MISSISSIPPI NATIVE PLANT SOCIETY

SEPTEMBER 1983

PUTTING ELMS BACK ON ELM STREET

Christian Science Monitor - February 2, 1983

Johnny Elmseed may soon be to the American elm what Johnny Appleseed was to the apple tree.

Johnny Elmseed, however, is not an American folk hero, but the title of a major grass-roots project being mounted by the Elm Research Institute (ERI). The institute hopes to save the elegant Ulmus americanus, as well as replant elms in backyards and along the nation's elmless Elm Streets.

The idea is to locate and record every living elm in the country to ensure preventive treatment against Dutch elm disease, and to replace every lost elm with a live, healthy seedling. Anyone spotting a large American elm tree and seeding the address to the ERI will receive a free elm seedling. Anyone locating and providing the institute with a residential lot number as well will get two free seedlings.

The Elm Research Institute, a nonprofit research and educational organization, was established by John Hansel in 1964 to raise and administer funds for financing research and saving the American elm from extinction. As Mr. Hansel says, "The seeds of research were there, they just needed to be nurtured by private funds."

Grants, sales of seedlings and fungicide, and annual dues of $15 from some 2,000 members have funded almost $2 million in research grants to various universities.

According to data collected by the institute on more than 25,000 trees treated preventively by volunteers (known as "conscientious injectors") across the U.S. over a three-year period, more than 99% remain healthy.

Dr. Gerald Gregory, however, of the US Forest Service Laboratory in Delaware, Ohio, says the results of this research may be misleading. "Injecting a number of trees scattered over a large area makes it difficult to apply statistics. The results may look good or bad but if the material is applied properly (and he suggests using larger amounts of fungicide), there may be some benefit. He does commend the ERI's efforts in "educating people and getting support."

Hansel says educating the public about caring for elms is the most difficult part of the whole operation. "But once you find a few people who truly love elms, they collect volunteers. Then it takes very little skill, and little effort, and you end up with a lot of community spirit."

For years the Dutch have been falsely blamed for the blight. It first reached the U.S. in the late 1920s and early '30s in European elm logs to be used for furniture veneer. It was called Dutch elm disease because a Dutchman discovered in 1921 that the wilting, yellow leaves were caused by a parasitic fungus deposited by a beetle - and not by World War I bombs as some scientists had suggested.

The most successful treatment tried in the '40s was DDT. But the adverse environmental effects of DDT and its eventual banning forced researchers to look for new ways to combat the bettles.

The idea of "systemic injection" - injecting trees once a year with a fungicide - was developed by the ERI and the Univ. of Wisc. in the early '70s, aided by Canadian researchers.

The process is simple and relatively inexpensive: Each June, before the elm beetle's emergence from the bark, a fungicide (approved seven years ago by the EPA) is injected under low pressure at the base of the tree through a series of plastic tubes. The fungicide is sucked up through the tree and goes to work against the fungus. The cost of fungicide and renting the equipment through the ERI is under $30 - "much less than the $1,500 cost of removing the trees," Hansel points out.

Not everyone is as confident, however, of the systemic injection technique's success. "Under certain conditions, the treatment seems to be effective," says Art Schipper of the US Forest Service in Washington.

"But continuing boring of holes and injecting fungicide into the elms does cause damage," Mr. Schipper adds. "Over a repeated number of years it may kill, or at least damage healthy trees."

Hansel stresses, however, that the Elm Institute's program is not a "cure" for Dutch elm disease. It is a preventive treatment that may be applied at the grass-roots level instead of waiting for cities or towns to fund more effective maintenance programs.

And he adds that research has not stopped toward finding an elm able to withstand the blight - with the traditional American elm shape that once turned Main Street, USA, into a tunnel of green leaves. "It's just a matter of time, say five to eight years, before we get young resistant trees out in massive numbers."

