MISSISSIPPI NATIVE PLANT QUARTERLY

Mississippi Native Plant Society October 1993

New Green Revolution: Plant Systems Vital Allies In Quest For Clean Air and Water

by Becky Gillette

It's nothing less than a new "green revolution". This time instead of producing more food on less land, plants are being called upon to solve crucial environmental problems by transforming wastewater and polluted air into gifts of life: pure water, fresh air, fertilizer, food for people and animals, and biomass for energy production.

When it comes to the important issue of using plants to solve pollution problems, Mississippi is leading not only the U.S. but the entire world. Aquatic plants systems known as artificial marshlands or constructed wetlands are being used across the state to purify wastewater from municipalities and individual homes. In fact, Missisippi may have more individual home and municipal treatments system than the rest of the country put together.

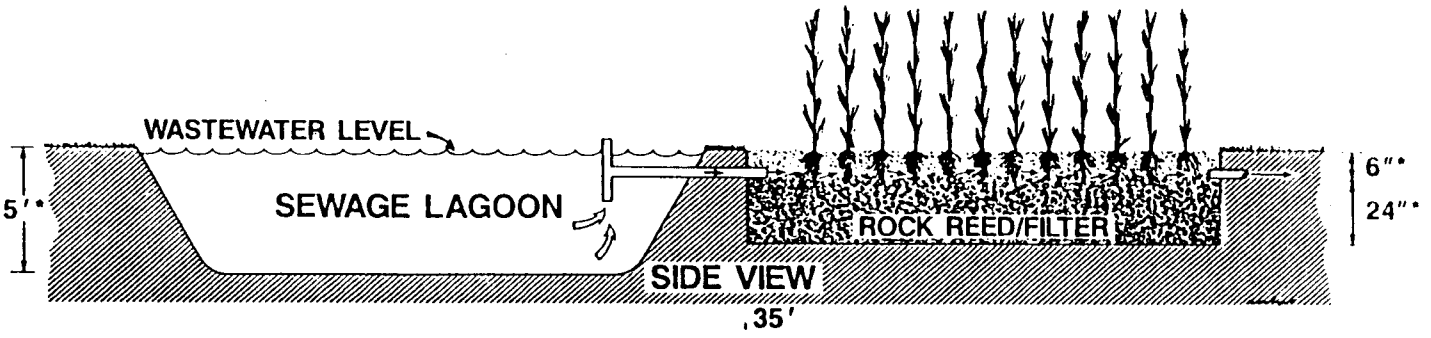
The artificial marshlands essentially farm wastewater. It's a mutually beneficial arrangement: the plants are fertilized by waste from people, and people get purified water in return.

Officials from throughout the U.S. and a number of foreign countries have been drawn to Mississippi to learn about the artificial marshland treatment systems.

"Here I am from a little country at the bottom of the world, and I specifically asked to come to Mississippi," says Her Worship Margaret Evans, Mayor of Hamilton City, New Zealand, who visited artificial marshlands in the state this past June. "I think that this has really made Mississippi famous."

The artificial marshlands are quickly becoming popular because they cost less than half as much as conventional mechanical treatment systems, and are far more energy efficient.

THE USE OF ARTIFICIAL MARSHES (ROCK-REED FILTERS) TO UPGRADE SEWAGE LAGOONS TO MEET ADVANCED WASTEWATER TREATMENT STANDARDS



There are more than 150 municipal and industrial wastewater treatment systems now in operation in the U.S. The systems primarily use native plants such as bulrushes, aquatic grasses, duckweed and cattails. Ornamental used included for their attractive flowers include canna lilies, ginger lilies, arrowhead and Louisiana water iris.

Mississippi's leading role in plants for purification is in large part due to the influence of Dr. Bill C. Wolverton of Picayune, who did pioneering work on plant systems for air and water purification at

NASA's Stennis Space Center located near Picayune. Wolverton's work had its origins in determining the best, most energy-efficient way to recycle polluted air and water in future space stations or colonies on the moon or Mars. What was found was that the best alternative is technologically simple systems that rely on common plants--instead of machines that require energy input--to recycle air and water.

