

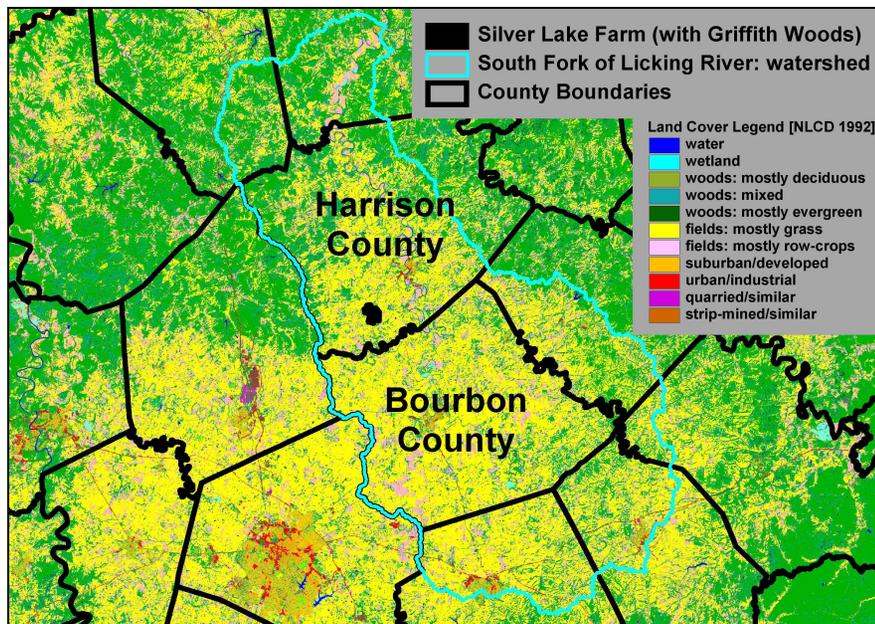
## Griffith Woods: our best opportunity for restoration of ancient woodland in the central Bluegrass region.

Julian Campbell [<http://bluegrasswoodland.com>] April 2012.

**Summary.** Natural ecosystems of the central Bluegrass Region before settlement in 1770-1800 were unique. With some of the most fertile upland soils of any temperate region in the world, this region had complex cover of forest and open woodland (savanna-like in places). It was composed of species that are more typical of rich bottomlands elsewhere in North America, with much “sugar tree” (sugar/black maple), buckeye (mostly Ohio), walnut (mostly black), hickories (bitternut, shellbark), oaks (burr, chinquapin, shumard), ashes (blue, white), elms (red, white), coffee tree, locusts and cherry. On the ground, an extraordinary profusion of “rich herbage” was described by early explorers from the east., with abundant wild rye, cane and running buffalo clover. This highly productive vegetation had been a regional attraction for large herbivores including deer, elk and, during at least a few centuries before settlement, bison.

In concert with occasional droughts and perhaps infrequent fires, herbivores appear to have had profound effects in maintaining the more open woodland that occurred here, which has many species that are tolerant of browsing pressures. Moreover, native peoples probably concentrated their camps and villages here 500-3500 years ago, enhancing the open grassy condition with local clearances. Because of intensive settlement after the 1770s and continuing developments, woodland has almost disappeared from the central Bluegrass plains. If we are to learn how the native vegetation can grow and function ecologically, we must organize to restore its best remnants. As well as scientific interest in the origins of this woodland, there is much potential for some native plants to play an economic role in future landscapes of this region. [See associated documents for further details.]

Located at the junction of US 62 and KY 353, the old Silver Lake Farm, covering 745 acres, stands out from adjacent farmland.



Griffith Woods—in Harrison County, Kentucky—is generally considered the best remnant of ancient Bluegrass woodland. Covering about 200 acres, with room to double or triple this area through restoration, the older woods include frequent chinquapin oaks, burr oaks, blue ashes, shagbark & shellbark hickories that are about 150-350 years old. Although most of the site has been pastured and mowed for several generations, promoting many alien plants, such disturbance has been less intense than on typical Bluegrass farms. There are several areas where young trees have grown up, and where native grasses, sedges, wildflowers (e.g., Miami mist, mayapple, wild hyacinth, trout-lilies) and fragile fern survive in the ground-vegetation. In the 1990s, a few patches of the globally threatened running buffalo clover were discovered here.

