

# HISTORICAL NOTES ON THE BIG BARRENS IN KENTUCKY



[Near Highland Lick, Todd County]

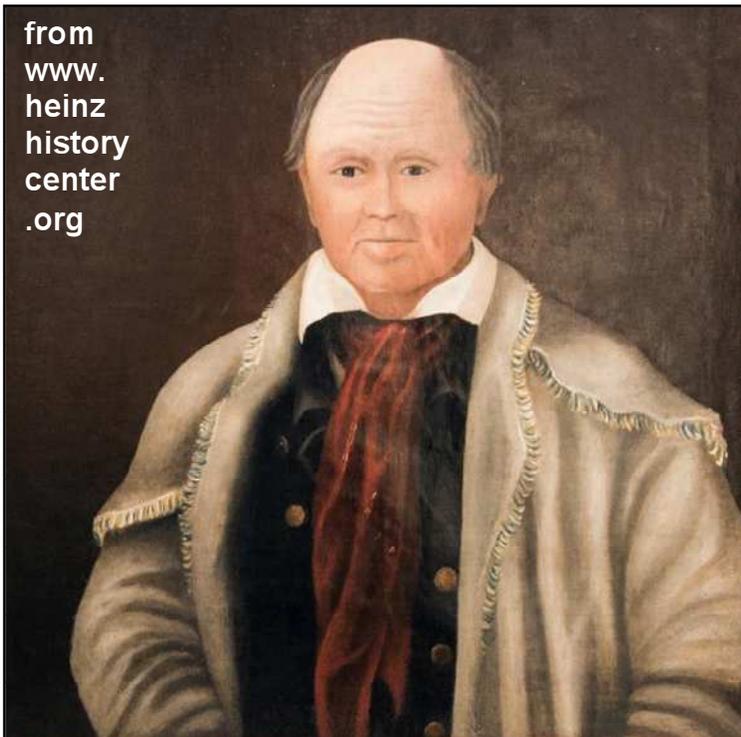
Historical Notes on the Big Barrens in Kentucky. Julian Campbell, July 2012; updated Dec 2015

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. 107. 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, which is 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 Earlier, Baskin & Baskin (1981, and unpublished) and Baskin et al.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 the scientific names of *Quercus marilandica* were usually *Q. nigra* or *Q. ferruginea* before 1900; its common names apparently included “black oak” (in accounts of the Michauxs) as well as “black-jack” or “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* or *Q. velutina*; it may have been called “pin oak” in some cases (Campbell 1989). “Spanish oak” may have been *Q. falcata* in general, but it seems to have been applied to *Q. pagoda* or *Q. shumardii* or *Q. coccinea* in some cases.

Right: extracted from the Kentucky Encyclopedia under “Hardin County” (Kleber et al. 1992, p. 404).

Interpretation. “Col. John Smith” seems to have little or no further reference in historical documents. Instead, he was probably Colonel James Smith (1737-1813), a well-known frontiersman from Pennsylvania who did explore western Kentucky and Tennessee during 1766; settled in Bourbon Co., died in Green.

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The first recorded exploration of this region was done in 1766 by Col. John Smith, who was on a hunting trip. Ten years later a group of Virginians known as Shane, Sweeney and Company, led by Samuel Pearman, investigated the area for possible settlement. They returned to Virginia at the onset of winter, after several Indian attacks. Daniel Boone's brother, Squire, explored the area repeatedly in the late 1770s, but no permanent settlements were established until 1780, when Col. Andrew Hynes, Capt. Thomas Helm, and Samuel Haycraft each built a fort, all within a mile of each other, near present-day Elizabethtown. The settlement, named Severn's Valley, was home for at least seventeen families by 1781, when the Severn's Valley Baptist Church was created. At this time Hardin County was still a rich hunting ground for the Indians, who came in the spring to plant corn and returned in the fall, as many as 2,500 strong, to harvest the corn and to hunt. In the last major confrontation, a group of fifteen Indians attacked Severn's Valley in 1792 and killed two women and five children, as well as slaughtering livestock and burning down several cabins. Patrick Brown and fifteen other men pursued the attackers and killed all but one of them. In 1797 the settlement, officially named Elizabethtown, became the county seat.

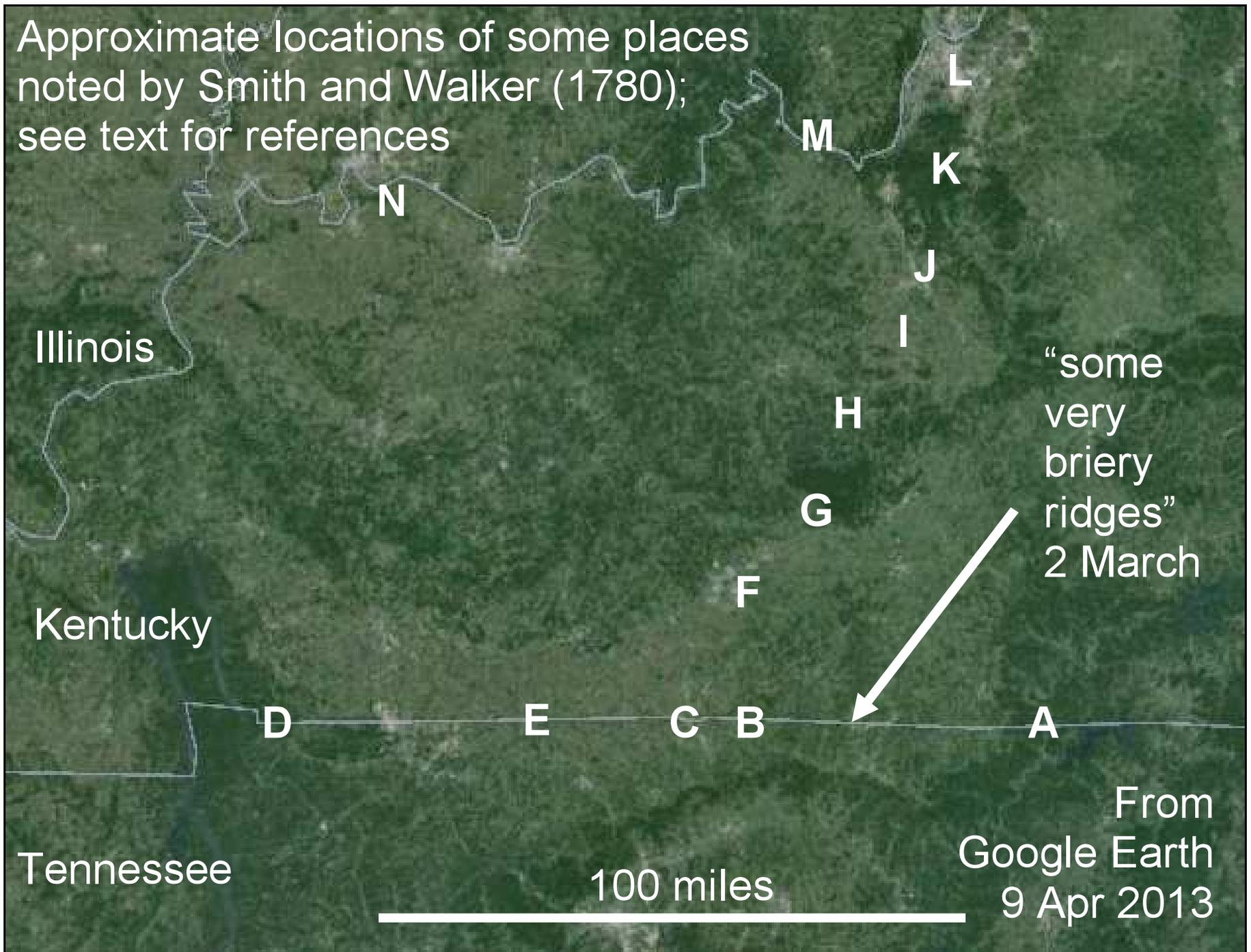
Daniel Smith & Thomas Walker (1780). Report of the Virginia Commissioners.  
Extract on their survey west from the Cumberland River at about -85.5 W; see map below.

“We went by Water from this place [A] until we got into the proper Latitude (as we judge one hundred and nine miles West of the Clear fork) and began the line on two Beech trees marked with our Names and Feb'y 25, 1780, on the West Bank of Cumberland River, a Creek coming in about a Mile above us on the West Side, and another one somewhat smaller about half a Mile below us on the East Side. From this place we extended the line across the heads of Green River and Red River, through a Country called the Barrens from there being little or no timber in it, in many places; crossed the Cumberland again at 131 Miles [D], where there is a cliff on the North East side and a bottom about three quarters of a mile broad on the other side, and at the end of one hundred and forty miles, one quarter and eight poles from the two Beech trees...”



Part of surviving map from Smith-Walker expedition, in Draper Manuscripts 7ZZ51 (Sioussat 1915): “Barrens begin and continue until within 3 ...” [miles of the Cumberland River?]

Approximate locations of some places noted by Smith and Walker (1780); see text for references



“some very briery ridges”  
2 March

From  
Google Earth  
9 Apr 2013

Daniel Smith (1780). Journal [surveying boundary line between Kentucky and Tennessee].

“Tuesday 7th [March]. Run today magnetically S 84 W. at 50 m. 178 p. crossed a creek running N.W. on which we killd a Buff. at 51 3-4 m . got into the edge of the Barrens [B], at 55 m. 242 po. a large cr. [Trammel Creek] running near N about 10 W. on which we encamp'd. Took the Variation tonight at Sunset by her amplitude and also by the pole Star when on the meridian. I find it 7° Degrees E.

Wednesday March 8th. at 64 m. 294 po. a Cr. whose gen: course seems N.W. tho' just where we cross'd it N.E. on the W . Side of which we encampd—Went hunting found the Cumberland Road [US 31W] about 1-2 mile to the West [C].”

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“Saturday 15th Apl. Crossed the line lay on the N. fork of the Red Riv. [E below Elk Creek]

Sunday 16th. at 12 m. came to Skeggs C r. [probably Drakes Creek] kept down it crossing it sev. times, encamped near the mouth [F] course N 30 E. abt. 27 or 28 m. in the whole.

Monday 17th. [April] cross'd Skegg's cr. and big barren Riv. this morning then to rocky Spring [perhaps Smiths Grove along what became US 31W] course NE. Abt. 13 or 14 m. then N 10 E. (left Trace) 4 m. and encamp'd on N. Side Green Riv. [G near Mammoth Cave]

Tuesday 18th. Moved about 10 m. on a course about N 10 E. encamp'd on a cr. we called Raccoon cr. [probably Dog Creek]

Wednesday 19th. down Raccoon Cr. 2 1-2 m. across a hill 1 m. to a large Cr. supposed to be the rolling fork of Salt River [H actually Nolin River] held on our course and in about 4 m. more came to the sd. cr. again it ran so crooked encamp'd on the E. Side. Course about N 30 E. 7 1-2 m. to day in the whole.

Thursday 20th. to day cross'd riv. up a cr. N 20 E 1 m. to fork up W fork W N W. 1 m. North 1 m. along a valley N 10 E. 3 m. to riv. W . 1 m. N 20 W 2 m—reduced to a straight N 10 W. 6

1-2 m . lay on W. Side.

Friday 21st. cross'd cr. twice to day at 5 m. it seem'd to bear so much to E. we expect not to cross it again, in all reduced to straight N 8 E. 11 1-2m. lay at a pond [probably near Stephensburg], barrens all day [I]. Continued to where I cut my foot.

Saturday 22d . N 5 E. 10 m. (at 7 m. a. small cr. running to N. W. at 8 m. a dry one with a Spring N.W.) to a Buffalo road, along the Buffalo road N 55 E. 3 m. [J perhaps close to US 62] lay on a cr. along this Buffalo road we saw Horse tracks which is the first marks we had seen of any human being having been in these deserts from the day we left rocky Spring.

Sunday 23d. Apl. Cut my foot accidentally this morning. travelled N 18 E. 12 m. N 80 E. 1-2 N 1 m. to a Lick [perhaps down Cedar Creek to mouth of Flat Lick]. N to E. 1 1-2 m. thro some knobs to Salt Riv. [K near later bridge to Bullitt Co.] on which we encamp'd after beginning a raft. It forks about 1-2 m. above us.—Back Water from the Ohio seems to come here.”

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“Wednesday 26th [April, after night at Falls-of-Ohio, L]... If Paper was plenty I would attempt a description of our uncomfortable situation—with a Xantippe of a Landlady, something like a Petruchio of Shakespear or Nabal for a Landlord their Dirty children leaky boat Drunkenness &c. but I am by no means equal to the task.

Thursday 27th. at day[break] I suppose we were about 15 m. below the mouth of Salt River [M]... drifted all night, we thought we discover'd an Indian fire on their Shore to night.

Thursday 27th [night]. Nothing remarkable, drifted chiefly or rowed but little saw several fires on shore to night which we suppose must be caused either by the woods being on fire or by the Indians drifted all night.

Friday 28th. rowed & drifted nothing remarkable but scarcity of provision, foot painful.

Saturday 29th. this afternoon passed the mouth of Green River [N] wrote a note to Col. Henderson.”

Early deed surveys from the upper Nolin River area, 1783 to 1788. The original surveyor for the first tracts in 1783-84 was George May. These surveys have been transcribed from the deed books of Virginia (now available at Ky. Sec. of State website) and Kentucky (Jefferson County Deed Book A) by Neal Hammon in order to provide historical context for the National Park Service at the Lincoln Boyhood Home, about 2 miles south of Hodgenville in Larue County. I am most grateful to NH for providing these texts. There are 35 surveys in this group, most of which are rectangular or with 6-8 corners, and individually cover 100 to 2000 acres. But the following two are much larger and have irregular shapes: (a) VA 2412, 30,000 acres for William Greenough, with 28 corners; and (b) VA 2419, 30,000 acres for the same person, with 20 corners: (c) VA 4125, 10,000 acres for Thomas Middleton, with 5 corners. These 35 tracts were concentrated within 8 miles of “Nolin Station”, which was located about a mile south of what became Hodgenville. The sites lie within west-central Larue County, southeastern Hardin County and perhaps northeastern Hart County. They are mostly on the largely calcareous plain here that is drained by the South Fork of Nolin River. A few extend into the Knobs, where drained by Rolling Fork of Salt River, or into the east-west line of “Brush Creek Hills” that separate this “Nolin River” section of the Pennyrhile Plain from the main section from Munfordville to Bowling Green and beyond. Those hills are drained by Bacon Creek (to Nolin River), Lynn Camp Creek (to Green River), and other streams.

The most open areas were marked only with “stake”, “stake in the barrens” or “stake in the plain”. Several corners with trees were noted “in the edge of the barrens” or were “in the barrens”; trees at these corners were white oak (12), red oak (2), black oak (1), hickory (8), walnut (3), cherry (1). Some areas were noted as “brushy” and some “bushes” were marked, with the following names, all at single locations: white oak, black oak, red oak, barren oak, walnut, sassafras, plumb.

The survey KY 6884 (for William Montgomery) notes: “Beg at three white oaks near an old Buffaloe road leading from said Creek [West Fork Nolin] to Middle Creek...” It is likely that this road was close to modern Route 210 from Elizabethtown to Hodgenville.

In more wooded areas, notes of interest are as follows.

VA 1188. For John Crow: “Including the Big pond on the head of the South Fork of Nolin... Small Walnut Bush in the Edge of the Barrens about 100 poles South East of the sd pond and on the South Side of a Sinking branch Supposed to be the waters of Sinking Creek thence up the South side of a Rich Grove on the Sd Sinking Run S65W 84 poles to a Stake in the Barrens...”

[This pond was presumably “Jackson Pond” 2/3 mile southeast of Magnolia. The “rich grove” was among the woods to west of the current “LG&E Road” about a mile south of Rt. 1906 = Mt Sherman Road. Soil in these woods is mostly Riney/Waynesboro loam, Vertrees and Caneyville silt loams, which are typical of transitions to more hilly land with some slumped sand, siltstone and shale in addition to limestone. In contrast, soils more typical of the barrens here were Crider and Sonora.]

VA 5513. For John May “Beginning at a white oak in the edge of a large timbered grove on the south side of the Road leading from Nolin to Severns Valley and about 3 Miles northwest of Nolin station.”

[This grove was presumably in the same general area as the woods that currently remain 4-6 miles northwest of Hodgenville and 2-4 miles southeast of Elizabethtown, where the earliest settlement was named Severns Valley in 1780. Upland soil in these woods is mostly Riney loam, which has much slumped sandstone in addition to underlying calcareous material; the area is generally more hilly and more mesic than than the plains to southeast.]

Two of the tracts were apparently within deeper woods with no evident influence of the barrens. These could be excluded in further analysis.

VA 3328. For Israel Christian: “on the West side of Knob Creek waters of the Rolling fork...” Noted trees were: sugar tree, beech, white oak (2), red oak, ash (2) and buckeye. [Knob Creek runs down the knobs near US 31E 4-8 miles northeast of Hodgenville.]

KY 9290: For Jacob French: “300a on Nolin and Valley Crs. Beg with the [forks] at a sugartree and Walnut where they Meet running then up Nolelin with Meanders thereof o a Sugartree and white Hickory a the bank then N13W 224 poles to the Bank of he Valley Creek a Sugartree and Beech then down with the Valley Creek to the Beginning.’ [This tract was about 11 miles west of Hodgenville, on terraces of these creeks with deep alluvial soils, distinctly more mesic than the uplands.]

Additional notes on common names are as follows.

Ash. Only one of the 8 trees was specified: “black ash and hickory on a brushy ridge” (perhaps *Fraxinus biltmoreana*).

Hickory. Only one of the 28 trees was specified: “white hickory” (probably *Carya cordiformis*) in a more mesic tract with sugar tree, walnut and beech.

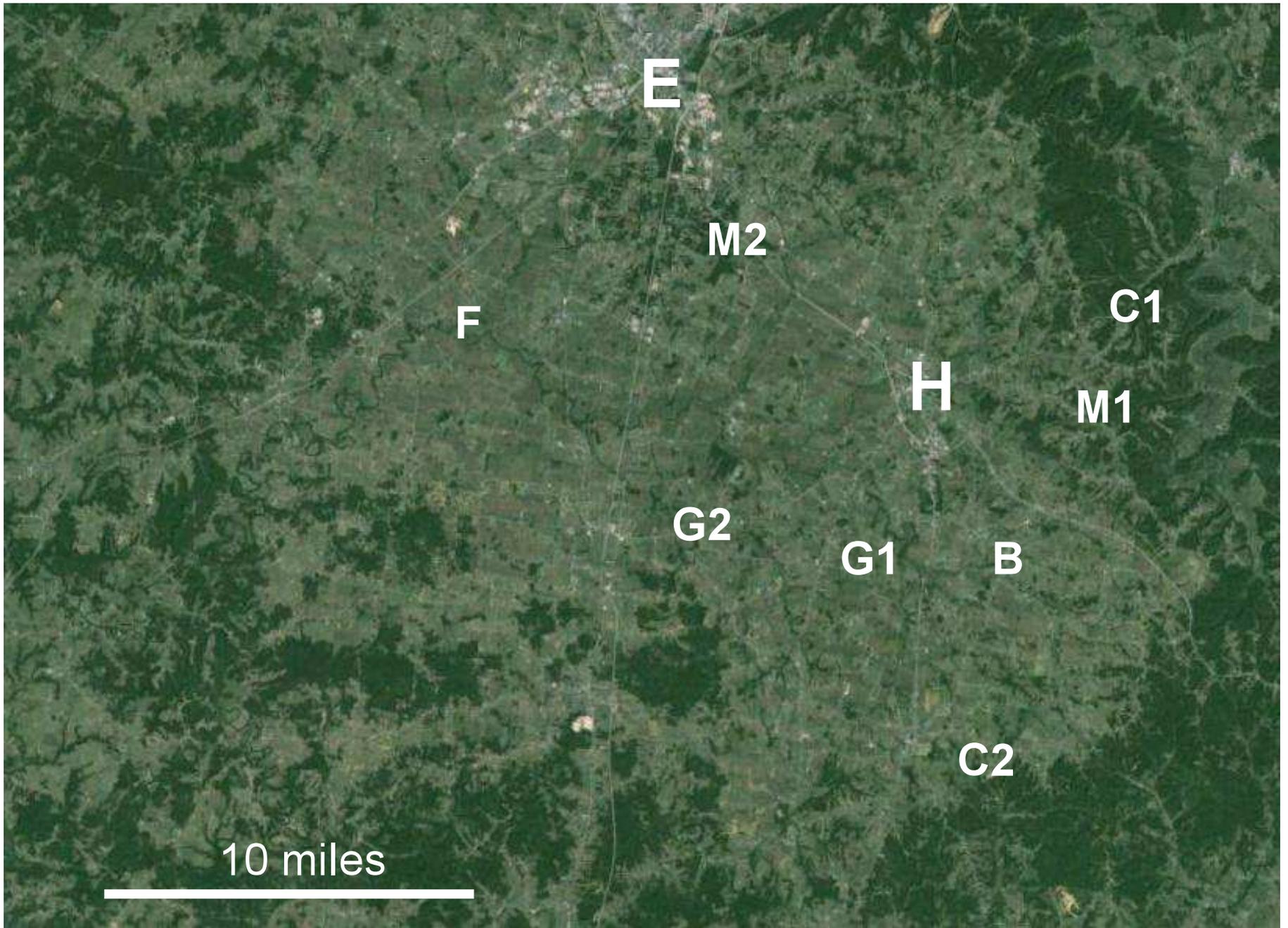
Walnut. Only one of the 7 trees was specified: “black walnut”.