Wolverton retired from NASA to become a full-time consultant, and is president of Wolverton Environmental Services in Picayune. He has designed many of the artificial marshlands in use in the U.S., and is considered one of the nation's foremost experts in the field.

This new treatment alternative comes at the same time that people--not to mention government regulatory agencies--are becoming increasingly conscious of the need to protect the environment by doing a better job treating wastewater. Yet federal funding for improving or replacing costly sewage treatment plants has largely dried up. The expense of new systems can be a heavy burden on local governments without outside assistance.

Wolverton says the mechanical systems that most of the cities and counties have been using are expensive to build, have high operation and maintenance costs, and at times don't last long enough to pay off the debt from building the systems. Also, the mechanical systems often don't do an adequate job of treating the wastewater, leaving the city or county open to fines for lack of compliance with permit requirements.

What many cities and counties are finding is that artificial marshland treatment systems not only improve the quality of treated water, but they do so at a cost that is easy on the pocketbook, costing <u>less than half as much</u> as a mechanical treatment system.

A case in point is the City of Union, Miss., which was notified in the late 1980s that it had to upgrade its wastewater treatment. The city had to meet advanced secondary treatment standards because it discharges into a creek that dries up during part of the year. Union, population 2,000, still owed $334,000 for a conventional sewage treatment facility that was obsolete. It would have cost an estimated $660,000 to upgrade the treatment system with no guarantees that the plant would meet permit requirements. A new mechanical treatment system would have cost an estimated $1.2 million with annual maintenance costs of $55,000 and energy costs of $60,000...and still no guarantees about meeting the advanced secondary treatment standards.

Wolverton proposed an alternative, a 14-acre artificial marshland treatment system designed to treat 500,000 gallons of sewage per day. The cost was only $450,000, with annual maintenance costs of about $2,000 and annual energy costs of $300 for aerators in the primary lagoon. Primary treatment is in sewage lagoon followed by secondary treatment in marsh channels about 18-24 inches deep. Final treatment before discharge is in a rock/plant filter; the small rocks (wash gravel) provide extra growth surface area for pollutant-digesting micro-organisms.

Union Mayor Max Sessums says the marsh alternative saved them an estimated $750,000 in initial construction costs, and continues to save an estimated $110,000 per year in operating costs. It's no wonder that the mayor calls the marshland systems "the future of wastewater treatment in the U.S."

Another believer is Mayor V.O. Smith of Collins, Miss., one of the first cities in the country to upgrade its treatment with an artificial marshland. "The marshland is zero cost for treating our wastewater," Smith says. "The only cost we have is mowing the grass (on the levees)."

Cleaner wastewater was particularly important for Collins because the city's system empties into the scenic Okatoma Creek, which is used heavily for canoeing and swimming.

Besides construction cost savings, artificial marshlands have a number of other distinct advantages over mechanical treatment facilities: 1. The artificial marshlands are gravity-flow and hence very energy efficient, saving large sums of money on electricity bills. 2. Since marshlands don't wear out like machinery, natural systems can last for generations. 3. More flexibility means the marshlands are able to absorb large amounts of storm water and are more tolerant of chemical shock loading. 4. Little technical training is needed to manage the systems. 5. Birds and other wildlife are attracted to the marshlands, many of which are so attractive that they do double duty as a nature preserve.

On the negative side, the technology for the best treatment results is still being refined. And, the marshlands require more land than mechanical treatment plants, which limits their use in heavily populated areas where land is scarce. But even in that situation, there are possibilities for having marshlands do double duty as parks or nature sanctuaries. Wolverton envisions that one day large city buildings will have both air and water purified with indoor plant systems. Rooftops and roadsides are also potential sites for plant purification systems in urban areas.

