I reached them. They told me that in this season I should perish with

heat and thirst, and that I should not find the least shade the whole of the way, as the major part of the Americans who live in the woods have not the least idea that there is any part of the country entirely open, and still less that they could inhabit it. Instead of finding a country as it had been depicted to me, I was agreeably surprised to see a beautiful meadow, where the grass was from two to three feet high. Amidst these pasture lands I discovered a great variety of plants, among which were the *gerardia flava* [*Aureolaria f.*], or gall of the earth; the *gnaphalium dioicum* [*Antennaria plantaginifolia?*], or white plantain; and the *rudbeckia purpurea* [*Echinacea p.*]. I observed that the roots of the latter plant participated in some degree with the sharp taste of the leaves on the *spilanthus oleracea* [*Spilanthes*, a related southern genus]. When I crossed these meadows the flower season was over with three parts [quarters] of the plants, but the time for most of the seeds to ripen was still at a great distance [in time]; nevertheless I gathered about ninety different species of them which I took with me to France. [Efforts to locate a list or to link these species with herbarium specimens in Paris have not yet succeeded—perhaps a direct inspection of Michaux’s material there will reveal some clues.]

“In some parts of the meadows we observed several species of the wild vine, and in particular that called by the inhabitants summer grapes, the bunches as large, and the grapes of as good a quality as those in the vineyards round Paris, with this difference, that the berries are not quite so close together [*Vitis aestivalis* or perhaps *V. labrusca*, the origin of concord grapes]. “The Barrens are circumscribed by a wood about three miles broad, which in some parts joins to surrounding forests. The trees are in general very straggling, and at a greater distance from each other as they approach the meadows. On the side of Tennessee this border is

exclusively composed of post oaks [*Q. stellata*], the wood of which being very hard, and not liable to rot, is in preference to any other, used for fences. This serviceable tree would be easy to naturalize in France, as it grows among the pines in the worst of soil. We observed again [also], here and there in the meadow, several black oaks [probably *Q. marilandica*]; and nut trees, or juglans hickory [perhaps mostly *Carya tomentosa*], which rise about twelve or fifteen feet. Sometimes they formed small arbors, but always far enough apart from each other so as not to intercept the surrounding view. With the exception of small willows, about two feet high, *salix longirostris* [*S. humilis*], and a few shumacs [*Rhus*], there is not the least appearance of a shrub. The surface of these meadows is generally very even; towards Dripping Spring [SE Edmonson Co.?] I observed a lofty eminence, slightly adorned with trees, and bestrewed with enormous rocks, which hang jutting over the road...

“...According to the observations we have just made, the want of water, and wood adapted to make fences, will be long an obstacle to the increase of settlements in this part of Kentucky. Notwithstanding, one of these two inconveniences might be obviated, by changing the present mode of enclosing land [with rail fences], and substituting hedges, upon which the *gleditsia triacanthos*, one of the most common trees in the country, might be used with success. The Barrens are at present very thinly populated, considering their extent; for on the road where the plantations are closest together we counted but eighteen in a space of sixty or seventy miles.

“Every year, in the course of the months of March or April, the inhabitants set fire to the grass, which at that time is dried up, and through its extreme length, would conceal from the cattle a fortnight or three weeks longer the new grass, which then begins to spring up. This custom is nevertheless generally censured; as being set on fire too early, the new grass is stripped

of the covering that ought to shelter it from the spring and frosts, and in consequence of which its vegetation is retarded. The custom of burning the meadows was formerly practiced by the natives, who came in this part of the country to hunt; in fact, they do it now in the other parts of North America, where are savannas of an immense extent. Their aim in setting fire to it is to allure the stags, bisons, &c into the parts which are burnt, where they can discern them at a greater distance. Unless a person has seen these dreadful conflagrations, it is impossible to form the least idea of them. The flames that occupy generally an extent of several miles, are sometimes driven by the wind with such rapidity, that the inhabitants, even on horseback, have become a prey to them. The American sportsman and the savages preserve themselves from this danger by a very ingenious method; they immediately set fire to the part of the meadow where they are, and then retire into the space that is burnt, where the flame that threatened them stops for want of nourishment.”

Thomas R. Joynes (1810): travelling through Kentucky.

[p. 157] “We rode to-day about twenty-five miles through barrens in the counties of Hardin and Grayson. These barrens are ... covered with excellent grass. They are entirely uninhabited, except at the few groves which are interspersed through them.

[p. 223] “Left there [Eddyville] at 5, and arrived to breakfast at Hopkinsville at 9 - ten miles. Left there at ten, and arrived that evening at McLean's - twenty-five miles. Left McLean's Friday, the 29th, at 5, and arrived to breakfast at Russelville at 8 - nine miles. Left there at ten, and arrived at Warren Court-house at 7 P.M. - twenty-eight miles. Nearly the whole distance from Eddyville to Bowling Green (Warren C.H.) the road goes through Barrens, which are very fertile, and in which there are some very handsome farms.”

Burnet (1815; in Applegate 1965, p. 19): writing in his journal on December 29th, 1815.

“After breakfast, left Thompsons [probably south-central Hart Co.] and road 24 Miles through the barrens and came to Bustus Inn [probably SE Edmonson Co. or NE Warren Co.], where we put up. Barrens so far very thinly settled bearing nothing but a few schrub black oaks [probably *Quercus marilandica*] & covered with a wild grass.”

Brown (1817, p. 105-106).

“There are several salt licks in the vicinity of Russellville. To the north of this town the land is covered with a very heavy timber—to the south, barrens, or open prairie country: this strip is about 15 miles wide and extends from east to west 90 miles. These prairies are rich, finely watered, and adorned with islets or intersected by groves of timber sufficient to maintain an immense population.”

Bourne (1820): comparing “Barrens” with “3. Prairies of the [mid-] Western Country... generally found in the level parts of the country, on the banks of small rivers and creeks...” “Having seen in the second number of the American Journal of Science, an essay on the Prairies and Barrens of the West, by Caleb Atwater Esq. wherein he attempts to prove that the Prairies and Barrens were wholly formed by the agency of water; and in the fourth number of the same Journal some remarks on the origin of Prairies by Mr. R. A. Wells, by which he attempt to prove that the Prairies and Barrens were wholly formed by the agency of fire; I was induced with a view of conciliating these contrary opinions, to make a few observations on the situation, varieties, and the probable causes of the formation of natural meadows....” [Those papers also deserve review, especially that of Wells, who was a surveyor for the U.S. government.]

“4. The Barrens so-called from their sterile appearance, are found on the high plains in the west parts of Ohio and Kentucky, in Indiana, Illinois and Missouri.—They have features in common with the prairies, but are essentially different in many respects. They occupy the highest part of the country, and are generally level; some them are uneven, but I have seen none hilly. They are generally poorer than the timbered land in this vicinity, but some spots in them may be richer. They are spotted with innumerable groves or clusters of stunted oak and hickory trees, of about half the size which the same kind are on the timbered land.”

“The soil is not a recent alluvion like the prairies; and if it is not primitive, it is at least as any other parts of the great western valley [Ohio Valley]. I think it must be evident to everyone who will view the barrens attentively, that their present condition was caused by fires, which have consumed the trees and acorns from which they grow: because many of the trees that are standing are partially burnt, and almost everyone that is lying down has been burnt more or less. The surface being generally level, the rains make them wet or moist three quarters of the year, and the warm climate urges a spontaneous production of wild grasses and weeds somewhat similar to that of the prairies. The fires in the barrens are generally kindled by the Indians for the convenience of travelling over the smooth surface, to enable them to approach game without noise, and also to ensure a good crop of grass for the next summer.”

