ALABAMA: HOME SWEET HOME TO MANY UNIQUE SPECIES...

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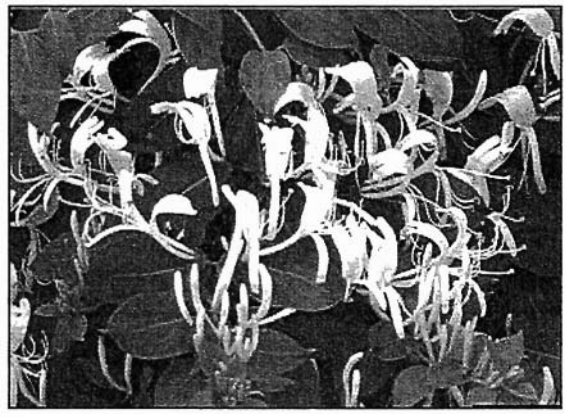
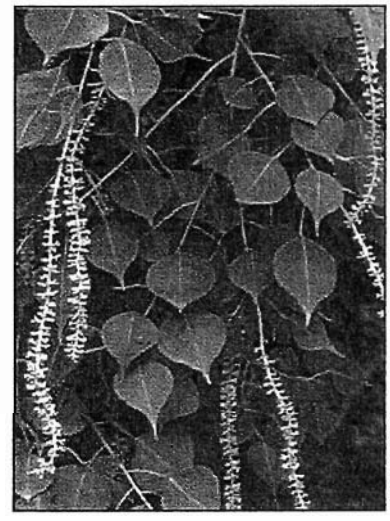
Alabama has much to boast of when it comes to the diversity of native species that call this state home. We are fifth in the nation in biodiversity, and especially high in aquatic diversity. There are more species of fish, turtles, mussels, snails, and crayfish in Alabama than in any other state. Some of these species are unique to Alabama (occurring no where else in the world), including 7 species of mussels, 11 species of fish, 1 turtle species, and 106 species of aquatic snails. We are also home to 22 unique species of vascular plants.

Unfortunately, however, Alabama is also 2nd in the nation in the number of extinctions that have occurred – because of habitat destruction, pollution, and non-native invasive species.

Non-native invasive species (NNIS) are plant species That are not native to an ecosystem and whose introduction does or is likely to cause economic or environmental harm or harm to human health. NNIS have certain features in common that give them a competitive edge over native species and make them very difficult to control. They grow rapidly, are very prolific reproducers, and nave few or no pests in their new surroundings to inhibit their growth and reproduction. They are able to invade natural areas, as well as agricultural land and commercial forests, and out-compete the native species and/or cultivated species there. Each year $137 billion is spent in the U.S. due to NNIS. NNIS are considered the major threat of up to 47% of species listed as threatened or endangered under the Endangered Species Act, and NNIS pose one of the greatest threats to forest sustainability.





PHOTOS PROVIDED BY THE ALABAMA NATURAL HERITAGE PROGRAM

Exotic planfs such as the Japanese honeysuckle (above) and Chinese fallowtree (right) can be difficult to control once established.

NNIS have become a dominant part of the landscape in Alabama, as in other states. You don't have to look very far to find a field or roadside taken over by kudzu, a fence overrun with Japanese honeysuckle, or a roadside or wetland area full of privet. If you live in the southern half of the state, how far would you have to drive from your home to the nearest Chinese tallowtree (more commonly known as a popcorn tree)? Maybe you have noticed that these plants seem to be more common than they were a few years ago, but should you be alarmed?

If we value the rich natural heritage that we presently enjoy, we cannot take it for granted because it is eroding away right before our eyes. Even if we eliminate all habitat destruction and pollution, non-native invasive species are still taking over our natural areas and reducing our biodiversity. Once NNIS become established they are very difficult to control. If not controlled, they can soon come to dominate the area so completely that little else can grow there. In this way, NNIS can reduce the natural diversity of an area.

One such place where this has happened is Maxwell Air Force Base in Montgomery. Chinese tallowtree has invaded natural areas on the base and almost completely overwhelmed the native species there. In response, the Department of Defense has enlisted the help of The Alabama Natural Heritage Program of The Nature Conservancy to tighten up security against these herbaceous terrorists that threaten our natural heritage.

Chinese tallowtree, Triadica *sebifera*, is a very aggressive NNIS tree in central and south Alabama, as well as other parts of the coastal plain in the southeastern U.S. Introduced as a source of tallow for candle making, it is often planted as an ornamental as well. Lie other NNIS, it

Maxwell Air Force Base before treatment. This 3-acre wetland is about 85% Chinese tallowtree.

Stumps of Chinese tallowtree. Orange flagging marks native species to leave uncut. This may not look like restoration!

has no pests in this country and is able to grow rapidly and reproduce very prolifically. It can out-compete and replace native species, often forming solid stands of Chinese tallowtree. Once an area is infested, it is very costly and time-consuming to eradicate this tree. Seedlings and small saplings can be pulled up by hand or with the help of weed wrenches, but if larger trees are cut, the stumps resprout forming multiple stems.