The whole 745 acre farm presents our best opportunity to restore a remnant of the Bluegrass woodlands. It will, however, take much experimentation to determine the best management practices. There will be a need to maintain some level of disturbance from ungulates, and perhaps occasional prescribed fires, in order to simulate presettlement conditions. At least in the short-term, it will probably be useful to keep cattle on some of the farmland, for controlled browsing in the woods and for recovery of the clover.

Not only are such woods important for ecological understanding in Kentucky and eastern North America—they can also act as a global center for research into relationships of ungulates to woodland ecology. Such interactions have played a critical role in the region's unique ecology, given its prehistoric attraction for mammoths and mastodons, more recently elk and bison, and currently cattle and horses. We can learn about these interactions in natural systems—with ecological roles of chemical and mechanical defenses, nutrient cycling, animal trails, and other natural processes. We can also explore the agronomic context, given the potential for effective combinations of livestock and woodland management—given the economic values in oak, walnut or other lumber, fruit and nut crops, game animals and other resources.



Varied quasi-natural habitats range from remnants of ancient woodland pasture, to locust thickets, to old fields with intense deer effects.



Experiments on running buffalo clover are needed. Here at the nursery in 2007, we began to study effects of shade and trampling.

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See also files (“Notes”, “Rebuilding” etc.)  
posted at [http://bluegrasswoodland.com/Bluegrass\\_Conservation.html](http://bluegrasswoodland.com/Bluegrass_Conservation.html) and the  
following references for more information.

- Berry, A.I. 2007. Creation of a geodatabase for Griffith Woods. M.Sc., Univ. of Ky.
- Bryant, W.S., M.E. Wharton, W.H. Martin & J.B. Varner. 1980. The Blue Ash-Oak Savannah Woodland, a remnant of presettlement vegetation in the Inner Bluegrass of Kentucky. *Castanea* 45:149-165.
- Campbell, J.J.N. 1980. Present and presettlement forest conditions in the Inner Bluegrass of Kentucky. Ph.D., Univ. of Ky., Lexington.
- Campbell, J.J.N. 1989. Historical evidence of presettlement forest composition in the Inner Bluegrass of Kentucky. In G. Rink & C.A. Budelsky (eds.). *Proceedings of the Seventh Central Hardwood Forest Conference*, p. 231-246. North Central Forest Experiment Station, USFS.
- McEwan, R.W., & B.C. McCarthy. 2008. Anthropogenic disturbance and the formation of oak savanna in central Kentucky, USA. *J. Biogeogr.* 35: 965-975.
- Wharton, M.E., & R.W. Barbour. 1991. *Bluegrass Land & Life: Land Character, Plants and Animals of the Inner Bluegrass Region of Kentucky*. Univ. Press of Ky.
- Vera, F.W.M. 2000. *Grazing Ecology and Forest History*. CABI Publishing, Oxon, United Kingdom. 506 pp.



Old oaks & ashes became selected and open-grown in ‘woodland-pastures’ after 1780.



‘Intermediate woods’ were misunderstood until recent years; its wild-rye, undescribed.



Differences in palatability among tree species can be a major factor in woodland dynamics.

# GRIFFITH WOODS

(Harrison County, Kentucky)

**Potential Solutions for Complex Problems in Conservation of its Natural Features**

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This site presents our best opportunity for restoration of something like the ancient woodland that used to exist in the central Bluegrass region. But there are significant challenges to defining clear goals, to building consensus on critical scientific questions, and to generating funds for management or for research. Can interested parties develop the deeper teamwork that will be needed?

An initial step should be to cooperate in reducing the bush-honeysuckle, hemlock and other aliens. Can we realize mutual benefits from reducing weeds, and even find economic uses as forage, fuel, compost or mulch?

There has been uncertainty about the historical nature of this region’s woodland (or other native vegetation) before Virginian settlement. Yet much early documentary evidence is available to be synthesized and interpreted by conservationists. Also, recent studies of tree-rings have provided important insights. Can a cooperative scientific group be formed to keep reviewing evidence, and to develop central themes for long-term research at the site?