“Fires sometimes escape from the camps of travellers during the dry season, and burn until the rain or some other cause puts them out. When the white people settle on the barrens or near them, the Indians recede, fires are seldom seen, a young growth of trees, healthy and vigorous soon springs up, far superior to the stunted growth which the frequent fires have scorched, and the barren assumes the appearance of a timbered country.—That the barrens are frequently burned,

and that when the burnings cease, a young, vigorous growth of trees soon springs up, are facts which can be attested by the most respectable people in this country.”

“Small prairies are sometimes found in the barrens, and the prairies near the heads of creeks are so blended with the barrens in many places, that it is difficult to determine where the one ends or the other begins.”

Flint (1822, reprinted in 1970, p. 258): “In the neighborhood of Salt River and Green River, in Kentucky, there are extensive tracks of barren wastes. Small hazel bushes [*Corylus americana*] from two to three feet in height abound in these; and the quantity of nuts produced exceeds anything of the kind which I have ever seen. The soil of these wastes seems to be very similar to that of the adjoining woods; and on account of the trees diminishing gradually in size, from the forest to the waste, it is sometimes impossible to discover a line where the one stops and the other begins. This, being told by an old settler, that some small saplings which stood on his farm twenty years ago, are now become tall trees, leads me to adopt the opinion entertained by some, that the wastes or barrens owe their characteristic form to the Indians, who set fire to dried grass and other vegetables with the design of facilitating their hunting.”

Davidson (1840, p. 29-32): "This locality [Mammoth Cave] forms part of that extensive region called the *Barrens of Kentucky*, reaching from the Tennessee line to the Rolling Fork of Salt River, and embracing a large portion of the Green River country. This tract, extending over several counties, was originally styled the *Barrens*, not from any sterility of soil, for although the soil is not of the first quality, it is generally good; but because it was a kind of rolling prairie, destitute of timber. While the central parts of the State were covered with forests of heavy timber, or overspread with tall canebrakes, the Barrens, with the exception of a few scattered groves along the water-courses, were clothed with a thick growth of prairie grasses. The face of the country, however, presented great attractions to the botanist..." [here follows a quotation from C.W. Short, which is provided under "Floristic Records" below.]

"The destitution of timber in the Barrens was owing to the frequent burning of the prairie by hunters to drive out the game, by which means the young and tender shoots were scorched and destroyed... With the advancing settlement of the country, the prairie fires were gradually extinguished, and the young timber had liberty to grow. The consequence is, that tracts which were destitute of shade ten to twenty years ago, are now covered with extensive forests of Black Jack, or scrub oak, an inferior wood indeed, yet capable of being converted to various uses, and which will no doubt be succeeded in time by some more valuable growth... To the traveller in the fall of the year, the unvaried and monotonous drab of the foliage presents an extremely dull and dreary aspect, and an agreeable sensation of relief is experienced when he makes a transition to the brighter hues of green edged with yellow, of the beech woods."

Lyman C. Draper. 1842-1856 [drafted during this period]. *The Life of Daniel Boone*. Manuscripts in the Archives of the Wisconsin Historical Society, Madison. See also: C.A. Hanna. 1911. *The Wilderness Trail*. 2 vols. G.P. Putnam's Sons. The Knickerbocker Press, New York. See also: T.F. Belue (ed). 1998. *The Life of Daniel Boone*. Stackpole Books, Mechanicsburg, Pennsylvania.

p. 274: about hunting by Boone and others in the upper Pond River area during about 1770-71. "They at length crossed over the ridge and pursued down Bledsoe's Creek within four or five miles of the Lick, when the cane became so thick in the woods that they concluded they must have mistaken the place until coming to the Lick and discovered the cause. A party of French hunters from the Illinois country had been there, slaughtered the buffaloes simply for their tongues and tallow, loaded a keel boat which lay at the mouth of Bledsoe's Creek, and descended the Cumberland. "Bledsoe told me," says General Hall, "that one could walk for several hundred yards in and around the lick on buffalo skulls and bones, with which the whole flat around the lick was bleached." This great slaughter of buffaloes sufficiently explained the sudden growth of cane within a few miles of the lick."

[Interpretation. Draper cites "Gen. William Hall's MS letters; Boone's narrative." Belue (1999) notes that the French hunters "may have been Jacques Timothy Broucher de Monbruen and his men, who were scouring the Cumberland watershed as early as 1766. Locations need to be investigated further; "Big Blue Lick" was mapped by Barker (1795) at the head of Pond River— perhaps near Elkton in Todd Co.—and might be indicated here. "Bledsoe's Creek" is perhaps not the small creek now named this in western Russell Co.]

Bullitt (in Meloy 1985, p. 10), writing in 1844: "In going to the Cave from Munfordville, you will observe a lofty range of barren highlands to the North, which approaches nearer and nearer the Cave as you advance, until it reaches within a mile of it... For a distance of two miles from the Cave, as you approach it from the South-East, the country is level. It was, until recently, a prairie, on which, however, the oak, chestnut and hickory are now growing; and having no underbrush, its smooth, verdant openings present, here and there, no unapt resemblance to the parks of the English nobility. Emerging from these beautiful woodlands, you suddenly have a view of the hotel and adjacent grounds, which is truly lovely and picturesque."

Kite (1847, p. 7 in 1943 copy) summarized the trip through Russellville and Bowling Green towards Mammoth Cave as follows: "Since leaving Clarksville [TN] we have been passing through what are called the Barrens, formerly an extensive prairie, now overgrown with a scrubby Oak called Black Jack, the soil appears to be thinner than in some other portions of the state, yet well repays the labor of the husbandman."

Owen (1856, p. 81-84): In his geological notes on "southern belt" of the "sub-carboniferous" [Mississippian] limestones in western Kentucky, he stated: "The upper division is formed by the Archimedes and Pentremital limestones [now known as the Girkin Formation]. Where these are associated, as they frequently are, with beds of greenish and grey shales, they give rise to a narrow belt of unproductive gladey land, almost destitute of vegetation. What little timber it supports is usually a scanty growth of scrubby post oak on the ridges; on the slopes, post-oak, sassafras, shumach, and white oak, with black gum towards the base. The soil is of a stiff marly nature and must necessarily contain a large amount of argillo-calcareous matter. [This soil was probably equivalent to clayey inclusions of the typic hapludalf series complex, Talbott

Caneyville-Fredonia, or sometimes mapped as the vertic hapludalf series, Colbert; see, for example, Figure 6 in Baskin et al. (1994).]

"Indeed the sterility of the land is probably due to the superabundance of lime and alumina; the former exerting a too powerful solvent effect over its organic contents, and thus exhausting it of these constituents; the latter renders it stiff and refractory, so that it bakes, cracks, and forms extensive slides on the slopes of hills. The seeds of plants, in such soil, are frozen out in winter, super-saturated with moisture in spring, and deprived of the organic matter necessary for their nutriment. In dry weather the ground becomes hard and compact, yet full of fissures, so that the germinating plant has no power to penetrate its way to the surface; or, if already in an advanced state of growth, its roots are laid bare, and the tendrils perhaps torn asunder; yet these stiff calcareous clays, when subdued by cultivation and supplied with organic manures, are capable of returning abundant crops, while they are, as I have already stated elsewhere, materials well adapted for the amelioration of poor siliceous soils."

"The second division of the sub-carboniferous limestone, in the descending order, comprises the Lithostrotion bed, or Barren limestone [now known as the Ste. Genevieve and Ste. Louis Limestones]... This limestone group produces, for the most part, an excellent soil, well adapted for the growth of corn, wheat, barley, and certain grasses.