Wolverton believes that municipal wastewater can be recycled into the animal feed--making wastewater a potential source of income for cities and counties. Wolverton's newest large municipal systems go by the Micro/Agro Trademark to distinguish their spinoff agricultural applications. At a Micro/Agro (TM) system that recently went on line in Wolverton's hometown of Picayune, duckweed is used exclusively as the plant to filter wastewater. Wolverton favors duckweed because it is cold tolerant, is easy to harvest and has the protein equivalent of soybean meal. Drying is the only processing needed for feed. An estimated 15,000 pounds per acre of duckweed can be harvested each year in nutrient rich wastewater.

"By treating our waste and harvesting hundreds of tons of this material, we are producing a very valuable feed product," Wolverton says. "We are recycling our waste. So as we learn more about using nature to clean up our environment, we're not only cleaning our waste very economically, we are recycling. And that is what we must do."

NOTE: If you want to interest your municipal leaders in considering the green alternative in wastewater treatment, one selling tool is the video "The Green Revolution in Wastewater Treatment." The video is available at cost ($15) from the Southeast Miss. Resource Conservation & Development (RC&D) Area, Suite 323A, Wm. Colmer Bldg., 701 Main St., Hattiesburg MS 39401, (601)-545-2753 or can be rented for $5 to cover shipping by calling Becky Gillette at (601)-872-3457.

Native plants best for treatment systems

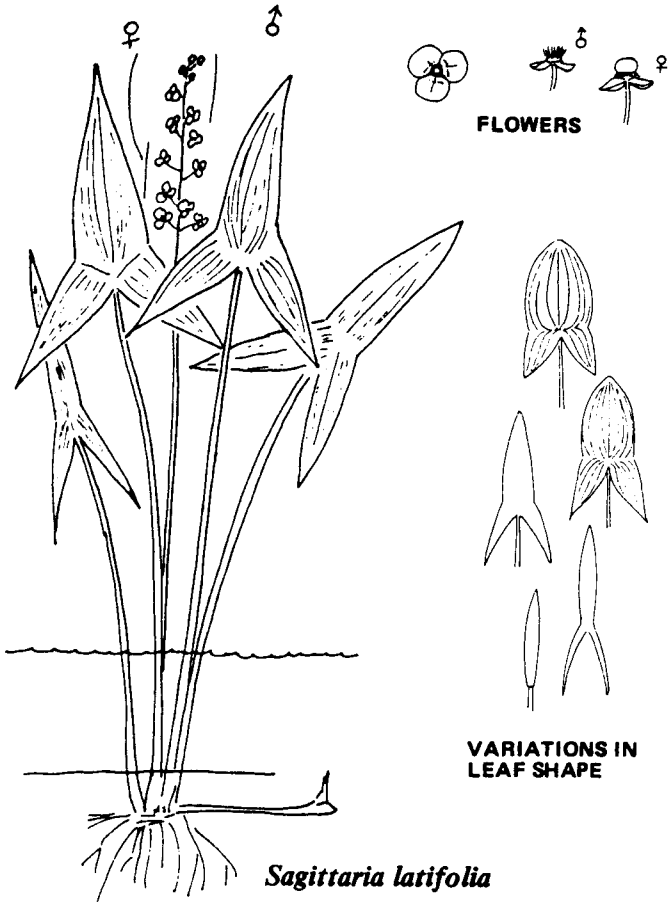
by Roger Danley

An important lesson learned early on about artificial marshlands for municipal wastewater treatment is that the best plants to use are locally grown native wetlands plants. One of the first cities in the country to use an artificial wetlands for wastewater treatment was Collins, Miss. Plans for the system called for using cattails. Unfortunately, the contractor ordered the cattails from a northern state. They promply died. The mayor went out to collect cattails from a local marsh. Not only were the plants free, but they flourished.

We have a rock/plant artificial marshland to treat the effluent from the septic tank at our home here in Ocean Springs. In the next issue of the newsletter, we'll publish an article on the home systems, and also information about artificial marshlands for treating stormwater runoff. But we didn't want this issue to go out without pointing out the importance of natives in artificial marshlands.