Oak. Identity of species remains highly uncertain. It is curious that “post oak” was not used at all, and “blackjack” only once. Surveyors were probably not familiar with these species, which dominated thin woods around the barrens further west. It is possible that “barrens oak” was one of these species, or *Q. imbricaria*. The name “pin oak” was probably applied to *Q. palustris* at some sites: “Pin oak & Gum on the head of a Draught the East side of the Creek in the edge of the Barrens”. But it might have been *Q. imbricaria* on drier sites: “two black oaks & two Pinn Oak on the tip of a Clift on the west side of the Rolling fork”.

Given Tree Name	Interpreted Name (mostly latin binomials)	Number	Percentage
stake	usually "stake in the barrens" or "in the plains" ***	88	28.5
white oak	Quercus alba, Q. stellata, Q. muhlenbergii etc.	72	23.3
black oak	Quercus velutina, Q. marilandica, Q. falcata etc.	41	13.3
red oak	Quercus rubra, Q. falcata ?	6	1.9
pin oak	Quercus palustris, Q. imbricaria ?	5	1.6
barrens oak	Quercus marilandica, Q. imbricaria ?	2	0.6
blackjacks [oak]	Quercus marilandica	1	0.3
spanish oak	Quercus falcata ?	1	0.3
hickory	Carya tomentosa, C. glabra, C. ovata etc.	28	9.1
sugar tree	Acer saccharum (sensu lato)	12	3.9
ash	Fraxinus americana (sensu lato) etc.	8	2.6
walnut	Juglans nigra (all?)	7	2.3
dogwood	Cornus florida	7	2.3
beech	Fagus grandifolia	7	2.3
poplar	Liriodendron tulipifera	5	1.6
mulberry	Morus rubra	4	1.3
elm	Ulmus alata, U. rubra, U. americana	3	1.0
honey locust	Gleditsia triacanthos	2	0.6
cherry	Prunus serotina	2	0.6
plumb bush	Prunus americana, P. angustifolia etc.	2	0.6
gum	Liquidambar styraciflua or Nyssa sylvatica	1	0.3
maple	Acer saccharinum ["on bank of Nolin"]	1	0.3
hackberry	Celtis occidentalis, C. tenuifolia, C. laevigata	1	0.3
buckeye	Aesculus glabra	1	0.3
ironwood	Ostrya virginiana, Carpinus caroliniana	1	0.3
sycamore	Platanus occidentalis	1	0.3
sassafras bush	Sassafras albida	1	0.3
TOTAL	*** Stake only was at 87 of the 209 corners (41.6%)	310	100.1



Above: survey in 1784 of 30,000 acres for William Greenough; marked G1 on map below. Below: general location of surveys summarized here on upper Nolin River. B = Buffalo; E = Elizabethtown; H = Hodgenville. Approximate centers of selected surveys are indicated with following codes: F = KY 9290 (French); G1 = VA 2414 (Greenough); G2 = VA 2419 (Greenough); C = 3328 (Christian); M1 = VA 4125 (Middleton); M2 = VA 5513 (May).



Google Earth (2013 Sep 13).



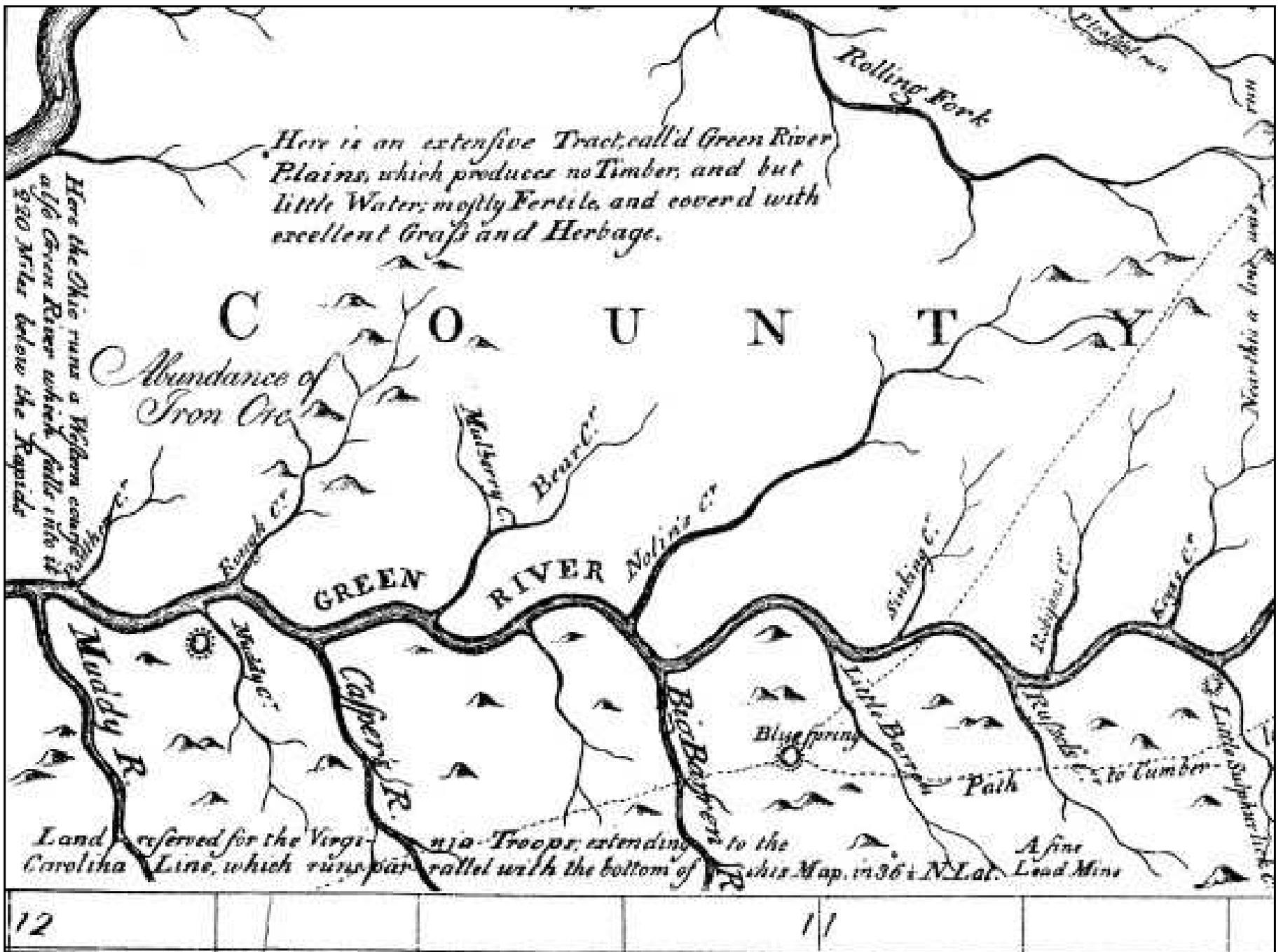
Munsell's (1818) map: section with "barrens" south of Elizabethtown; see modern map above.

John Filson (1784): “This Map of Kentucke...” The south-central section of this map is shown on next page.

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), Filson wrote: “...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.”

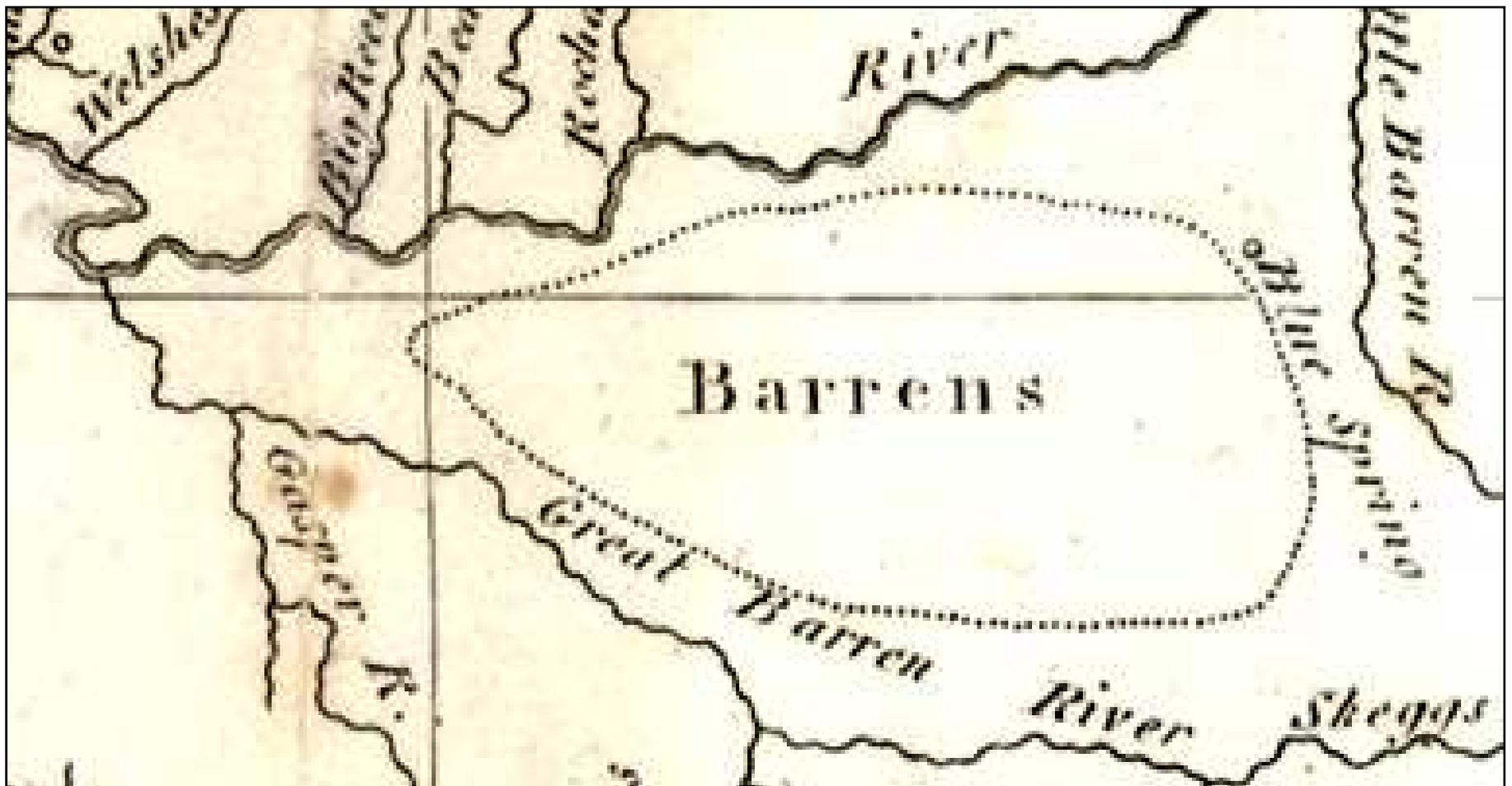
Under Metcalfe County, the Kentucky Encyclopedia of Kleber et al. (1992) stated: “John Filson located Big Blue Spring on his 1784 map of Kentucky as being between the Little and Big Barren rivers in northwestern Metcalfe County. Two Indian trails crossed at Big Blue Spring. The Warrior’s Trail, which extended from the Cherokee settlements near Chattanooga to the Falls of the Ohio, intersected a trail that reached from the Lexington-Dix River area to the Indian villages near Nashville. Stephen McKinney, granted a military warrant on the South Fork of the Little Barren, built a station there and was killed by Indians in 1792.”

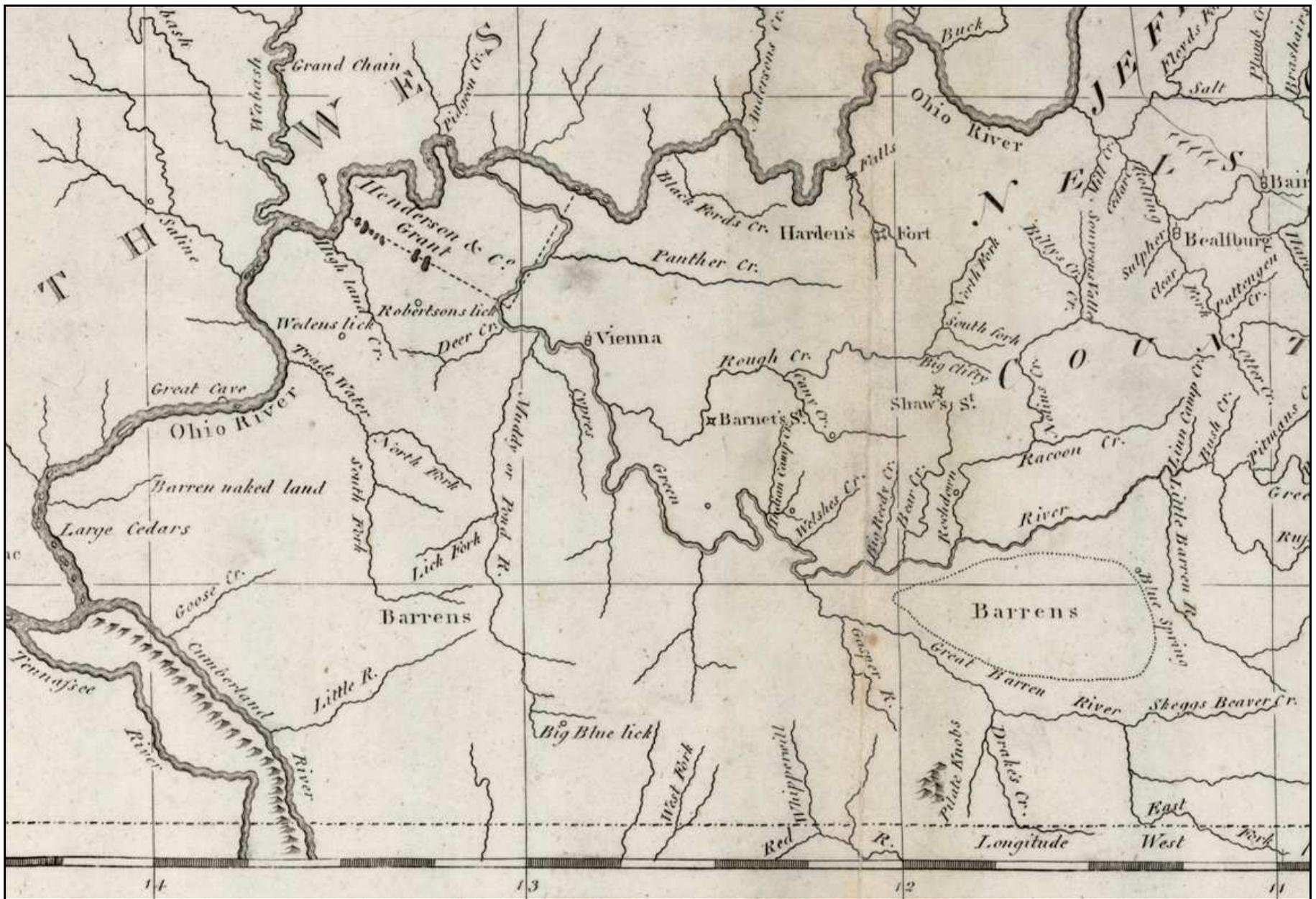
Some of the earliest surveys in this area were on “Blue Spring Creek” in 1784, with two tracts of 1000 acres for Thomas Marshall under Military Warrants (Deed Book 1, p. 3 and p. 107; see W.R. Jilison’s 1926 Index). Morse (1797) noted: “Blue Spring, lies between Big Barren and Little Barren rivers, S. branches of Green R. in Mercer’s co. Kentucky; about 22 miles S. westerly Sulphur Spring, and 13 S. of Craig’s Fort, on the N. side of Green R.”



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 map was included in the 1797 edition of Gilbert Imlay’s “Topographical Description” of the western states. Below: closeup of section with largest block of “barrens”.





Barker (1795): section showing three areas of “barrens”. “Big Blue Lick” was apparently 2-4 miles NW of Elkton. “Blue Spring” is now 2 miles NW of Park, but map suggests to NE of here.

Footnotes for “Big Blue Lick” on Barker’s (1795) map; see previous page.

Early records of this site deserve deeper investigation; the following references are notable.

(1) <http://apps.sos.ky.gov/land/reference/gazetteer.asp>

In early surveys from “Christian County” there are references to following licks.

“Blue Lick Fork, Pond River (Military District)”

“Big Blue Lick aka Blue Lick (Military District)”

“Blue Spring (Military District)”

“Sandlick Creek (Military District)”

(2) [http://www.kentuckygenealogy.org/christian/fruit\\_hill\\_precinct.htm](http://www.kentuckygenealogy.org/christian/fruit_hill_precinct.htm)

“Fruit Hill Precinct, Christian County, Kentucky”

“The first comers into the Fruit Hill Precinct whose names can now be recalled came, pretty generally, from the Carolinas also, and a few from Georgia and Virginia about the year 1800. There were others doubtless who came earlier, but their names have been buried with them, and are lost to the pages of history. Thomas Barnett came either from Georgia or one of the Carolinas about the beginning of the century, and opened up a farm on the Hopkinsville & Greenville road, near where the Pleasant Hill Church stands. The last elk seen in Christian is supposed to have died on his place. Jerome Harned now owns the old place. About three miles north of Barnett's, near the head waters of Little Caney, is the old Mathew Wilson farm, now owned by his son James, and which was also settled about the same time. The Wilsons came from one of the Carolinas.”

“Col. James Robinson and his brothers Abner and Green Robinson were long prominent citizens of this part of the county, and came from North Carolina. The Colonel was in the war of 1812, and commanded a regiment at the battle of New Orleans under Gen. Adair. He was a brave, quiet man, low and compact in figure, and very strong. He had a memorable fist encounter with one Wilkins, who is said to have been badly worsted by his antagonist. Green, the younger brother, moved to Illinois, and was killed in the Black Hawk war. Abner married Nancy Duty, was a good farmer, and a successful stock-raiser. He bred fine horses and took them to Lexington, where he disposed of them at a fine profit, and by this means helped to pay for the large tract of land he had purchased. He would labor on his farm all day, and at night go two miles to Blue Lick and kill deer for the family. The father of these brothers was James Robinson, who came in 1788. He is written up in a preceding chapter. There were three daughters also-Patsy, Mahala and Nancy. The first married McFarland, the second Hugh Wilkins, and Nancy was killed by the falling limb of a tree when a child. The Meachams, John, Andrew, Willis, Edmund and Wyatt, five brothers from one of the Carolinas, came also before or with the dawn of the nineteenth century, all settling in the same neighborhood on the Blue Lick of Pond River. They were Calvinistic or Hard-shell Baptists, and two of the brothers were preachers of that faith. John Spurlin, Quentin Stewart, a millwright, Rayford Petty and Matthew Wilson were also among the early pioneers. The latter was the father of James, Lemuel, William and John Wilson. The names of many of these old people, as the names of many others who came after them, are still preserved in their descendants, and their memories will ever be revered as the avants couriers of the present civilization.”

(3) See also quotation below from:

Lyman C. Draper. 1842-1856 [drafted during this period]. The Life of Daniel Boone.



Part of Reid's 1795 map of Tennessee, with no note of "barrens" in the Pennyrhile karst plain.

André Michaux (1793-96 in Thwaites 1904), p. 64. Referring to travels of June, 1795, he noted: “The 23rd crossed the Barren oaks [about 30-60 miles from Nashville presumably on or close to US 31W] 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 provisions [perhaps 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.” [See below for journal of his son Francois, following same path.]

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 25<sup>th</sup> 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*], two-leaved pines [*Pinus virginiana*], and black oaks [probably *Quercus marilandica*]. A little beyond this [SE Hart Co.] commence the Barrens, or Kentucky Meadows.

“On the 27<sup>th</sup> 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 [perhaps *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 [*Spilanthus*, 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 hickery [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.