In order to be based on community and science, conservation must adopt fundamental principles of fairness, transparency and debate. This is especially important where controversial issues exist as here. Can a process be developed and followed, for regular meeting among interested people, sharing of information, and responding to proposals?

## GOALS: LANDSCAPE LEVEL

1. *The obvious large-scale, long-term 'target' is to restore at least 750 acres of the South Fork Licking River watershed into a semi-natural condition.* Dynamic patterns of native vegetation can be promoted, and management can begin to simulate the original disturbance regimes with browsing, burning or mowing.

This goal may well be achievable after many decades, but it must be based on mutual understanding and cooperation among interested partners across the region. There will need to be reasonable compromises. We cannot recreate the past, and we cannot do all the research that some might like. Moreover, modern economic and ecological realities will constrain a purely idealistic approach.

To what extent can the economic potential of this site be used to support the restoration? This is a central question that deserves deeper and broader discussion. Varied fees or products could be generated, perhaps in partnership with appropriate organizations.

For example, native plant material could be grown on site for local use and for regional uses. There is clearly increasing interest in such plants for direct economic uses (e.g., wild fruits and forages), various kinds of 'native landscaping' and riparian plantings.

It will be particularly important to have resident managers; to have good relations with neighbors; and to develop a regional network of cooperators in woodland restoration. Griffith Woods can become a center for us all to learn more about our natural heritage in the region, and how to work together for some degree of mutual success.

## GOALS: HABITAT LEVEL

Soils of this region are unusually fertile, and supported a unique set of vegetation types before settlement. Uplands are mostly well-drained, but riparian or wetter habitats occur locally along the larger streams, and unusually dry habitats occur locally on some warmer rocky slopes. The original vegetation can mostly be described in terms of a gradient of increasing disturbance, from deeper shady woods to local openings. This is based mostly on witness-trees during the period of Virginian land-grants (with data from Griffith Woods)

2. *About 20-40% of the central Bluegrass had shady (mesic) woods dominated by sugar maples or bitternut.* Although there are few remnants, at least 50-200 acres can be set aside for restoration at the farm, which might include experimental plantings of sugar maples and associated species. In deeper shade, together with dense ground cover of native perennials, invasive alien species are less problematic.

3. *About 50-70% of the land had 'intermediate' (submesic) woods—between deeper shade and open conditions.* These ranged from productive (forage-rich) 'gap-phase' ash-elm woods, to more browsed-out walnut-buckeye woods or locally oak-hickory on drier sites. Research is needed to understand how patterns in herbivory, droughts and fires can influence the composition of species.

4. *Only about 1-10% of the land had truly open conditions with dense canebrakes, other shrubbery, or largely treeless grassland.* These included variants on lowlands and uplands. So-called 'savannas' were opened up into 'woodland-pastures' after 1780.

## GOALS: SPECIES LEVEL

About 250 native plant species grow at Giffith Woods, but several occur only in small patches that deserve special protection and propagation. At least 70 more species likely occurred here before settlement, and a comprehensive effort to collect and replant these species across the region would be useful for restoration programs. It is also important to coordinate such efforts with reduction of bush honeysuckle and other alien plants.

5. *Plants for recovery in deeper shade include black maple, ironwood, spicebush, wood nettle and wild ginger.* On the ground, it will be important to see if such plantings can exclude winter-creeper and garlic mustard.

6. *Plants for recovery in intermediate woods include buckeye, pawpaw, giant wood lettuce and buffalo clovers.* Also, pests and diseases now focus our attention on ashes, as well as elms, walnuts and other trees that deserve seed collection or breeding of resistance.

7. *Plants for recovery in more open woods and fields include roughleaf-dogwood, cane, peavine, selected cool-season grasses, gromwell and golden alexanders.* There is no evidence that warm-season grasses were dominant in openings, but we can learn much from experimental plantings of them.

8. *Bison and elk also deserve attention for possible reintroduction, as small managed herds or in a zoo-like setting.* If funding can be secured, enclosures should be established for research on these species' ecological interactions, at least on a small-scale for short periods. The role of carnivore will probably have to remain human.