Besides the cattails, juncus, duckweed and bulrush common in the large municipal systems, two native genus's of interest to me are the Sagittaria (arrowheads) and Asclepias (milkweed). Both have flourished in local systems providing habitat for butterflies, birds and other wildlife. The Lousianna water iris may be one of the most important plants for home systems because it doesn't die back in the winter; growth continues and the plant looks attractive all winter. We've also found that native hibiscus thrives in a home system.

Practically any wetland plant can be used in artificial marshland systems. But more research could reveal which plants work best to treat specific pollutants. There's still much to be learned about fine-tuning plant systems to solve pollution problems.



Sagittaria latifolia

Asclepias perennis

Green thumb" could lead to safer air

by Becky Gillette

The most important house-cleaning job may not be the kitchen or the bathroom, but an unseen menace: polluted indoor air. And this is one cleaning job where a green thumb may be more valuable than elbow grease. That's because scientists have found that common houseplants remove pollutants from the air, leaving the home a healthier place to live.

You might be startled to learn that the air in your home could be more polluted than the outdoor air in downtown Los Angeles during rush hour.

"Recent research has revealed that concentrations of many pollutants can be higher indoors than out," says Anthony V. Nero Jr., co-leader of the Building Ventilation and Indoor Air Quality Program at Lawrence Berkeley Laboratory. "Even environmental scientists and engineers specializing in air pollution have been startled to discover that the highest personal exposures to combustion emissions occur not in urban smog but in homes with unvented combustion appliances (gas stoves and heaters). Concentrations of organic chemicals in homes and offices are often a hundred or a thousand times higher than they are outdoors."

Indoor air pollution due to synthetic building materials, household furnishings and smoking is an unhealthy fact of modern life. Some of those pollutants, such as formaldehyde given off by pressed wood products, are suspected carcinogens. But there is a simple, new technology for purifying indoor environments: using the "green" air cleaner, common houseplants which filter pollutants out of the air.

"Fortunately, common houseplants are quite efficient at removing pollutants from the air," says Dr. Bill C. Wolverton, whose research for the National Aeronautics and Space Administration (NASA) at Stennis Space Center in South Mississippi has shown that plants such as golden pothos, spider or airplane plants, philodendron and others can significantly reduce concentrations of dangerous indoor air pollutants.

The photosynthetic process of plants requires a continuous exchange of gaseous substances between the plant's leaves and surrounding air. Plants normally give off water vapors and oxygen, and take in carbon dioxide. Experiments have shown that plant leaves also take in other gaseous substances such as pollutants in the air through tiny openings (stomates) on the leaves.

NASA became interested in finding solutions to the problem of indoor air pollution when monitoring of the atmosphere inside the Skylab spacecraft showed traces of more than 300 volatile organic compounds. Later the Environmental Protection Agency (EPA) identified hundreds of potentially-dangerous compounds inside energy-efficient buildings.

The era of modern indoor air pollution began back during the energy crunch in the 1970s, when construction of highly energy-efficient buildings became popular. Ventilation rates were decreased to minimize use of energy for heating and cooling. By this time the use of natural wood in buildings had largely been replaced with the use of the pressed wood products and synthetic building materials that are major sources of indoor air pollution. Other sources of indoor air pollution are cigarette smoking, upholstery, carpets, drapes, paints, cleaning supplies, shoe polish and other household products. The result has been a concentration of toxic chemicals which

experts believe has led to an increase in allergic reactions, asthma, bronchitis and other chronic illnesses.

"The number and types of these pollutants demonstrate the serious potential health hazards associated with indoor air pollution in modern, energy-efficient buildings and future space stations," Wolverton says. "A large number of these chemicals not only have the potential for producing allergic reactions but also cancer and other forms of illness.

"As the evidence of health problems from indoor air pollution mounts, the need for a simplified, practical means of reducing air pollutants becomes urgent."

The long-term goal of Wolverton's research was the development of a bioregenerating life-support system for future space stations; plants would be used to provide food and oxygen, to filter out pollutants and to recycle wastes. But the research has already found broader applications Earthside. Besides the more than 150 municipal and industrial systems which use artificial marshlands to purify wastewater, the use of plants to purify indoor air is being promoted by the Plants for Clean Air Council. Some indoor plants are now being sold with labels that say, "Clean Air Machine".