"In the early settlement of Kentucky the belt of country over which it extended was shunned, and stamped with the appellation of "Barrens;" this arose, in part, from the numerous cherty masses which locally encumbered the ground, in part from the absence of timber over large tracts, and in consequence of the few trees which here and there sprung up, being altogether

a stunted growth of black-jack oak, *quercus ferruginea* [*Q. marilandica*], red oak, *quercus rubra* [probably including *Q. falcata* and others more than *Q. rubra*], and white oak, *quercus alba* [probably including much *Q. stellata* as well as *Q. alba*]... At the present time the so called "Barrens" of Kentucky are, to a considerable extent, timbered with the above varieties of oak, black Hickory [*Carya glabra?*], and occasionally Butternut, *juglans cathartica* [*J. cinerea*]; Black Walnut, *juglans nigra*; Dogwood, *cornus florida*; Sugar-tree, *acer saccharinum* [then meaning *A. saccharum*]."

"The old inhabitants of that part of Kentucky all declare that when the country was first settled it was, for the most part, an open prairie district, with hardly a stick of timber sufficient to make a rail, as far as the eye could reach, where now forests exist of trees of medium growth, obstructing entirely the view. They generally attribute this change to the wild fires which formerly use to sweep over the whole country, in dry seasons, being now, for the most part, avoided or subdued, if by accident they should break out. No timber appears capable of surviving the scorching effects of such fires, but the thick-barked black-jack oak, which, here and there resisting its ravages, stood monuments of its hardy nature, and the blasting influence of the prairie fire.

"It is probable, however, that some other influence contributed to suppress the growth of timber in the Barrens of Kentucky, since wild fires were equally liable to occur in the heavy timbered land of adjacent formations. It is altogether probable that there was a peculiar tendency in the soil to produce that luxuriant growth of barren grass which took possession of the soil, to the exclusion of all timber, and which is described as having attained a height of five to six feet.

Since the settlement of the country this grass has almost become extinct, whereby opportunity has been afforded for timber to take root and flourish."

[Note that Owen did not consider edaphic and topographic relationships with fire, nor the notion that Native American burning, not just "wild fire", was concentrated in this region. He omitted the simple idea that the deep productive soils here allow much grass growth, which then provides much fuel for hot, tree-killing fires.]

Owen (1857, p. 162) noted, with reference to Barren County, that "the Barren limestone region" was "originally an open country of grass and hazel bushes, destitute of timber, now grown up, to a great extent, with the barren oak. (*Quercus Catesbaei*)." [This is an old synonym of the Coastal Plain species, *Q. laevis*, but it was probably used to mean *Q. marilandica* in this region.]

Hussey (1876, p. 8-17): "My observations in Barren county would lead me to the conclusion that the traditions which are current as coming from the settlers are true; that is to say, that when the whites first came to these parts, it was, indeed a barren region, destitute at least of trees. On the more level parts of this county the trees are yet small in size and few in species. The size of the trees alone would settle the question as to the length of time in which the present forest has stood, especially when taken in connection with the absence of the remnants of an older forest in the matter of fallen trunks and stumps. One the line of sandstone-capped hills seen rising between the line of the railroad and Green river are to be found larger trees than any in the more level portions of the county, showing that when the rest of the county was bare of trees, there were some crowning these hills. The limited number of species found in Barren County would itself be conclusive of the question of the recent introduction of forest growth into this region. The

most of the oaks are of the following species: *Quercus, coccinea* [and *velutina, shumardii?*], *rubra* [and *falcata?*], *nigra* [*marilandica* mostly?]. [*Quercus*] *Alba* is found, but not abundant; also *imbricaria* and *obtusiloba* [= *stellata*], about the numerous sinkholes. I saw no poplars [*Populus?*], no tulip trees [*Liriodendron*], linn [*Tilia*], beech [*Fagus*], black walnut [*Juglans nigra*] or butternut [*J. cinerea*]."

[Note that in later pages, Hussey also lists *Quercus falcata* ("Spanish oak"): "very plentiful in some localities"; and *Celtis occidentalis v. pumila* [= *C. tenuifolia*] "commences to appear in Barren county, and extends everywhere through the country as far as Hopkinsville, in Christian county."

"The largest trees are oaks, about fifteen inches in diameter three feet from the ground [ca. 30-40 cm dbh]. I saw scarcely a willow [*Salix*] or maple [*Acer*] of any kind.... Not in the trees only, but also in the herbaceous flora was the limited number of species noticeable. It is well understood that the aborigines of this country were accustomed to burn over the surface of the prairies; but for what purpose it does not seem to be perfectly understood. It has been said that they thus destroyed the old culms of grass, and cleared the way for the springing of the tender shoots in the spring. They may also have had in view the destruction of hurtful insects, as the grasshoppers, by destroying their eggs, or of noxious serpents, which must have been destroyed in immense numbers by the annual fires on the prairies. Another reason may have had consideration; the tall dead grass would be liable to be fired by accident at any time, and thus human life and many villages be endangered in the night, or in times of high winds, with no means of escape; but if at a certain time, when all are on the lookout, the firing should take place, there would be no danger to life or property.

"The habit of firing the prairies must have exerted a wide influence on the character and distribution of plants in the parts of our country where prairies existed... The annuals must have been greatly diminished by the custom... But as these fires were annually kindled, how did it happen that here and there all over the broad prairies clusters of trees withstood their destructive influence, and lived and flourished? The reason of the deficiency of trees on the prairies has been held by some to be the absence of the nutriment in the soil which they required, or the fineness of the soil, which was supposed to be unfavorable to the growth of timber trees. This latter view, taken in connection with the fact that the knolls on which the clumps of trees are generally found are composed of more porous material, as sand or gravel, seemed to receive confirmation. But the fact that all kinds of trees do grow well when planted and protected in prairie soil, upsets both these theories without further refutation. The soil is not too finely divided; it does not lack the necessary constituents...

"...To the westward, in Edmonson county, there is evidence of the treeless condition existing. The very numerous ravines, valleys, and hillsides, become covered with tree growth first. The large tulip trees, hemlocks, sugar maples, beeches ["very abundant on Green River", p.15], and chestnuts ["abundant"] found in these less exposed localities, prove that generations of tree growth have passed since their seeds were scattered here; but the uplands show, that long since the deep valleys and hillsides were covered with forest growth, these were almost or entirely bare. Notwithstanding this, however, Edmonson county was forest-covered a generation before Barren county."

Other miscellaneous notes on the abundance of trees are as follows:

"The tulip tree...is abundant along the tributaries of Green river."

"The sweet gum...is still very abundant on the river and its tributaries."

"There is not much linn...found on the tributaries of Green river" [and perhaps none along Nolin river!]

"...white oak, attains an enormous development along Green river."

"The Spanish oak [*Quercus falcata*] is very plentiful in some localities."

"Chestnut oak is abundant on the ridge on both sides of the Green river, but especially to the west of it."

"The hickories are among the largest trees--very tall, but not so great in diameter as the oaks and sweet gum, but exceedingly numerous... Black hickory (*Carya tomentosa*), when from five to ten inches in diameter...In the counties of Grayson and Edmonson there is an immense supply of this class of wood."

"Neither black nor white walnuts are here found in abundance, and the trees which are found are of inferior quality."

"The wild cherry is not abundant."

"The sugar maple, black birch, and hemlock are common in the gulches."

"The white soft maple [*Acer saccharinum* or *A. rubrum*?]. On the uplands hoop-poles [*Acer rubrum*?] seem quite inexhaustible in quantity, and of very good quality."