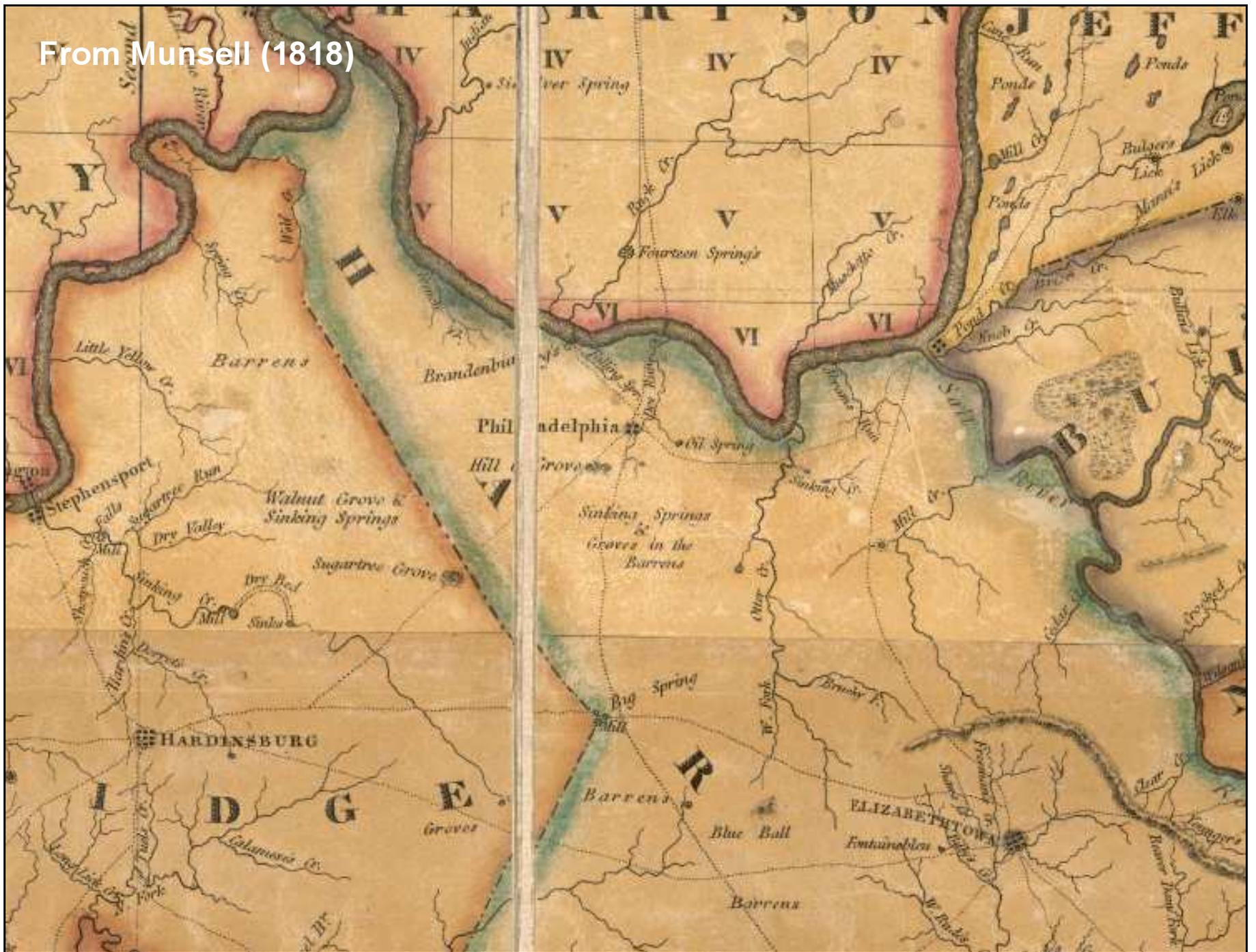
p. 223. “Left there [Eddyville] at 5, and arrived to breakfast at Hopkinsville at 9 - ten miles. Left there at ten, and arrived that evening at McLean's - twenty-five miles. Left McLean's Friday, the 29th, at 5, and arrived to breakfast at Russelville at 8 - nine miles. Left there at ten, and arrived 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.”

Moses D. Burnet (1815; in Applegate 1965): travelling through Kentucky.

p. 19, writing in his journal on December 29th, 1815.

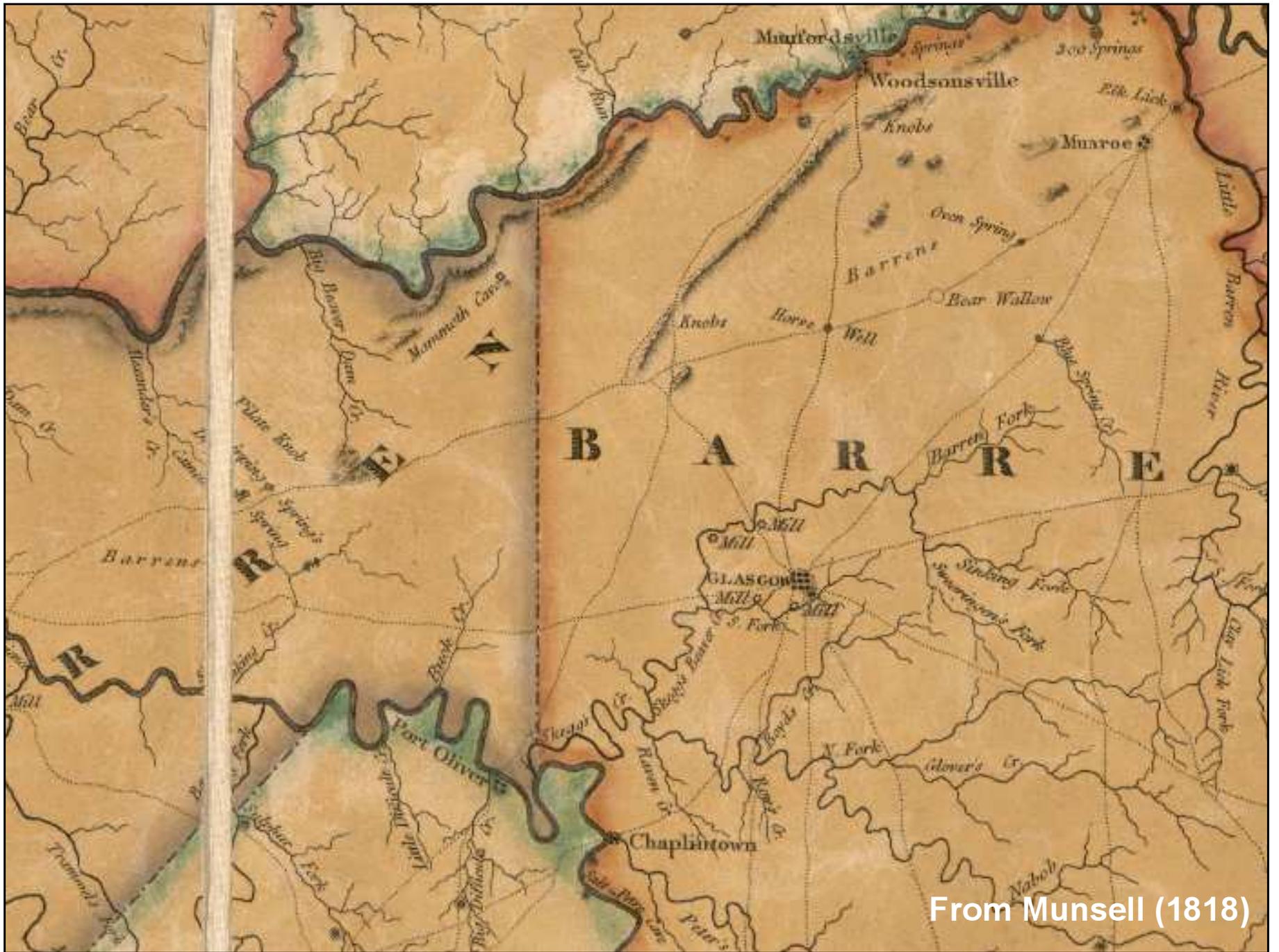
“After breakfast, left Thompsons [probably southcentral Hart Co.] and road 24 Miles through the barrens and came to Bustus Inn [probably SE Edmonson Co. or NE Warren Co.], where we put up. Barrens so far very thinly settled bearing nothing but a few schrub black oaks [probably *Quercus marilandica*] & covered with a wild grass.” [Next pages: from Munsell (1818)]

From Munsell (1818)

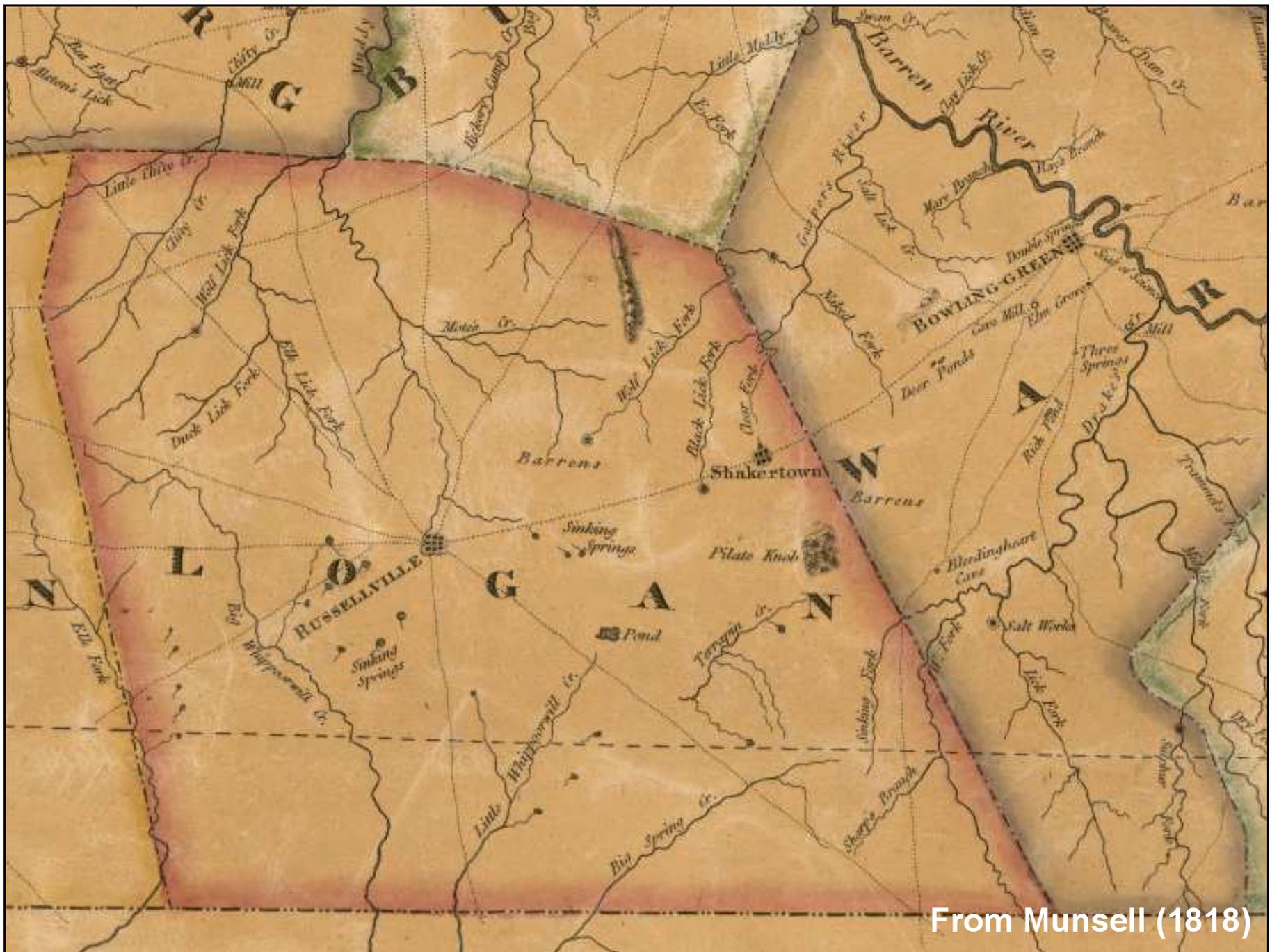




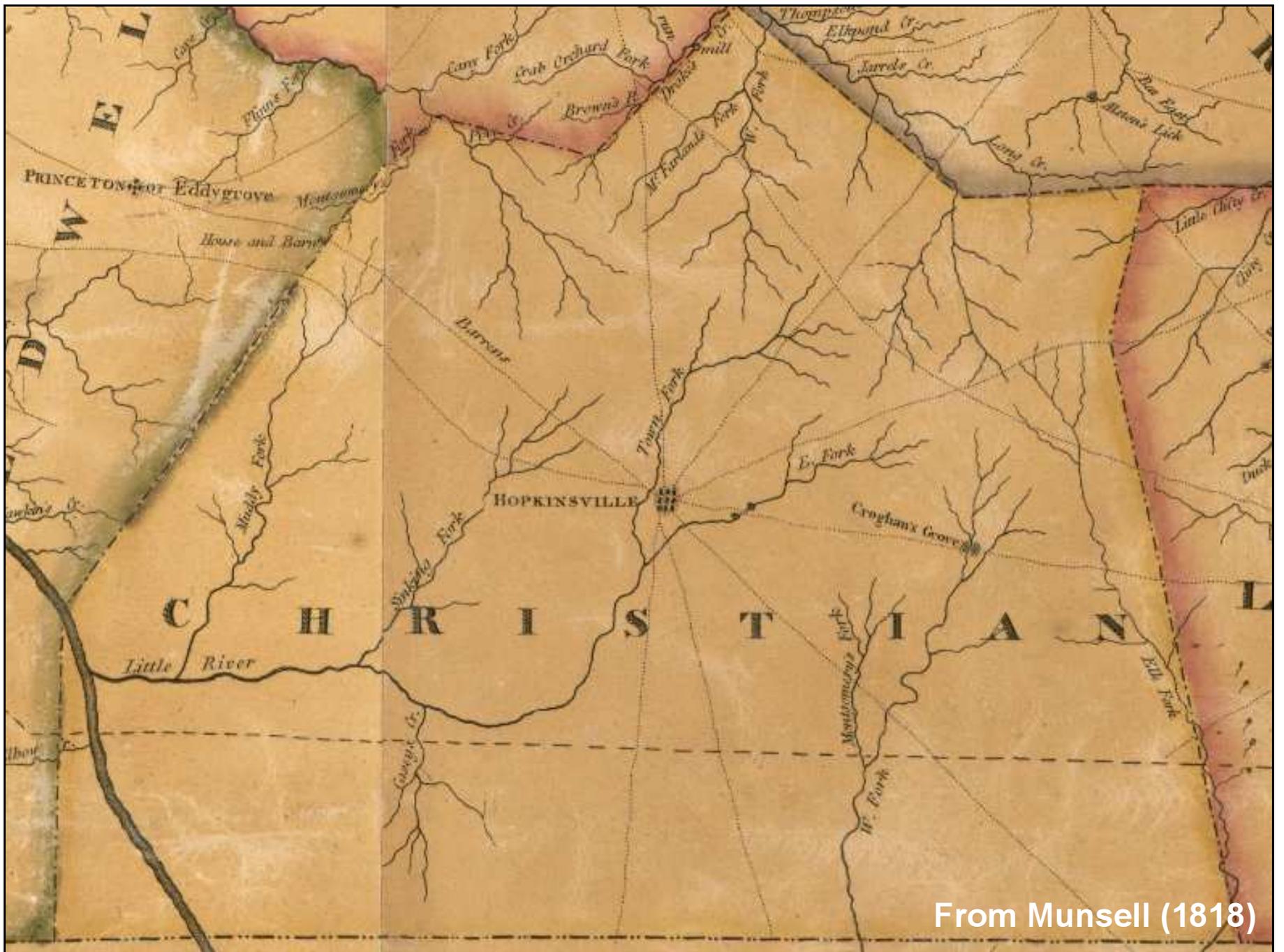
From Munsell (1818)



From Munsell (1818)



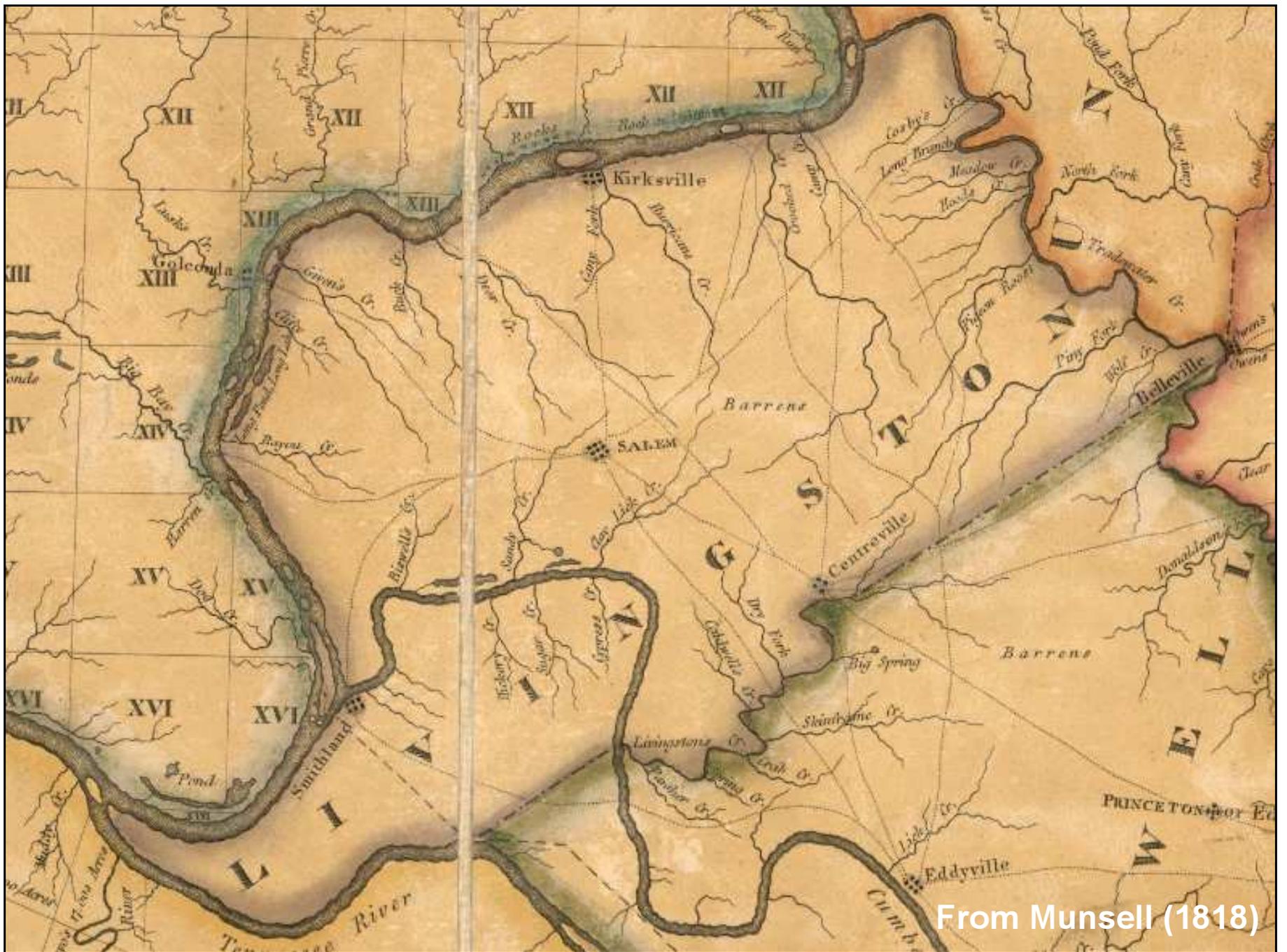
From Munsell (1818)



From Munsell (1818)

From Munsell (1818)





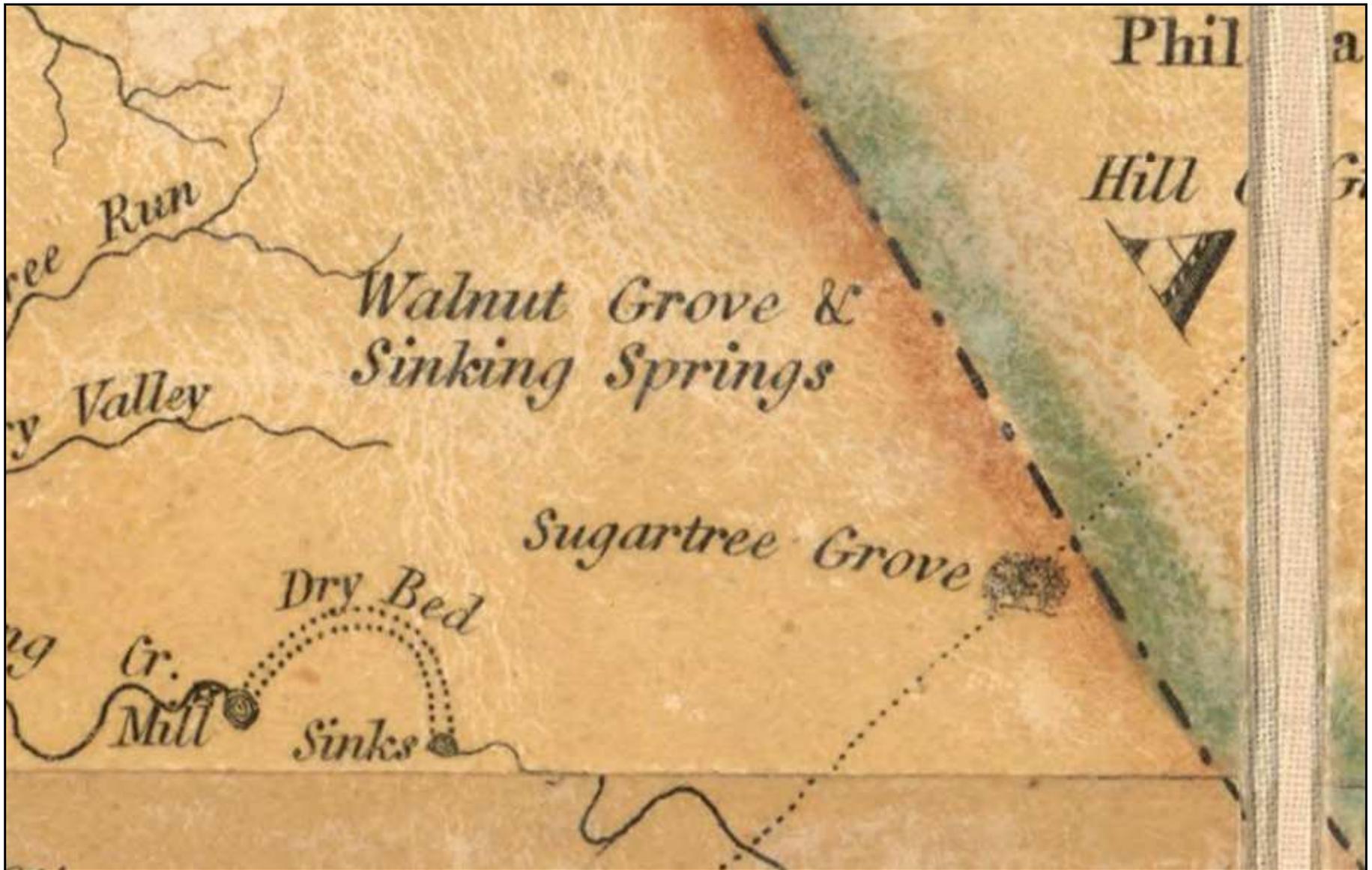
From Munsell (1818)



Munsell (1818): closeup in northern Breckinridge County.