Wolverton recommends about 15 to 20 plants known for the filtering qualities for a house of 1,800 square feet. When possible place the plants in areas where air is circulating, near air duct vents, for example.

Wolverton has put his theories into practice at his new, energy-efficient home in south Mississippi. In fact, he has a indoor plant system for his home office that purifies both wastewater and the indoor air: flush the toilet, and the water goes into a plant system that also cleans the air. There is no odor from the system, which looks like an attractive indoor air atrium. A similar system designed by Wolverton purifies bathroom wastewater and purifies the indoor air at a recently-opened community college classroom building in Booneville, Miss.

Based on experiments with formaldehyde removal per centimeter of leaf surface in a closed chamber, the following plants were shown to be most efficient at removing the pollutants: heart leaf philodendron, elephant ear philodendron spider plant, lacy tree philodendron, aloe vera, golden pothos Chinese evergreen, mini-schefflera, peperomia, peace lily corn plant and mother-in-law tongue.

Other plants not yet tested are also likely to be beneficial. Wolverton says that, generally, plants with a large leaf surface are efficient at removing air pollutants while plants with a small leaf surface would be expected to be less efficient.

Plants can also remove substances from the air that can cause allergies. But since the mold that sometimes grows on the surface of soil around plants can cause allergic reactions in some people, Wolverton recommends putting washed pea gravel on the soil surface to discourage molds. He has also recently published data that shows that indoor plants actually discourage formation of mold; he theorizes that many of these plants naturally occur under damp jungle canopies, and had to develop means of suppresses mold in order to survive.

Wolverton has also recently patented a plant/charcoal air filter lamp that uses the heat of the light bulb to sterilize the air after it has been filtered through a plant rooted in activated charcoal. A fan suctions air through the plant roots and activated charcoal (a substance often used for air and water purification), and then up through a plastic tube heated by the

light bulb. Wolverton believes the special plant/air filter lamp could kill germs and viruses, making it useful not only in homes but in schools, doctor's offices and hospitals.

While it's not possible to prevent germs and viruses from being present in indoor buildings, many types of indoor air pollution can be prevented. It's far better to prevent pollution rather than try to cure it: Gas appliances should be vented to the outside, and the gas stove vent fan left on during cooking. Cigarette smoking should be banned indoors. Wood or ceramic tile can be used for floors instead of carpet, and homeowners can avoid the use strong household cleaning products in favor of plain soap and water. Finally, just opening the windows and using natural ventilation when possible will help prevent the buildup of indoor air pollution.

Crosby Arboretum publishes Native Trees for Urban Landscapes in the Gulf South

The Crosby Arboretum has recently developed a brochure identifying the best 40 native trees to use for street and garden plantings along the Gulf Coast.

These trees were chosen for their ability to thrive in just about any urban landscape condition, from compacted soils to parking lots. Many of the trees identified in the brochure are already familiar features of Southern landscapes, such as live oak and Southern magnolia. However, there are many native species that are not often seen but have real garden potential, such as indigo bush (Amorpha fruticosa Linnaeus) that has showy spring lavender flower spokes with yellow stamens, or swamp dogwood (Cornus stricta Lamarck), that is a good substitute for the hard-to-grow flowering dogwood.

The trees listing in the brochure were chosen not only for their ability to grow just about anywhere, but each was assessed for its ornamental quality, wildlife value, and ease of culture and maintenance.

"We've developed a list of trees that any homeowner or landscape professional along the Gulf Coast can plant with a degree of confidence," says Bob Brzuszek, curator of Pinecote at Crosby Arboretum. "So many plants being sold in nurseries today require special care for them to live. These hardy trees are survivors that should be used much more."

Brzuszek developed the brochure with the assistance of landscape architects John Mayronne from Covington, La., and Robert Poore of Flora, and wildlife specialist Bill Tomlinson of Vicksburg.

In addition to listing the trees, the brochure has a short description of the plants which lists their maximum size, native habitats and associated plants, flower and fruit characteristics, environmental preferences, wildlife value and landscape use.