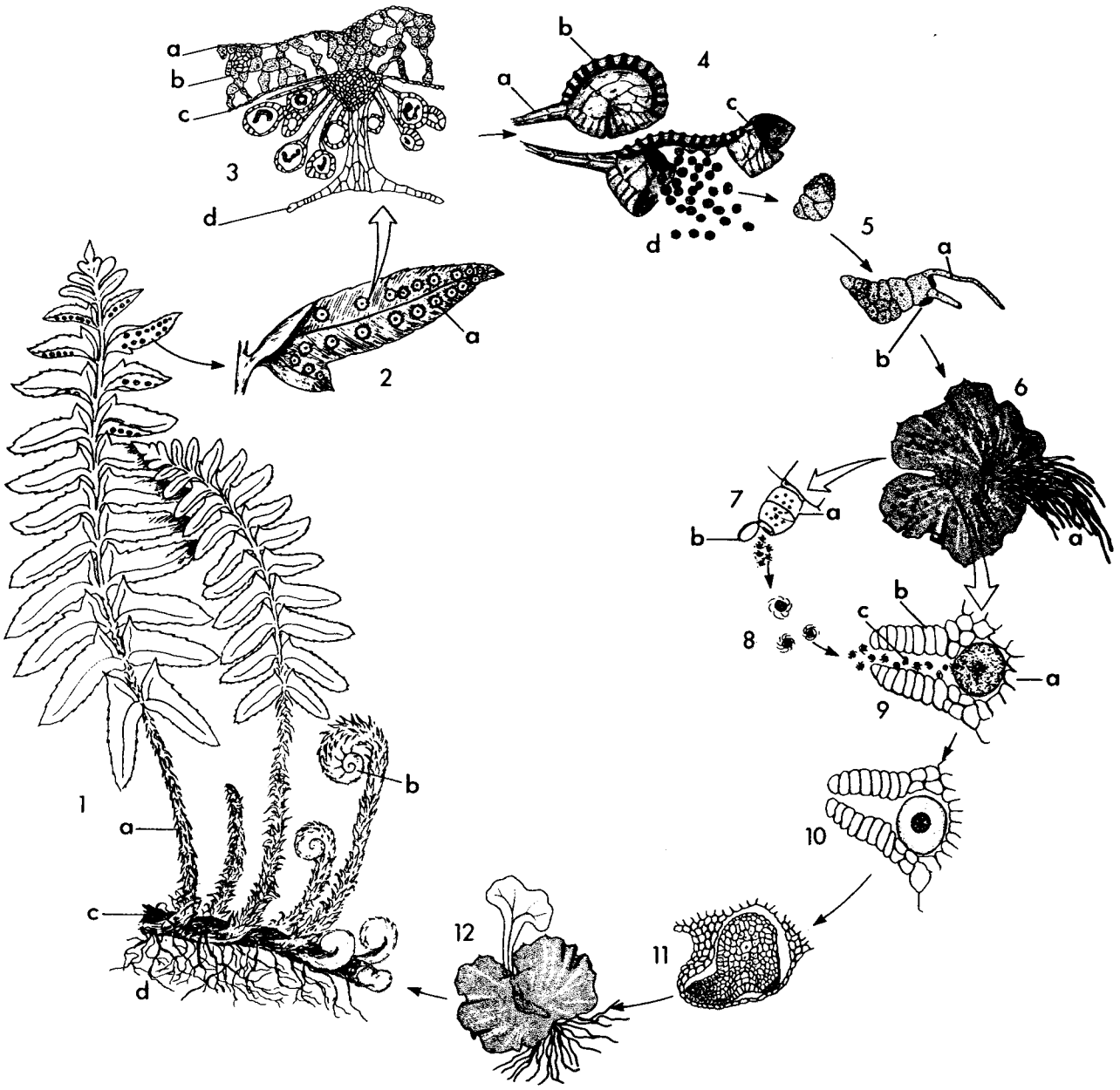
MNPS STUDENTS RECEIVE SUMMER RESEARCH FELLOWSHIPS - Miss. State University

Graduate Summer Research Fellowships were awarded to three graduate students during the Summer of 1983. Two MNPS members were recipients of these fellowships: Cary Norquist, whose research was entitled "A Study of Coastal Savannas of Southern Mississippi" and Opal Dakin, research entitled "Nesting Phenology, Nest Site Selection, and Reproduction Success of Starlings in Mississippi". Cary is a master's degree student at MSU and Opal is a Ph.D. student at MSU. MNPS can be proud of these members. Oral presentations were given by seven graduate students in competition for these fellowships.