"White elm, so-called in this State (*Ulmus alata*), is very abundant all through the counties of Grayson and Edmonson..."

"The sassafras springs up everywhere in old fields and abandoned ground."

"The dogwood is specially abundant, and of large size for that little tree, sometimes eight or nine inches in diameter..."

[He did not note *Juniperus virginiana* or *Pinus virginiana* in the text at all, though he did list these species in his appendix.]

[Other woody species of interest in his list include *Aesculus flava* (and *glabra*), *Rhus venenata*, *Robinia pseudoacacia*, *Gymnocladus dioicus*, *Pinus pungens* and *Taxus baccata* var. *canadensis*; however, *P. pungens*, at least is highly unlikely in this region, and Hussey's identifications in general should not be trusted completely; his collections are said to be lodged at Purdue University, and should be thoroughly checked.]

DeFriese (1880, p. 25-27) reported on his 1878 timber survey across Kentucky: "Again, forest fires have not denuded certain portions of the country in the neighborhood of Mammoth Cave. What is known as Doyle's Valley for instance, has been, for some reason, largely protected from the ravages of fire, even if the entire district has not been. From the growth of chestnut I am inclined to think it has never been continuously burned over.

"On leaving Glasgow Junction [now Park City], toward Mammoth Cave, plenty of white oak is found in the sinks; post oak, black oak, scarlet oak, and red oak are found on the higher grounds, and as soon as Chester sandstone, which caps the so-called hills, is reached, chestnut is found in great abundance. This is the first chestnut worthy of note found, and all that has been found, so far [from the Mississippi River to here], if a few bushes on the silicious limestone, near the Tennessee river, be excepted; though doubtless all this Chester sandstone, from Hopkinsville to Glasgow Junction, would have been covered with it, but for the fires that long ago swept over this richly timbered country, year after year, and drove its choicest trees from the forests.

"On the hill sides facing Doyle's Valley the trees are magnificent, and white oak, liriiodendron, white hickory [*Carya tomentosa?*], massive chestnut, scarlet oak, red oak, black oak, Spanish oak, chestnut [oak?], ashes and redbud &c., abound. The chestnut, however, is limited to the sandstone and stops abruptly when the limestone is reached descending the hill.

"On nearing Mammoth Cave, and all along the banks and cliffs of Green river, hornbeam (*Carpinus Americanus*, often called iron-wood, but not the true iron-wood) and hop hornbeam (true iron-wood) abound. On the long high level above the cave the principal timbers are red, black and Spanish oak. They are worthless except for firewood.

"In the immediate vicinity of Mammoth Cave, and crowning the hill-side facing Green River, above and below it, the timbers are red oak, liriodendron, chestnut (on sandstone or its detritus), white hickory, white oak, black walnut, blue ash, an occasional sugar and rock maple, winged elm, &c. At the base of the hill, on Green river, are beeches, sycamores, spicewood (the first met with), white hickory, liriodendron, and white oak. Black sumach [*Rhus copallina?*], woodland huckleberry [*Gaylussacia baccata?*], buckeye, dogwood, &c., are among the small growths.

"About two miles from Mammoth Cave, toward Cave City, the hill-tops are poor, and are covered with Spanish oak, scarlet oak, black-jack, and an occasional mountain oak [*Quercus montana* = *Q. prinus*]. In the sink-holes, and on their steep sides grow splendid chestnut, pig and white hickory [*Carya cordiformis* and *C. tomentosa?*], liriodendron, some white oak, post oak and black locust. The chestnut is found only on the sandstone. These upland and lowland timbers alternate, without any changes worthy of note, except occasional swamp chestnut oaks [*Q. michauxii*], Bartram's oak [*Q. lyrata?*], laurel oak [*Q. imbricaria*] and black hickory [*Carya glabra?*], until we begin to pass into the present eastern barrens, about twelve miles [perhaps mistated two, or was his route to the N?] from Cave City and within about eighteen miles of Greensburg. White oak and chestnut cease to exist, except the former on streams, &c., and a repetition of the barren timbers of the Purchase occurs. There seems to be a neck of country about Mammoth Cave which has, for some reason, more or less escaped the ravages of fire."

After passing out of the Karst Plain further east, crossing the Little Barren River towards Greensburg, DeFriese (p. 27) noted: "The Keokuk [= Salem and Warsaw Formation?] is an exceedingly fertile formation, and its timbers are nearly always, on the limestone, of the finest.

Its soils are rich in marls, it furnishes a good supply of surface water, and has all the requisites for the production of splendid forests. Timbers, therefore, grow better and more valuable at once on passing onto the Keokuk; but white oak, chestnut and liriodendron, have been driven from the forests in this locality by fire. With these exceptions, the hill-side facing Little Barren river on the west furnishes a good sample of the timbers that grow on the Keokuk limestone. They are black cherry, black locust, swamp chestnut oak [or *Quercus muhlenbergii?*], black walnut, some liriodendron, white and shag hickory [*Carya cordiformis*, *C. ovata*], sycamore, mulberry, blue ash, red elm, white maple [*Acer saccharinum*], redbud, water beech [*Carpinus*], hackberry and cedar. On the same formation, immediately after crossing the Little Barren river, plenty of chestnut and white oak are found, with scarlet oak, black oak, pig hickory, and sugar maple, in addition to the timbers just mentioned; and all through the hills white oak, chestnut, and liriodendron become exceedingly fine and valuable. This points to the probability that Little Barren river was the eastern barrier to the ancient fires." [Compare F. Michaux's description of the same area in 1802, with just red cedar, scrub pine and blackjack oak mentioned.]

Note quoted here, but also relevant, are DeFreiese's notes (p. 11, 21-22) suggesting that the land between Tennessee River and Cumberland River in western Kentucky had experienced less fire due to the fire-break effect of these large river valleys. He cited the presence of frequent white oak and chestnut here, in contrast to former barrens regions to the west (on Upper Gulf Coastal Plain) and east (on Pennyryle Karst Plain).

Ross (1882, p. 213-215) recalled his early life with his grandfather in NW Montgomery Co., TN at the state line, on the road to Hopkinsville, Christian Co., KY: "It was late in the fall [1812] when we reached our new home. There was not the slightest improvement on the place besides

the unfinished house. All around looked sad and dreary, especially, when the wind swept over the dry and withered grass, or rustled among the dead leaves of the post-oak and black-jack trees. None who ever witnessed the desolate appearance of the Kentucky Barrens in early times, during the winter season, can forget the feeling they produced. Far as the eye could reach, it seemed one barren, cheerless waste.

"Seen at this season of the year by the early explorers, it is not strange that they called them the Barrens, or the barren lands. The pioneer hunters had no conception of their fertility, and very naturally supposed that there were only a few stunted trees in these wide prairies, because the ground was so poor. No greater mistake could have been made. During the winter [1812-1813] I first saw the tremendous fires caused by the burning of the dry grass. In many places, this grass was very thick and tall; and when perfectly dry, should it get on fire, the wind being high, the spectacle became truly sublime, especially at night. The country around far and wide, would then be illuminated by a lurid light, reflected from the clouds of black smoke in the upper regions of the atmosphere. The flames, when the wind blew strong, would move with such rapidity that animals of all kinds had to hurry forward to avoid perishing in them. They would sometimes burn the leaves on trees, twenty, or thirty feet in height. Sometimes they would consume all the fencing around the fire, in spite of all that could be done to save it.

"No one who ever witnessed one of these great fires would ever afterward be at a loss to account for the scarcity of timber in the Barrens, as trees of all kinds, when small, were destroyed by them. Should a little twig or bush put up from the ground one season, it was sure to be burned the next. The Indians, in early times, used to set this grass on fire, when hunting, and killed great quantities of game as it fled before the flames.

