

**Back Country Area High Conservation Value Forest (HCVF) Proposal
Morgan-Monroe State Forest
30-day Public Comment Period: September 1, 2021 – September 30, 2021**

The Indiana State Forest system consists of approximately 158,000 acres of primarily forested land. These lands are managed under the principle of multiple use-multiple benefit to provide forest conservation, goods, and services for current and future generations. The management is guided by scientific principles, guiding legislation and comprehensive forest certification standards which are independently audited to help insure long term forest health, resiliency, and sustainability.

As part of forest certification, areas can be designated as High Conservation Value Forest (HCVF). Designated HCVF's are forest areas that receive added consideration of management activities to maintain or enhance conservation value attributes. These attributes may be of biological, ecological, or cultural significance.

Nominations for new HCVF may come from within the Department of Natural Resources or from individuals or interested groups. For more information regarding HCVF on State Forests or the HCVF proposal process, visit <https://www.in.gov/dnr/forestry/files/fo-HighConservationValueForests.pdf>.

To submit a comment on this document, go to:

www.in.gov/dnr/forestry/8122.htm

Please use MM BCA HCVF in the "subject or file reference" line to ensure that your comment receives appropriate consideration. Comments received within 30 days of posting will be considered by the High Value Conservation Forest Review Team for this proposal.

**High Conservation Value Forest Proposal:
Back Country Area of Morgan-Monroe/Yellowwood State Forest**

Contact Information: Indiana Forest Alliance
Leslie Bishop, PhD (leslieb@earlham.edu), Rae
Schnapp, PhD (rae@indianaforestalliance.org)

2123 N. Meridian Street
Indianapolis, Indiana 46202
(317) 602-3692

DESCRIPTION

Legal description: Brown and Monroe Counties, Township 10 North, Range 1 East, Portions of Sections 1, 2, 11, 12, 13, 14, 23, 24, 25, and 26.

The proposed High Conservation Value Forest (HCVF) area includes approximately 2,380 acres in Morgan-Monroe/Yellowwood State Forest (a forest unit of 51,000 acres) and will provide the only large tract of interior HCVF within this state forest complex. The terrain includes ridge tops, steep to moderate slopes, ravines, and bottomland. The site contains high quality dry, dry-mesic, and mesic upland forest. Dominant tree species include *Quercus* spp., *Acer* spp., *Carya* spp. *Fagus grandifolia*, and *Liriodendron tulipifera*, but relative importance (RI) of these species varies across ridges, mesic slopes, dry slopes, and bottomland (forest characterization data available from Dr. L. Bishop).

- **Back Country Area (BCA):** In 1981, these acres were designated by the Orr administration as a Back Country Area “to be enjoyed by the wilderness seeker . . . Users of the area should enter with the philosophy that they will disturb as little as possible the natural woodland ecosystem and that it will offer the experience of visiting a forested area looking much the same as it may have appeared a century and a half ago.”
- **Relatively undisturbed:** The Department of Forestry (DoF) has used conservative management approaches to maintain the original goals of the BCA. Since 1981, the only timber harvests have been single tree selection in small areas: in 2011 and 2013 covering 215 acres, and another in 2016 covering Compartment 13 Tract 2, 3, 4 near Possum Trot Road. The DOF claims management goals within the BCA include no new skid roads (using previous tracks), no log yards within the area, and the maintenance of late seral forest conditions with large standing trees, increased snags and increased large downed coarse woody debris. Prior to 1981, there are records of limited single tree selection in 1963, 1965, and 1967 leaving a large portion of interior forest undisturbed.
- **Older forest designation:** The DOF has designated the BCA for older forest conditions under Forest Stewardship Council (FSC) assessment 6.3.a.1, and thus the area is an ideal candidate to continue succession to secondary old growth stage. Type 2 Old Growth is defined by FSC as an area 20 acres or more that has dominant canopy trees with mean age greater than 150-175 years depending on the site, shows no evidence of human-caused disturbance in 80-100 years, and displays structural and compositional old growth characteristics. A significant portion of the interior BCA meets these criteria for future old growth.
- **Secondary old growth potential:** The DOF Continuous Forest Inventory (CFI) has found the BCA of Morgan-Monroe State Forest to have a mean age of 100 years. Similarly, IFA’s forest

characterization study for the Ecoblitz area found that dominant trees within the BCA of Morgan-Monroe/Yellowwood have a mean age of 110 years. In addition, the Ecoblitz included analysis of tree cores from the largest trees (n=47) in the BCA and showed that 81% of cored trees are over 100 yrs., with 40% over 130 yrs. (data from Dr. Justin Maxwell, Indiana University). These data and other forest attributes demonstrate that this forest can achieve Type 2 Old Growth status within 50 years in the absence of further timber harvest.