The brochure was developed with a grant from the America the Beautiful program of the Mississippi Forestry Commission. Each of the trees listed in the brochure are identified along the pathways at Pinecote, the Interpretive Center of the Crosby Arboretum, located in Picayune.

Brochures are available for a $1.50 shipping and handling fee from Crosby Arboretum, P.O. Box 190, Picayune, Miss. 39466, or by calling (601)-799-2311.

Urban forest leader: Beautification Be Damned

Don Willeke, Chair of the National Urban Forest Council, has trouble getting people to even print the title of his speech in conference program guides.

The title of Willeke's speech is "Beautification Be Damned." "In going up that beauty path, we may be reaching a dead end," Willeke said at the Mississippi Urban and Community Forestry Conference held in Ocean Springs Oct. 6, 7 and 8. "We may have handicapped our ability to grow in the future. When trees are considered just amenities--not something you have to have--when budgets get tight, they cut budgets for beautification."

Willeke says politicians aren't apt to spend money for beautification when there is a budget deficit. Hence it is dangerous to view trees and other urban landscaping as niceities, not necessities.

Willeke told of a fight in Congress recently when federal funding for urban forestry programs was nearly cut off because of the "beautification" label. It was almost cut out entirely because it was considered a frill.

"We used to stress the beautification aspects when we just started 19 years ago," Willeke said. "Now we talk only about utilities. We have to confess our sin of worshipping beautification and learn to change the way we preach. We have to run from beautification like it's a plague. Beauty is just a side benefit of the utilitarian aspects of urban forestry."

He proposes replaces eht entire doctorine of beautification iwht a doctrine of utilitarianism, stressing the trees shade buildings and reduce energy consumption. Areas with mature tree canopies can be as much as 20 degrees cooler in the summer than concrete jungles, helping power companies with one of their biggest problems, meeting peak load needs.. There are also psychological benefits to trees. Research has shown that patients who can look out a window and sees trees and other greenery get well faster than those without a green view. Willeke also asks, "Have you ever seen a rich neighborhood without trees? Have you ever seen a riot scene that has a tree in it?"

Willeke proposes more research in the utilitarian aspects of urban forestry, and a media review to change the message about the need for urban forestry.

"We want to banish the term but not the concept of beautification," Willeke said. "But even if threes were ugly and smelled bad, we would still plant them for utilitarian purposes."

Fulgram's loosens compaction while fertilizing

One interesting exhibitor at the recent Miss. Urban Forestry Council meeting was Bob Fulgram of Fulgram's Spraying Service in Tupelo. Fulgram demonstrated a unique device the injects compressed air into the soil around trees roots along with fertilizer. The air greatly helps with compacted soil problems; you can actually see the earth rise up during treatment. Compacted soil can stunt or even kill a trees, so this device certainly has merit. Fulgram also had some impressive examples of the growth of treated trees compared to non-treated trees. Fulgram sells the machine as well as the service. For more information, he can be contacted at (601)-844-6191.

Have we seen the last MNPS field trip?

by Becky Gillette

President Vic Rudis has expressed concern recently about the future of the Mississippi Native Plant Society. Some of our formerly most active volunteers are now donating their time to groups such as The Nature Conservancy and The Crosby Arboretum.

With all the programs and field trips offered by groups such as Nature Conservancy, Sierra Club, Audubon and Crosby Arboretum, is there still a separate role to be played by the Native Plant Society? Only our members can answer that question and it has to be answered with actions, not just words.

While I think these other organizations do a great job, and have some excellent field trips, I find that MNPS field trips are more specific to my interests. My suggestion is that we try to do more fields trips or meetings in cooperation with groups like Audubon. I made that suggestion to the head of Audubon here on the Gulf Coast, and she was receptive to the idea, saying that she is seeing a lot of interest in botany. Birders are often also quite interested in plant life, so what would it hurt to have a plant expert of two along on a birding field trip?