"But if, in winter, the barrens looked cheerless and dreary, it was far otherwise in spring and early summer. It would be difficult to imagine anything more beautiful. Far as the eye could reach, they seemed one vast deep green meadow, adorned with countless numbers of bright flowers springing up in all directions. At that time of the year I was sometimes sent to Hopkinsville--then called "Christian Court-house"--distant sixteen or eighteen miles. The whole distance was a scene of unvarying loveliness and beauty; only a few clumps of trees and now and then a solitary post-oak were to be seen, far as the eye could reach. Here I first saw the prairie bird, or barren-hen [prairie chicken], as we called it, which I afterwards met with in such vast numbers on the great prairies of Illinois. Here the wild strawberries grew in such profusion as to stain the horse's hoof a deep red color."

Sargent (1884, p. 545): "In Barren, Edmonson, and other counties extensive tracts of prairie existed at the time of the earliest settlement of the state. The presence of these prairies in the midst of a heavily-timbered region is ascribed to the annual burning to which they were subjected by the aborigines. With the disappearance of the Indians trees sprang up, and this region is now well covered with a vigorous growth of black oaks of different species. White oaks, however, are not abundant, and other species common to the region, such as the walnuts, the yellow poplar, and the beech are wanting in these young forests, indicating perhaps the effect of fires in checking the subsequent growth or development of many useful timber trees."

Shaler (1884, p. 29-30): "In the northern [-western] part of the State, lying adjacent to the present line of the Louisville and Nashville Railroad, there was a considerable territory afterwards called the "Barrens," where the forest growth had been destroyed, except along the borders of the streams. This destruction of the timber was brought about by the custom, common to the Western

Indians, of burning the grass of open grounds and the undergrowth of the woods, in order to give a more vigorous pasturage to the buffalo and other large game. To this custom we may fairly attribute the deforesting of the prairie lands in Indiana and Illinois, and perhaps of more westerly regions. The annual firing of the low-growth plants led to the killing of all the young trees. The Indians apparently began their burning of the woods on the line of the great trail from the Ohio Falls to Nashville, Tennessee. When the whites came to this country this savage custom had deforested an area of at least five thousand square miles. In another two hundred years the Indians would probably have reduced the larger part of the surface of Kentucky to the condition of prairies.

"At first the white immigrants conceived a strong prejudice to this untimbered ground, deeming the absence of trees an evidence of poverty of soil. But as soon as the incursions of the Indians were stopped they saw that the forests speedily repossessed the surface. Although they then made haste to occupy it, the swift return of the forests after the Indian fires were stopped caused a large part of this prairie country to be rewooded before it could be subjected to the plough. The late Senator Underwood, a very observant person, told the writer that when he came to this region, in the first years of this century, the whole surface was covered by a dense growth of young forest trees, which had sprung into life in the preceding twenty years, or since the Indians had ceased to hunt within the State.

"In woods of beech and ash it takes some centuries of repeated fringe of the undergrowth to reduce the area to treelessness, but in the barren district this process had gone on long enough to bring five or six thousand square miles to an essentially treeless condition, while around the border of the long-fired region there was a broad fringe of forest, where the fire-scarred trunks of

old yet living trees stood as an open forest that would have been added to the open land when time came for the old trees to die. This was a process of forest-killing that had doubtless been carried on over the territory of the southwest, only there the extermination of the woods was more complete and the history of its process less traceable than in Kentucky.

"As already noted, when the regular hunting expeditions of the Indians into Kentucky were arrested, as they were in 1790, this region [the Barrens], relieved from further firing, began to spring up in forest again. The germs of the small-seeded trees, maples, etc., were rapidly transported by the wind from the nearest remaining trees which clung about the entrances to the canyons that abound in this district and other damp places; so that before settlements had made any great headway the region had been covered by a new but very dense and vigorous forest, which was harder to clear away than the older primeval woods."

Allen (1899a); reprinted in McIntire & Blakeman (1947, p. 22-24).

"The barrens were covered with hazel bush, wild strawberry and native grasses, with here and there a bunch of scrubby oaks. But little water was to be had in those dry barrens, as they were then called. Around the knobs and at the sink of the creeks on the east were some groves of timber, such as the oak and a few sugar maple, walnut and poplar."

"There was a variety of grass called barren grass, that grows six or seven feet high [presumably *Andropogon gerardii*], which grew here in abundance, and served no doubt as a rich pasture for the wild animals to graze upon. Some of the grass can yet be seen in the rocky country south of Smith's Grove; and in the Green river knobs north, there are still a few patches of hazel to be seen. The hazel grew in great profusion before the country was settled up, and served for

birds to nest in. There were also immense crops of nuts, which furnished food for the wild turkey, prairie chicken, deer and wild pigeon."

"THE WILD PIGEON ROOST. Some things I remember about it; it was located in the grove of timber around Smith's Grove knob, and extended out several miles. There is no record of the beginning of the roost. It may have been centuries old for all we know. When the first settlers came to the new West in the seventeenth century, they found the rivers and their tributaries lined with beech and oak forest, that furnished food for the millions of birds that annually came there to find a roosting place for the fall and winter months and when spring came, they would fly away to their favorite hatching ground where they would raise their young. They usually left before corn planting time, but there was an exception to that rule. On one or more occasions they stayed till the corn was up in the field and made short work of destroying the crop. There were millions of birds, like the sands on the sea shore, could not be counted. The roost covered from eight to ten thousand acres or more. As the flocks of hundreds and thousands of birds would come in of evenings from the beech and oak forest of Green, Barren and Cumberland rivers and their tributaries, they would circle around and often light in the tree tops, seeming to rest from their long flight of ten, fifty, and as far as one hundred miles. As night would approach, they would gather in large gangs, and when they reached the roost, the fluttering of the wings and chatter of their songs would roar like thunder in the distance...

"The droppings from these millions of birds covered the ground and was an inch deep in places. That accounts for the deep rich soil of the Smith's Grove county... The pigeon roost covered hundreds of acres of scrubby timber and millions of birds would roost there in good mast years..."

[Other large roosts or flocks of passenger pigeons in Kentucky were recorded at Shelbyville during 1806 (A. Wilson); between Hardinsburg and Louisville, especially at Young's Inn, at West Point in Hardin Co. during 1813 (J.J. Audubon); along banks of the Green River (Audubon); in Calloway Co. (literature to be researched further).]

(p. 42) "In the early settling of Kentucky the greater part of the lands were covered with forests of large trees, especially on the rivers and creeks. Between the water courses there was barren land with scrubby oaks and underbrush. The land had to be cleared before it could be cultivated. With the assistance of slaves the white man cleared away the forests to plant his corn and garden vegetables to feed his family, getting his supply of meat from the wild animals, such as deer, bear and the wild turkey, that were in large numbers. The buffalo was killed and drove further West by the Indians and the first white men like Boone and the "Long Hunters."

Allen (ca. 1899b) provided further historical notes on the "Smith's Grove Country" in eastern Warren County. Some material is more or less the same as printed by McIntire & Blakeman (1947; see Allen 1899a), and not repeated here. In Allen's notes, there seem to have been interchangeable names for the knobs to east and west of Smiths Grove. The eastern one, now known as Pilot Knob, may have also been informally called the "long knob." The western one, now known as Little Knob, was perhaps also known as the Little Pilot Knob" or "Smith's Grove knob." Allen noted evidence of prehistoric native american fortifications on both hills, which commanded views to the south and west. And he noted: "There is a large burying ground about one mile west of the little knob, covering several square rods. It was plain to be seen in early days but has been plowed over until it is level now. It is on the land of J.C. Walton..."

