

The *REYNOLDA GARDENS*  
of Wake Forest University

Summer  
2008

# Gardener's

JOURNAL

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## Reynolda Gardens of Wake Forest College: The Deeds of Gift

by **Camilla Wilcox**, RGWFU curator of education

*Whereas, it is the purpose and desire of the Grantors to enhance the educational facilities of Wake Forest College, particularly in the field of botany, and to enhance the cultural services which Wake Forest College is now rendering to the community and to the State, and to establish Reynolda Gardens of Wake Forest College... (as a) garden having an esthetic and educational value...."*

*Deed of Gift from Charles H. Babcock, Winifred K. Babcock, and the Mary Reynolds Babcock Foundation to Wake Forest College, March 4, 1958*

This document was the first in a series of Deeds of Gift\* that named, protected, and conveyed the property now known as Reynolda Gardens of Wake Forest University to Wake Forest College. Looking back, one would expect to find evidence that this event was heralded through the city; at the very least, there would be a formal announcement in the newspaper. After all, we know that generations of city residents and visitors already felt great affection for these gardens, which had been open to the public for over fifty years by then. Many people thought of the gardens as their own—a special place for quiet walks and family pictures. Now the place would be preserved and kept open to



THE MEADOW WAS GIVEN TO WAKE FOREST COLLEGE IN 1961.

## To Mow or Not to Mow, That is the Question

by **Preston Stockton**, RGWFU manager

This spring Jim Alty, Associate Vice President of Facilities Management and Campus Services at Wake Forest University, called me to talk about the large field that is part of the Reynolda Gardens property. This area, about twenty-four acres in size, is bordered by Reynolda Road, Coliseum Drive, and the driveway that leads up to the entrance of Reynolda House Museum of American Art. In the first decades of the twentieth century, this area was a nine-hole golf course that was used by the Reynolds family\*. The Sustainability Committee at the University, of which he is a member, was suggesting that this area no longer be mowed as a lawn but be allowed to grow as a meadow. The thought was that, by doing this, it would save fuel, cut down on emissions from the mowers, decrease storm water run-off, and provide habitat for wildlife. I thought it was a very interesting suggestion.

This is my twenty-seventh growing season at Reynolda Gardens. It is amazing how much not only the Gardens has changed but also the world, during this time. We know that the winters are warmer, the summers are hotter,

and rainfall is no longer dependable. Mother Nature has always been the true boss here, and she gets harder and harder to work for. Letting her assume a larger role in the care of the meadow was very appealing.

The Gardens staff wears many hats. Besides being

## To Mow or Not to Mow, That is the Question

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horticulturists, we are also preservationists, educators, and environmentalists. It can often be hard to determine which of these areas should take precedence. The preservationist in me says that this field should stay neatly mowed as it has for many years, though our mowers keep it better maintained than the Reynolds' sheep did. But the educator in me cannot find anything in mowed Bermuda grass for us to teach. And the environmentalist in me sees the waste of fuel and manpower, as well as the pollution emissions, hard to justify.

The Environmental Protection Agency estimates that fifty-four million Americans mow their lawns every weekend with gas-powered mowers that use eight hundred million gallons of gasoline a year. In April 2007, the EPA proposed new emission standards for lawn equipment that will be implemented starting in 2011. Until then, mowers will continue to have unregulated emissions. One gas mower emits eighty-seven pounds of CO<sub>2</sub> and fifty-four pounds of other pollutants into the air every year. One gasoline push mower running for an hour produces the same pollutants as eleven new cars, a riding mower as much as thirty-four cars. The EPA also estimates that seventeen million gallons of fuel, mainly gasoline, are spilled each year while refueling lawn equipment. This is more than all the oil spilled by the Exxon Valdez in the Gulf of Alaska. I would assume that this situation will only get worse, considering that a recent study by researchers at Ohio State University estimates that the space devoted to turfgrass in the United States is growing at the rate of almost six hundred square miles a year. No matter how you look at it, the statistics are sobering.

Besides the pollution concerns, there is also a habitat consideration. Recently the *Winston-Salem Journal* printed an article about the dramatic decline in the population of many birds that depend on grasslands to feed and raise their young. These include the Eastern Meadowlark, Loggerhead Shrike, Grasshopper Sparrow, and Northern Bobwhite. The decline in populations in North Carolina is blamed in part on the fact that farmlands are decreasing at a rate of one hundred thousand acres per year. According to the Conservation Trust of North Carolina, this is the fifth highest rate in the country.

Reynolda Gardens is part of the NC Birding Trail\*\*. During a two week period this spring, we were surrounded every morning by birders, binoculars in hand. There was a fabulous bird migration, and everyone was very excited. One morning on the nature trail, one of the birders asked me to please thank the powers-that-be at Wake Forest for Reynolda Gardens and for providing such a wonderful habitat for the birds. We are very proud of this. Establishing a mixed grass and herbaceous meadow will provide additional food, nesting areas, and shelter for resident and migrating birds. It will also provide habitat for small mammals and reptiles, which will attract raptors, such as hawks and owls. We also plan to incorporate meadow wildflowers to provide a nectar source and, hopefully, attract a variety of butterflies and other pollinators.

### Developing the Meadow

This summer we have allowed the field to grow without any modification. It primarily consists of several species of grasses, plantain, asters, goldenrod, and false dandelion. The idea that an attractive meadow, as well as one that supports wildlife, springs forward with no thought or plan is, unfortunately, not realistic. I have been consulting with David Davis, manager of Landscape Services on the Wake Forest University campus and a member of the University Sustainability Committee. He lives on eight acres in Lewisville, where he has developed a meadow on his own property.