I'd also like to see more regional field trips or meetings, say at least one spring and autumn field trip in major regions of Mississippi. It's hard for my family to make it to field trips a long distance away, and I suspect other members have the same difficulties. Wouldn't it be great, too, to have more informal picnics/plant swaps/community garden projects. We need to do more lobbying for greenscaping in our cities, for preserving native plants and native plant habitats, and we need to lobby and educate the highway department about how to establish and maintain roadside wildflower plantings.

It is very critical for the future lifeblood of the society for some people to step forward now and commit to taking on some leadership responsibilities. I'm not talking about anything that takes up too much time. But how about calling Vic and offering, for example, to plan one field trip or meeting in your region for next spring? If these field trips or meetings are important to you, please let Vic know. His phone number is 324-0430.

We also need people interested in helping carry out some of the other goals of the society, such as education about the importance of native plants. We need to reinject some of the enthusiasm I've seen at earlier meetings for stewardship of the great natural plant resources of Mississippi.

And, as always, we need people willing to share their knowledge by submitting articles to the newsletter. I haven't receive a single original submission now in about six months. There is a great deal of knowledge and talent out there in our membership that needs to be tapped. Please consider writing an article, and don't beg off because your grammar or writing style isn't perfect. The message is what counts, so please share your ideas.

Flowerplace Plant Farm has new partner

Sounds like we nearly lost Flowerplace Plant Farm to burnout. In their most recent catalog, Gail Barton says she and her husband, Richard Lowery, nearly decided to close the nursery located in Meridian.

"I was tired," Gail says. "For the past six years I've been performing

a balancing act, scheduling my nursery work like puzzle pieces around a full-time job.

"Still I hesitated--balking at actually closing the book--waiting for a sign that we were justified in abandoning our dream. As I dawdled I got to know a student who wanted to learn more than the basic classroom fare. Luckily for us, she was eager enough to exchange labor for knowledge and plants. Her enthusiasm jump-started the nursery and she saved our dream from extinction. We're back after a close call with new ideas and with all the energy that only a new partner can bring."

The new partner is Karen Partlow. They also have a new retail outlet at her place in the country near Meridian, and a new 1-800 number and gardening hotline, 1-800-482-5686.

Flowerplace continues to specialize in perennials, wildflowers (including some hard-to-find natives), ornamental grasses and herbs. A price list and Fall 1993 Planting Guide is available for $3 by calling in the number listed above or writing to P.O. Box 4865, Meridian MS 39304.

Flowerplace, we're glad you decided to stay open!

Wildflower seed available from NEWFS

Seeds and spores for more than 175 varieties of wildflowers and ferns are available from the New England Wild Flower Society's 1994 Seed and Book Catalog.

Included are natives for woodland, wetland and meadow gardens. To receive the catalog, send $2 and a self-addressed #10 envelope with a 52-cent stamp to Seeds, New England Wild Flower Society, Garden in the Woods, Hemenway Road, Framingham, MA 01701. Members of the society will automatically receive the seed and book catalog in January 1994.

Mississippi Gardens publishes 1994 calendar

Mississippi Gardens magazine is offering a 28-page 1994 gardening calendar for $8.95 plus $1 for shipping and handling. The calendar includes colorful plant photography, gardening tips and hints on when and what to plant.

To order send your name, address and payment to P.O. Box 7856, Jackson MS 39284 or call 1-800-743-1135. Subscriptions to the magazine are $13 per year.

Plug wildflowers every time you write a check!

Personal checks with a wildflower theme are now available through Designer Checks, P.O. Box 12967, Birmingham AL 35202-2967.

There are four wildflower designs per set. Featured are gentian, yellow primrose, daisy and wild geranium. Cost is $4.95 for 200 checks or $5.95 for 150 for duplicate checks. (The prices are probably less than what your local bank charges). The price includes an equal number of mailing labels.

For more information, contact the company at above address or call 800-239-9222 during regular business hours.

