

General Concept for a “Bluegrass Museum of Land: Wood, Soil and Rock”

Julian Campbell, Nov 2014 (updating earlier notes from Griffith Woods)

The general public today has limited understanding of basic ecological principles that associate woodland, soils and bedrock. Even within the academic community, there is little good education or research about our major inherited ecological gradient across the natural landscapes of Kentucky. This is exemplified at one extreme by the acid sandstones of Appalachia, with infertile soils and largely evergreen woods, and at the other extreme by the phosphatic limestones of the Bluegrass, with highly fertile soils and deciduous woods that have been much disturbed by herbivores, including human beings. During the pioneer era, people were much closer to nature, and more aware of these patterns.

Bringing together large impressive samples of wood, soil and rock from across this gradient, perhaps in an old converted tobacco barn, would be valuable for education and for research. Ancient slabs of large trees provide immediate historical insight, revealing changes of growth rate due to changes in the environment. Research has already been initiated into the dendro-chronology of ancient trees, and it is important to store samples for more intensive examination in the future (including isotopic analysis to study changes in climate and pollution). Storage of materials for research could be adjacent to educational displays. Part of the collection would simply be small samples of different tree species as references for identification, especially in studies of archaeological remains, old buildings, and dead wood from the wild.

Complete cores of soil could be stored and displayed within translucent tubes, providing much interest (as already shown at the Arboretum in Lexington). Large chunks of rock for

display could be acquired gradually from quarries, road-cuts and developments. We need more research into processes of soil formation and degradation, as exemplified in central Kentucky. For example, the naturally high phosphate content in some soils of the central Bluegrass is associated with nodules rich in manganese and phosphorous that accumulate in the lower soil strata, above the slowly dissolving limestone. We still do not have a thorough survey of such features in the soils, with sufficient samples to investigate how these nodules are formed and used by plant roots. We do not even have an extensive survey of phosphate content within the various bedrocks of the region.

As old trees die, soils get bulldozed, and rocks get blasted, we keep missing opportunities to accumulate useful samples. There would be considerable support from various organizations for a well-organized educational display of such material, in addition to careful selection and accumulation of samples for future research. We would not this facility to become a junk-pile of debris, but it would probably be useful to have a temporary sorting area where material was stored temporarily before assessment and decisions about retention, sub-sampling or discard. To establish a facility like this adjacent to a natural area makes much more sense than committing more expensive space in town. Ultimate details of the concept could be developed after studying similar components in museums elsewhere, e.g., at the Smithsonian (Washington, D.C.), where a recent display of soils from across the USA has been sponsored by the NCRS, SSSA and others. At the Field Museum (Chicago, Illinois), there used to be a large exhibit of tree trunk sections from across the nation, but space became too limited to maintain it.

It would be reasonable to develop this concept in stages, especially since we do not yet have a functional building. An initial stage could be preparation of one or more worthy tobacco

barns to a minimal standard for storage of large tree slices and other important historical wood from the region. Complete renovation may eventually be justified, since there is increasing historical interest in old barns themselves, as relics of Kentucky's tobacco-growing culture.

The whole display, eventually, could be centered on a simple educational sequence, from the limestones of the central Bluegrass to the Eden Shale Hills, to the surrounding Knobs, with their sandstone caps. At each point in this sequence, chunks of rock would be displayed along side soil cores and slices of the trunks of typical trees (with bark). Posters would outline the overall ecological story for each point, and there could be several other associated materials and themes, for example illustration of flora and fauna for each soil/rock type, and the associated history of land uses. If a secure upper floor can eventually be added into the barn, that could be used more for research or storage, leaving the active educational display on the ground floor. There could be more storage of reference materials on the upper floor, which could perhaps even function as a general workshop, classroom or laboratory.

Relevant websites

<http://soilsassociation.org/Smithsonian.htm>

http://soilsassociation.org/downloads/June2008/Exhibition_Fact_Sheet.pdf

<http://forces.si.edu/soils/> [exhibit was in 2008-2010, now closed]

Possible advocates?

Wendell Berry, Bill Craddock, Jeff Hohman, KAS, KGS, KDF, KDFWR, KSNPC, KOFS, Bill Martin, Ryan McEwan, UK College of Agriculture, USDA (NRCS, USFS).