WHY HCVP?

High Conservation Value Forests are state forest areas with unique high conservation values that receive added consideration of management activities to maintain or enhance these conservation values. These values may be of biological, ecological, or cultural significance.

SIGNIFICANT HIGH CONSERVATION VALUE ATTRIBUTES OF THIS AREA (HCV 2)

1.e **Opportunity to develop large tract of interior forest as Type 2 Old Growth.** There are no tracts even half this size being managed to return to old growth, and thus this HCVP will provide a landscape level representation of old growth absent from the state forest system of Indiana.

Old growth forests are rare in Indiana, found only in small patches of nature preserves. Recent research underscores the values of large tracts of old growth forests, including carbon sequestration, forest resiliency, mitigation of climate change impacts, and conservation of biological diversity. The FSC, which certifies forests for sustainability, recommends the following in the audit section 6.3.a.1: "Where old growth of different community types that would naturally occur on the forest are under-represented in the landscape relative to natural conditions, a portion of the forest is managed to enhance and/or restore old growth characteristics." The CFI indicates only 2,711 acres (1.8 %) of forest stands within Indiana state forests are 140 years or older and only 493 acres (0.3%) of state forest stands are 160 years or older. Also, DNR's strategic plan includes old forests as a goal "Work toward a long term balance in forest stand ages and structure with 10% of forest acreage in or developing older forest conditions (e.g. nature preserves and high conservation forests) as well as 10% in early successional, young forests (0-20 years old)." In defining old growth forests, the FSC includes old secondary forests as Type 2 Old Growth. Due to historical management, portions of the BCA of Morgan-Monroe/Yellowwood State Forest are in a late seral stage and present an opportunity for the recovery of a large interior tract of Type 2 Old Growth.

Our study of the forest composition of this area, sponsored by IFA as part of a four-year Ecoblitz, asks the question, is this mature forest developing characteristics of old growth? We analyzed tree species composition, distribution, and size class (DBH); tree cores of the largest trees; and coarse woody debris (CWD) and standing dead trees (a detailed report is available, data from Dr. L. Bishop). A comparison of our data of forest attributes to a Type 1 Old Growth forest, Pioneer Mothers, as well as to benchmark characteristics for old growth in mixed mesophytic forests of Indiana (Martin 1992), reveals that the BCA of Morgan-Monroe/Yellowwood State Forest is developing characteristics of secondary old growth forests.

Site	Density Live Trees >10cm dbhe	Basal Area (m ² /ha)	Large Trees >75cm dbhe	Density Snags >30cm dbhe	CWD Vol. (m ³ /ha)
Benchmark ^{1,2}	160-315/ hae	>25 m ² /hae	>7 trees/ hae	Avg. 10 snags/ha	60.3 m ³ /ha
Pioneer Mother Hoosier Nat. Forest ^{3,4}	226 / hae	31.4 m ² /hae	28 trees/ha >60 cm	6 snags/ha	30.4 m ³ /ha
MMSF/YWSF BCA	310/ ha	31.9 m ² /ha	12.5 trees/ha >75 cm	7 snags/ha	49.0 m ³ /ha