I have also been corresponding with Ernst Conservation Seeds to develop a seed mix that would be appropriate for the North Carolina piedmont area. It is ideal to purchase a native seed mix from local sources. Although Ernst is located in Pennsylvania, it offers seed for species that are North Carolina ecotypes. This means that the seed come from plants that are adapted to the environmental conditions in this particular area. Seed collected from a black-eyed Susan, *Rudbeckia hirta* grown in midland Texas will not be as adaptable as seed from the same species grown and collected in piedmont North Carolina, and vice-versa. Our mix will be free of filler or seed that are of non-native or invasive species, and it will include native grasses that will provide food and cover for wildlife.

The plan for the meadow this fall is to mow it around the first of September. This timing is not ideal, but it needs to be done to prepare for planting the seed. We will use a seed drill to sow the seed directly into the soil. This method avoids having to till and prepare a seed bed. We plan to plant a different section every year

until we cover the entire field, and then we will continue introducing new varieties of plants after that. We are looking at this as being a long-term project, and one that we are very excited to see develop.

**Plants for the Meadow Seed Mix, Fall 2008**

<i>Coreopsis lanceolata</i>	Lance Leaved Coreopsis
<i>Helianthus angustifolius</i>	Swamp Sunflower
<i>Monarda punctata</i>	Spotted Bee Balm
<i>Penstemon laevigatus</i>	Appalachian Beardtongue
<i>Rudbeckia hirta</i>	Black-eyed Susan
<i>Solidago rigida</i>	Gray Goldenrod
<i>Asclepias sp.</i>	Milkweed, various species
<i>Symphotrichum sp.</i>	Aster, various species
<i>Parthenium integrifolium</i>	Wild Quinine
<i>Schizachyrium scoparium</i>	Little Bluestem
<i>Sorghastrum nutans</i>	Indiangrass
<i>Tridens flavus</i>	Purple Top
<i>Panicum virgatum</i>	Switchgrass



\* For more information on the history of the golf links, see the *Gardener's Journal*, Winter 2003, which is archived on the Publications Page of the Wake Forest University website [www.wfu.edu](http://www.wfu.edu)

\*\*The NC Birding Trail links birding sites throughout the state. It is divided into three regions: the coastal plain, the piedmont, and the mountains, with guidebooks completed for the coastal plain and the piedmont and nearing completion for the mountains. The trail is a partnership of NC Wildlife Resources Commission, NC State Parks, Audubon NC, US Fish and Wildlife Service, NC Sea Grant, and NC Cooperative Extension. For further information, or to purchase a guidebook, see the website [www.ncbirdingtrail.org](http://www.ncbirdingtrail.org).



THE GOLF LINKS ARE CLEARLY VISIBLE IN THIS VIEW, TAKEN BY AERO SERVICE PHILADELPHIA IN THE 1920S. THIS AREA, WHICH HAS BEEN MOWED FOR MANY YEARS, WILL NOW BE MANAGED AS A MEADOW.



GRAZING SHROPSHIRE SHEEP KEPT THE GRASS SHORT ON THE GOLF LINKS. PHOTOGRAPH BY THOMAS W. SEARS, C. 1920.

Millie, the garden cat, has had an unusual number of visitors over the summer, in response to feature stories in the *Winston-Salem Journal* and on WXII television. Sadly, the stories concerned her recent diagnosis of lymphoma. Because of her advanced age, estimated at about sixteen years, she will not undergo treatment. Her veterinarian assures us that she is comfortable, and we are monitoring her closely. She enjoys leading tours through the gardens as much as ever. Here, she is waiting on the bench in front of the greenhouse for the first visitor of the day.





## Reynolda Gardens of Wake Forest College: The Deeds of Gift

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them forever. Hooray! But this was not the case. The only mention of the gift in local newspapers came in Algine Neely's garden column in the *Winston-Salem Journal* on the following Sunday. She is highlighting area estates and gardens that could be included in a "spring garden pilgrimage." Several are pictured, including Reynolda. "The Reynolda Gardens, featuring a vast array of colorful Japanese cherry trees, draw thousands of visitors each spring, especially when Easter comes early and the gardens are in bloom coincidentally with the famed Moravian Easter sunrise service." She continues, "Incidentally, the Reynolda Gardens were just recently presented to Wake Forest College as a gift." Then she moves on to another garden. The response by city residents to the next gift was another matter.

### Changing Times in Winston-Salem, the Late 1950s and Early 1960s

*Whereas, it is recognized by the Grantor that with the increasing turbulent pace of our civilization and with the vibrant growth of the metropolitan area of the City of Winston-Salem, there is an evergrowing need in Forsyth County for land areas to be set aside, preserved and enhanced in the beauty of their natural state, which land areas can become a refuge for relaxation and contemplation and a haven for reflective outdoor leisure to all mankind...to enlarge the established Reynolda Gardens of Wake Forest College in order that open space areas of pastoral beauty may be maintained in perpetuity within the City of Winston-Salem.*

*Deed of Gift from the Mary Reynolds Babcock Foundation to Wake Forest College, Charles H. Babcock, president, December 27, 1961*

By the late 1950s, the new campus of Wake Forest College was settling into the north side of the Reynolda estate, incorporating a little over three hundred acres of former farmland and orchards. Much of the original estate had already been sold, but more than two hundred acres near the campus remained in family or Foundation ownership. Pressure was building on this property, as development encroached from all directions. A Western Electric plant had recently opened on the west side of Reynolda Road,

bringing hundreds of new employees and their families to work and live in the area. To the north and west, neighborhoods were under construction for them, as well as for Wake Forest College faculty and staff. To the southwest, the affluent Buena Vista neighborhood was expanding northward, in concert with the growth and prosperity of local industry and business. A densely populated African-American community was squeezing into any available space to the east. To the northeast, industrial development was booming. The city, with a population numbering close to 90,000, was on the move, and its general direction was toward Reynolda, fast.