Labels: “Barrens”.

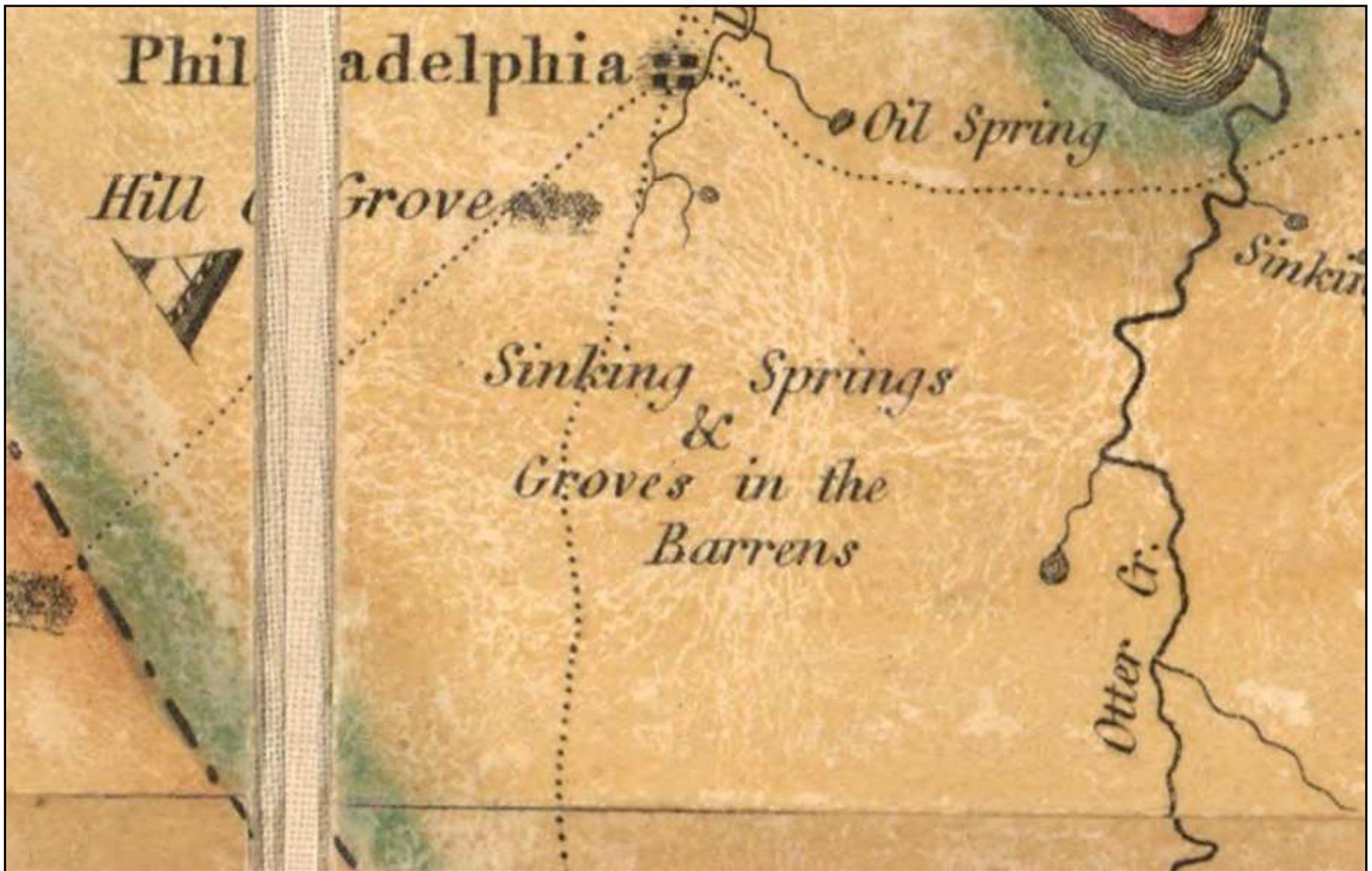
Major soil series on gentler uplands (from NRCS): Sadler, 0-6% slopes (40% area); Zanesville, 2-12% slopes (12% area); Robbs, 0-2% slopes (5% area).



Munsell (1818): closeup in eastern Breckinridge County.

Labels: “Walnut Grove & Sinking Springs”; “Sugartree Grove”.

Major soil series on gentler uplands (from NRCS): Crider, 2-20% slopes (60% area); Fredonia-Crider, 6-20% (10% area); Baxter silt loam, 6-20% (4% area).



Munsell (1818): closeup in northwestern Hardin County.

Labels: "Hill Grove"; "Sinking Springs & Groves in the Barrens".

Major soil series on gentler uplands (from NRCS): Hammack-Baxter, 2-12% slopes (33% area); Baxter, 2-20% (25% area); Crider, 2-20% (17% area).



Munsell (1818): closeup in southeastern Breckinridge and western Hardin Counties. Labels: “Groves”; “Barrens”; “Blue Ball”; “Barrens”. Major soil series on gentler uplands (from NRCS): Crider, 2-12% slopes (8% area); Sadler, 0-12% (7% area); Sonora, 2-12% (7% area); Pembroke, 2-6% (5% area); Vertrees, 6-20% (5% area); Cumberland, 6-20% (4% area).



Munsell (1818): closeup in southern Hardin County.

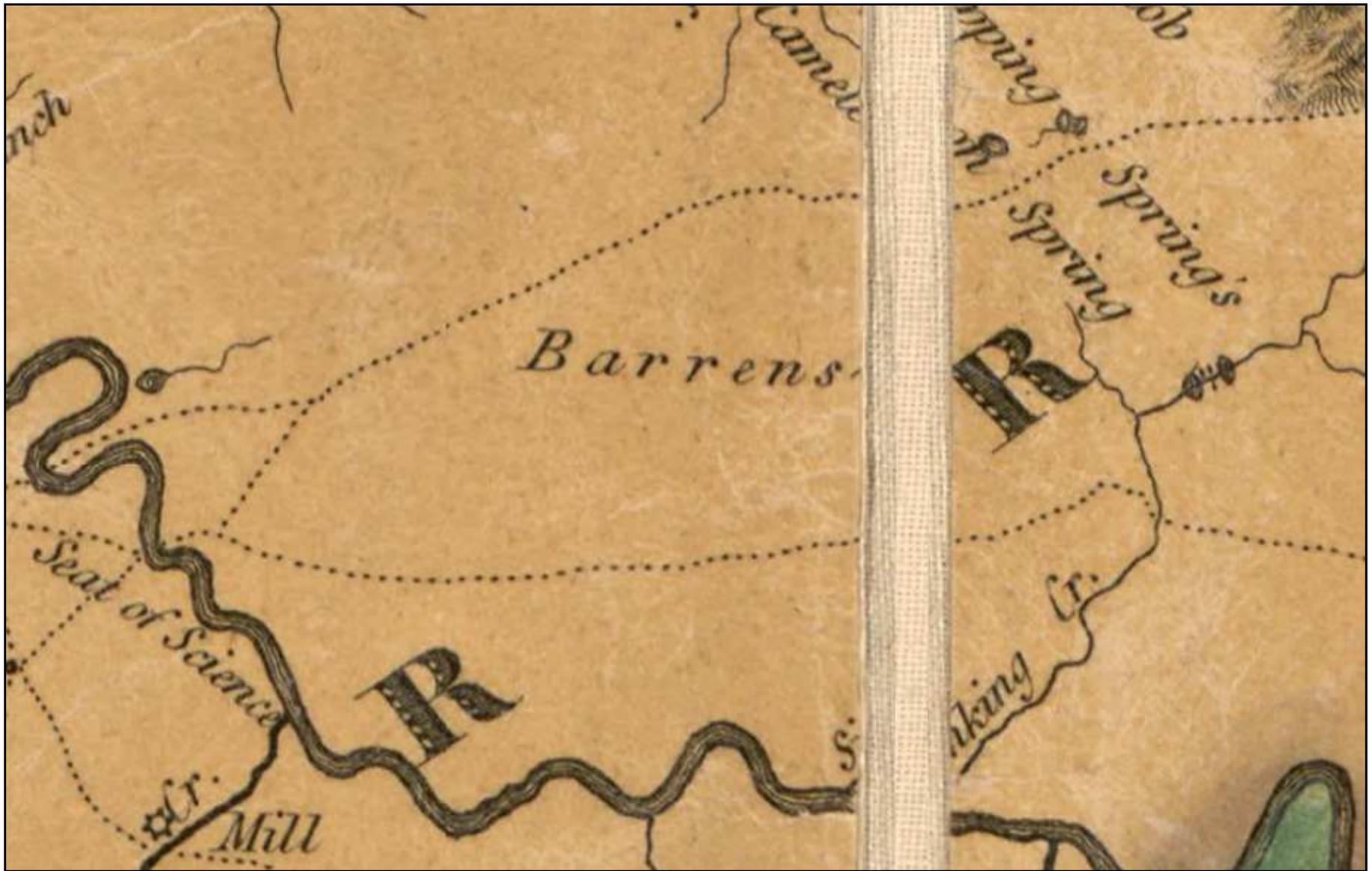
Labels: "Barrens". Major soil series on gentler uplands (from NRCS): Crider, 2-12% slopes (30% area); Bedford, 2-6% (12% area); Sonora, 2-12% (8% area); Cumberland, 6-20% (6% area); Pembroke, 2-12% (ca. 5%); Vertrees, 6-12% (4% area).



Munsell (1818): closeup in northern Barren County.

Labels: “Horse Well”; “Barrens”; “Bear Wallow”; “Oven Spring”; “Blue Spring”.

Major soil series on gentler uplands (from NRCS): Baxter, 2-30% slopes (40% area); Frederick, 2-30% (17% area); Crider, 2-12% (11% area); Fredonia/Hagerstown/Vertrees, 2-20% (5% area).



Munsell (1818): closeup in central Warren County.

Labels: "Barrens".

Major soil series on gentler uplands (from NRCS): Baxter, 2-30% slopes (70% area); Crider, 2-12% (9% area);



Munsell (1818): closeup in eastern Logan and western Warren Counties.

Labels: “Barrens”; “Deer Ponds”; “Rich Pond”; “Bleedingheart Cave”.

Major soil series on gentler uplands (from NRCS): Crider, 2-12% slopes (33% area); Fredonia / Vertrees, 2-12% (22% area); Pembroke, 0-12% (17% area).



Munsell (1818): closeup in central Logan County.

Labels: “Barrens”; “Deer Ponds”; “Sinking Springs”; “Wolf Lick”.

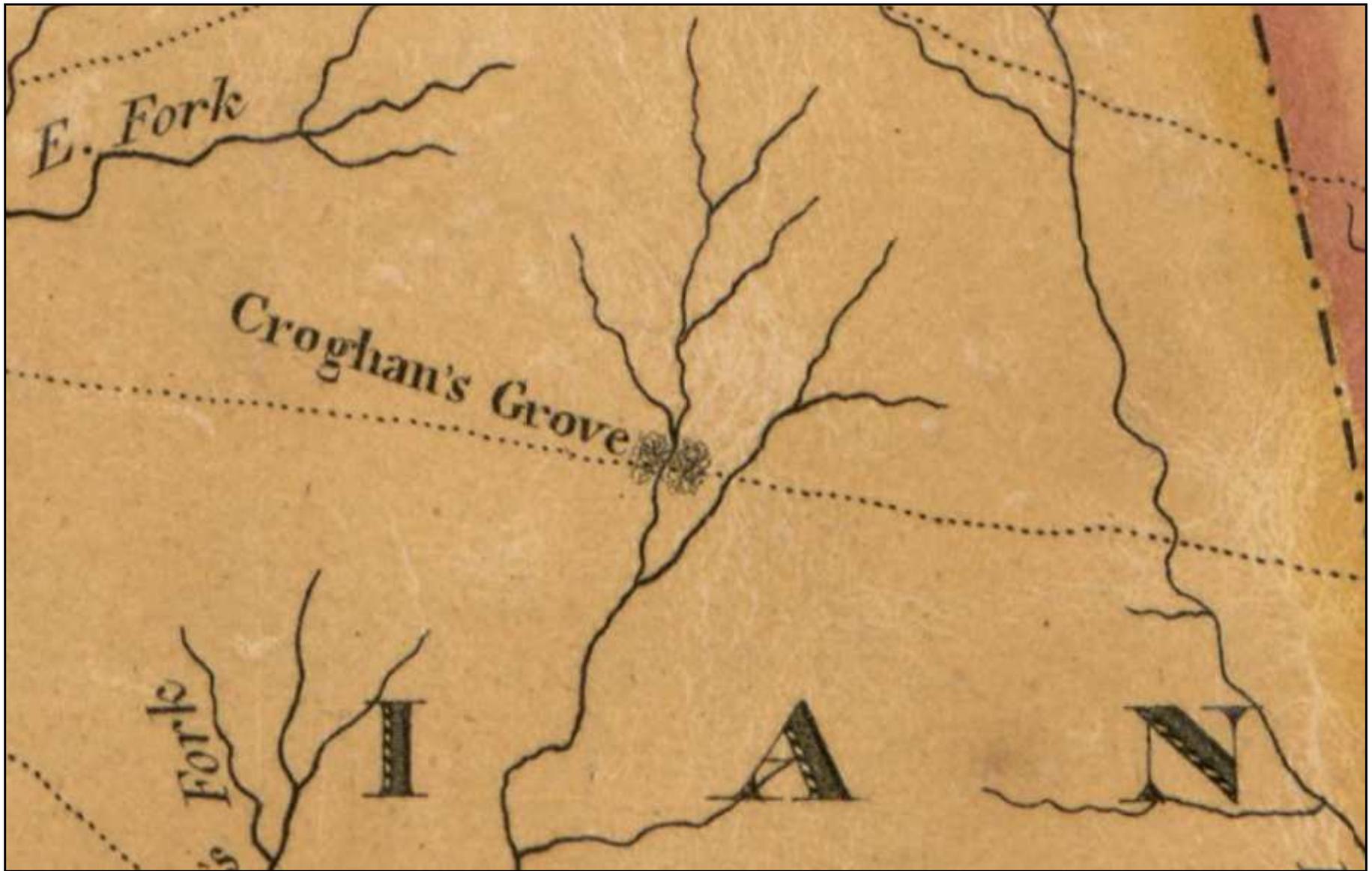
Major soil series on gentler uplands (from NRCS): Talbott, 2-20% (23%); Pembroke, 0-12% (12% area); Fredonia, 2-12% (8% area); Zanesville, 2-12% (8% area); Crider, 0-12% (4% area).



Munsell (1818): closeup in southern Logan County.

Labels: “Sinking Springs”; “Pond”.

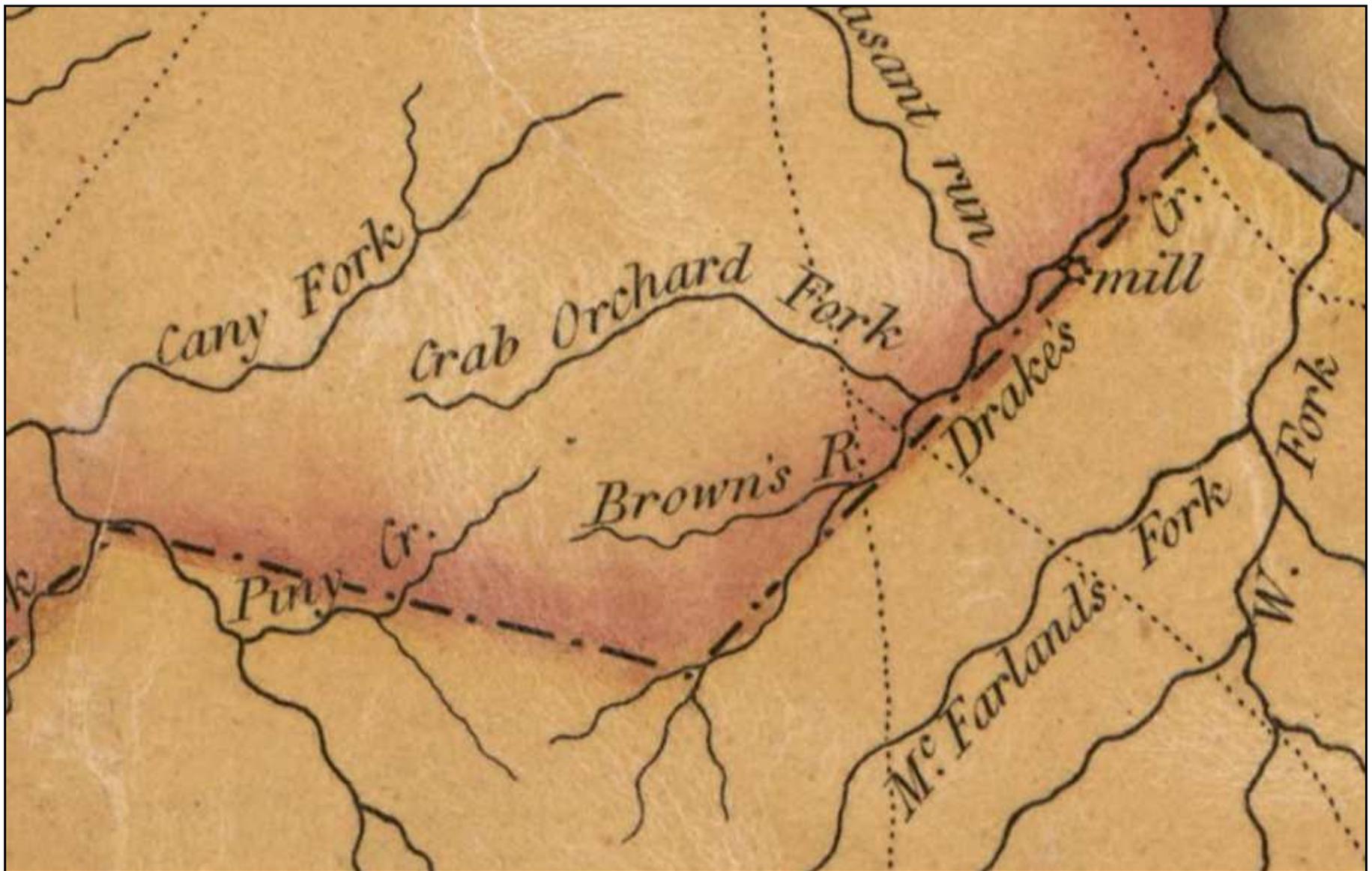
Major soil series on gentler uplands (from NRCS): Pembroke, 0-12% slopes (53% area); Crider, 2-12% (6% area); Baxter, 6-20% (5% area).



