

Leslie Bishop, Ph.D.

November 2, 2017

Honorable Eric Holcomb
Governor
State of Indiana
200 W. Washington St., Room 206
Indianapolis, Indiana 46204

Dear Governor Holcomb:

As scientists in Indiana, we are concerned about the substantial increase in the rate of degradation and habitat fragmentation taking place in our state forests due to timber harvesting. In 2002, 40% of Indiana state forests were set aside from commercial logging, yet in 2017 less than 5% is set aside. Under your leadership as Governor, you have the opportunity to turn this trend around by reducing logging in state forests and by establishing tracts devoted to ecological conservation and passive wilderness recreation as other states have done (e.g., Pennsylvania, Michigan, Wisconsin, Maryland, Ohio, and Connecticut).

We believe that a forest is more than trees for timber. A mature temperate hardwood forest includes a large diversity of animals, herbaceous plants and shrubs, mosses and lichens, fungi, and microbes that form a complex and interactive system. The forest not only provides homes for these organisms but it also provides important ecosystem services such as nutrient cycling, healthy soil development, watershed protection, micro- and macro- climate control, and carbon storage that directly affect human populations.

A mature forest is a dynamic system with a variety of habitats. For example, early-successional vegetation thrives in canopy openings caused by forest diseases and insects, storm blow downs, and fires. These forests are a mosaic of age and size classes with multi-layered canopies representing a broad assemblage of tree species. Standing dead trees (snags) and large fallen logs increase structural complexity and provide homes for numerous species. Old growth forests – the oldest form of mature forest – which contain large trees 150 to 200 years old, host unique species such as soil fungi associated only with very old trees and vital to forest regeneration.

Large tracts of contiguous mature forests are necessary to preserve the rich biological diversity of central hardwood forests. In Indiana the total acreage of documented old growth forests is small. The current timber management practice of removing large, older trees from state forests impairs the potential for any

significant amount of old growth forests to return for the next several generations. Our forest ecosystems cannot be sustainable if the only old growth forest is in nature preserves and state parks, which contain only one third of one percent of Indiana's forest* land. Our state forests and Hoosier National Forest are the only publicly owned forest acreages extensive enough to conserve biological diversity on a viable landscape scale. * = corrected on 11/21/17

More than four-fifths of Indiana's forest is privately owned. Forest inventories document that the majority of this private forest is relatively young, with the oldest trees less than half their natural life spans. Active logging in these forests will continue to prevent the return of old growth conditions on private land for many decades to come. Furthermore, nearly four-fifths of all state and federal public lands in Indiana are now under reservoirs or subject to commercial logging or wide-scale cutting of native vegetation. Thus, it is incumbent on the state to take active measures to conserve large tracts of mature forest in the state forests to achieve ecological objectives.

Numerous animals depend on large tracts of mature contiguous forest. At least thirty species of mammals reside in forests, and of these many are imperiled such as the Gray Fox, Eastern Woodrat, Pygmy Shrew, and Smoky Shrew. Bats, such as the federally endangered Indiana bat and threatened Northern Long-eared bat, need snags in mature forests for summer roosting. Most of our woodland bat populations are in danger from the pathogen White Nose Syndrome, and the added stress of habitat loss from logging is detrimental to their overall populations.

Many bird species also need mature interior forests. Indiana's five species of woodpeckers nest in excavations in forest snags. Other birds such as the Brown Creeper use these holes as well. Many species of warblers, fly catchers, vireos, thrushes, ovenbirds, and tanagers need interior forest habitat. When logging disrupts interior forest, the openings create edge habitats attractive to cowbirds – nest parasites that use the nests of other birds and eliminate the owner's eggs. Any increase in already abundant cowbird populations is detrimental to songbird populations.

Interior forests are also home to many species of amphibians and reptiles, and logging disrupts their habitats. Salamanders require a thick layer of leaf litter on the forest floor, which provides cool, moist conditions under a dense upper canopy layer. Five out of six salamander species listed as endangered or of special concern by Indiana need interior forests. Eastern Box Turtles (of special concern) need deep layers of leaf litter in interior forests for winter hibernacula. State endangered Timber rattlesnakes require undisturbed den areas in these forests.

Many plants besides trees benefit from undisturbed interior forest. In fact, plant species richness is highest in the herbaceous layer among all of the forest strata.

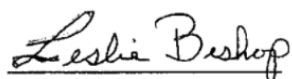
There is a vital link between the tree overstory and the dynamics of the herbaceous layer. The cycling of nutrients and litter formation in this layer are critical to tree seedling survival. Undisturbed forest communities with intact canopies are generally resistant to invasion by exotic plant species. But logging practices allow non-native plants to invade the forest and outcompete the native herbs and shrubs. Logging also reduces the species richness, cover, and abundance of native herbaceous plants.

A hands-off approach on portions of Indiana state forests will enable the development of forest types and conditions that were historically common but are now rare. These mature forest areas will provide opportunities (reference plots) for scientific study of natural processes in aging forests, including natural disturbance, biogeochemical cycles, and soil development. In addition, protected areas can be used as experimental control plots for assessing the consequences of the active management that occurs in the managed portions of the forest.

We need large tracts of mature forests for resilience in a time of uncertainty. Multi-aged forests that include areas of old growth have greater resilience and supply more pathways to recovery from unpredictable disturbances, such as drought, increased storms, and invasive pests. Invasive pests and pathogens in particular have caused the loss of ash, chestnut, tulip poplar, northern red oak, and more, with great ecological and economic effect. We cannot predict the arrival of new pests, so we need the diversity of intact, mature forests to ensure that there are some unaffected trees remaining. In addition, old trees continue to absorb and store carbon from the atmosphere; the rate of tree carbon accumulation increases with tree size. By preserving large tracts of our state forest from logging, the forest will have the potential to sequester and store more carbon due to increased structural and compositional diversity.

As governor, you have the authority to change the current trend in over-harvest of our state forests. To ensure the viability of Indiana's native forest ecosystems for the future and for Hoosier's future quality of life, we need to conserve major portions of our state forests and allow them to return to old growth conditions.

Respectfully yours,

A handwritten signature in cursive script that reads "Leslie Bishop". The signature is written in dark ink and is positioned below the text "Respectfully yours,".

Leslie Bishop, Ph.D.
Professor Emerita of Biology, Earlham College

& 239 scientist colleagues

* NOTE: The opinions of the signers of this letter do not necessarily reflect the opinions of the academic institutions for which they work.

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