"There are two knobs embraced in this boundary; Pilot knob on the east and Smith's Grove knob on the west of the boundary of Smith's Grove. The balance of this territory was treeless barrens or prairies, and was not thought to be valuable, as there was neither timber or water. Around the base of the little knob west of town [perhaps the same as "Smith's Grove knob"] was a beautiful grove of timber, and here a man by the name of Rollins settled, and it was called Rollin's Grove. The exact date of the first entry of land, or the first settlement made, I have no means of ascertaining, but it was long before the organization of the county* [1796]. The first settlers located where they could have wood and water, near the rivers or creeks, or groves of timber around the knobs. The first town we have any knowledge of in this territory is the old town of Martinsville, on Barren river, two miles south of Three Forks, and twelve miles east of Bowling Green... A sugar camp was once worked on the east side of the long knob as late as 1844. A nice grove of sugar maples grew luxuriously there, and there were large poplars, walnut trees, black haws and pawpaws. The soil is black and rich and very productive..." [This account goes on to include details of the Crump or Wright Cave.]

Another fragmentary account titled "Smiths Grove, Kentucky" at the public library is apparently based largely on Allen's notes. It includes the following statements, to be merged at the asterisk in the preceding paragraph: "Around the base of the little knob was a beautiful grove of trees and this was made a settlement—date unknown except that it seemed to be before the county was organized. The man who settled it was named Rollins and it was called Rollins' Grove [spelled as "Hollins" in another fragment]... In an old entry book Lawrence Smith received 200 acres of second rate land in Warren County and the names of James Bollin and John Walker made improvements on this land, the land having been granted to John Walker on July 5th, 1799,

and said that they lived in the Smith part of the Big Grove that lies two-four miles southwest of Dripping Springs. In the same entry book and same date—July 5th, 1799—there is a grant of 200 acres of second rate land in Warren County to John Smith. This was to begin near the southeast corner of Lawrence Smith. This could be the same Jackie Smith mentioned in an old newspaper account of the naming of Smiths Grove. This says that in the 1800's there lived a man by the name of Jackie Smith who owned a plot of land between the farm now owned by James McGuirk on one side and what is now Oakland and the little knob on the other side. This was part of the Wild pigeon Roost (which we shall take up later). It seemed to be a common expression to say "Lets go down to Smiths Grove and shoot pigeons."

Gorin (1929, p. 2): "At that time [ca. 1800] the whole country was a wilderness, the cane and pea vines which covered it [presumably outside the Barrens], in many places being as high as a man's head when on horseback... The "Barrens" which were covered with the strawberry and a heather grass, five or six feet high, afforded fine grazing for stock, elk, deer and buffalo, but were then thought unfit for cultivation, for which reason surveyors planted stakes on their borders. They, however, subsequently proved to be the richest lands... "The Barrens" were not entirely destitute of timber; the traveler would occasionally meet with clumps of black jack, post oak, or white oak, numbering not more than twelve trees in a place; also a few groves of forest trees embracing several hundred acres, largest of which, perhaps, were Hall's and the Blue Spring Creek grove."

(p. 10): "Immediately after Glasgow was decided on for the site, Curd and Logan commenced laying it off. It was almost all covered with large timber, cane and pea-vines, a few acres only having been cleared on the north and east of John Gorin's cabin. The beginning corner of the town was at the northeast corner of Trabue's meadow at the end of Front Street... The next thing

to be done was to clear the timber off the square; this was a heavy job, for it was thickly covered with poplar trees, (many of which were from three to five feet in diameter,) black walnut, hickory, hackberry, beech, dogwood, &c.”

Dicken and Brown (1938, p. 39-43); see also Dicken (1935) and interpretation of Baskin et al. (1997): "The first settlers in the Glasgow Junction [now Park City] area found three types of vegetation: Grassland in the broad valley [presumably Happy Valley to the south]; oak-chestnut forests on the north-facing slopes and tops of the knobs; and cedar glades on the steep, southfacing limestone slopes... The climax oak-chestnut forest, found on most slopes and tops of ridges, included many hardwoods, but oaks predominated. Chestnut was common on the ridge tops, and maple, elm, sycamore, and beech intermingled with the oaks on the lower slopes.

"The cedar glade is the most distinctive type within the area (Fig. 24)... Its typical location is on the steep, south-facing limestone slopes, where the soil is extremely thin or does not even cover the fissured bedrock... [The vegetation] is limited chiefly to red cedar, scrub oak (mostly blackjack), and bluestem (*Andropogon virginicus*), locally called broom sedge [probably was referring mostly to *A. scoparius* = *Schizachyrium* s.]. In some places the vegetation forms a parklike landscape, and in others there is a continuous cover of scrubby trees.

"Cedar glades form a striking contrast to the characteristic vegetation on slopes that face the north. In a cove with an east-west alignment, for example, the northward-facing slope is mantled with deep soil and supports a dense oak-chestnut forest, whereas the southward-facing slope is covered with a scattered growth of cedars, blackjack, and broomsedge growing on thin soil between the limestone outcrops... This contrast exists even where the northward-facing slopes

are much steeper than those facing south. Where the towering hardwoods (including red, black, white and chestnut oaks, hickory, maple, and many other species), have been cut off... [the] cedar glades of the south slope, however, are rarely cleared. "Many of the old glades on south-facing slopes are of presettlement origin, but secondgrowth glades have developed on badly eroded land, irrespective of exposure."

Gardiner (1940, p. 178-179) compiled descriptions of the early settlement landscape by her father, Cyrus Edwards [ca. 1846-1935], whose grandfather was a pioneer in the 1790s: "Within the "barrens," between Green River and Beaver Creek, were three large bodies of heavily timbered land which was mostly taken up on military warrants several years before any settlements were made in that region. The first was the was the Blue Spring Grove, extending along Blue Spring Creek from a point about east of Hiseville to the sinks of said creek, about a mile or more northward of [?towards] the village of Seymour [ne Barren Co.]. This grove contained probably 3,000 acres. The creek valley above the point first named was in places heavily timbered, but was not equal, in quality of timber or land, to the lower stretches. but it was a goodly land and was settled by a fine class of people.

"The second was the Bear Wallow Grove, at the village of that name, containing about 1,000 acres in a compact body [perhaps around Vaughn Knob to the southeast, in nc Barren Co.].

"The third was the Rich Grove, which ran along the north slope of Crump's Ridge from a point east of the present Jackson Highway to the old Ellis farm and thence, bordering on the

swamps and the Flint Knob, to Lee Seminary and into the Wells--or "Happy"--Valley near Pruitt's Knob [NW Barren Co.], covering probably 3,000 acres.

"The timber in these groves consisted largely of the finest quality of Ash, Sugar Tree, Scaly Bark Hickory, Black and White Walnut, Yellow Poplar and other valuable varieties, while along the lower lands those varieties were mixed with considerable Elm, Beech, and Hackberry and some Sycamore, and the land was nearly all of the very finest quality. These groves were entirely surrounded by the "barrens," thus giving to the early settlers the advantage of free and abundant pasturage from the start.

"There were also smaller, but considerable, groves of the same sort of timber on land equally as good on the north slopes of knobs in that region, among which were the Buck and the Vineyard Knobs [N Barren Co.], the Hayes Knob near Randolph [W Metcalfe Co.], the Pilot Knob near Lafayette [E Warren Co.], and the Maxey, Alderson, Bunnell, Payton, Richardson, Dawson and other knobs [mostly SW Hart Co.] between the L. & N. Railroad and the Edmonson County line."