Ferns of Mississippi
by Will McDearman

ADIANTACEAE
Adiantum capillus-veneris Venus'-hair fern
A. pedatum Maidenhair fern
Cheilanthes alabamense Smooth-lip fern
C. lanosa Hairy-lip fern
Pellaea atropurpurea Hairy Cliff-brake fern
Pteris multifida Spider Brake
ASPLENIACEAE
Asplenium pinnatifidum Lobed Spleenwort
A. platyneuron Ebony Spleenwort
A. rhizophyllum Walking fern
A. trichomanes Maidenhair Spleenwort
Athyrium asplenioides Southern Lady fern
A. pynocarpon Glade fern
A. thelypteroides Silvery Spleenwort
Cystopteris protrusa Spreading Bladder fern
Onoclea sensibilis Sensitive Fern
Polystichum acrostichoides Christmas Fern
Thelypteris dentata Tapering Tri-vein fern
T. hexagonoptera Broad Beech fern
T. kunthii Widespread Maiden fern
T. novaboracensis New York fern
T. palustris March fern
T. quadrangularis Variable Maiden fern
Woodsia obtusa Blunt-lobed Woodsia
Woodwardia areolata Netted Chain fern
W. virginica Virginia Chain fern
AZOLLACEAE - Mosquito Fern Family
Azolla mexicana Mosquito fern
DENNSTAEDTIACEAE
Pteridium aquilinum Braken fern
HYMENOPHYLLACEAE - Filmy Fern Family
Trichomanes boschianum Bristle fern
T. Petersii
MARSILEACEAE - Pepperwort Family
Marsilea uncinata Water Clover
OPHIOGLOSSACEAE - Grape Fern Family
Botrychium alabamense Alabama Grape fern
B. biternatum Southern Grape fern
B. dissectum Common Grape fern
B. lunarioides Prostrate Grape fern
B. virginianum Rattlesnake fern
Ophioglossum crotalophoroides Bulbous Adder's-tongue
O. engelmanii Limestone Adder's-tongue
O. petiolatum Stalked Adder's-tongue
O. nudiacaule Least Adder's-tongue
O. vulgatum var. pycnostichum Southern Adder's-tongue
OSMUNDACEAE - Osmunda Family
Osmunda cinnamomea Cinnamon Fern
O. regalis var. spectabilis Royal Fern
POLYPODIACEAE
Polypodium polypodioides Resurrection fern
SCHIZACEAE
Lygodium japonicum Japanese Climbing fern

FERN LIFE CYCLE



1. Mature sporophyte
   a. Petiole (leaf stalk)
   b. Circinate leaf (fiddle head)
   c. Rhizome (stem)
   d. Adventitious roots
2. Leaflet, undersurface
   a. Sorus
3. Section of sorus
   a. Upper epidermis
   b. Spongy tissue
   c. Lower epidermis
   d. Indusium
4. Sporangia
   a. Stalk
   b. Annulus
   c. Lip cell
   d. Spores
5. Young prothallia
   a. Rhizoid
   b. Spore wall
6. Mature prothallium
   a. Rhizoids
7. Antheridium
   a. Ring cell
   b. Cap cell
8. Sperm
9. Archegonium with egg
   a. Venter
   b. Neck
   c. Neck canal
10. Archegonium with zygote
11. Sporophyte embryo
12. Sporophyte on gametophyte

(Permission for reproduction received)

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SUMMER FIELD TRIPS - 1983
Sidney McDaniel

It was fortunate that the summer field trips of the MNPS were a bit more successful than those of the spring. Both the D'Lo float trip and the Picayune outing had in attendance approximately 30 persons each. The D'Lo trip got off to a slightly late start, but canoes soon were underway down river. Several stops were made along the river to examine more closely the typical riverine vegetation. Excitement enough was furnished by the rocky rapids just before a stop for lunch. After completion of the trip and canoes were landed, some of the group went to the Bush cabin to see especially two species of hydrangea, wild camelia, and large Southern magnolias.