The sudden influx of drivers brought an urgent need for new roads throughout the city. Several major thoroughfares opened around this time. The East-West Expressway, now known as Business 40, opened in 1958. Then Silas Creek Parkway opened in the fall of 1961, providing a direct route to the Western Electric plant, as well as to the west entrance of the campus.

In the fall of 1961, an extension of Silas Creek Parkway, which had been shown on the 1956 road survey, was under study by city officials at the request of some of the aldermen. It would begin on Reynolda Road at the campus entrance, cut between Faculty Drive and Lake Katharine, cross the Old Town Country Club golf course, and connect with 33<sup>rd</sup> Street, linking drivers to the new Northside Shopping Center and industrial areas nearby.

Rumors began to spread in the fall of 1961 that construction would soon be underway. The outcry against it was instant and vociferous. Faculty and staff of the College, many of whom had recently built or purchased homes on Faculty Drive, as well as prominent alumni, rallied against it. In mid-December a meeting was held on campus to discuss the situation. The group had created a brochure, which they distributed to media across the state, outlining the many reasons why the road should not be built. Among the concerns cited was cutting off access to a section of the Old Town Club property that might later be used for expansion of the campus. Thus, they said, the road would be in violation of "...a precedent in North Carolina that heavily traveled traffic arteries should not be placed on or near college campuses." They cited several traffic counts. One, taken on Faculty Drive in October, showed only 354 cars in a five hour period. It was contrasted with a projected influx of thousands of vehicles whizzing by on a parkway a few feet away. One study showed that even the heavy traffic precipitated by the new Whitaker Park cigarette manufacturing facility to the northeast moved away from, not toward, the campus. Many other reasons and points of argument were present-

ed, but, perhaps most poignantly, their disappointment in the city can be heard in this statement: “At the time it was decided to move Wake Forest to Winston-Salem in 1946, no major thoroughfare was aimed toward the campus.”

Robert G. Gregory wrote an opinion editorial for the *Winston-Salem Journal* on December 20, 1961\*\*, pointing out that the faculty had been assured by highway commissioner James A. Gray in 1956 that a road would not be built in the area without “...the wholehearted approval of the college and other property owners in that area.” Mr. Gregory painted a bleak picture of how this road would affect the faculty, and, in turn, the College. He said that the homes had been sited to take advantage of the view, which at that time would have included Lake Katharine, the Old Town Club golf course, woods, and the barn complex. If the road were to go through, as close as one hundred feet from houses in some cases, he said, “The inspirational and tranquil setting, so necessary to a contemplative life, would be seriously impaired.”

Exchanges had continued in the newspaper for several weeks, in the form of letters to the editor and reports of lively meetings of the opposition. Then, on December 27, 1961, Mr. Babcock, representing the Mary Reynolds Babcock Foundation as president, signed another Deed of Gift to the College, turning over a total of 125 acres, which included Lake Katharine and the land around it, as well as additional property that could potentially be incorporated into the new roadway. This gift, which did not include nineteen acres immediately surrounding the family home, was highly restricted so that the land, which also included the woodlands and open fields at the heart of the estate, would always remain just as it was at the time of the gift. Structures could not be built, and a host of activities, such as sporting events, picnicking, and concession sales, were prohibited.

According to a December 29 article about the city’s new roadway system in the *Winston-Salem Journal*, a twenty-four hour traffic count of the new intersection of Reynolda Road and Silas Creek Parkway in December 1961 tallied almost fourteen thousand a day. “Reynolda Road was in trouble before the parkway opened. During the morning and afternoon cars...backed up for blocks.” There was no mention of the proposed extension.

Two months later, after the deed was recorded, an editorial entitled “A Gift to Be Thankful For,” appeared in the College newspaper, *Old Gold and Black*, viewing this gift as key to the future expansion of the College.

“To some degree the College-owned land will serve as a deterrent to any further proposals for a parkway extension, since any roadcutting across this

area would now run through College property and cut off a large portion of the campus.”

Public discussion on the future of the extension at this location ceased, and Silas Creek Parkway ended at Reynolda Road. Nearby roads were improved to ease congestion, but decades would pass before the Parkway would be joined with University Parkway to complete a connector to the north side of the city; eventually, the quarter-mile section from this new intersection to its former terminus at Reynolda Road would be renamed Wake Forest Road.

### Epilogue

The comments in the Deeds of Gift concerning the need for respite from the challenges of urban life often draw a smile from people who read them today. We are so accustomed to the busyness of life that we hardly even notice the constant drone of traffic on Reynolda Road when we are in the beautiful formal gardens or on Coliseum Drive when we walk the trail around the meadow. So, without the context of the time, readers are left to wonder what pressures could possibly have been incumbent on people living in a city that, by comparison and in hindsight, seems so, well, small. Who could possibly have envisioned what the city would become, and how much this place would be needed fifty years on? Who would have cared enough about future generations to give this valuable land away?