Another reference to the grove along Blue Spring Creek is as follows (p. 310): "Its course is through the "Barrens," but was originally bounded for about a mile or more on each side by a body of heavy timber-- Yellow Poplar, Beech, Scaly Bark Hickory, White Oak, Sugar Tree &c-- now gone."

Cole (1941, p. 1-2) provided historical notes on "The Oakland Country" in e Warren County. "In an early day a well defined Indian trace ran through the country, coming from the direction of Pilot Knob and passing near a large spring at Oakland and passed on down near the [Barren] river. This spring at Oakland was called Trunk Spring because the water came from under the trunk of a tree at that time. This stream has disappeared. When the white man first came to this country it was bare of timber—hence the name Barrens. The wild strawberry grew in abundance [sic] and the country south of Oakland was called the strawberry plains. As the travelers rode through during the strawberry season, the hoofs of their horses would be stained red by the berries. These berries were larger than the wild berries found growing here now..."

"The Big Sink on the farm formerly owned by the late W.R. Allen, is about one-fourth of a mile long, about one hundred feet deep and contains twelve acres. There is an underground stream in this sink that rises in the sink to a depth of fifty or sixty feet when we have excessive rains. Until it was cleared up trees and wild flowers grew in this sink that are usually found only on the banks of streams..."

"The road that was opened up when the Henry Cowle's farm was sold goes through a section of country known as the pigeon roost. The pigeons roosted in the young timber that was then growing up. They came into the roost late in the afternoon; so great was their number that they darkened the sun. Many pigeons were killed for food not only by men of this section, but they came from other counties and killed them by wagon loads. Their number grew less from year to year until they finally quit coming."

Early Floristic Records

Several of the accounts quoted above, under "Descriptions of Vegetation" note species of plants other than trees, but there are only a few that go into detail, such as providing scientific names of typical grassland species. These more floristic accounts are quoted here, including any from the Karst Plain region, even outside Barren and Hart Counties.

Francois Michaux (1805 in Thwaites 1904, p. 218) reported collecting seed of some ninety species of plant from the Barrens of Kentucky. Whether these collections have been retrieved and catalogued is currently unclear; this question deserves further examination. The only species alluded to in his text appear to be *Antennaria plantaginifolia*, *Aureolaria flava* and *Echinacea purpurea* (see quotation above).

Rafinesque (1819); see also Stuckey & Pringle (1997).

"THE BARREN REGION, or rather the open region. This has an extensive range in Kentucky, particularly in the western and southern parts of the state. The numerous barrens and licks compose it, [the licks] lying scattered and irregularly among the central and hilly regions. The barrens are tracts of ground destitute of trees, or with few scattered small ones; but thickly covered with a luxuriant growth of plants; while the licks are almost destitute of them, and those that grow in their immediate neighborhood are all small, which is owing to their poor, slaty or argillaceous soil. Their vegetation is however similar to that of the barrens. Both have a growth of plants very similar to the vegetation of the prairies of Ohio, Indiana, and Illinois, and more different from that of the Atlantic states, than the three foregoing regions. The plants peculiar to them are very numerous; I shall mention only a few, among the most remarkable and singular."

[In the following list brackets { } indicate corrections Rafinesque published in a subsequent note.]

- "(41) *Solidago rigida*, Stiff Golden-rod
- (42) *Polygama polygama*, Nimble weed [perhaps a *Polygala*]
- (43) *Rudbeckia purpurea*, Purple Sun-flower [Echinacea p.]
- (44) *Ruellia oblongifolius*, Rough Bell [perhaps *R. carolinensis*]
- (45) *Andropogon arenaceum*, Barren Oats [perhaps *Andropogon sp.*]
- (46) [*Andropogon*] *nutans*, Barren Oats [*Sorghastrum nutans*]
- (47) *Petalvitemon* {*Petalostemon*} *candidum*, Nimble clover [*Dalea candida*]
- (48) {*Petalostemon*} *purpureum*, Nimble clover [*Dalea purpurea*]
- (49) *Silphium therebinthaceum*, Turpentine weed [*S. terebinthinaceum*]
- (50) *Silene catesbri* {*catesbei*}, Scarlet Pink [perhaps *S. regia*]
- (51) *Gentiana amarellvides* {*amarelloides*}, Yellow Gentian [perhaps *Gentianella quinquefolia*]
- (52) *Buchnera americana*, Black Wort, &c.&c."

Short (1836; reprinted 1841, p. 120-121). Short, C.W. 1836. A sketch of the progress of botany in western America. Transylvania Journal of Medicine and Associated Sciences 9: 324-350. Reprinted: 1841. [Hooker's] Journal of Botany 3: 97-124.

"For the last twenty years we have paid some attention to the botany of Kentucky, and whilst actively engaged in the practice of medicine, in that portion of the State most inaptly called "The Barrens," opportunities were constantly presented for admiring and noting the varied vegetable

productions of that interesting region. In many a long and solitary ride through these natural flower gardens, have our fatigues been lightened, and our spirits cheered by their floral charms.

“Here at one point, the ground was carpeted with the flame-coloured flowers of the dazzling *Euchroma* [*Castilleja coccinea*]; and there enamelled with the parti-coloured blossoms of Violets [perhaps *Viola pedata*], *Gentians* [perhaps including *G. puberulenta* and *G. quinquefolia*] and *Trilliums* [perhaps *Trillium cuneatum*, *T. sessile* and even *T. pusillum* var. *ozarkanum*]. In this spot, from amidst a tuft of humbler beauties, the majestic *Frasera* [*Frasera caroliniensis*] was seen shooting up its pyramidal head, crowned with wreaths of its very peculiar flowers; and in that, various *Sumachs* [*Rhus copallina* and perhaps *R. glabra*] overhung the path, emitting from their clumps of berries a shower of acid on the traveller. Now, would burst upon the view a smooth sheet of water, skirted with the blue and purple hues of the *Pontederia* [*P. cordata*] and *Decodon* [*D. verticillatus*], intermixed with the scarlet berries of the *Prinos* [*Ilex verticillata*] whilst its surface was covered over with the large and floating leaves and splendid flowers of the *Cyamus* [*Nelumbo lutea* and perhaps *Brasenia schreberi*]; and then, in endless vista, was stretched before the eye a waving sea of gigantic grasses [presumably including much *Andropogon gerardii*].

“In such a field as this, none but a recreant to nature and undeserving of her pleasures, could remain indifferent to the charms spread in such lavish profusion around; and, although we were not idle, inattentive or unobservant of them, yet do we now find cause for bitter regrets, that we did not then more industriously avail ourselves of the opportunities thus enjoyed, for studying, examining and collecting the productions of that rich and interesting region.”

Davidson (1840, p. 30-31) noted botanical details of the barrens as follow: "With great enthusiasm have I heard the late Professor of Botany, in Transylvania, descant on the topic." The following material is provided in a footnote, from: "Charles W. Short, M.D. now of Louisville; a gentleman who is as estimable in private life, as he is eminent in his favourite walk of science."

"In many a long solitary ride through the Barrens of Kentucky," said he, has my labour been lightened and my spirits cheered, by the floral varieties of that interesting region. Here in one spot the ground was carpeted with the flame-coloured flowers of the *Euchroma*, there enamelled with the party colored blossoms of violets and trilliums. In this spot, from amidst a tuft of humbler beauties, the majestic *Frazera* shot up its pyramidal head, crowned with wreaths of its peculiar beauties, and on that [spot], various *sumachs* overhung the path, emitting from their clumps of fruit, a shower of acid on the traveler. Here at one point, would burst upon the view a sheet of water skirted with the numerous bright blue petals of the pondeteria and decodon, and covered over with the purple flowers of the *cyanus*; and then, at another [spot] was stretched before the eye a waving sea of gigantic grasses. In such a scene as this," continued the enthusiastic naturalist, "none but a recreant to nature, and undeserving its pleasures, could remain indifferent to the charms spread in such lavish profusion around."