The Picayune trip was held in conjunction with the Crosby Arboretum and the New Orleans Chapter of the Louisiana Native Plant Society. Although the temperature and humidity were oppressive, everyone seemed to enjoy the trip. The first stop was at the Crosby Arboretum main site where the philosophy and planning of the arboretum were explained. A discussion of the significance of fire in nature followed. Many plants were seen and noted, but the pine lilies were especially enjoyed. The next stop was at a proposed Crosby Arboretum natural area east of Picayune in Hancock County. There pitcher plants were abundant as a result of a winter burn. The whole area from the longleaf pine slope, through the pitcher plant flat to the buckwheat tree thickets was explored. Many plants were seen, but some that perhaps were new to many were gopher apple, odorless wax myrtle, Tofieldia and Zigadenus. From there the group went to the Red Bluff area on Catahoula Creek for lunch and an hour of individual exploration or discussion. The final stop of the trip was at the savanna north of Picayune. In comparison with the earlier visit by MNPS in the spring, the site was disappointing. But by that time the heat was beginning to be even worse, so at least a few were glad to call a halt to our explorations. In terms of diversity and new plants for members, the day was certainly one of our best ever.

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ANY SUGGESTIONS FOR OFFICERS FOR 1984, PLEASE CALL WILMA MITCHELL 634-2516.

A new publication that can be obtained upon request - MORNINGGLORIES IN THE DELTA OF MISSISSIPPI - by C. Dennis Elmore, Plant Physiologist, ARS, USDA and Sidney McDaniel, Professor, Department of Biological Sciences, Mississippi State University. (Bulletin 920 - July 1983). Send requests to MAFES, Miss. State, MS 39762.

GUIDELINES AND ETHICAL CODE, NATIVE PLANT SOCIETY OF OREGON (Adopted 1978)

General Guideline: Think twice. Use discretion. A plant in place is worth two in the hand. Love thy flora.

I. Chapter Guidelines

1. Know your rare, threatened and endangered species. Know your fragile environments and unique biotic communities.
2. Be alert to threats to native plants and their habitats. Appoint watchdog committees to keep aware of these threats and inform the chapter.
3. Take action to protect native plants. Work with all groups and the general public to protect native plants and their habitats. Be prepared to salvage plants where they are threatened by outright destruction. Help eradicate particularly aggressive and successful exotic plants that threaten native plants. Take responsible outings.
4. Educate your members and the public about native plants, and encourage them to use good judgment in the study, enjoyment, and use of native plants.
5. Encourage your members to grow native plants only from seeds or cuttings.

II. Out There Among the Plants

1. Outings for whatever purpose must never endanger a plant population. Encourage non-destructive modes of learning and enjoyment: photography, artwork, scientific description, esthetic prose and poetry, and so on.
2. On group outings (field trips, conservation activities, class field studies), group leaders must take responsibility for protecting native plants from the activities of the group. All participants should understand the goal of plant protection, the purpose of the outing, and the means by which they can make the least impact on plants and the natural habitat.

3. Know where endangered species are growing and plant outings with this knowledge in mind.
4. Respect private and public property. Do not trespass. Know the regulations for use of the land and natural resources--public or private--your group is entering.
5. Respect the habitat as a whole. Avoid disturbing wildlife, such as nesting birds and nesting hornets.
6. Be sensitive to the humanfoot as a threat to plants. Visits to fragile environments should be carefully planned. Students should be given adequate direction by their instructor, and excessive collecting should be discouraged. Better one person enter a fragile area to identify a plant than the whole group.
7. Collecting should be considered only when identification cannot be made in the field or when it will contribute significantly to educational or scientific objectives. Collecting for whatever purpose should be done as inconspicuously as possible. Casual observers may not understand the reasons for collecting and may feel license to do likewise.
8. Collecting must never endanger a plant population. Collect seeds or cuttings in preference to whole plants. Do not collect underground plant parts except for identification purposes. Avoid excessive collecting: this calls for exercise of good judgment by the collector. Consider the use of rules of thumb for judging whether to pick or not to pick. Encourage group study of one specimen. Consider using weeds, garden species, or lab-grown specimens for educational purposes.