2. Represents a high quality plant community.

As part of the EcoBlitz, a team of botanists documented the plant community over a two-year period. They found 420 species, including 15 species of ferns and two rare sedges. The species richness of the EcoBlitz area is comparable with the most botanically rich forested sites known in other bioregions of the state. The Floristic Quality Assessment (FQA) of the herbaceous community shows that this forest has very high “remnant natural value,” with portions that are “clearly remarkable and likely are unmatched in other forest ecosystems in the state” (2015 analysis from Dr. Paul Rothrock, Indiana University Herbarium) and “possesses sufficient conservatism and species richness to be of paramount importance from a regional perspective” (2014 analysis from Dr. Don Ruch, Ball State University). The FQA metrics are comparable to those of Indiana nature preserves and indicate a high quality, relatively undisturbed forest with characteristics of old growth⁵ (nature preserve data comparisons available, Dr. P. Rothrock). This plant community, with Floral Quality Index** > 45, and Mean C > 4.0, retains the historic diversity of vascular plants characteristic of a mature deciduous forest of Indiana’s Highland Rim Natural Region.

Metric	EcoBlitz Zone Within BCA					
	1	2	3	4	5	6
Mean C*	4.2	4.7	4.6	4.5	4.5	4.8
Species Richness (N)	262	220	232	220	286	205
Floral Quality Index**	65.9	69.4	62.2	63.0	77.1	68.9

* C = Coefficient of Conservation (index of fidelity to undisturbed plant communities)

**FQI = Mean C \sqrt{N}

¹ Martin, WH, 1992, Characteristics of old-growth mixed mesophytic forests. *Natural Areas Journal* 12(3): 127-135.

² Spetich, MA, et al., 1999. Regional distribution and dynamics of coarse woody debris in Midwestern old-growth forests. *Forest Science* 45(2): 302-313.

³ Lowney, CA, et al. 2015, Two decades of compositional and structural change in deciduous old-growth forests of Indiana. *Journal of Plant Ecology* 9(3): 256-271.

⁴ Morrisey, RC, et al. 2012. Structural and compositional dynamics of a near-natural deciduous forest in the central US. *Journal of the Torrey Botanical Society* 139(4): 379-390.

⁵ Rothrock, P.E. & M. Homoya. 2005. An evaluation of Indiana’s floristic quality assessment. *Proceedings of the Indiana Academy of Science* 114(1): 9-18.

3. Habitat for state threatened and state endangered species.

The four-year species inventory in the Ecoblitz resulted in long lists of species present in the floral and faunal communities and documented the presence and location of both federal and state listed species.

- Plants: American Ginseng (WL), Goldenseal (WL), Large Yellow Lady's slipper (WL), Downy Yellow Violet (WL), Synandra (WL), Ladies Tresses (WL), Fringed Greenbriar (WL), Great White Lettuce (WL), Cleft Phlox (SE), Pinesap (WL), Yellow Widelip Orchid (WL), Turk's Cap Lily (WL), Whorled Pagonia (WL), Wood's Stiff or Pretty Sedge (WL), Mercury (SR)
- Mammals: Northern Long Eared Bat (LT, SE), Indiana Bat (LE), Tri-colored Bat (SE), Eastern Red Bat (SSC), Hoary Bat (SSC), Little Brown Bat (SE), Evening Bat (SE), Smoky Shrew (SSC), Pygmy Shrew (SSC)
- Birds: Golden-winged Warbler (SE), Cerulean Warbler (SE), Black-and-white Warbler (SSC), Worm-eating Warbler (SSC), Hooded Warbler (SSC), Eastern Whip-poor-will (SSC), Broad-winged Hawk (SSC), Red-shouldered Hawk (SSC)
- Amphibians: Northern Cricket Frog (SSC), Northern Leopard Frog (SSC)
- Reptiles: Timber Rattlesnake (SE), Rough Green Snake (SSC), Eastern Box Turtle (SSC)
- Insects: West Virginia White Butterfly (SR), Grey Petaltail Dragonfly (WL)

Key to abbreviations. Federal: LE = Endangered; LT = Threatened; C = candidate State: SE = state endangered; ST = state threatened; SR = state rare; SSC = state species of special concern; SG = state significant; WL = watch list