Drake (1850, p. 237-238) also quoted the following account from his "colleague. Professor Short, of the University of Louisville [Charles Wilkins Short]", cited as "MSS. penes me" [manuscript written to me].

"When I first went to Hopkinsville [Christian Co.], where I practiced medicine from 1817 to 1826, the aspect of the barrens was very much the same with that presented by the prairies of

Illinois; and, I suppose, the characteristic feature of both--the destitution of timber--is in both cases attributable to the same cause--the annual ravages of fire; which, fed by the tall grasses, and dead herbaceous plants, in autumn, is so intense as to destroy all the ligneous growth which may have sprung up during the preceding spring and summer. The vegetable productions of both these regions--barrens and prairies--are very similar; the grasses being, for the most part, various species of *Andropogon* and *Panicum*, and the herbaceous vegetation consisting, chiefly, especially in autumn, of the various *compositae*--*Silphium*, *Aster*, *Solidago*, *Eupatorium*, &c.; while along the water-courses, in both regions, the arborescent species are very much the same; as they are, also, in certain woodland tracts, called by the people 'groves.' This difference, however, obtains, between the barrens of Kentucky and the prairies north of the Ohio, viz, that the former are superimposed on a bed of limestone, which is wanting in Illinois.. By cultivation, and the prevention of destroying fires, the barrens are losing, yearly, their once peculiar features; for, no sooner are the fires kept out for a few years, than the surface becomes clothed with a dense growth of timber—oaks and hickories—so dense, indeed, as to stifle entirely all herbaceous undergrowth.

"*Marshes*, in the proper sense of that term, are exceedingly rare among the barrens. Indeed, within the limits of the three counties in which I practiced—Christian, Todd, and Trigg—I know of but one marsh of any magnitude; and that I shall never forget, from the circumstance of finding in it the *Cyamus luteus* [*Nelumbo lutea*], the most magnificent of all aquatic plants. Around the margins of this marsh, in the shallow, muddy water, were growing thickets of *Decodon verticillatus*, *Cephalanthus occidentalis*, *Rosa carolina* [probably *R. palustris*], and other semiaquatic shrubs."

Hussey (1876) reported many plants identified from May to early August in Barren and Edmonson Cos. Collections from his survey are reportedly housed at Indiana State University, Purdue, but have not been researched; this should be done. Among the species he listed, the following are typical of grassy open woods but are currently rare or sensitive in the modern landscape.

Asclepias phytolaccoides [= *A. exaltata*]

Castilleja coccinea [= *Castilleja coccinea*]: this is endangered in KY currently, and known only from scattered sites in the Knobs Region and northern Appalachian Plateaus.

Cirsium virginianum [probably meaning *C. carolinianum*]

Collinsia verna

Corydalis glauca [= *C. sempervirens*]: typical of rocky woods on sandstone in the Cumberland Mountains, but currently unknown elsewhere in Kentucky.

Leavenworthia michauxii [= *L. uniflora*]: "just northwest of town [Glasgow Junction = Park City now], growing in a nearly filled-up sinkhole. This is quite a rare plant..."

Oenothera fruticosa

Parthenium integrifolium

Phlox amoena

Phlox pilosa

Pycnanthemum lanceolatum [probably meaning *P. pilosum*]

Scutellaria galericulata

Trifolium reflexum: "occurs in several localities between the railroad and Mammoth Cave... I mention it because I have never found so many specimens in any one locality before, and also to make a note of the fine rose-pink color it everywhere had [p. 12]."

Price (1893): her "Flora of Warren County, Kentucky" includes several conservative species typical of native grasslands and open woodlands, as listed below. Price's herbarium collections are generally lodged at Missouri Botanical Garden (St. Louis), and these need further study to support her paper. These records provide provisional insight to the early flora and vegetation of the Big Barrens Region, including hilly transitions represented in Warren County. In several cases, the names are outdated, and common modern synonyms (or other suggested substitutions?) are provided in parentheses.

Asclepias purpurascens

**Aspidium thelypteris* (*Thelypteris palustris*)

#*Aster sericeus* (*A. pratensis*)

Bouteloua racemosa (*B. curtipendula*)

#*Bumelia lycioides*

**Cacalia suaveolens*

***Calamagrostis porteri* (? *ssp. insperata*)

***Castanea pumila*

Coreopsis gladiata (? *C. lanceolata*)

Delphinium azureum (*D. carolinianum*)

#*Desmodium cuspidatum*

#*Desmodium rigidum* (*D. obtusum*)

***Draba brachycarpa* [in handwritten addenda]

#*Echinacea angustifolia* (*E. simulata*)

***Eupatorium semiserratum*

***Gaylussacia dumosa* (id. perhaps doubtful)
#*Gentiana puberula* (re-found at Athey barrens)
*#*Gerardia pedicularia* (*Aureolaria* p.)
#*Helianthus doronicoides* (? *H. mollis*)
*#*Helianthus strumosus* (? *H. eggertii*)
#*Hexalectris aphyllus* (*H. spicata*)
**Hieracium longipilum*
#*Hypericum virgatum* (*H. denticulatum*)
Leavenworthia michauxii (*L. uniflora*)
#*Liatris squarrosa*
#*Lilium superbum* (? *L. michiganense*)
**Lophanthus scrophulariaefolius* (*Agastache* s.)
Malvastrum angustatum (*M. hispidum*)
**Oenothera triloba*
Onosmodium carolinianum (*O. molle* ssp. ?)
***Pedicularis lanceolata* (id. perhaps doubtful)
Petalostemon candidus (*Dalea candida*)
***Petalostemon violaceus* (*Dalea purpurea*)
Pycnanthemum lanceolatum (? *P. virginianum*)
#*Pycnanthemum pilosum*
#*Ranunculus fascicularis*
***Rhynchosia erecta* (*R. tomentosa*)
***Rhynchosia volubilis* (? *R. latifolia*)
***Silene regia*

#*Silphium terebinthinaceum* var. *pinnatifidum* (S. p.)
#*Solidago speciosa* var. *angustata*
#*Veronica virginica* (*Veronicastrum* v.)

This list of rare or conservative species provides invaluable insight to the kind of vegetation that must have been associated with the fire-regime during the pioneer era. Several of these species, as shown by asterisks above (*), can no longer be found in Warren County. Several, as shown by double asterisks (**), can no longer be found in the whole Pennyryle Karst Plain or adjacent hills--including the intensively covered Mammoth Cave area. However, several have been found in the Mammoth Cave area (USGS quads of the park) during the past 50 years, as shown by numerisks (#).

Hibbard (1934b-35): on June 8, 1934: "...east of Cedar Sink...Woolsey Valley...Many different kinds of clover scattered along ravines and hillsides throughout the valley, but no extensive patches." On Aug 20, 1934: "[from camp in Flint Ridge area?] by way of Dennison Ferry. The road was followed but part of the trip as we cut through on the ridges... Wild clover is scattered over the entire area."

May 1, 1935: "On the ridge between Houchins and Eaton Valleys, I found what I believe to be willow oak." [Note: this may, however, have been shingle oak (*Quercus imbricaria*), which he also noted in the area.]

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