III. Using Native Plants

1. Use of native plants--in wildflower shows, plant sales, and horticulture--must never threaten their populations.
2. Native plant species for sale should be obtained by salvage, seeds, or cuttings--in that order of priority--and whole plants should never be dug up, except for salvage. Seeds should not be sold. Growers must exercise discretion in collecting seeds and cuttings to avoid endangering plant populations.
3. Native plants for sale should state on the label how obtained or grown. Chapters should consider certifying commercial growers who follow good ethical practice, and should urge the public not to buy unless plants were obtained or grown according to these guidelines.
4. The sale and use of particularly aggressive and successful exotic plant species, such as gorse, broom, and pampas grass, should be discouraged.
5. Salvage of native plants should be encouraged when their destruction is certain: at quarries, mines, dams, building construction sites, road construction sites. Salvage is not necessarily called for, however, on logging sites, some recreational areas, and rangeland. Salvaged plants should be kept potted long enough before sale to ensure that they will survive the shock of transplant.
6. Wildflower shows should make maximum use of their educational potential. Inform the public of the goals of NPSO; explain the guidelines your chapter follows in studying, enjoying, and using native plants--including guidelines followed in collecting for the show; consider using all other educational options (slides, artwork, publications, herbarium collections, news media, etc.); and continue the educational "life" of display materials after the show by donating them to schools, libraries, or other constructive uses.

Copied from Bull. Native Soc. Oregon 15(6): 7. 1982.

The guidelines above could very well be followed by our Society or other societies. It was included in our newsletter for your interest and use.

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Endangered Wild Flower Calendar

Send $5.50 to "Endangered Wild Flower Calendar", c/o Biology Department, Brooklyn College, Brooklyn, NY 11210, includes postage and handling. Much more information than just a calendar - Include name and address with your order. Satisfaction is guaranteed or full refunds will be made.

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BOOK REVIEW by Will McDearman

Flowering Plants of the World, ed. V.H. Heywood. 1979. Oxford University Press.

The sort of books reviewed in this newsletter typically reflects the membership's desire for aids in the identification of Mississippi plants. Occasionally, there is the rare book that, while not specifically concerning Mississippi, encompasses a much greater diversity of plants and does so in an exceptionally beautiful format. This is one of those gems. The following review appears on the cover jacket -

"The flowering plants, or Angiosperms, are the dominant group of plants on Earth today. They occupy a place in the plant world which can be compared to that of the mammals in the animal kingdom. Flowering plants are our main sources of food crops, timber, fibers, vegetable oils, gums, herbs, spices, flavorings, drugs, stimulants and narcotics. They also adorn our parks, gardens, streets and other public places the world over as trees, shrubs and flowers.

There are at least 250,000 species of flowering plants grouped into 250-350 families and this book describes and illustrates in full color the great majority of these families.

The opening section of Flowering Plants of the World is an informative introduction to the forms, structure, ecology, uses and classification of flowering plants. It is followed by a comprehensive glossary which is illustrated in full color, as is the Introduction. More than 300 families of the world's Angiosperms are then described, each with a concise and readable account of the distribution, diagnostic features, classification and economic uses of its members. Every family entry also has a specially designed quick-reference panel giving details of the number of species and genera, their general distribution and economic uses, while the distribution is also presented visually on a map for extra clarity. The specially commissioned color plates illustrating more than 200 families are not only scientifically accurate but also constitute a beautiful and unique collection of paintings.

The main text of Flowering Plants of the World has been written by a panel of internationally recognized authorities and provides a wealth of information which will be invaluable to the botanist and fascinating for the general reader. Perhaps this book will help focus attention on some of the problems faced by flowering plants throughout the world and stimulate a greater appreciation of their role in our future."

And from Sir George Taylor, ex-Director of the Royal Botanic Gardens, Kew, England.... "The aim of the publishers to bring the laymen closer to the specialist is most attractive, and adequately fulfilled and this authoritative work will readily be acclaimed as an exceptionally valuable addition to botanical literature."