1992-93 Board of Directors

President: Victor Rudis, 324-0430
Secretar/Treasurer: Sherrie Wiygul, 465-8603
Editors: Becky Gillette/Roger Danley, 872-3457
Past President: Sidney McDaniel, 325-7570
Education Chair: Felder Rushing, 982-6541

Reesa Yarborough
(Brandon) 580 Burnham Rd
601-824-0275
Joyce Ellis
(Clinton)-
102 Burnt Leaf Way
Enable

T-shirts with a new design are being prepared by Susan Haltom, Bob Brzuszek and Lynn Ashford. For now we still have some silver-grey t-shirts left with the present logo shown above available in the following sizes: Adult small and medium; child small, medium and large. They can be purchased for $8.50 plus $1.50 shipping.

Wildflowers of Mississippi, softcover edition, is for sale by the MNPS at a cost of $19.50 plus $2.50 shipping (an additional $1 for first class).

T-shirts and books can be purchased from Vic Rudis, P.O. Box 2151, Starkville MS 39759.

WE NEED ARTICLES for the newsletter on all kinds of issues of interest to members. Scientific plant reviews particularly welcome. Next deadline is January 15. Please double space manuscripts, and submit copy on diskette if possible (Word Perfect 5.1 on 3.5" disk preferred, but can translate most other word processing programs). Send to: Editors, MNPS, 6104 Olvida Circle, Ocean Springs MS 39564.

PROGRAMS

---Field trips to locations throughout state.
---Lectures, seminars and slide shows by native plant experts, ecologists, landscape experts, knowledgeable amateurs and gardeners.
---Facilitate study of state flora and monitor nature preserves through newsletter announcements, networking and awarding small research and education grants.
---Plant & seed exchanges, creating and maintaining displays for public education, and plant rescues in areas about to be developed.

NEWSLETTER AND MEMBERSHIP: The Mississippi Native Plant Society Quarterly provides a calendar of upcoming events, articles on native plant propagation and identification, notes on plant and seed exchanges, landscape design, reviews of books and articles on activities/people associated with native and naturalized plants of Mississippi

Membership is open to any interested individual, family or organization. To join, please mail the application below with fee.

Membership Application and Dues Notice

Please indicate class of membership and enclose dues.

_____Student, $5.00
_____Individual or family, $7.50
_____Sustaining, $10.00
_____Contributing, $25
_____Life, $125.00

All classes of membership receive the MNPS Quarterly. Life members will receive Wildflowers of Mississippi. Please make checks payable to Mississippi Native Plant Society. Return form and check to: Mississippi Native Plant Society, P.O. Box 2151, Starkville MS 39759

Be sure to include the following info with your payment:
Name_____
Mailing Address_____
_____
Telephone (optional):_____
If Mississippi, county of residence_____

As a result of a meeting called by Fred Searcy, Jr. on April 19, 1980 at the Museum of Natural History in Jackson, the Mississippi Native Plant Society drew its first breath. The organization was formed for individuals and groups interested in all aspects of botany, particularly the vascular flora of Mississippi.

There always have been people with a love of native plants of Mississippi. The overall purpose of the Native Plant Society is the furtherance of knowledge about the native and naturalized plant species of Mississippi and the encouragement of an attitude of respect and appreciation for these species.

GOALS

---Gather and disseminate knowledge about the native and naturalized plant species and their habitats in Mississippi.

---Work for the preservation of these species and conservation of their habitats.

---Inform the public about these species and habitats, including their propagation, importance, ecology and need for protection.

---Encourage the propagation and use of native plants and habitats in designing residential, commercial and public landscapes.

---Promote fellowship among all persons interested in understanding and appreciating native plants and their habitats.

Mississippi Native Plant Society
P.O. Box 2151
Starkville MS 39759

organize needs for ~~proceedings~~ papers

medicinal plants

Field trip to Horn Island

Bob Brzuszek Vice President

Sidney — UMiss.

E/LA

Publicity
Rees Yarborough

Becky Gillette

(1) Jim Puckett, Physician and Herbalist
Medicinal Plants Conf.
folklore, talkin Crosby

(2) Fieldexpert Darrell Martin (Krishna)

(3) Cullowee GA
another speaker

(4) Don Bradburn — Horn Island
guidelines, overnight