But indeed, even after the heady years of the 1950s and 1960s, the city continued to grow steadily; it now counts 135,000 more citizens than it had in 1958. Thanks to the generosity of the donors, faculty and students still have Reynolda to calm and inspire them, but they are a comparative few among the hundreds of thousands of people who come to Reynolda every year for rest and renewal. For almost fifty years, the frenzied rush of modern life has flowed around Reynolda, in the way that water flows around a rock in a stream. In the stroke of a pen, this extraordinary, pastoral place of meadows, woodlands, wetlands, and gardens was preserved so that, no matter what pressures arise from outside its boundaries in the years to come, there will always be a haven for us all at Reynolda. 🌿

\*The first two deeds are discussed here. A third, in 1962, transferred two acres to complete the holding.

\*\* The piece was later reprinted in *Old Gold and Black*.

## The Truth About Bats

by Michelle Hawks, RGWFU horticulturist

**B**ats are highly misunderstood animals. Scary stories and vampire movies have led people to believe they are dangerous. While it is true that there are vampire bats, they are native to tropical regions, and even there rarely pose a threat to humans.

Many other myths are common. For example, you've probably heard it said that someone is "blind as a bat," but bats are not blind. Most can see as well as humans. Fruit bats have eyesight that is adapted to low light, much like cats, and can see in color. But since most bats come out at night or sundown, they don't rely on their eyes very much. In the dark, bats' excellent hearing is much more important, and they keep their big ears very clean. Insect-eating bats are equipped with a built-in sonar system, called echolocation, which allows them to navigate at breakneck speed through total darkness. While they are flying, they make high-pitched squeaks. When those squeaks hit a tree or a bug, the sound bounces back at the bat. As soon as he hears it, the bat knows what is in front of him. If it's a tree, he flies around it. If it's a bug, he flaps towards it and captures it by wrapping his wings or tail membrane around it, like a scoop. Then he bites the insect with his sharp teeth. All this happens while he is flying, and that's why bats look like they're doing acrobatics in the air; fancy flying is a bat specialty. When they are thirsty, they fly low over a lake and scoop up water in their mouths without splashing in. This unique ability is literally thousands of times more efficient than any similar system built by humans and probably gave rise to the myth that bats will become tangled in hair, but, in fact, if a bat swoops toward you, it's probably after the mosquito that is hovering just above your head, not your hair.

Bats are such unique animals that scientists have placed them in a group all their own, called *Chiroptera*, which means hand-wing. These flying mammals are highly beneficial creatures that contribute to our environment in numerous ways. They serve as important pollinators of many food plants and provide useful aids for medical research, particularly for the blind. They are the only major predator of night-flying insects. These natural pest removers can eat up to their weight in insects every night. Their prey includes lacewing, cockroaches, gnats, and mosquitoes. A single Big Brown Bat can eat between three and seven thousand mosquitoes in a night, with large populations of bats consuming thousands of tons of potentially

harmful forest and agricultural pests annually. In many parts of the world, they also help expand populations of plants and trees by eating fruit and dropping the seeds into the soil.

Bats are shy, gentle, and very intelligent. They are among the slowest reproducing animals on earth. Most bat species have only one live young per year. A mother bat nurses her baby from a pair of pectoral breasts. The average life span of a bat is twenty-five to forty years.

Many people think that bats are ugly or dirty, but I disagree. Most bats have very cute faces; some even resemble deer, rabbits, and little Chihuahuas. Like cats, bats spend an enormous amount of time grooming their fur, keeping it soft and silky. Now doesn't that sound cute? My fascination with these animals began at home last summer. A Little Brown Bat took up residence on our front porch. It came one day and started roosting directly across from the front door, up on a ledge under the porch eave. We were amazed by this tiny creature and would look for him each morning. Eventually we even named him Little Dracula. He would hunt each evening, waking up and slowly stretching out his wings for about five minutes and then going through an elaborate cleaning ritual. This would begin around 8:30. By 9:00 he would fly away to begin his feeding. The next morning, there he would be, fast asleep on the ledge for the entire day. He lived there all summer long and into late fall. We believe he took up residence in a dead tree or local barn for his winter hibernation. This summer, each night at dusk, we see a pair of bats flying around our house and up and down the driveway, about eight inches above our heads. We plan to install our new bat house before fall and hope that our little friends overwinter and help us out again next year. 🦇

### Questions and Answers about Bat Houses

**Will a bat house interfere with my bird house?**

No, birds and bats do not compete for food or space.

**Will a bat house attract bats to live in my home?**

If bats were attracted to your home, they would probably already be roosting there.

**How can I tell if bats have found my bat house?**

Colonial bats are often noisy throughout the day as they change roost mates or compete for a favored spot in a roost. Also look for bat droppings on the ground beneath the bat house.



## How to Build a Bat House

**B**at populations are declining. Half the bats in the United States are listed as rare, threatened, or endangered. People are the bats' greatest enemy because we destroy their habitats and disturb their hibernating and maternity roosts; but many people are helping bats as well, by hanging bat houses on buildings or sheds near their homes. These wooden boxes have narrow spaces inside for the bats to sleep and are easy to build. By placing a bat house near your home, where there are plenty of insects and a source of fresh water not only will the bats benefit but you will benefit as well, by having fewer yard and garden pests.