We are trying an experimental method of eradicating Chinese tallowtree from a 3-acre wetland area on the base. The native vegetation here includes silver maple, sycamore, green ash, bald cypress, river birch, black willow, and sweetgum. At the present time, however, it is approximately 85% Chinese tallowtree, many of which are mature, seed-bearing trees. Without intervention, the native species of this wetland will probably soon be gone. Our objective is to remove the Chinese tallowtree and restore the native plant community. We have hand-pulled the tallowtree seedlings and used weed wrenches on the smaller saplings. We are cutting the larger trees and painting the stumps with a diluted solution of Garlon 3A mixed with the penetrant, Cide Kick II. Once the tallowtrees are removed native species will be planted in the area. If this demonstration project is successful, these methods will be implemented in the other natural areas of the Base.

Control of Chinese tallowtree, even in this small 3-acre wetland, will require a multi-year effort. It will probably take at least a couple of years to deplete the seeds already in the soil and presently falling from the trees, and to glean the remaining seedlings, saplings, and mature trees that may have been missed during the previous removals. Then it will take constant vigilance to remove any new arrivals from seeds brought in by birds and water from trees planted or growing elsewhere on the Base and on surrounding private land.

An ounce of prevention, in the case of NNIS, is worth a ton of cure. The easiest way to prevent infestations of NNIS is to avoid planting them on your property. Try to find a native alternative that will serve your purposes. The demand for native species alternatives is increasing and there are now many sources available in the market. Remember, exotic species often do not stay put and may soon become your neighbor's problem as well as your own. Because these plants are able to reproduce and spread so rapidly and often escape cultivation, it is essential to consider the consequences of the choices we make for landscaping. Though the Chinese tallowtree is an attractive tree, turning pretty colors in fall and producing attractive white berries, it is very difficult, if not impossible, to keep in one place. The berries are spread by birds and by water. The trees are very capable of invading not only the neighbor's property, but also nearby natural areas. Any disturbed area is particularly vulnerable to infestations. There are many native species of trees [such as red maple) that produce beautiful fall foliage that would be acceptable substitutes for homeowners desiring to go native.

Like Chinese tallowtree; many NNIS have been intentionally introduced because they possess some useful attribute in addition to being so easy to grow and maintain (due to their invasive nature). Kudzu was brought here for erosion control, privet for hedge rows, Japanese honeysuckle for ornamental purposes, and gypsy moth for the silk industry. Had we known at the time the ramifications of taking organisms from their native ecosystems and introducing them into foreign ones, would we still choose to do so? Today we do know the consequences of spreading exotic species yet we still often choose to do so.

Japanese honeysuckle is a NNIS that is often intentionally planted. It is planted in wildlife plots because it stays green most of the winter and deer like it. Its ability to photosynthesize in the winter when most other plants are dormant makes it desirable as a winter deer browse, but this quality also gives it a competitive edge over other plants, making it very hard to control. It grows so rapidly that it often spreads faster than the deer can browse it back. Its seeds are spread widely by birds. Japanese honeysuckle is the most commonly

occurring invasive plant in Alabama, overwhelming and replacing native flora in all forest types over a wide range of sites. Instead of planting Japanese honeysuckle, consider planting native plants that will not get out of control. Some potential Alabama native alternatives to choose from are greenbrier, muscadine grape, beauty berry, sweet shrub, New Jersey tea, buckwheat tree, strawberry bush, wild hydrangea, Virginia willow, and yaupon holly. These species are highly preferred deer browse and some are evergreen or semi-evergreen. The habitat will help determine the best choice for your property. Take a walk in the woods near your place and see what grows there and what seems to be browsed by deer. James and Karl Miller have written an excellent book, Forest Plants of the Southeast and their *Wildlife* Uses, with pictures of the plants and information about which ones are preferred by different types of wildlife. For more information about obtaining a copy of this book, contact the USDA Forest Service, Southern Research Station, Auburn University.

Alabamians are the benefactors of a rich and unique natural heritage to appreciate and enjoy and pass on to future wildlife enthusiasts, but our inheritance is not secured until we care enough to fight to defend it against the invaders. Let's work together to hold on to the incredible, but fragile, riches that we have, and at every opportunity, choose to grow native Alabama!

I would like to thank the Tree Trust in Anniston and The Wildlife Group in Tuskegee for donating native trees to be planted at Maxwell Air Force Base. I would like to thank Dr. James Miller, Forest Service Southern Research Station in Auburn, for his advice on eradicating Chinese tallowtree and I would like to thank the Noncommissioned Officers (NCO) Academy at Maxwell Airforce Base for volunteering their time to help with the NNIS project on Base.

Treating cut stumps of Chinese tallowtree with herbicide.

COMMON NON-NATIVE INVASIVE SPECIES	NATIVE ALTERNATIVES PLANTED FOR WILDLIFE
Japanese Honeysuckle	Greenbriar, muscadine, yellow jasmine, Carolina geranium, wild strawberry, trumpetcreeper, Alabama supplejack, blackberry, dewberry
Autumn Olive	Wild rose (Rosa cardinal, beautyberry, sweet shrub, New Jersey tea, buckwheat tree, strawberry bush, wild hydrangea, Virginia willow, sweet pepperbush, *Vaccinium* (blueberry), winged sumac, waxmyrtle
Tall Fescue	Paniegrass, broomsedge, big bluestem, little bluestem, [also wheat, rye, and oats (not native but not invasive)]
Shrubby lespedeza, bicolor lespedeza, Sericea lespedeza, Chinese lespedeza	Native Lespedeza: virginica (Virginia), procumbens (trailing), capitata (bush clover), hirta (hairy), angustifolia, Desmodiums (tick trefoil), partridge pea
Privet	Yaupon holly