4. Opportunity to enhance existing nature preserve.

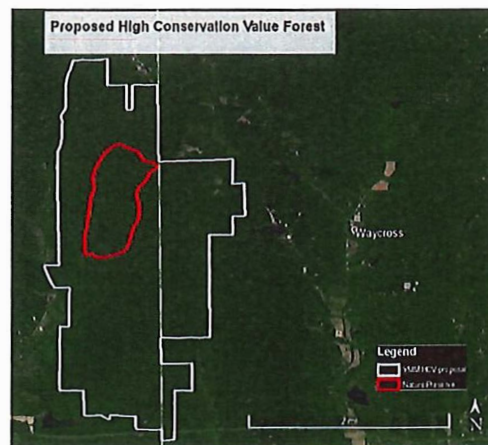
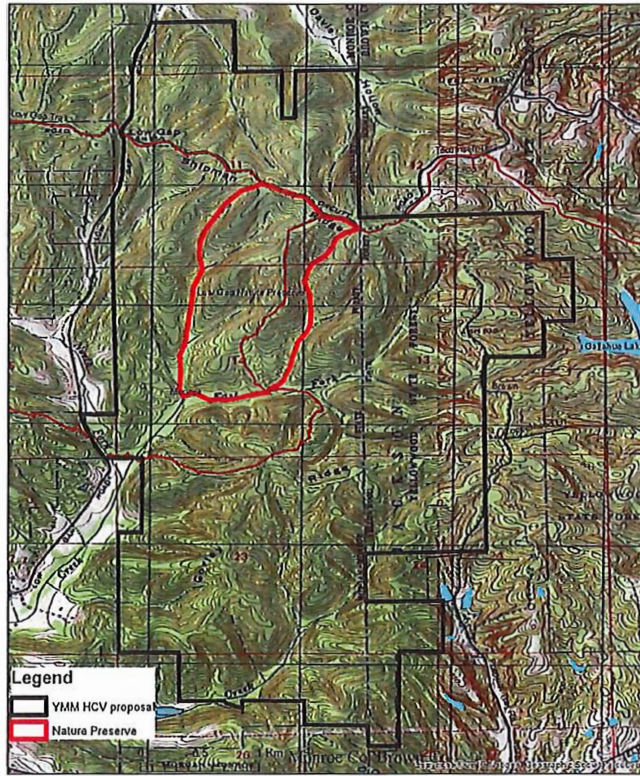
A HCVF designation will encompass the existing Low Gap Nature Preserve (320 acres) with a large tract of mature interior forest. Results from Ecoblitz document the presence of numerous species of concern, as listed above. Many of these species were found outside of the nature preserve, and a buffer of HCVF designated forest will enhance habitat potential for these species. For example, Cerulean, Worm-eating and Hooded Warblers with successful nests, two rattlesnake dens, presence of rare Pygmy and Smoky Shrews, and an Indiana Bat maternity colony were all documented outside of the nature preserve. Other results from the Ecoblitz point to the value of the extended area around the nature preserve. For example, the rarest lichens of the area were found outside of the nature preserve. The quality of the plant community (see FQA analysis above) is consistently high throughout the Ecoblitz area, with that of Zones 2, 3, and 6 having a slightly higher Mean C than the Low Gap Nature Preserve in Zone 5 and part of Zone 4.

MANAGEMENT CONSIDERATIONS AND STRATEGY

- Avoid additional timber harvest in the HCVF to allow the development of Type 2 Old Growth.
- Focus on controlling invasive species, especially those that threaten the current quality of the vascular plant community (i.e., Japanese stiltgrass and multi-flora rose).
- Provide for recreation trail corridors [in such a way] that will not conflict with the high conservation values of the area. The Low Gap Trail passes through part of the proposed HCVF.
- Manage for old growth characteristics: leave standing dead trees to enhance the density of snags, leave fallen trees to increase large size coarse woody debris, and minimize disturbance to leaf litter and soil.

- Provide a large tract of interior forest as a reference area for scientists to monitor the natural processes of an aging forest and as a control to assess the consequences of the active management in the rest of the forest. Reference areas are critical in understanding potential resilience of forest species to pests and diseases (e.g., ash and emerald ash borer). The extensive data on species present in the area from the Ecoblitz provides baseline information for future studies.

Proposed High Conservation Value Forest -
Back Country Area of Morgan-Monroe/Yellowwood



Aerial View

Proposed High Conservation Value Forest - Back Country Area of Morgan-Monroe/Yellowwood