The participants in the Young Naturalists program this summer built bat houses. The following method worked well for us\*. To make a bat house you will need:

- 🌿 One-fourth sheet of outdoor grade plywood, cut into three pieces: 26 ½" x 24" (back); 16 ½" x 24" (top front); 5" x 24" (bottom front)
- 🌿 One piece 1" x 2" x 8' pine, cut into pieces: one 24", two 20 ¼"
- 🌿 Eighth-inch mesh plastic netting, 20" x 22 ½"
- 🌿 Twenty to thirty 1 ¼" rust-resistant or coated screws
- 🌿 One quart flat, water-based paint or stain, any dark color
- 🌿 One pint exterior primer, water-based
- 🌿 One pint exterior paint, water-based\*\*
- 🌿 One tube paintable latex caulk
- 🌿 Heavy-duty stapler and ⅝" stainless steel staples
- 🌿 1" x 3" x 28" board for roof overhang, optional



JOHN KIGER PREPARED THE PIECES FOR THE BAT HOUSES AND SUPERVISED THEIR CONSTRUCTION, WITH THE ASSISTANCE OF MICHELLE HAWKS AND VOLUNTEERS.



FINISHED BAT HOUSES ON DISPLAY AT THE BOATHOUSE FOR THE FRIDAY SHOW FOR PARENTS AND FRIENDS.

- 🌿 Paint one side of each of the larger plywood pieces with two coats of dark color paint. This will be the interior of the house.
- 🌿 Put caulk on the twenty-four inch long strip of pine and screw it to the top of 26 ½" x 24" piece of plywood, on the painted side. (The pine strip will be the same length as the plywood piece.) Then, put caulk on the other two pine strips and screw them to the right and left.
- 🌿 Staple the plastic mesh netting to the plywood on the painted side. Bats will cling to the mesh, so make sure it is flat.
- 🌿 Put caulk around the edges of the painted side of the 16 ½" x 24" plywood piece and screw it to the back, making a "wood sandwich" with the pine strips in the middle. Do the same with the 5" x 24" piece of plywood, but leave one-half inch between the top front piece and the bottom front piece for a vent.
- 🌿 If you want to add a roof overhang, caulk and attach the 1" x 3" x 28" board.
- 🌿 Paint the outside of the house. The first coat should be a primer, and the last two coats should be exterior, water-based paint or stain.
- 🌿 Mount your bat house against a building at least fifteen feet off the ground. Make sure it is not near bright lights. If you don't want to develop all these carpentry skills, you can buy bat houses at bird supply stores.



\*Adapted from Bat Conservation International website [www.batcon.org](http://www.batcon.org).

\*\*The color should be black where average high temperatures in July are less than 85 degrees; dark colors such as dark brown or dark gray where they are 85 to 95 degrees; medium colors where they are 95 to 100 degrees; and white or light colors where they exceed 100 degrees. We used a mid-range color, taupe, on the houses we made with the Young Naturalists.

## In the Gardener's Hands— Caring for the Natural World

by David Bare, RGWFU greenhouse manager

In 1927 the hemlock woolly adelgid, *Adelges tsugae* arrived in the Northwestern U.S. on nursery stock shipped from Asia. The insect, a kind of fuzzy aphid on steroids, spent many years as a pest on western hemlocks, *Tsuga heterophylla* before being shipped east on nursery stock in the 1950s. What was a pest on western hemlocks proved lethal to eastern hemlocks, *T. canadensis*, killing mature trees in one to four years. Entire forest systems in the southern Appalachians have been stripped of mature hemlocks because of predation by the woolly adelgid.

This is one of several episodes recounted in Douglas Tallamy's recent book, *Bringing Nature Home, How Native Plants Sustain Wildlife in our Gardens*. Tallamy is Professor and Chair of the Department of Entomology and Wildlife Ecology at the University of Delaware. He recounts a long list of introductions that have had a devastating effect on our ecosystems.

The balsam woolly adelgid, *Adelges piceae* has devastated native stands of the Fraser fir, *Abies fraseri*, the dark conifer that once crowned the Appalachians' highest peaks. The decline of the Fraser fir is one more thread loosed from the fabric of the Appalachian ecosystem, one preceded, of course, by the demise of the American chestnut, *Castanea dentata*. The chestnut's downward spiral began in 1876 with the importation of the Japanese chestnut, *C. crenata*. The Japanese species carried the fungus *Cryphonectria parasitica*, whose spread was exacerbated by the beginnings of the nursery mail order business—gardeners excited by the prospect of growing Japanese, giant chestnuts helped spread the chestnut blight throughout the east coast. The American chestnut was the dominant hardwood in the southern Appalachians and the most productive mast species in the forest. Today it is functionally eliminated from the eastern deciduous forest ecosystem.

The Japanese beetle first appeared in this country in 1916, when Henry A. Dreer, a nurseryman from New Jersey, imported some Asian irises with the beetle larvae in the rootball. (It is interesting to note that Dreer was the primary supplier of plants to Katharine Reynolds, but there does not appear to be a further connection with Reynolda.)



THESE HEMLOCKS IN REYNOLDA VILLAGE ARE THRIVING, THANKS TO YEARS OF CAREFUL MAINTENANCE.

The catalog of invasive insects, pathogens, and diseases imported on plants is encyclopedic and continues to this day. We are now faced with Sudden Oak Death, which originates on rhododendrons and camellias.

### Gardeners: Cause and Solution

It is not always the pests on the plants that are a nuisance; in many instances it is the plant itself. North Carolina lists over one hundred plants on its noxious weed list. Many federally listed species, such as multiflora rose, *Rosa multiflora*; tree of heaven, *Ailanthus altissima*; and Japanese honeysuckle, *Lonicera japonica*, are found right here in Reynolda woods and are regular visitors to the garden. Once again, gardeners must claim responsibility for their introduction.

Invasive plants do more than consume habitat and displace native species. In his book, Tallamy notes that ninety percent of native insects have specific host plants, like the well-known monarch butterfly caterpillar that eats only milkweed. When we lose these native species of plants we lose the insects dependent on them. As the insects disappear, the migrant songbirds, already troubled with habitat loss and pesticide misuse, suffer another blow to their survival.