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NATIVE PLANT SEED PROGRAM

Once again, the New England Wild Flower Society is offering for sale freshly collected seeds and spores of over 100 native plants.

This program, an adjunct of the Society's world-wide botanical garden seed distribution, is intended to further the use of native plants in the home landscape. The program will continue on a year-to-year basis as long as the demand for seed remains strong.

Members of the New England Wild Flower Society will receive, in January 1984, a list of seeds available, and all orders must be received by March 1, 1984.

Non-members wishing to receive the Seed Sales List should mail a stamped, self-addressed business (#10 size) envelope by February 1, 1984 to SEED SALES, New England Wild Flower Society, Garden in the Woods, Hemenway Road, Framingham, MA 01701.

NO requests for lists will be honored without the stamped envelope.

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MNPS FIELD TRIP FOR OCTOBER 21 IS ALMOST A REALITY OR WILL BE BY THE TIME YOU RECEIVE THIS NEWSLETTER. The Natchez Trace is open all the way. Travel 34 miles above Tupelo, take Hwy. 4 to Hwy. 25 for 2 or 3 miles. This should be the highlight of the year for fall colors and pretty weather. If you haven't made your reservations, do so TODAY!

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PROPAGATION OF CYRILLA AND CLIFTONIA

Chris Wells

This past summer I was employed part-time by the Crosby Arboretum. Part of my employment responsibilities included propagation of Cyrilla racemiflora L. ('titi') and Cliftonia monophylla (Lam.) Britt. ex Sarg. ('Buckwheat tree').

They are both in Cyrillaceae, a small family of North America and the Carribean Islands. These two woody shrubs are native to the Gulf Coastal Plain; with titi ranging from southeast Texas to eastern Virginia, and buckwheat tree from south Louisiana east to southern Georgia and Florida. They naturally occur in moist low lying areas. This tolerance of wet habitat does not preclude the use of these shrubs as ornamentals in yards since they can grow well in somewhat drier areas, even in nature.

Titi flowers in late spring with a very showy display of fragrant racemes of small white flowers. The flowering season is quite long lasting several weeks through the spring. Titi is decidous with a brillant display of yellow and scarlet leaves in the fall. The branching habit is quite twisted.

Buckwheat also has small fragrant white flowers in racemes and, like titi, flowers for several weeks in the spring. However, it produces an attractive display of tan-orange colored fruits which persist through the summer and into fall. Buckwheat tree differs further in that it is evergreen.

As with most native plants, very little is known about it horticulturally. However, there are some general guidelines that can be followed when trying to propagate plants by cuttings. First, collect new growth, usually in the spring. Keep the cuttings moist and cool prior to planting. Remove most leaves and any dead tissue prior to planting. Plant in a shaded moist environment in sterile medium. Of these guidelines, I was able to comply with all but the early collection, since I didn't start collecting until well into June. However, I was fortunate enough to have two mist benches with timers set to spray half-hourly for about 30 seconds.

I found that I got similar results with both species using the same procedure. The best rooting was from young stems 8 to 12 inches long planted inclined from the horizontal under about three or four inches of perlite with about three inches of the shoot tip exposed. The buckwheat tree sent out new leaves very quickly but about half of the cuttings died within a month. The rest of the buckwheat cuttings are taking root very slowly. Titi was much slower leafing and also had about a 50% mortality rate. The titi seems to root more abundantly, however.

I also tried transplanting the titi with very poor success with shrubs about three feet tall (a slow and lingering death). I did not try transplanting the buckwheat tree. However, I have sown a flat of seeds from the buckwheat tree and found that the sprouting is very sporadic. The flat has about 200-300 seeds and after a month about a dozen seedlings ranging from germinating seeds to small shoots just beginning to produce true leaves. I have no viable titi seeds. Dr. McDaniel hopes to supply me with some seeds this fall so that I can try them.

I did not try any rooting hormones (such as Rootone) which I feel would enhance the rooting of these species. However, I feel that earlier collection and increasing the amount of mist would significantly decrease mortality.

I hope that you who have tried cuttings from these (or other species) will report your results to the MNPS. I think that from a conservation's perspective reproduction by cutting and seed is preferable to transplantation.

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