

tolerate fairly heavy shade since their large leaves enable them to utilize light with high efficiency. Nevertheless, many will die as they become larger since light requirement increases significantly with size. But without the oaks, the population would probably not survive. Small trees of both species of magnolias favor a certain amount of shade, but the crucial factor is the blanket of decaying oak leaves. In autumn, birds scatter the seeds a considerable distance from the parents after devouring the oily aromatic pericarps. If left intact, the pericarps could deprive the seeds of sufficient oxygen, but in nature, many agents including slugs quickly remove it. They filter down through the leaves which afford abundant aeration, heat control and proper moisture. They germinate on top of the ground under the leaves the following spring and push up as much as three inches through the blanket. Like other magnolias in their forest habitats, big leaf magnolias do not grow straight during their first few years, but bend over, layering themselves.

During that time, I saw very little wildlife, only a tortoise and a colony of a pugnacious species of carpenter ants which inhabited a decayed fallen limb. When disturbed, they bit fiercely and held on with their powerful mandibles, then arched their bodies around and squirted formic acid into the bites. Much to my pleasure, the area was free of deerflies and ticks, unlike the northern forests.

The forest continued to the top of the ridge but bigleaf magnolias were absent. The forest floor probably becomes too dry during the summer for the seedlings to survive.

That part of the Cumberland Mountains was an extremely beautiful region, particularly enriched by *Magnolia macrophylla*.

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## Bigleaf in Ohio

by Oliver D. Diller

Early in March I received a letter from Phil Savage asking whether I would give a talk and show a few slides of the bigleaf magnolias which occur in Bowles Hollow, Section 1 (east) Liberty Township, Jackson County, Ohio.

I have visited this natural stand of about 200 trees several times during the past ten years. Most recently, on April 13, I enjoyed the company of three very observant botanists, namely Karl Flinck, Harry Elkins, and Gordon Whitney.

It was an interesting experience to walk among these trees just as they were starting to break dormancy. Their large leaves which had fallen last October were flattened by the winter snow and they made a striking pattern on the forest floor which made it easy to observe the distribution of this species in relation to others in the woods.

Janice Beatley, in her bulletin titled "The Primeval Forests of a Periglacial Area in the Allegheny Plateau," said that *Magnolia macrophylla* is a southern species which occurs in Ohio only in the Sharon conglomerate region of Jackson County. This species is at the northern edge of its natural range in the Allegheny Plateau. Its Ohio distribution is along a major tributary of the preglacial Teays river and it very possibly migrated from Kentucky and West Virginia in preglacial times by seeds carried along this river.

In Jackson County, the bigleaf magnolia is found in gorges and steep-walled valleys with perpetually moist slopes. It usually occupies an intermediate or co-dominant position in the forest canopy. Possibly one reason for its limited distribution in Ohio is that the forest canopy was

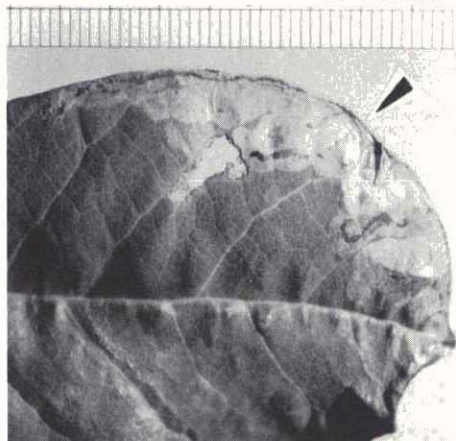
opened by logging operations. This tree, with its large leaves, is apparently not able to tolerate direct sunlight.

In Bowles Hollow it is interesting to note that nearly all of the magnolias occur on the steep north-west slopes where they are in close association with Canadian hemlock and such trees as American beech, red and sugar maple, tuliptree, red oak, bitternut hickory and basswood. Mountain laurel and rosebay rhododendron are in the understory. In the valley floor are blue beech, spicebush, sycamore, and river birch. At the higher elevations chestnut oak, black, red, and scarlet oaks and pitch, scrub, and shortleaf pines make up the most of the dominant stand.

*Given at the meeting of The American Magnolia Society in Rochester, New York, April 30, 1983.*

## Leaf-Mining Moth

This past summer (1983) in the Washington, D.C. area, we noticed that several species of Magnolia were attacked by the leaf-mining moth, *Phyllocnistis magnoliella* Forbes. The damage is caused by the small yellow maggot-like larva on either the upper or lower surface of the leaf. The larva lives *inside* the leaf and slices through the leaf and forms its mine as it feeds.



*The slime trail-like mine (arrow) on upper surface of leaf of *M. acuminata* × *sprengeri*.*



*Serpentine mine on leaf under-surface. Twisted, thread-like fecal trail is seen (arrow). Host: *M. acuminata* × *sprengeri*.*

Mines on deciduous species look like slug slime trails on the leaves. On evergreen species mines occur towards the leaf edge and cause a yellowness of the upper leaf surface. A thin brown fecal trail occurs in the center of and along the length of the mine. Mines develop in July and August in the District of Columbia area.

In a survey of the magnolias at the U.S. National Arboretum, we found mines on many species hybrids and cultivars. We did *not* find mines on *M. sieboldii*, *M. pyramidata*, *M. kobus*, *M. cylindrica*, *M. × kewensis*, *M. grandiflora* 'Little Gem,' or *M. grandiflora* 'St. Mary.'

Very little is known about this insect. It was described in the 1920's and has been ignored since. We are interested in knowing more about it — how widely does it occur and what is its host range? We would appreciate hearing from any of you (in North America and abroad) next year if you find leaf miners on your magnolias. Either a note or a phone message from you to either of us would be very helpful. Please keep an eye peeled for the leaf miner next year. Let us know what you see. — *Hiram Larew, B-470, BARC-East, USDA, Beltsville, MD 20705, Phone: (301) 344-4560; Gene Eisenbeiss, U.S. National Arboretum, Washington, D.C., 20002, Phone: (202) 475-4855.*