Gardeners are ultimately responsible for these introductions, albeit inadvertently, and gardeners paradoxically may be responsible for turning the situation around. We can reduce the area we devote to lawn, a landscape feature that Americans spend 6.4 billion dollars on annually and that accounts for almost one-third of all residential water use, totaling seven billion gallons a day. We can use island and hedgerow planting strategies that will concentrate resources into a particular area, rather than disbursing them widely about the yard. We can choose plants wisely, avoiding those that may become pests and choosing those that support native insects and wildlife and are drought tolerant. Love for the natural world and the beauty and diversity of its creatures is something that most gardeners share. Naturally we will want to be part of the solution.

Tallamy lists several native plants with desirable attributes in the appendix of his book, along with a section on host plants of butterflies and showy moths. Another excellent reference published by the Brooklyn Botanic Garden is *Native Alternatives to Invasive Plants*. 🌱



THE WOOLLY ADELGID, SHOWN HERE, HAS DEVASTATED HEMLOCK FORESTS.



## Learning New Things in the Garden

by John Kiger, RGWFU assistant manager

A woman once asked my father why he grew a garden. Dad's response was, "I like to see things grow." When I heard that, I knew we shared a special interest. Dad's approach to gardening mimicked my own or, should I say, mine mimicked his. In our gardens at home, we both grew the basics: tomatoes, corn, beans, potatoes, and squash. Simple, yet it fed the family. However, at Reynolda Gardens I often grow things in the vegetable garden that I have never grown before, such as dinosaur gourds or rattlesnake snap green beans. I consider it a learning experience, and it's fun to share something new.

*Cynara cardunculus*, Cardoon  
"Excuse me, what is that plant?" Beginning in spring 2007, that question has been asked many times by visitors to Reynolda Gardens. The answer, "It's called a cardoon." Also called the artichoke thistle, this member of the aster family is native



A RARE MOMENT IN THE EARLY MORNING, WHEN THE CARDOON FLOWERS WERE NOT COVERED WITH HONEYBEES.

to the Mediterranean and has been documented as a garden plant dating back to the fourth century. It remained popular and was known to be a common planting found in the gardens of colonial America. The plant grows to a height of five to six feet with a spread of equal proportion. The flowers, which arrive on the second season's growth, are quite spectacular. They resemble a purplish-spiked ball, around two and a half inches in diameter. The celery-like stalks can be eaten steamed or boiled, but they require a lengthy cooking time, generally around two hours, with the stalks being cut into two-inch strips. The main root of the plant may also be eaten when boiled and served cold. The passion for this plant fell in the late nineteenth century, most likely due to its invasive nature. In some areas, it is considered a noxious weed, but, after seeing how honeybees were attracted to the flowers, I see a beneficial use for this plant. Information I have found suggests not letting it go to seed. Give this one plenty of room to grow.

### *Sorghum bicolor*, Mixed Colors Broom Corn

This plant looks like corn but is actually a type of sorghum. It produces seed heads that range from sixteen to twenty inches above the top of the plant. Colors of seed heads range from black, to bronze, gold, burgundy, and

brown. As seeds mature, they become heavier and shiny. Originating in Africa, this plant reaches a height of eight to ten feet, according to Seed Savers Exchange. At this writing, however, our plants are a minimum of fifteen feet and appear to be growing still. There are dwarf varieties that only reach three to seven feet in height. Obviously this plant is very happy in our climate, in fertile and warm soils. What attracted me to broom corn was the diversity of colorful plumage it produces. The main use of this plant is for floral arrangements. As the name suggests, it can be used to make brooms. If used for this purpose, it is harvested before the seeds mature.



BROOM CORN AT TWELVE FEET AND STILL GROWING.

One thing to take note of when you are ordering seed: read the directions. As I came upon the entry for this plant I misread the growing height. I thought it read, "The height reaches sixteen to twenty inches." Of course that referred to the seed heads, not the entire plant. Had I paid closer attention, I would have planted them in the center of the garden. Where they are located now, the plants block the irrigation from some of the other plantings. This plant grows extremely well in heat and drought conditions.

### *Solanum mammosum*, Nipple Fruit Eggplant

Every year I grow at least two varieties of eggplant, and the staff and garden volunteers love them. Personally, I have never acquired a taste for eggplant. This year I reduced it to only one edible variety and one ornamental variety, the nipple fruit. There is some uncertainty about exactly where this variety originates. Some writings have it originating in India and some in Africa. Since this is a heat-loving plant, either location would be possible. Growing to a height of five feet, the plant produces a leaf that is somewhat fuzzy, with thorns on the underside. Yellowish orange fruits, approximately three inches in length, appear along the stems in late summer. They resemble a cow's udder, which is why it is called nipple fruit.



THE NIPPLE FRUIT IS NAMED FOR ITS RESEMBLANCE TO A COW'S UDDER.

The fruit is strictly ornamental and is commonly used in floral arrangements. I suggest using it to create interest in your garden, containers around your deck or patio, and plant beds around your home.

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## Garden Hazards, Part I: Poison Ivy

by Diane Wise, RGWFU head horticulturist

I went on a major tear last week. You know how it is. All of a sudden, you just can't take any more weeds—they have to come out, and they have to come out now. Those of you familiar with my ADHD tendencies know just how crazed I can get. Anyway, I'm deep in "Diane's World," as it is referred to here, and I'm frantically pulling weeds out of the peony border, the pachysandra, and all beds in between, when I look down and realize that I'm pulling up poison ivy seedlings. They're everywhere, and I mean everywhere. In fact, come to think of it, this is one plant that seems to be thriving in our hot, dry climate. Here at the Gardens, we're producing a bumper crop, and, frankly, it just isn't a good thing.