Munsell (1818): closeup in eastern Christian County.

Labels: “Croghan’s Grove”.

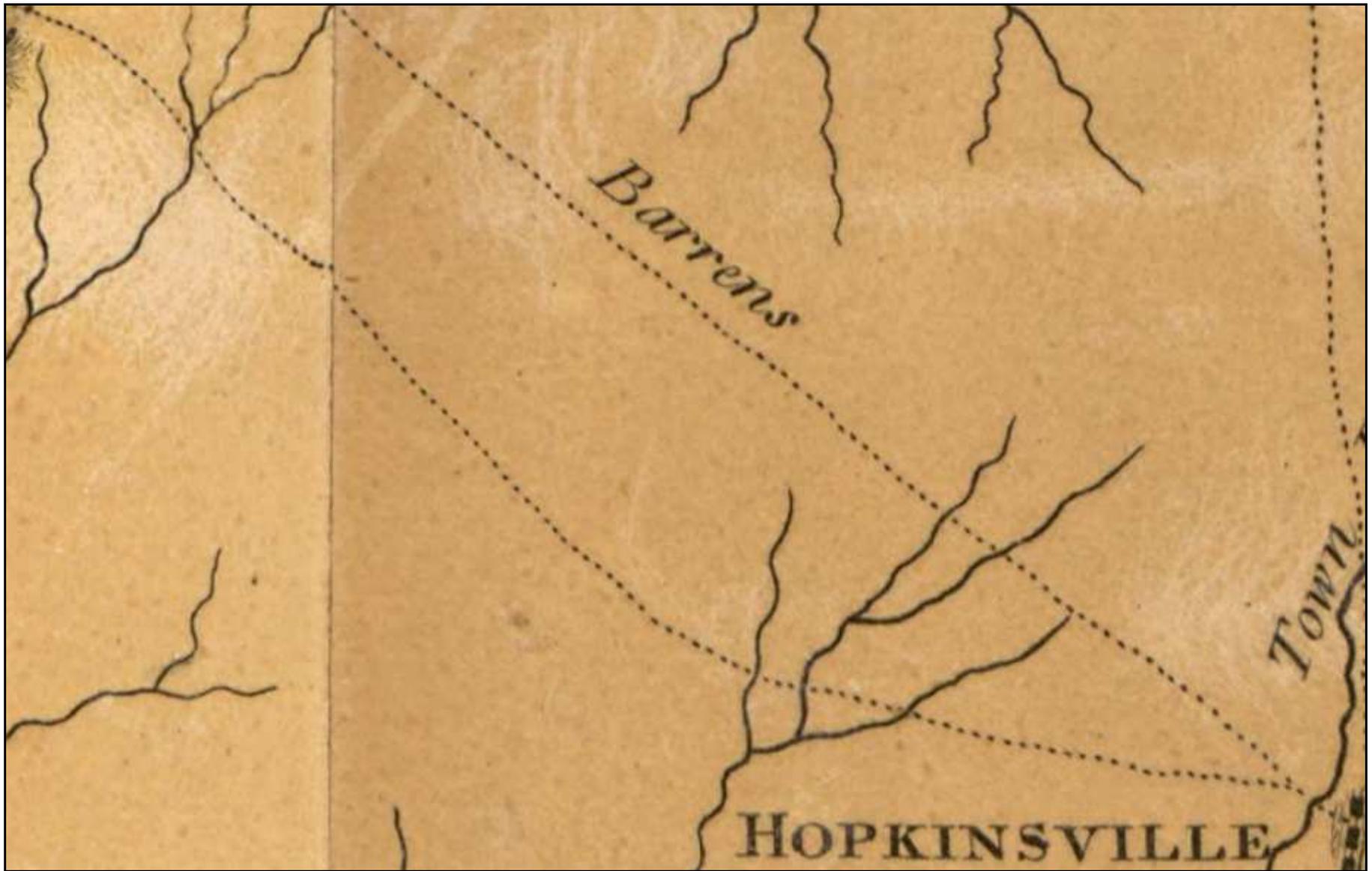
Major soil series on gentler uplands (from NRCS): Pembroke, 0-12% slopes (28% area); Crider, 0-12% (12% area); Nicholson, 0-12% (11% area); Fredonia, 2-12% (6% area).



Munsell (1818): closeup in northern Christian and southern Hopkins Counties.

Labels: "Cany Fork"; "Crab Orchard Fork".

Major soil series on gentler uplands (from NRCS): Zanesville, 2-20% (26% area); Frondorf-Lenberg / Weikert, 12-30% (26% area); Sadler, 2-6% (4% area).



Munsell (1818): closeup in northwestern Christian County.

Labels: “Barrens”. Major soil series on gentler uplands (from NRCS): Pembroke, 0-12% (20% area); Zanesville, 2-12% (14% area); Crider, 0-12% slopes (9% area); Sadler, 0-6% (8% area); Frondorf / Weikert, 2-40% (8% slopes); Nicholson, 0-12% (5% area).



Munsell (1818): closeup in northern Caldwell County.

Labels: “Barrens”.

Major soil series on gentler uplands (from NRCS): Crider, 0-12% slopes (35% area), Zanesville, 2-20% (21%); Nicholson, 2-12% (6% area).



Munsell (1818): closeup in central Livingston County.

Labels: “Barrens”.

Major soil series on gentler uplands (from NRCS): Zanesville, 6-20% (26% area); Hosmer, 2-12% (21% area); Frondorf, 12-30% (12% area).



Munsell (1818): closeup in western Livingston County.

Labels: “Long Pond”; “Long Lake”.

Major soil series on gentler uplands (from NRCS): Zanesville, 6-12% slopes (15% area); Hosmer, 2-20% (15%); Frondorf, 12-30% (3%).



Munsell (1818): closeup in southern Posey County, Indiana  
Labels: “Ponds”. Major soil series on higher terraces (from NRCS): Ginat, 0-1% slopes (20% area); Elkinsville, 0-6% (18% area); Weinbach, 0-2% slopes (17% area); Wheeling, 0-12% (7% area); Pekin, 0-6% (5% area).

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.”

Munsell (1818). See previous pages for extracts with “barrens” noted.

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 any thing 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.”

### Deed Surveys from Barren and Edmonson Counties, ca. 1826.

The table below presents the percentages of different tree taxa noted at survey corners in these two counties, which cover much of the central Big Barrens (especially Barren Co.) and the transition to Shawnee Hills (especially Edmonson Co.). The surveyors generally noted one or more trees at most corners; surveys were mostly 100-1000 acres, with 5-20 corners. The first few hundred trees accumulated in these books are summarized here. Surveys that are clearly repeated in whole or part, from earlier parts of the deed book, are not included here, but there may be some remaining redundancy that is not clearly apparent. Percentages were computed only for trees in the total, excluding “stake” or other non-arboreal markers. The total numbers of “corners” exclude those few corners with just “stone”, “large rock”, “bank”, “bluff” or similar topographic features in the descriptions.

EDMO = Edmonson County Deed Book A, ca. 1826 [Microfilm series M-583 at Special Collections, University of Kentucky]: data come from pages 1-163. Edmonson County was formed in 1824, and this is the first deed book. The county boundaries have not changed significantly since then.

BARR = Barren County Deed Book L, ca. 1826 [Microfilm series M-346 at Special Collections, University of Kentucky]: data come from pages 1-88. The year 1826 was chosen to make these data contemporaneous with the Edmonson County data; also, before 1820, Barren County included large parts of the present Allen and Monroe Counties. Not until 1860, however, was the final extract of Barren County taken to help form Metcalfe County. Thus, some of these data come from hills to the south and east of the true Big Barrens region.

	EDMO	BARR
Post oak ( <i>Quercus stellata</i> )	15.9%	15.7%
White oak ( <i>Q. alba</i> ; some <i>muhlenbergii</i> ?)	10.3	9.7
Black jack ( <i>Q. marilandica</i> )	7.2	4.4
Black oak ( <i>Q. velutina, coccinea</i> ?)	6.7	5.8
Spanish oak ( <i>Q. falcata</i> mostly?)	2.1	1.4
Red oak ( <i>Q. rubra, falcata, shumardii, velutina</i> , etc.)	8.9	4.0
Pin oak ( <i>Q. palustris, shumardii, coccinea</i> ?)	0.2	---
Whig oak (?)	0.3	---
Hickory ( <i>Carya</i> spp.)	14.8	11.5
-----		
Chestnut ( <i>Castanea dentata</i> )	1.0	1.3
Beech or beach ( <i>Fagus grandifolia</i> )	9.8	14.2
Poplar ( <i>Liriodendron tulipifera</i> )	2.0	5.0
Sugar tree ( <i>Acer saccharum, nigrum</i> )	3.6	6.5
Maple ( <i>Acer rubrum, saccharinum</i> )	1.3	0.8
-----		
Black gum ( <i>Nyssa sylvatica</i> )	1.0	2.5
Sweet gum ( <i>Liquidambar styraciflua</i> )	0.3	0.4
Gum ( <i>Nyssa, Liquidambar</i> )	0.3	0.4
-----		
Black walnut ( <i>Juglans nigra</i> )	1.6	0.4
White walnut ( <i>Juglans cinerea</i> )	1.0	0.3
Walnut ( <i>Juglans</i> spp.)	0.8	0.4
-----		

Sycamore ( <i>Platanus occidentalis</i> )	1.6	0.1
Ash ( <i>Fraxinus</i> spp.)	1.3	2.2
Blue ash ( <i>Fraxinus quadrangulata</i> )	0.2	0.3
Elm ( <i>Ulmus</i> spp.)	1.3	1.7
Hackberry ( <i>Celtis</i> spp.)	0.3	0.1
Mulberry ( <i>Morus rubra</i> )	0.3	0.1
Sassafras ( <i>Sassafras albidum</i> )	0.2	0.3
Persimmon ( <i>Diospyros virginiana</i> )	0.3	0.8
Honey locust ( <i>Gleditsia triacanthos</i> )	0.7	---
Cherry ( <i>Prunus serotina</i> )	---	0.1
-----		
Dogwood ( <i>Cornus florida</i> )	2.8	7.8
Sourwood ( <i>Oxydendrum arboreum</i> )	0.3	---
Holly ( <i>Ilex opaca</i> )	0.2	0.1
Hornbeam ( <i>Carpinus carolinana</i> )	0.8	---
Ironwood (mostly <i>Ostrya virginiana</i> ?)	0.2	0.3
Pawpaw ( <i>Asimina triloba</i> )	---	0.1
Redbud ( <i>Cercis canadensis</i> )	---	0.1
-----		
TOTAL NUMBER OF TREES	610	720
Total corners with trees	372	212
Corners with just "stake" (excluded from %)	65	19
References to "the Barrens"	3	6
Trees noted as "small; saplin; sprout; or bush"	6	36
-----		

Other notes of interest in these surveys are as follows.

Edmonson County. Page 1: "...on the side of a bufalow road or path that leads from nolands Lick to the head waters of lower beaver dam Creek where the said path runs the dividing ridge between nolands Creek waters and the waters of the said beaver dam Creek..." [Was this between Alexander Creek and Little Beaver Creek; and was Noland's Lick near Chalybeate and Sulphur Branch of Alexander Creek?]

Page 38: "...Co. of Grayson on Bear Creek...1157 acres..."stake in the barrens..." [Presumably this was in the Bear Creek area of NW Edmonson Co., and referred to the previous assignment of this section to Grayson Co.; note also the current placename "Grassland" between Bear Creek and Nolin River drainages.]

Page 123: "lying on Green River on the north side of the river between the mouth of Nolynn and Bear Creek about one mile and a half or two miles above the mouth of Bear Creek...crossing an old bufaloe road..." [Is this road now Route 655?]

Page 125: "whig oak [?]"stake in the barrens..."

Page 132: "...whig oak [?]"

Page 147: "...intersection of Gum thicket Branch with the big Valley...the Gum thicket...corner in the barrens..." [The big valley was the Brownsville area along Beaver Dam Creek.]

Persimmon was apparently called "pofsimmony" in one case.

Barren County. Page 3: "...three black jacks in a saplin grove..."

Page 20: "...in the Barrens near the Big Blue Spring grove..."

Page 24: "...on Beaver Creek near the road to Columbia...stake in the barrens..."

Pages 27, 40, 59: "...in the barrens..."

Page 57: "...post oak in the barrens..."

Page 61: ..."mouth of small branch on west side of south Fork of Little Barren River near the spots [?] where there is sign of an Indian improvement (tow [too-whit] a mound in a circular form)..."

Page 77: "...on Skaggs Creek...white oak on an old Buffalo trace..."

=====

The following percentages of tree species were recorded at corners of tracts included in the deed of the Mammoth Cave estate, from the Gratz family to F. Gorin on 7th November, 1853. Data come from the Resource Management Office at the National Park, and had apparently been transcribed for the report by Carroll (1925).

Red oak ( <i>Quercus</i> spp., red group)	33%
Post oak ( <i>Q. stellata</i> )	31%
Black jack ( <i>Q. marilandica</i> )	8%
White oak (mostly <i>Q. alba</i> ?)	6%
Hickory ( <i>Carya</i> spp.)	17%
Cherry ( <i>Prunus serotina</i> )	3%
Dogwood ( <i>Cornus florida</i> )	3%
-----	
TOTAL NUMBER OF TREES	36

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" may not have been 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.”

Silliman (1851): p. 332.-333. “On the Mammoth Cave of Kentucky...”

“By a gentle and easy ascent you continue to rise for several miles by a circuitous path, passing in succession all the members of the Silurian and the lower secondary or the mountain limestone until at an elevation of 300 to 400 feet above the Ohio you reach the great upper plateau which stretches away for a long distance, interrupted only by the deep river beds, which are all very nearly on the same level with the Ohio. These upper plains are called the ‘Barrens’

from the general sterility of the soil, which is formed to a considerable extent of stiff red clays and unproductive sands, or of lime rocks lying near the surface.”

“Everywhere in this upper country we are struck with the frequent occurrence of those circular holes or shallow pans which are called 'sinks,' from the popular belief that the surface has fallen away or sunk at some recent period. You see large trees standing dead in the water which fills these hollows, in a situation where of course they could not have grown supposing the water had long occupied its present place. Hence the idea so generally accepted that the surface of the earth has fallen downward, and this is attributed to the wearing away of the rocks beneath by subterranean rivers or by some other mode of aqueous action. It is probable that the hollows, already existing, are made water-tight by the cementing of the surface by fine mud floated by rains from the adjacent roads. I saw hollows of this sort standing full of water in this very dry season, in which the trees were not quite dead, while in others only the denuded trunks were seen. From these stagnant pools arise the poisonous miasms that produce the fevers which are peculiarly abundant in those parts of the Barrens where the sinks are most numerous. It is remarked that the 'sinks' have greatly increased in number, and the miasms in virulence, since the country was opened by cultivation and by roads. These causes have obviously operated to furnish the slime which the rains have washed down into the circular hollows adjacent these improvements, thus rendering them watertight.”

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. He 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.]

Engelmann (1863). “Remarks upon... Prairies, Flats, and Barrens in Southern Illinois. See complete paper for more detailed discussion of ecological factors. The following extracts focus on definition of the basic vegetation types (underlining added here for clarity).

p. 386. “The prairies all occupy the broad, more or less flat, dividing ridges between the streams. In digging wells on them, water is frequently struck at shallow depths, say, from 6 to 12 feet, and seldom exceeding 30 feet. It is generally obtained in the quaternary surface deposits above the strata of rocks; the latter are seldom reached in the prairies in digging wells, except near their borders, near the flats and barrens. The underlying formations therefore appear not to exercise

any direct leading influence in causing the prairie character of the surface, nor does the fine comminution of the soil by itself, because it does not differ in this respect from the adjoining flats and barrens, which is composed of the same sandy loam. I am inclined to the opinion that the leading cause of the prairie vegetation is to be found in the conditions of moisture of the soil, while I concede that various causes must cooperate to prevent the growth of trees, and that in other districts one or the other of these accessory causes may predominate so far as to seem alone to produce this same result...”

p. 390. “In the district which claims our special attention, the prairie growth is undergoing a considerable spontaneous change with the progressing settlement and cultivation of the country. Since the prairie grass is no longer burnt off annually, as it used to be by the Indians and early settlers for purposes of the hunt, for killing insects and snakes, and in order to free the land from dry stalks, and thus to secure a better pasturage early in the spring, whereby all but the hardiest grasses were destroyed, and those especially remained which propagate by throwing out suckers from the roots, and since the grass is continually cropped close and tramped down by cattle, the former vegetation of the prairies has gradually given way to softer and shorter grasses, and at somewhat broken points even shrubs and trees have begun to sprout up ; at the same time their surface has become drier, of which more will be said below. At some points in the prairies no water is obtained at moderate depths, but rocks are struck and have to be penetrated to a considerable depth in order to get water. At such points we might expect to find trees, but such is usually not the case. In the vegetable kingdom also the universal rule prevails that the stronger gain on the weaker ones. The tenacious grasses growing all around such spots will then encroach upon the land which is fit to bear timber, and will not suffer trees to spring up, unless they be assisted by favorable circumstances. Such encroachment of one species upon the territory else occupied by another, even to the extinction of the latter, may be frequently observed.”

p. 390-391. “The “flats” are nearly level stretches of upland, as their name indicates, and are timbered principally with single large and widely scattered post oak (*Quercus oblusiloba*) [*Q. stellata*], of a sturdy thick set growth, with stout crooked branches, and a tattered top. Their trunks are generally in part rotten, perhaps in consequence of injuries which they received by fire during the earlier period of their growth, more likely, however, it appears to me, in consequence of the, at times, quite unfavorable condition of the ground upon which they grow, which may produce disease in the tree. The trees of the large post oak stand wide apart, and are interspersed with black jack (*Quercus nigra*) [*Q. marilandica*] and in places young post oak. The blackjack are sometimes well developed with a vigorous growth and well shaped top, but are frequently stunted and scrubby. Not being, here at least, a long-lived tree, they generally do not attain a large size.”

“These woods are quite open, and their white soil is only scantily covered with vegetation. Even where the annual fires are kept out, undergrowth is very slow in springing up in the regular flats. Their subsoil is the finely comminuted white sandy loam mentioned above; it is nearly pure white, with an admixture of small black grains of ferruginous matter, and reaches to a depth of several feet. The upper soil is quite shallow, and seems to be distinguished from the subsoil only by a slight admixture of vegetable mould, not sufficient to color it much darker, and by the smaller number of the ferruginous grains. For the iron gradually disappears from most badly drained surface soils, and sinks deeper into the subsoil, in consequence of repeated reductions of the peroxyd into protoxyd, its solution, and final reoxydation and precipitation. A sharp line cannot be drawn between the upper soil and subsoil of the post-oak flats. They exhibit the peculiar proper ties which I have above described as characteristic of this kind of soil, which are not obliterated by the small admixture of humus. Its fine comminution makes this otherwise light soil badly permeable to water; and in depressions where rain water collects, the fine particles

which have been held in suspension by the accumulating water soon close up the pores of the bottom, and thus shallow pools are formed, from which the water disappears slowly by evaporation. At such points we observe the pin oak (*Quercus palustris*) together with the scaly-bark hickory (*Carya alba*) [*C. ovata*], and sometimes the laurel oak {*Quercus imbricaria*}.”

p. 393. “The "barrens" as the term is understood in the district to which I have reference, are hills covered with a dense growth of tall grasses, without or with only scattering large trees. The progressing cultivation has however changed their aspect considerably, and large portions of them now have a dense growth of young timber. They occupy that portion of the upland the surface of which is too uneven for prairies and flats, partly gently undulating, partly sharply rolling or even moderately broken. Their subsoil is the same white sandy loam mentioned before; but their surface-configuration affords a complete drainage, and they have therefore sustained a better vegetation and have formed some inches of a good soil considerably charged with humus. That of the sharper ridges is however apt to wash down into the the hollows, and is therefore generally shallow, while it has accumulated in the lower places. Their subsoil is frequently, but erroneously, called yellow clay; it is yellow only on exposed surfaces, on cuts in the roads, and similar places, where the iron of the soil, which elsewhere is all concentrated in small grains of dark brown color, is more diffused over the surface and colors the white materia} yellowish.”