So instead of writing about the things we *want* in our gardens—the delicious vegetables for our table, the bright flowers for the border, and the multitude of desirable insects and birds—I'm going to write about the things we *don't want* in our gardens. Let's call them Garden Hazards. In future editions of the *Gardener's Journal*, I'll discuss some of these hazards and how to deal with them. Today, I'll discuss poison ivy, *Toxicodendron radicans*, which is a member of the Anacardiaceae family. Other members of the family include poison oak, *T. diversiloba*, which typically occurs west of the Rocky Mountains, and poison sumac, *T. vernis*, which usually grows in swamps on the East Coast.

*T. radicans*, named poison ivy by Captain John Smith in 1609, is native to North America, as are *T. diversiloba* and *T. vernis*. A deciduous plant, it grows as a woody vine in some parts of the United States, mainly in the East and South, and as a shrub in other areas, primarily the West, North, and into Canada. *T. radicans* is widespread and occurs in all of the Canadian provinces except Newfoundland and the Territories and in all the states except Alaska and Hawaii. Unfortunately, it has also been introduced to Central America, Europe, Africa, Australia, New Zealand, and parts of Asia. Payback for kudzu, I guess. *T. radicans* is not picky about much of anything. It can be found in wooded areas, open fields, and on rocky outcrops. Insensitive to soil moisture or pH, poison ivy can tolerate seasonal flooding and brackish water. Although it prefers sun and will climb trees to array itself on the canopy, it is also somewhat shade toler-

ant and will grow as an understory plant in heavily forested areas. The only place I've found that *T. radicans* will not grow is at an altitude above five thousand feet or in a desert.

### How to Identify Poison Ivy

To avoid poison ivy, you must be able to identify it. Remember, prevention is always better than treatment. As a shrub, *T. radicans* may reach three to four feet in height; as a groundcover, four to ten inches high; and as a vine, who knows? The vines may become extremely large and thickly covered in root-hairs; hence, the saying, "Hairy vine, no friend of mine." Often the vines send out lateral branches that may be mistaken for tree limbs. Each branch of *T. radicans* contains three leaves, and each leaf contains three almond-shaped leaflets, hence the phrase, "Leaves of three, let them be." The center leaflet is on a stalk that is longer than the other two. In general, the leaflets range in length from one to five inches, but particularly vigorous specimens may have leaflets measuring a foot long. The leaflet surface is smooth and has few or no

teeth along its edge. Leaflet clusters are alternate on the vine. As the new leaves appear in the spring, they are usually glossy and reddish in color, changing to a darker green during the course of the summer. Insignificant flowers of yellow-green appear in May and last until late July. The berries, called drupes, are gray-white in color and are produced from August through November. I know these old say-

ings are getting tiresome, but remember "Berries white, run in fright." The drupes serve as a favorite winter food source for some birds and pass through the gut undigested, emerging on the other end viable and ready to begin another colony of poison ivy.

### The Chemistry of Pain

Okay, let's get down to the nitty-gritty of why *T. radicans* is such a pain. All members of the Anacardiaceae family contain a sticky, carbon-based compound called urushiol, pronounced you-ROO-shee-all. Direct exposure to urushiol can cause an itching rash, a type of contact dermatitis that is actually the most common allergic reaction in the country, with approximately eighty-five percent of the population affected. The remaining fifteen percent are resistant to the compound, although most will become sensitized with repeated exposure. The degree of reactivity tends to be genetic; if your parents developed a serious rash from poison ivy, you probably will also. The good news is that the severity of the reaction often lessens as one ages, and some



people will lose their sensitivity entirely later in life. Just how potent is urushiol? The average person only requires one hundred nanograms, a ten millionth of a gram, of urushiol to react, while one nanogram, a billionth of a gram, is all that is needed to produce a rash in a sensitive individual. And, get this, only one-fourth of an ounce would cause a rash on every person on earth. I'd say that's pretty potent. Urushiol is also long lasting and has been known to remain active for up to five years on the dead vines, leaves, and roots of *T. radicans*. In poison ivy, urushiol is present in all parts of the plant, including the stems and roots. The cashew nut, *Anacardium occidentale* contains urushiol in its shell—maybe that's why cashews are only available shelled—and the mango, *Mangifera indica* contains it in the leaves and sap, as well as in the skin of the mango fruit. Some individuals, including yours truly, develop a rash from peeling mangos or eating them directly from their skin.

### The Effects of Exposure

For the majority of the population, exposure to *T. radicans* follows a pretty standard course. Although urushiol begins to penetrate the skin in minutes, the rash usually does not appear for twenty-four to seventy-two hours. Symptoms may be mild, moderate, or severe and include intense itching; redness, known as erythema; and swelling. The rash often begins as small, red bumps that later develop into blisters of variable sizes. The blisters may ooze a clear fluid and will usually crust over in a few days. The rash typically resolves in two weeks but, untreated, may last for a month. It will appear on any part of the body that has come into contact with the plant, often as a straight line or streak across the skin. Different skin areas may break out at different times, depending on the sensitivity of the affected skin, making it appear as if the rash is spreading. It isn't, although that's a common myth. Leakage of the blisters' fluids does not spread the rash either. Poison ivy *does not* spread, nor is it contagious. It can only be spread by additional exposure to urushiol, which often lingers on hands, clothing, gardening tools, and shoes.

If you've never experienced the rash of poison ivy, this probably doesn't sound too bad. Some itching, a little swelling, and you're good as new. Wrong!!! Nothing can make you more miserable. And, unfortunately, the dermatitis isn't always just an issue of discomfort. It can be very dangerous, and complications do occur. Scratching may prolong the rash and can result in a secondary bacterial infection, as well as increase the risk of scarring. Problems also result when urushiol is inhaled, and the rash appears on the lining of the nose, throat, and lungs. This is an acutely painful condition that may result in serious respiratory

distress. And if, heaven forbid, you accidentally ingest *T. radicans*, the result can be damage to the digestive tract and kidneys. The most significant complication from exposure to urushiol, though, results in anaphylaxis, a serious allergic reaction that can be life-threatening. Anaphylaxis always requires immediate medical attention. Its symptoms include difficulty breathing or speaking, tightness in the chest, wheezing, dizziness, lightheadedness, and swelling around the nose and mouth. If someone you know experiences this reaction, call 911 at once.

### Reducing Chances and Effects of Exposure

So now you know what *T. radicans* looks like and what it can do to you. Let's talk about how you get it and what to do if you are accidentally exposed. There are only three ways to get poison ivy. The first way is by direct contact, i.e. touching the plant. The second way is by indirect contact such as touching pet fur, clothes, or gardening tools that have urushiol on them. And the last way to get poison ivy is through airborne contact such as burning the plant, which releases urushiol particles into the air, where they can land on the skin or be inhaled into the body. So, let's say you brush up against poison ivy while working in your garden. If you're wearing long pants, a long-sleeved shirt, and gloves, you shouldn't have too much to worry about. But, if by chance, the plant has still managed to touch your bare skin, there are a few things you can try to defuse the situation. Wash the areas within fifteen minutes of exposure. The FDA recommends using rubbing alcohol; Preston concurs. Some dermatologists recommend a gentle soap and lukewarm water. I have friends who swear by heavy-duty, brown laundry soap or Lava. Remember, the compound is very tenacious, so scrub well. Immediately wash your clothing and shoes, if possible, in hot water and bleach, using the longest cycle of your washing machine. Clean your tools well with rubbing alcohol; if your shoes are not washable, they can also be cleaned this way.

In spite of all these efforts, let's say you break out with the rash. Mild cases can be treated with any of the over-the-counter products that reduce itching. My mother used to swear by tepid baths to which baking soda or oatmeal had been added, as well as cool compresses. Personally, I'm a firm believer in seeking medical help. Serious reactions may require an oral or injectable corticosteroid. Why suffer if there is help out there? One of our relatively common plants, jewelweed, *Impatiens capensis* has been used for centuries by Native Americans to treat the rash of poison ivy. Also called touch-me-not, jewelweed has no reported side effects when applied to the skin. It often grows alongside *T. radicans*, and we have it on the banks of Lake Katharine.



PUBLISHED TWICE YEARLY BY  
REYNOLDA GARDENS OF  
WAKE FOREST UNIVERSITY

Communications about Gardens development should be addressed to Preston Stockton, manager. Correspondence concerning *The Gardener's Journal* should be addressed to Camilla Wilcox, editor.

A calendar of events is published separately in January and September.

Layout by Dana Hutchens.

Historical photographs courtesy of Reynolda House Museum of American Art archives.

For a list of sources for plants mentioned in *The Gardener's Journal*, please send a SASE to Reynolda Gardens, 100 Reynolda Village, Winston-Salem, NC 27106.

Website: [www.reynoldagardens.org](http://www.reynoldagardens.org)



Printed on paper made of 50% sugar cane pulp and 50% recycled fiber, including 30% post-consumer fiber. No new trees used and elemental-chlorine free.

## Garden Hazards, Part I: Poison Ivy

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Herbalists swear that applying the juice from the crushed stems of jewelweed to rashes and insect bites will instantly soothe the itch and calm the inflammation. The leaves can also be used to make a poultice. It has been recommended that every gardener should keep a reserve supply of frozen jewelweed on hand that can be removed from the freezer and rubbed on the affected area as needed. Simply shred the leaves, stems, and roots of the plant and place in boiling water for fifteen minutes to half an hour, then freeze the liquid in ice cube trays. But you'd better make lots and lots. You're going to need it. According to a study by the Ecosystems Center of the Marine Biological Laboratory in Woods Hole, Massachusetts, global warming is poison ivy's best friend. Working within a region of Duke Forest, which is near Chapel Hill, researchers used a system of carbon dioxide pumping pipes to create atmospheric levels that were two hundred parts per million higher than the current norm. That's the level most global warming experts predict will be a reality in 2050. The result? Poison ivy growth surged one hundred and fifty percent in the carbon dioxide-rich forest plots, and the plants had a much more toxic form of urushiol.

Scary, huh? Maybe we should forget growing vegetables and ornamentals. I think we need to be raising jewelweed. 🌿

## Learning New Things in the Garden

CONTINUED FROM PAGE 9

One thing I have to do when it comes to plants—I have to see its lifecycle for myself. David Bare introduced me to the cardoon. As it grew to its mature height and began to flower this year, David informed me that I might want to stake it up. I did not stake it. I did believe David, but I just had to see for myself how the plant would react as it flowered. As the flowers emerge and mature, the stems get heavy and droop toward the ground. This could be from the weight of the flowers or from the mass of honeybees it attracted.

As for the others mentioned, I picked those just out of simple curiosity; however, I will admit that I did not read growing directions as well as I should have. As with any plant, whether it is in your foundation plantings or simply in the yard, there is a correct place for each. 🌿



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