“The drainage of the substrata seems also to be perfect, and the underlying porous sandstones not unfrequently reach to within a few feet of the surface. The barrens become dry early in the spring, and resist drought better than the flats, apparently because their upper soil is better and attracts more moisture from the air, and because it is less packed than that of the flats, and the plants, in consequence of their earlier growth, have progressed farther in their

development when the dry weather sets in, and are more vigorous. The subsoil is also very close. Still there seems to have been no absolute necessity for the absence of timber, and it rather appears to have been due to the encroachment of the grasses, which, being well developed in the large prairies, where no timber could grow, spread out and took possession of the barrens. Other lands very similar to the barrens, in regard to soil and situation, are timbered with post-oak forest. The annual fires which swept over the country assisted in keeping down timber, and in giving the grass entire possession ; and perhaps the latter was necessary to prepare the soil for the subsequent growth of timber. In some thinly settled neighborhoods we still find the barrens covered with rank coarse grass, but generally a dense growth of small oak is springing up spontaneously, and at many places very vigorously, especially in the more inhabited districts. At some points we find in the barrens single large post oak, as we do on the flats ; generally the young growth on the poorer ridges is post oak (*Q. obtusiloba*) and black oak (*Q. tinctoria*) [*Q. velutina*] with some blackjack (*Q. nigra*) [*Q. marilandica*], in the hollows hazel and sumach, and on the finer rolling lands post oak, black oak, barren hickory (*Carya tomentosa*), hazel, &c. The growth varies considerably according to local circumstances.”

p. 394. “The "post-oak hills" resemble in most respects the barrens, but are covered with older forest, and are on the average more broken. The prevailing timber is post oak, with some black oak, but we find also blackjack, hickory and some other trees. White oak (*Q. alba*) is found only in the breaks of the creeks. The main difference between this forest and the barrens seems to consist in the more progressed growth of timber, due probably to the more complete drainage of the soil, aided by a more profuse admixture of sand and other materials in the subsoil from the strata which form the hills. In wet spots we find here also some pin oak (water oak, *Q. palustris*) and laurel oak (*Q. imbricaria*).”

p. 394. “The principal creek bottoms within the region of the barren country and of the sandstones of the upper Coal-measures have a soil very similar to that of the flats, perhaps a little coarser; but its upper portion is considerably mixed with vegetable mould, and about as dark as the prairie soil. They are overflowed by freshets, and very naturally supplied with the necessary moisture from the creeks, even in the driest season, and their growth is thereby regulated. The timber is heavy and very tall, and consists principally of the swamp white oak (*Quercus bicolor*) and the pin oak (*Q. palustris*) with some scaly-bark hickory (*Carya alba*) [*C. ovata*]; but where the creeks enter the limits of the underlying limestones and shales the growth is much more varied, and consists, in addition to the above named trees, of bur oak (*Q. macrocarpa*), red oak (*Q. rubra*), laurel oak (*Q. imbricaria*), ash, black walnut, hazel, and many others.”

p. 394. “The white oak [land] is found in this district only in the steep breaks of the creeks and at a few other points, but it is altogether subordinate. At the southern limit of this region the soil changes entirely, and covering "the ridges of the Millstone grit formation," we find a light brownish, decidedly arenaceous, deep, light, and warm soil which supports a splendid growth of white oak, black oak, barren hickory [*Carya tomentosa*], pig nut (*Carya glabra*), black walnut, black gum (*Nyssa multiflora*) [*N. sylvatica*], yellow poplar (*Liriodendron tulipifera*), &c. The prairies do not extend into this district, and the Sylva here, beginning in Jackson county, and especially farther south, undergoes a considerable change, which is partly caused by a change in the geological formations and surface configuration, and consequently of the soil, partly by the southern slope and latitude of this part of the country.”

“Of trees which do not extend farther north into the before-described Coal-measure district, I observed here the yellow poplar (*Liriodendron tulipifera*), the swamp cypress

(*Taxodium distichum*), the tupelogum (*Nyssa uniflora*) [*N. biflora*], the sweet gum (*Liquidambar styraciflua*), the winged elm (*Ulmus alata*), the Spanish oak (*Quercus falcata*) [perhaps mostly *Q. pagoda*], the barren oak (bitter oak, *Q. falcata* var. *triloba* (?)) [*Q. falcata* sensu stricto], the beech (*Fagus ferruginea*) [*F. grandifolia*], the cucumber tree (*Magnolia acuminata*), and others.”

p. 395. “Progressing change of the country. —From the foregoing statements it appears that timber is now encroaching spontaneously upon land formerly occupied by tall grasses, while, on the contrary, old forests yield to the axe and ploughshare; at the same time, the rank prairie and barren grasses die out. The effect upon the climate, especially in decreasing the humidity of the country, must be powerful, and may be compared to the change of sensation which we experience, on a clear summer evening, in coming from a sheltered damp creek bottom to the airy top of a dry hill... The grasses also check the surface drainage most effectually. With their disappearance the above effects cease, the soil becomes more exposed to the direct rays of the sun and to the drying breezes, while the succeeding growth does not favor the precipitation of dew nearly as much as the grass... Every old settler can bear witness to the remarkable and rapid change in the conditions of moisture of the prairies, which is also manifested by the gradual failing of the wells at numerous points. It is a common observation that they must be dug much deeper now than formerly in the same vicinity. The healthiness of the country has thereby improved, and the farmer is enabled to plant much earlier, and at points which were formerly too wet; his loss by the freezing out of the winter crops is much reduced. The droughts in summer and fall are perhaps also more severe at present, but an advantage can seldom be gained without some sacrifice, and a remedy is accessible if only we will apply it.”

**Table summarizing ecological concepts of Engelmann (1863).**

<p><b>ECOLOGICAL CONDITIONS</b></p>	<p>MOST WOODED ridges, slopes, valleys; more mesic hydrology, coarse sand and humus</p>	<p>INTERMEDIATE flats or slight hills; slightly xerohydric; sand &gt; least wooded</p>	<p>LEAST WOODED more extensive flats; strongly xerohydric; white fine-sandy loams</p>
<p>DRIER VEGETATION And generally with less fertile soils; the gradient probably had correlated shifts in hydrology and soil chemistry</p>	<p>White-Oak Lands: <i>Q. alba</i> dominant <i>Q. velutina</i> <i>Carya tomentosa</i> <i>Carya glabra</i> <i>Juglans nigra</i> <i>Nyssa sylvatica</i> <i>Liriodendron</i></p>	<p>Post-Oak Hills: <i>Q. stellata</i> dominant <i>Q. velutina</i> <i>Q. marilandica</i> <i>Carya</i> spp. (<i>Q. alba</i> streams) (<i>Q. palustris</i> wetter) (<i>Q. imbricaria</i> wetter)</p>	<p>Barrens: drainage &gt; prairie but &lt; post-oak hills; humus &gt; prairie and post-oak hills; annual fires used to prevent tree growth</p>
<p>DAMPER VEGETATION * Richer soils with more limestone and shale; also <i>Fraxinus</i>, <i>Juglans</i>, <i>Corylus</i>, etc.</p>	<p>Creek Bottoms: <i>Q. bicolor</i> dominant <i>Q. palustris</i> codom. <i>Carya ovata</i> (<i>Q. macrocarpa</i> loc.)* (<i>Q. rubra</i> local)* (<i>Q. imbricaria</i> local)*</p>	<p>Post-Oak Flats: soil near pure white; <i>Q. stellata</i> dominant <i>Q. marilandica</i> (<i>Q. palustris</i> wetter) (<i>Carya ovata</i> wetter) (<i>Q. imbricaria</i> wetter)</p>	<p>Prairie: excess moisture as leading cause of treeless condition; but also previous burning noted</p>

John Muir (1867) in Badè (1916): p. 5-8.

“Walked southeast from Elizabethtown till wearied and lay down in the bushes by guess.

September 4. The sun was gilding the hill-tops when I was awakened by the alarm notes of birds whose dwelling in a hazel thicket I had disturbed. They flitted excitedly close to my head, as if scolding or asking angry questions, while several beautiful plants, strangers to me, were looking me full in the face. The first botanical discovery in bed! This was one of the most delightful camp grounds, though groped for in the dark, and I lingered about it enjoying its trees and soft lights and music.

Walked ten miles of forest. Met a strange oak with willow-looking leaves [*Quercus imbricaria*]. Entered a sandy stretch of black oak called “Barrens,” many of which were sixty or seventy feet in height, and are said to have grown since the fires were kept off, forty years ago. The farmers hereabouts are tall, stout, happy fellows, fond of guns and horses. Enjoyed friendly chats with them. Arrived at dark in a village that seemed to be drawing its last breath. Was guided to the “tavern” by a negro who was extremely accommodating. “No trouble at all,” he said.

September 5. No bird or flower or friendly tree above me this morning; only squalid garret rubbish and dust. Escaped to the woods. Came to the region of caves. At the mouth of the first I discovered, I was surprised to find ferns which belonged to the coolest nooks of Wisconsin and northward, but soon observed that each cave rim has a zone of climate peculiar to itself, and it is always cool. This cave had an opening about ten feet in diameter, and twenty-five feet perpendicular depth. A strong cold wind issued from it and I could hear the sounds of running water. A long pole was set against its walls as if intended for a ladder, but in some places it was

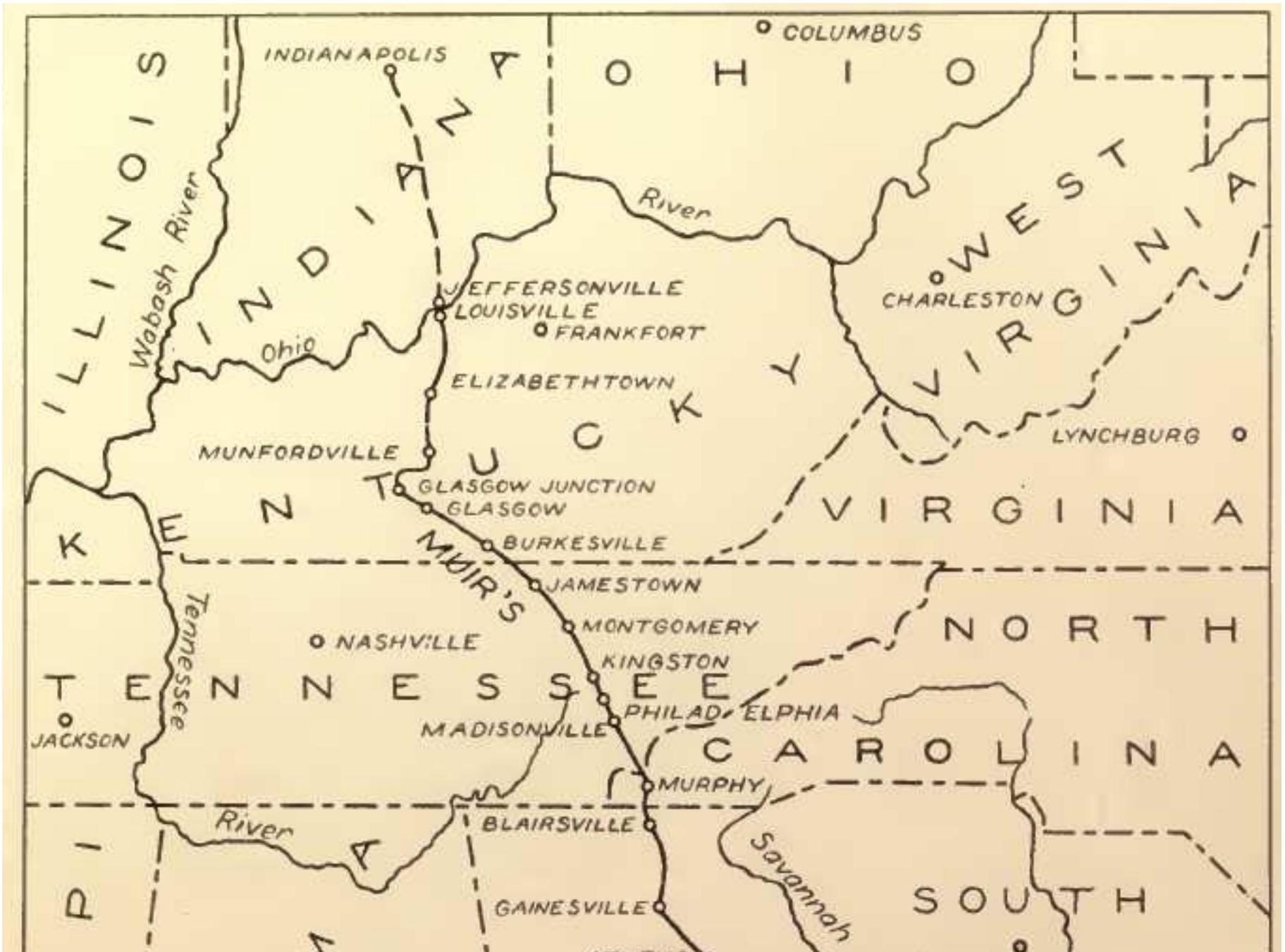
slippery and smooth as a mast and would test the climbing powers of a monkey. The walls and rim of this natural reservoir were finely carved and flowered. Bushes leaned over it with shading leaves, and beautiful ferns and mosses were in rows and sheets on its slopes and shelves. Lingered here a long happy while, pressing specimens and printing this beauty into memory.

Arrived about noon at Munfordville; was soon discovered and examined by Mr. Munford himself, a pioneer and father of the village. He is a surveyor — has held all country offices, and every seeker of roads and lands applies to him for information. He regards all the villagers as his children, and all strangers who enter Munfordville as his own visitors. Of course he inquired my business, destination, et cetera, and invited me to his house.

After refreshing me with “parrs” he complacently covered the table with bits of rocks, plants, et cetera, things new and old which he had gathered in his surveying walks and supposed to be full of scientific interest. He informed me that all scientific men applied to him for information, and as I was a botanist, he either possessed, or ought to possess, the knowledge I was seeking, and so I received long lessons concerning roots and herbs for every mortal ill. Thanking my benefactor for his kindness, I escaped to the fields and followed a railroad along the base of a grand hill ridge. As evening came on all the dwellings I found seemed to repel me, and I could not muster courage enough to ask entertainment at any of them. Took refuge in a log schoolhouse that stood on a hillside beneath stately oaks and slept on the softest looking of the benches.”

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Next pages: illustrations from Badè (1916). (1) “Map Showing Route of Walk to the Gulf.” (2) “Kentucky Oaks”, photograph by Theodore Eitel.





KENTUCKY OAKS

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. On 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 probably *velutina* & *shumardii*], *rubra* [and probably *falcata*], *nigra* [*marilandica*]. [*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 side of the Green river, but especially to the east 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...”

[Hussey 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.]

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## B A R R E N   C O U N T Y .

BARREN County, the 37th in order of organization, was formed in 1798, out of parts of Warren and Green ; and takes its name from what is generally termed the *barrens* or *prairies* which abound in this region of our country. It is bounded on the north by Hart county, east by Metcalfe, south by Monroe and Allen, and west by Allen and Warren. From Glasgow, N. and N. E. for about 10 miles, the land is level and the soil rich ; beyond, it is generally hilly and poor ; the remainder of the county is mostly rolling, with a productive soil. The subsoil is of clay, founded on limestone. Tobacco is the most important article of export. Petroleum is produced from wells in large quantities. There were three small salt furnaces in 1846.

Image above: extract from Collins' (1878) "History of Kentucky", Vol. II, p. 43.

Other notes of "barrens" in this book are located under the following counties:

Hardin, Hart, Green, Meade ("about two thirds of the county"), Trigg ("E. half"), and Warren.

Under Hart it is stated: "The Bear Wallow is a very noted place in the barrens, where there was a great resort of hunters at an early day in quest of the bears attracted there to wallow and drink at a spring. All that remained of the place, in 1846, was a good tavern with the sign of the Bear."

Collett (1879): notes on vegetation in Harrison County, Indiana, are extracted here.

p. 294-295. Under “Lacustral Epoch”, meaning uplands with thicker deposits of loess.

“Remainders of the flora of that age and climate survive to this day, and afford an almost sure indication of the Loess soil, as Persimmon (*diospyros*), Sweet Gum (*styraciflua*), etc., etc., while the red-gilled lizard and cotton-mouth snake, still tell of perennial warmth.”

p. 298-299. Under “Pre-glacial age”.

“The great valley locally known as "the barrens" is a nearly level plain. In a wild state when visited by the Boones and other hunter pioneers, it was nearly a typical prairie, exhibiting a few knarled and scotched shrubs or " stools," and covered with a luxuriant growth of tall prairie grass, herbs and vines. These were burned after each autumnal frost, preventing the growth of trees and permanent vegetation. The soil is a silicious clay. The subsoil a confused, irregular, disjointed mass of flints, quartz and geodes, from ten to forty feet in depth—in some places approaching or covering the surface as to prove an obstacle to pleasant agriculture, and at a few points in such extreme development as to require their removal and use in building fences, houses, etc. This rubbish is not in natural "place," and no such beds occur in this local geological formation, or any other. They are not imported by water or ice; their origin is local. Looking for their source, we see in the cliffy outlines of adjoining hills that the material of this debris is scattered in thin layers, one to fourteen inches in thickness, throughout the beds of St. Louis limestone, the place of which is occupied by this valley. Judging from the isolated sections visible then, these layers, gathered from two hundred feet of St. Louis rocks, would just about equal the amount of the remains here left.”

p. 301-302. “The Flat woods, from north to south, along the eastern side of the great valley [karst plain], is a marked feature in the recent geology of this district. The soil, when unmodified by modern action, is dark and mucky, like the northern prairies, underlaid with yellow and white clay, with partings of sand and rounded, water-worn gravel. While possibly of lacustral origin, it may probably be referred to the flood plain of the river of the ancient valley.”

Defriese (1880): p. 25-27, reporting 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, liriodendron, 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, DeFriesse (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.]

Not quoted here, but also relevant, are DeFriesse'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, recalling 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.”

Defriese (1884): p. 179-181. “In previous reports attention has been called to the fact that certain timbers, especially white oaks, do not seem to return again to forests from which they have once been driven by such an agency as fire. It has also been mentioned, that the formations best adapted to the growth of chestnut timber are the Conglomerate and Chester sandstones. On soils from these formations chestnut is normally found in the greatest abundance, and growing to the greatest perfection. In passing from \Western to Eastern Kentucky, my attention was therefore attracted to the fact that when the Big Clifty (Chester) sandstone first appeared, which was in the neighborhood of Hopkinsville and on Pilot Knob, no chestnut appeared with it. Moreover, the white oak and liriodendron, away from the streams, seemed scrubby and scarce. Otherwise the forest was normal, and I searched in vain for any clue to the absence of these timbers. I finally came to the conclusion that, long ago, the entire country through here, reaching probably as far west as the Cumberland river, had been laid waste by fires, and had been barrens similar to those still remaining in the Purchase, and further east in Barren and other counties.

“Mr. Irvine Kennedy, who has lived in this part of Kentucky for sixty-eight years, and who now resides near Elkton, informed me that my conjecture was correct, and that he could remember when all these heavy forests were a uniform growth of young trees, with not an old tree standing, except on streams too large for fires to sweep through their swamps.

“I was afterward informed that some chestnut groves exist. not far from Elkton, though I did not see a tree. It is possible that they stand in a piece of woods for some reason protected from the ravages of fires. Without special investigation made for that purpose, it is impossible to arrive at anything near the extent of Kentucky forests which represent, not the original growths of the

State, but a kind of second growth, sprung haphazard from the burial-place of the primeval forests.

“In a previous report on the timbers of the Purchase District (see Report, volume V, this series), attention was called to the remarkable absence of chestnut from that part of Kentucky, although the formation is a mill-stone grit waste, on which chestnut should be found. A closer examination of the timbers surrounding the present barrens of the Purchase shows that there is very little white oak among them, except along streams and on low grounds. My present opinion is—subject, of course, to correction upon closer study—that the high grounds of almost the entire Purchase, from Tennessee river on the east to the Mississippi on the west, have been swept by fires and denuded of their timbers, and that the only difference between the other forests of this part of Kentucky and the present barrens is one of age. . Both are second growths, and in both cases the primitive forests have been swept away by long-continued fires. In this report I give my reasons for believing that in former times the barrens have extended east beyond the Cumberland river, at least as far as Hopkinsville, if not, with local exceptions, to the waters of Big Barren river, leaving the narrow strip between the Tennessee and Cumberland rivers alone unswept by fires. Big Barren river is probably the eastern limit, in this locality, of the ancient barrens, part of which are still to be seen along it. The location of the northern limit of these ancient barrens is worthy of special investigation, if the view here advanced be correct, for they have certainly never extended to the Ohio river. Further on in this report I have called attention to certain chestnuts, evidently dropped by passers-by, having sprung up in the Purchase, near Clark river, and died. In this connection, an interesting question presents itself, and that is, whether chestnut and white oak will grow again in a forest once thoroughly burnt out, even if planted. If not, it may be that the barrens were never burnt over so long as to kill the roots and seeds of existing timbers, but only long enough to destroy the chestnut, white oak, &c., which would not

grow again on the burnt-over grounds. The whole subject is one of the deepest interest, and should be thoroughly investigated.”

For further notes from Shaler (1884), see Appendices.

Shaler (1885): 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.”

Campbell (1886): p. 852, referring mostly to prairies of Indiana and Illinois on glaciated land, but with the following note from the karst plain in Indiana.

“Professor George K. Greene, of New Albany, Indiana, writes: “ If you were to visit the section of country in Harrison county, Indiana, called the “barrens,” you would find an area of several thousands of acres all grown up with post oaks ( *obtusiloba*). There are citizens residing in the vicinity who came there when there was no timber on the ground. Can your crows and squirrels account for this ?” I will answer this by describing the work of the crows in this vicinity about the year 1847...”

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 under brush. 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.”

Gordon (1936): next page. Vegetation map of Indiana, southern section; note lack of grassland!

PG = “prairie grassland”;

OF = “upland oak forest”;

NSF = “northern swamp forest”;

BF = “beech forest”;

MF = “mixed forest area”;

BSG = “beech-sweetgum”;

SSF = “southern swamp forest”;

BC = “bald cypress”.




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Vestal (1936): "Barrens Vegetation in Illinois"; the whole article is provided here.

"In a recent search into descriptions of early conditions in Illinois, the writer was impressed by the frequency of mention of the barrens, and although very little botanical information about them was found, their former generality of occurrence was evident. One wonders what they may have been like and what became of them. It is now recognized that the extensive barrens of Kentucky were in most cases outlying areas of prairie vegetation, and it seems plausible that some of the prairie uplands of southern Illinois, cut off from larger prairies by dissected and forested stream valleys, were sometimes labeled barrens instead of prairies, particularly if they were being invaded by sumac or hazel or by young trees."

“Very open stands of post oak with grassy ground-cover (there is reason to believe that post-oak flats were commonly of this character) might also have been known as barrens. Although cultivation has obscured part of the vegetational history, there are in Cumberland County and elsewhere, upland areas which (judging from soil-types) at one time were tree-covered, later perhaps (this before the days of white settlement), swept by fire, and then occupied by grassland plants. These however failed to include some of the most characteristic prairie herbs, such as the Silphiums. These areas also differ from normal prairie by the frequency or local dominance of plants usually occurring in the herbaceous ground-cover of open forest or of glades, for example *Danthonia spicata*. This is definitely a grassland, but a grassland with an unusually high proportion of forest herbs, and lacking many prairie plants.

“Such vegetation might have been recognized by discriminating early residents and travelers as barrens rather than prairie. There seems to be no good reason why present-day remnants of it should not today be recognized as a survival of at least one kind of barrens vegetation. With the several types of mixed forest and prairie vegetation representing replacement of disturbed prairie by forest, and with varieties of areas in stages of reforestation following burning or clearing, we are not primarily concerned, though many of these were given the term barrens. We therefore concentrate upon treeless upland areas dominated by grasses or by grassland containing numerous dicot herbs, which for one or another reason differs from prairie vegetation as commonly recognized in the early days and at present. Boiling hill areas in the south-ernmost counties as well as in Marion county were described as barrens by Henry Engelmann in the 1860's. Their progressive replacement by forest was considered by him as likely to be completed within relatively few years.

“One reason for the former common recognition of barrens and the present unawareness even of their former existence may thus be that such barrens have long ago passed out of the picture, partly from extension of agriculture, partly from encroachment of forest as witnessed by Engelmann. His "tall barren grass" is believed by some botanists to be an *Andropogon*. Lewis C. Beck, between 1823 and 1828, described barrens near St. Louis, some on the Illinois side of the Mississippi. Forest (and prairie) herbs listed by him as occurring in barrens include some of the plants which today can be observed as common species of forest openings, forest borders, cut-over areas of xeric forest, and of forested narrow spur-tops exposed to sun (also to wind: thus kept free from a cover of dead tree-leaves). These also come to occupy strip-mine ridges, road-cuts, cut-over sunny hillsides, and railroad rights of way in forested country. They are common in some abandoned fields, particularly on hill-tops of the Illinois Ozarks.

“Many such areas will become forested, but many others give indications of continuing as a semi-natural grassland of indefinite tenure. These are the present-day barrens. The plant list includes perennial sunflowers, asters and goldenrods, *Antennaria*, numerous other composites, prairie grasses (which are grasses of the forest region also in most cases), *Ceanothus*, *Baptisia leucantha*, Potentillas, Lespedezas, *Tephrosia*, Desmodiums, Gerardias, *Frasera*, Pycnanthemums, *Pteris* [*Pteridium*], xeric sedges. Attention of botanists is invited to modern barrens. Economic ecologists will also do well to study them. Here is already at hand a selection of the hardest native plants for use in soil conservation, particularly in erosion control.”

Dicken and Brown (1938): p. 39-43. See also Dicken (1935) and 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, south-facing 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 second-growth glades have developed on badly eroded land, irrespective of exposure.”

Gardiner (1940) : p. 178-179, compiling 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 [northeast 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 [northwest 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 [northern Barren Co.], the Hayes Knob near Randolph [W Metcalfe Co.], the Pilot Knob near Lafayette [eastern Warren Co.], and the Maxey, Alderson, Bunnell, Payton, Richardson, Dawson and other knobs [mostly southwestern 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, providing historical notes on “The Oakland Country” in eastern 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.”

Keith (1983): following tables and figures based on Indiana's GLO surveys during 1804-1807.

Table 2. Mean distance in links of witness trees from survey stakes in 4 Congressional Townships in Harrison County

Township	Range	Barrens	Oak-Hickory	White Oak-Beech-Sugar Maple
4S	4E	$\bar{x} = 43.5$ n = 44 s.d. = 39.99	$\bar{x} = 28.6$ n = 97 s.d. = 18.89	$\bar{x} = 24.3$ n = 65 s.d. = 10.80
4S	5E	—	$\bar{x} = 19.2$ n = 62 s.d. = 11.43	$\bar{x} = 21.3$ n = 142 s.d. = 11.40
1S	3E	$\bar{x} = 54.0$ n = 38 s.d. = 42.96	$\bar{x} = 25.2$ n = 59 s.d. = 24.40	—
2S	3E	$\bar{x} = 32.8$ n = 94 s.d. = 35.13	$\bar{x} = 25.6$ n = 97 s.d. = 15.73	—

Table 1. A comparison of tree species frequency in the 3 major vegetation types of Harrison County. Fire-intolerant trees are virtually absent in oak-hickory forest and barrens areas. Major species are those with a frequency of 0.05 or greater. Sample size indicated by n

Species	Barrens (n=392)	Oak-Hickory (n=480)	White Oak-Beech-Sugar Maple (n=425)
White Oak ( <i>Quercus alba</i> )	0.32	0.29	0.22
Black Oak ( <i>Q. velutina</i> )	0.29	0.25	—
Hickory ( <i>Carya</i> spp.)	0.25	0.20	0.08
Beech ( <i>Fagus grandifolia</i> )	—	0.12	0.25
Sugar Maple ( <i>Acer saccharum</i> )	—	0.05	0.10
Tulip Poplar ( <i>Liriodendron tulipifera</i> )	—	—	0.08
Black Gum ( <i>Nyssa sylvatica</i> )	—	—	0.05
Dogwood ( <i>Cornus florida</i> )	—	—	0.05
Cumulative Frequency	0.86	0.91	0.83

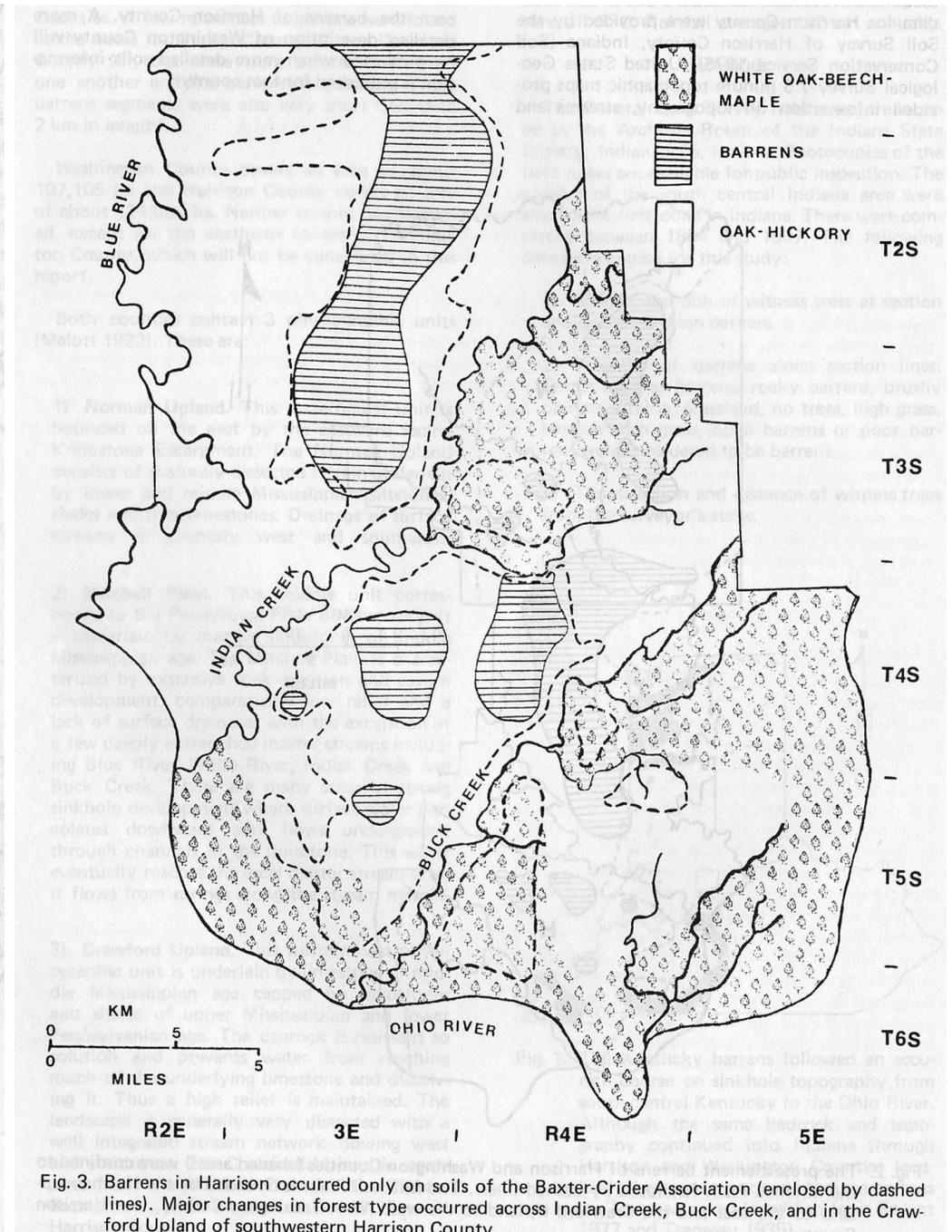
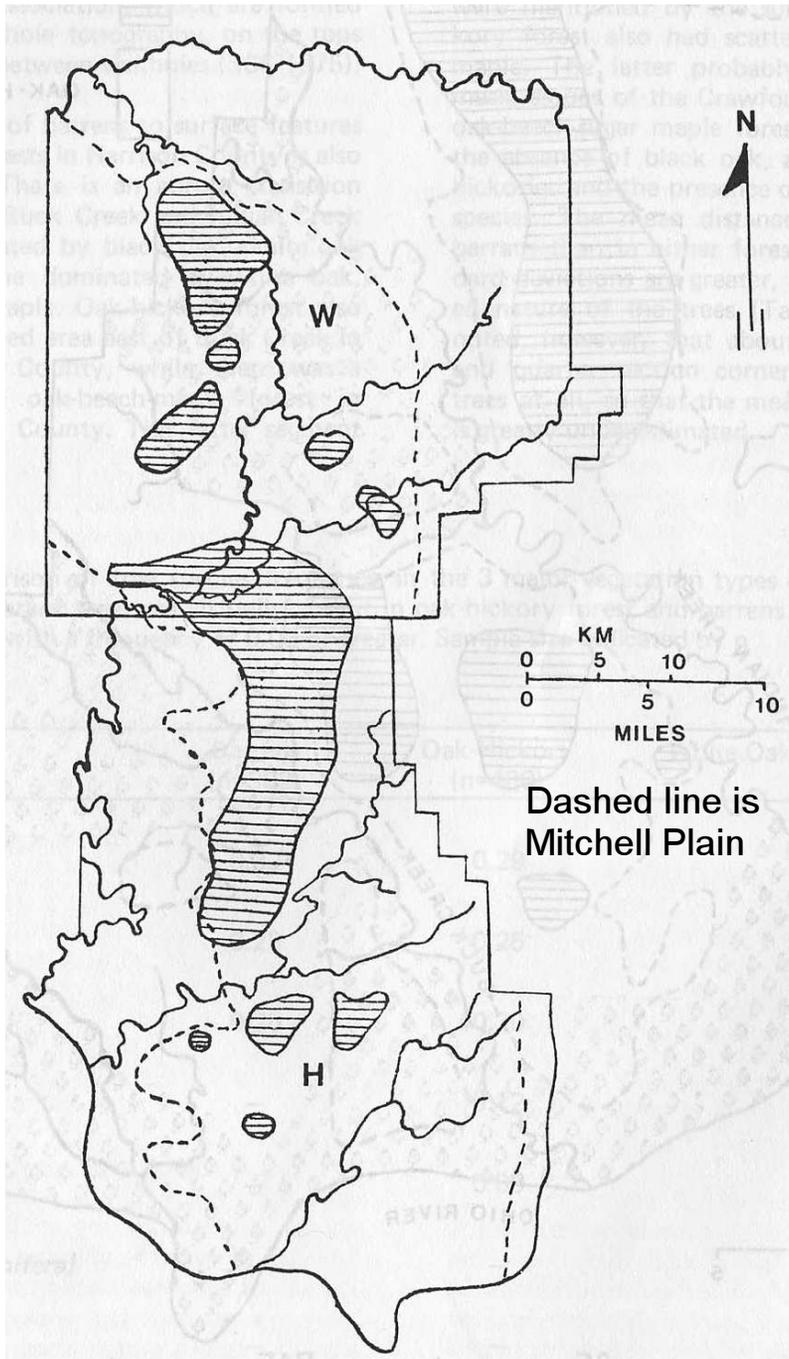


Fig. 3. Barrens in Harrison occurred only on soils of the Baxter-Crider Association (enclosed by dashed lines). Major changes in forest type occurred across Indian Creek, Buck Creek, and in the Crawford Upland of southwestern Harrison County.

## 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. He 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).

“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, noting 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. He 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 semi-aquatic shrubs.”

Hussey (1876). He reported many plants identified from May to early August in Barren and Edmonson Counties. 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*]

*Castilleia 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].”

Coulter (1876). "THE BARRENS OF SOUTHERN INDIANA. Ever since the writer had the privilege of arranging Dr. A. Clapp's botanical collection, made principally in 1836-1839, and discovered many desirable plants labeled "Barrens," these barrens have been often in his mind as one of the most desirable localities in Indiana for the botanical collector. At last the trip has been made, the Barrens explored, and we lay the results before the readers of the GAZETTE. The Barrens are of considerable extent, occupying quite a large area in the corners of four counties, Clarke, Floyd, Washington and Harrison. All over this region the drainage is effected by "sink-holes," not a stream, rivulet, or a single drop of running water appearing at the surface. The country is very rolling and in the bottom of each depression are found from one to three "sink holes," sometimes full of water, at others mere filthy mires, or empty. The surface is a mass of flinty stones and concretionary boulders, "nigger-heads" as they are called. The result of this flinty soil and absence of surface moisture is plainly shown in the vegetation. Scattered all over this area are thickets of scrub oak and small shrubby undergrowth, separated from one another by natural openings where, so far as we could judge, no tree or shrub had ever grown. It was in these open places that we found our best species."

"A trip through the Barrens is a disappointing one, for although one can secure many valuable prizes, he is constantly grieving on account of the ravages of civilization. When Dr. Clapp collected his specimens here forty years ago, it was no doubt a perfect wilderness, but now settlers have come in, a German population has taken possession of the Barrens, and our natural openings are made to yield some of the finest wheat in the State. Instead of the gorgeous display of rare and beautiful flowers, which cover the ground profusely wherever they have been left standing room, we see the monotonous succession of fields of grain or stubble. Even the fence corners are kept scrupulously clear of "weeds," for your German farmer cares nothing for science if it chokes up his fence rows."

“In the fields of one farmer, however, the weeds had the start, and there we found some good species, such as *Liatris scariosa*, Willd. [probably *L. aspera*], *Eupatorium sessilifolium*, L., *Brachychaeta cordata*, T. & G. [*Solidago sphacelata*], *Solidago rigida*, L., *S. nemoralis*, Ait., *Silphium trifoliatum*, L., *Echinacea purpurea*, Moench, *Rudbeckia laciniata*, L. [perhaps *R. fulgida* sensu lato], *Lepachys pinnata*, T. & G. [*Ratibida pinnata*], *Helianthus mollis*, Lam., *H. rigidus*, Desf., *H. microcephalus*, T. & G., *H. hirsutus*, Raf., *Coreopsis tripteris*, L., *Dysodia chrysanthemoides*, Lag. [*Dyssodia papposa*], *Stylosanthes elatior*, Swartz [*S. biflora* var. *elatior*], *Desmodium rotundifolium*, DC., *Lespedeza procumbens*, Mx., *Tephrosia Virginiana*, Pers., *Phaseolus helvolus*, L. [*Strophostyles helvola*], *Eryngium yuccifolium*, Michx., etc. Enough has been given to show the general nature of the species. We were there in that most unfortunate time, that could be called the resting season, when all the spring and early summer flowers have disappeared and the fall flowers have not yet begun to show their brilliant blossoms. All along over the Knobs, on the way to the Barrens, we encountered any quantity of *Croton monanthogynum*, Michx., in beautiful condition for specimens. *Dysodia* was hardly absent from the roadside for thirty miles, and its fragrance came to be one of the accompaniments of the landscape.\* It is to be hoped that a trip later in the fall will bring back fresh specimens of many more desirable species.”

\* Flora of North America 21: 231. “In 1837, C. W. Short noted of *D. papposa* on a specimen label, “This plant is so abundant, and exhales an odor so unpleasant as to sicken the traveler over the western prairies of Illinois, in autumn.”” In Ky. most records of this southwestern species date from 1900-1950; see especially Harvill (1941) and colls. at KY (Agr.). It is a fetid grazer-repellant annual ( $2n = 26$ ) that may have been associated with sheep farming, which declined greatly after 1950.

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 Pennyrite 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 (#).

Deam (1924): p. 45. "The so-called barrens of southern Indiana are restricted principally to Harrison County...

"Very little is known of the flora of this area. J. M. Coulter (18)\* made a short botanical excursion there in 1877, and reported quite a number of species. He (19)\* also remarks, in discussing the Clapp herbarium, "From what are called the 'barrens' the largest display of Ericaceae and Orchidaceae was obtained that I have ever seen from any locality in Indiana." Additional interest is attached to this area on account of the prairie plants found there. Dr. Clapp, who collected there between 1836 and 1848, has left us the following list of plants collected there: *Chamaelirium luteum*, *Melanthium virginicum* [*Veratrum* v.], *Aletris farinosa*, *Agave virginica* [*Manfreda* v.], *Habenaria ciliaris* [*Platanthera* c.], *Habenaria flava* [*Platanthera* f.], *Humulus Lupulus*, *Spiraea tomentosa*, *Filipendula rubra*, *Cassia Chamaecrista* [*Chamaecrista fasciculata*], *Baptisia leucantha*, *Polygala Senega*, *Ceanothus americanus*, *Eryngium yuccifolium*, *Polytaenia Nuttallii*, *Gentiana linearis* [*G. saponaria*], *Gentiana quinquefolia* [*Gentianella* q.], *Frasera caroliniensis*, *Asclepias tuberosa*, *Veronica virginica* [*Veronicastrum virginicum*], *Gerardia auriculata* [*Agalinis* a.], *Buchnera americana*, *Lobelia Nuttallii* [perhaps *L. puberula*], *Lobelia spicata*, *Liatris scariosa* [*L. aspera*], *Solidago odora* [needs verification],

*Solidago rigida*, *Aster novae-angliae*, *Silphium terebinthinaceum*, *Brauneria purpurea* [*Echinacea p.*] and *Prenanthes alba* [*Nabalus albus*]. Dr. Short (20) in 1840\* reported the following: *Aconitum uncinatum*, *Habenaria flava* [*Platanthera f.*] and *Helianthemum canadense* [probably *Crocianthemum bicknellii*]. Since the work of these pioneer botanists, the original flora of these barrens has become practically extinct. The barrens have either come under cultivation or grown up to a thick stand of trees, principally black and white oak, many of which are about two feet in diameter.”

\* Following are references within Deam’s paper.

“18. Coulter, J. M. The "Barrens" of Southern Indiana. Bot. Gaz., Vol. 2:145-146:1877.

19. Coulter, J. M. An Interesting Herbarium. Bot. Gaz., Vol. 1:9-10:1876.

20. Short, C. W. Fourth Suppl. Cat. of Plants of Kentucky, pg. 6:1840.”

Hibbard (1934-35): 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: “[perhaps 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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## **Appendix. Additional notes from Defriese (1884), under “Timber in Detail”.**

Some of the common names used by Defriese are hard to interpret, especially oaks and hickories. His list of species includes the following.

“Black hickory, *Carya tomentosa* (Nutt.)”

“White hickory, *Carya microcarpa* (Nutt.)”; perhaps = *C. cordiformis* or confused with *C. glabra*.

“Shag hickory, *Carya alba* (Nutt.)”; = *C. ovata*.

“Shellbark hickory, *Carya sulcata* (Nutt.)”; = *C. laciniosa*

“Pig hickory, *Carya glabra* (Torn)”

“Black ash, *Fraxinus sambucifolia* (Lam.)”; probably confused with *F. pennsylvanica*.

“White oak, *Q. alba* (L.)”

“Swamp white oak, *Q. bicolor* (Willd.)”

“Bartram oak, *Q. heterophylla* (Mx.)”; probably = *Q. pagoda* or confused with *Q. falcata*.

“Red oak, *Q. rubra* (L.)”

“Spanish oak, *Q. falcata* (L.)”

“Scarlet oak, *Q. coccinea* (Vang.)”

“Post oak, *Q. obtusiloba* (Mx.)”; = *Q. stellata*.

“Rich red oak, *Q. macrocarpa* (Mx.); perhaps some confused in name with *Q. shumardii*.

“Black oak, *Q. tinctoria* (Bart.)”; = *Q. velutina*.

“Pin oak, *Q. palustris* (Mx.)”

“Laurel oak, *Q. imbricaria* (Mx.)”

“Swamp laurel oak, *Q. laurifolia* (Mx.)”; probably = *Q. phellos*.

“Chestnut oak, *Q. castanea* (Muhl.)”; = *Q. montana*.

“Swamp chestnut oak, *Q. prinus* (Villd.)”; = *Q. michauxii*.

“Chinquapin oak, *Q. prinoides* (Willd.)”; = *Q. muhlenbergii*.

“Black-jack, *Q. nigra* (L.)”; = *Q. marilandica*.

A: p. 193. “After leaving Little River, the country is high, dry, and only slightly rolling, for three or four miles. The timbers are poor and valueless, with the exception of some black cherries and one hackberry found on this high level.

B: p. 193. “About six and one half miles from Cadiz, toward Hopkinsville, in a slight depression, pin oak, white hickory, black and sweet gum, sycamore, some black ash and honey locust, are to be noted. Not a white oak is to be found. The high, dry, nearly level stretch spoken of above lasts with no surface water, until Hopkinsville is reached. There is nothing worthy of note in the timbers, except that upland and swamp laurel oak are plenty.”

C: p. 193. “After passing Hopkinsville, we begin to leave the St. Louis limestone, and approach the Chester sandstone, which already caps the highest hills. Some of the timbers normally found upon it, though, are absent. The introduction of red oak, forming the larger part of the forest growth, is a marked feature in passing onto the calcareous limestone and lower Chester from the St. Louis limestone. Scarlet oaks crown the hill tops, and post oaks are found in depressions, or largely on the hill-sides below the Chester. The latter feature is local, however, as on a high hill, about five miles from Hopkinsville, post oaks extend up onto the Chester. The black jack, however, is clustered around the hills just at the base of the Chester, and this I noticed to be generally true. Sugar maple, bartram oak, swamp chestnut oak, white elm, and black ash are found in considerable quantities along the streams.

Letters are approximate locations of places noted in text

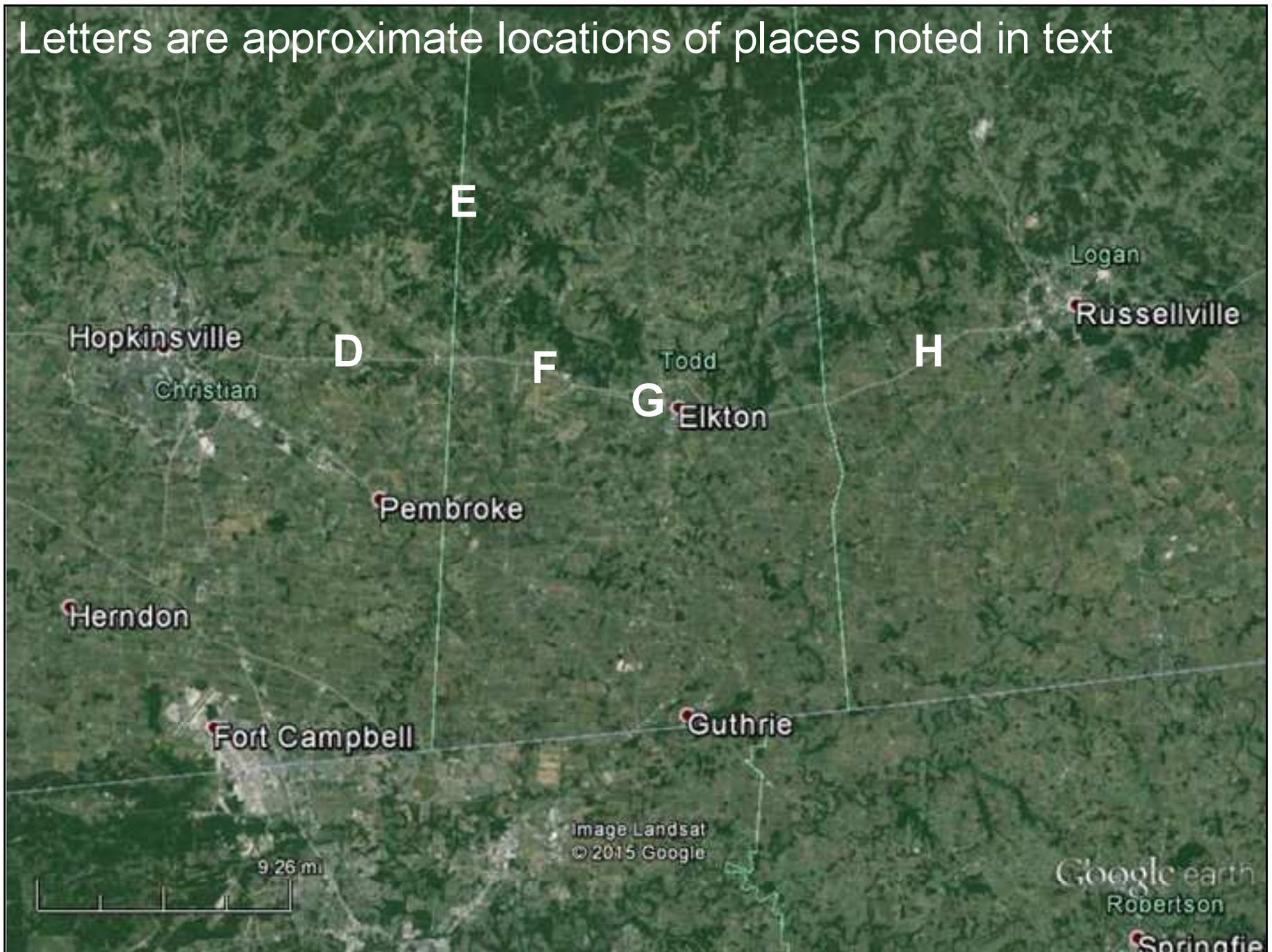


D&E: p. 193-194. “For six or eight miles beyond Hopkinsville, toward Fairview, the timbers change little in kind or quality from those just noted, except that some red haw and winged elm are found. There is no white oak, no sweet gum, no chestnut (that I could find), and no liriodendron. [E] On Pilot Rock, northeast of Hopkinsville. which is a lofty bluff of Big Clifty sandstone, cedar and liriodendron are both met with; but this is very local, and even here no chestnut is to be seen, so far as I could gather.”

F: p. 194. “Between Fairview and Elkton the timbers, as a whole, are not valuable; but in places black ash, white elm, pig and shag hickory, and such timbers. are exceedingly fine. Especially is this true on West Fork of Red river, about one and one half miles from Fairview. On this stream are also found splendid white oak, swamp chestnut oak, red and pin oak. white and shag hickory, black and blue ash, sweet gum, liriodendron, white elm, sycamore, box-elder, sugar maple, white maple, and redbud. All of these timbers are very fine. It is a peculiar, though an easily-explained fact that in a large part of the country through here the timbers are better on the hill tops than on the lower grounds. The reason is, that the hills are capped with Chester sandstone, the detritus of which forms a damp soil, favorable for large trees, while the upper St. Louis limestone here is not adapted to timber growth.”

G&H: p. 194. “Toward Elkton, scattering bartram oaks and cedars are found, in addition to the usual red oak, shag hickory, pig hickory, white hickory, winged elm, small black ash, scrub white oak (in spots), Spanish oak, black oak, post oak, black gum &c. Yellow wood is also found near Elkton, with some honey locust, redbud, and red (slippery) elm. Of course the swamp timbers have never been affected by fire; and on streams fine white oak, liriodendron, white and sugar maples, sweet gum, laurel oaks, &c flourish. [H] The upland and lowland timbers alternate, with no changes worthy of note, until Russellville is reached—and there our party took the train .and went by rail to Glasgow junction.”

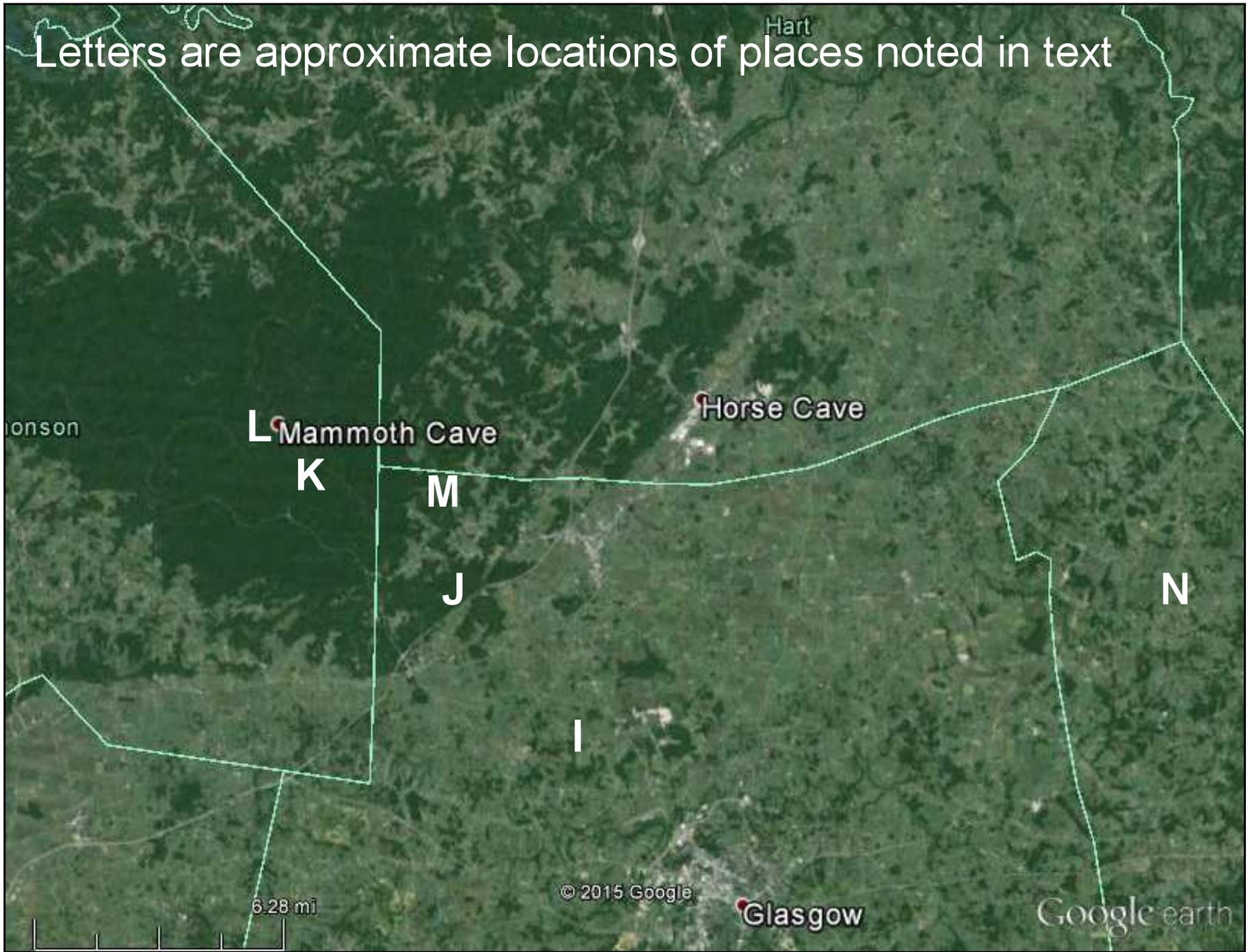
Letters are approximate locations of places noted in text



I: p. 194-195. “Between Glasgow junction and Mammoth Cave the topography is very different from that spoken of in the previous pages. There is no well-defined succession of hills and hollows, the result of erosion, through the latter of which the streams of the country flow. The formation is a cavernous Saint Louis limestone, the roofs of whose caverns have given way in many places and let the surface of the ground fall in, forming regular sink-holes, more or less circular in form, often of the dimensions of wide and deep hollows, but with no outlets. There are no surface streams, and into these sink-holes the surface water flows, and the detritus washes and accumulates. It is natural to expect in such places the most splendid timbers, and such are often found there.”

p. 195. “Again, forest fires have evidently not denuded certain parts 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 that it has never been continuously burned over.”

J: p. 195. “On leaving Glasgow junction, 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, if a few bushes on the silicious limestone, near 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.”



Letters are approximate locations of places noted in text

K: p. 195. “On the hill sides facing Doyle's Valley the trees are magnificent, and white oak, liriodendron, white hickory, massive chestnut, scarlet oak, red oak, black oak, Spanish oak, chestnut, ashes, redbud, &c., abound. The chestnut, however, is limited to the sandstone, and stops abruptly when the limestone is reached in descending the hill.”

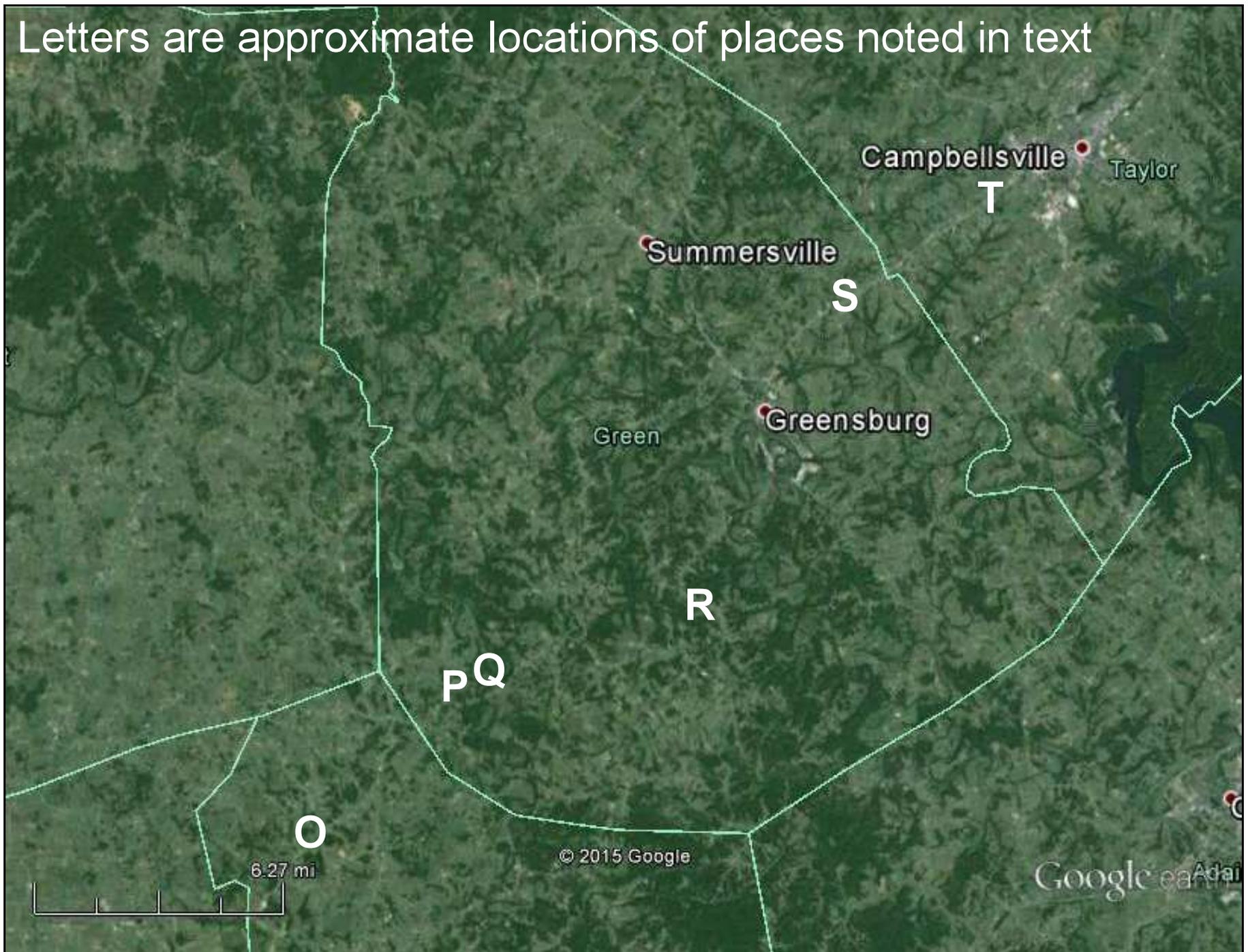
L: p. 195-196. “On nearing Mammoth Cave, and all along the banks and cliffs of Green river, hornbeam (*Carpinus Americana*, often called iron-wood, but not the true iron-wood) and hop hornbeam (true iron-wood) abound. On the long, high level above the cave the principal timbers are red, black, and Spanish oak. They are worthless except for fire-wood. In the immediate vicinity of Mammoth Cave, and crowning the hillside 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, spice wood (the first met with), white hickory, liriodendron, and white oak. Black sumach, woodland huckleberry, buckeye, dogwood, &c., are among the small growths.”

M&N: p. 196. “About 2 miles... toward Cave City, the hill-tops are poor, and are covered with Spanish oak, scarlet oak, black-jack, and an occasional mountain oak. In the sinkholes and on their steep sides grow splendid chestnut, pig and white hickory, 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, Bartram oaks, laurel oaks, and black hickory, until we begin to pass into the present eastern barrens, about twelve miles from Cave City, and within about 18 miles of Greensburg. [N] 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 fires.”

O: p. 196. “Nothing else of interest occurs until we begin to pass from the cavernous St. Louis limestone onto the Keokuk limestone [modern Warsaw or Salem Formations], sixteen or eighteen miles from Cave City. The change of formation first attracts attention by the circular sinks beginning to fade away into valleys, and the steep cave-hills into the more gently-rolling ones, due to erosion. The normal hill and valley topography gradually succeeds again the wonderful cavernous district, of which Mammoth Cave is the most widely known, if not the most interesting and instructive part.”

P&Q: p. 197. “The Keokuk 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 most of the liriodendron have been driven from the forests in this locality by fire. [P] 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, black walnut, some liriodendron, white and shag hickory, sycamore, mulberry, blue ash, red elm, white maple, redbud, water beech, hackberry, and cedar. [Q] On the same formation, immediately after crossing 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 above; 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.”

Letters are approximate locations of places noted in text



R&S: p. 197. “On nearing Green river, about five and one half miles from Greensburg, the forests are magnificent. They consist of large liriodendron. white oak, shag hickory, white hickory, black walnut, beeches, swamp (rich) red oak, hackberry, honey locust, red elm, box-elder, blue ash. sugar maple, water beech, and swamp chestnut oak. In the swamp, in addition to these, are black locust, big buckeye, and black ash. [S] After crossing Green river, we ascend again onto a some what sharply-rolling country, whose bed-rock is very much decayed St. Louis chert, and whose timbers for several miles, are nearly altogether beeches. This peculiar beech growth, occupying alike the highest hills and the lowest grounds, has already been spoken of.”

T: p. 197-198. “About five and one half miles from Greensburg, toward Campbellsville, the beeches begin to give way to black oak, red oak. liriodendron, chestnut, pig and black hickory, swamp chestnut oak, white oak, blue ash, &c.; and within about three miles of Campbellsville white oak forms as much as fifty per cent. of the splendid forests. Scattered through the woods are also found white walnut, tree of Paradise [*Ailanthus*], fine black walnut, black cherry, iron-wood, shrub buckeye, big buckeye, red bud, sassafras, dogwood, red oak, Spanish oak, scarlet oak, chestnut, red haw, black sumach, and pith elder. The entire absence of sweet gum, even from the swamps, all through the country, from the Cumberland river eastward, will have been noticed. I could find no satisfactory reason for it.”

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Back cover: Todd County, abundant *Silphium glabrum* and *Liatris squarrosa* along Route 171.

