

THE BUR

Volume 9, No. 2

Newsletter of the New York State Chapter of the American Chestnut Foundation, Inc.

Fall/Winter 1999

PRESIDENT'S MESSAGE

THE MEW MILLENNIUM MAY BRING A DISEASE-RESISTANT AMERICAN CHESTNUT TREE

If TACFNY's research continues at its scheduled pace, we will see a fungus-resistant American chestnut seedling by July 4th of the year 2000. Gmnted, it may be only two inches tall and in the laboratory, but what a fantastic achievement. It will bring us much closer to our ultimate goal of restoring the almost extinct American chestnut to again becoming the dominant tree in its former eastern forest range.

The scientific teams at the College of Environmental Science & Forestry (CESF) in Syracuse are nearing success on three different aspects of the research program. One team is developing multiple genes that will defeat the invasive fungus when it attacks the tree. Another CESF team is working on techniques for introducing the resistant genes into the DNA of an American chestnut cell. The third team is perfecting a procedure to grow a full tree with roots, stem, and leaves, all from a single cell. They also are "teaching" these laboratory trees to withstand the rigors of the outside world. The teams, which have been working on this project for ten years, will combine their efforts early next year for a final drive to produce a fungus-resistant tree.

Research is one of three programs TACFNY has adopted. At TACFNY's Annual Meeting, Directors from several of the nine New York State Districts reported on the progress of 35 American chestnut seed orchards in their Districts. To create these orchards, known-existing trees were pollinated and their seeds planted in different Districts in the State. Eventually the seed-orchard trees will be bred with the research-developed pollen to produce seed for reforestation. It is essential to find more existing New York State trees to broaden the genetic lines, thus preventing future problems from

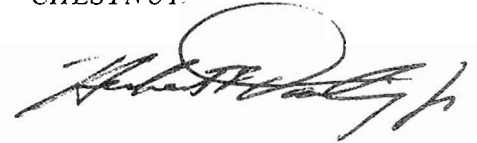
inbreeding. This is a task with which conservationists, hunters, and forest owners can give us a hand.

The third TACFNY program is educational, intended to help develop the cadre of volunteers required in years ahead to spearhead the actual reforestation. Expert educational consultants have prepared the teachers' manual, fitting New York State curriculum requirements. The teachers' package also includes a materials kit with a video of "CHARLIE CHESTNUT," the TACFNY spokesperson for school children in grades 3-5. One of the key activities is for each child to grow his/her own American chestnut tree. Over the past two years approximately 5,000 students have been educated as to the problems of the American chestnut and our fragile ecology in general. Further expansion of the program to more schools and added grade levels will depend upon outside grants being obtained to fund the program.

With the hoped-for resistant seedling in hand at the beginning of the new millennium, we will have turned

an important corner on the way to restoration. Our attention can then turn full time to propagation and refinement of "how-to" plans for the production and reintroduction of this important species.

LONG LIVE THE AMERICAN CHESTNUT!



A seed harvested in 1991 and planted in the Lath Shed at the Institute of Ecosystem Studies in District 3 is growing out of the shed and will be cross-pollinated next season. Director Frank Munzer suggests the somewhat controlled environment of similar sheds may be the way to start our new fungus-resistant trees.

DISTRICT NEWS

DISTRICT 1...DR. JOHN POTENTE, DIRECTOR 516-232-1566 (Counties of Nassau and Suffolk)

John gave a slide presentation to the Nature Conservancy at their preserve on Shelter Island where a verified, mature American chestnut tree was later found and successfully cross-pollinated. Six other American chestnut trees in the District were cross-pollinated in July and several burs sent to CESF Syracuse for the embryo program. In October these trees produced two dozen more seeds. Because over-wintering of seeds has been a problem, in the fall John and other volunteers planted the seeds, protected by wire cages, in the private preserve of "Native America" in Hauppauge.

John also reports that the host orchard in Caleb Smith State Park is doing well. Thanks to a mini-grant of \$1000, allotted to the Long Island District by the Paul Simmons Foundation, a new American chestnut orchard is in the future for the Foundation's Avalon preserve in Stony Brook.

DISTRICT 3...FRANK MUNZER, DIRECTOR 934-266-5138 (Counties of Dutchess, Orange, Putnam, Rockland, Sullivan, Ulster and Westchester)

Frank reports that the District's two large American chestnut orchards are doing well as is the research orchard at the Institute of Ecosystem Studies. His volunteers celebrated the first harvest of nuts from trees originally planted from seeds harvested in 1993.

Dr. Craig Hibben reported that the Lasdon orchard contains 430 American chestnut trees. Those planted in 1993 are 2 1/4 dbh and up to 15 feet high. This past spring 37 dead or blighted trees were replaced with seedlings from the previous nut exchange. Craig has done extensive work in addition to Lasdon and is now recording the location of District American chestnut trees with the newly acquired GPS device. The Lasdon orchard is also watched over by member Ted Kowlowski, Westchester County Forester.

Frank also reports the DEC's Neversink River Unique Area will be an ideal place to plant the fungus-resistant American chestnut when the DEC is ready to plant in the year 2000. Frank concludes: "We will be looking for District 3 members' help in planting, pollinating, collecting embryos, and harvesting nuts this coming year."

DISTRICT 5...ADRIEN GAUDREAU, DIRECTOR 518-882-9424 (Counties of Clinton, Essex, Franklin, Fulton, Hamilton, Saratoga, Warren and Washington)

Adrien has exhibited the TACFNY story at the Saratoga County Fair over the past two years where he received plenty of interest. He also has participated in sending embryos to CESF for their research program and this past season collected a dozen nuts which he has planted.

Adrien says he has had a fungus problem with some of his trees, adding: "It (the fungus) has been hard to discover (sneaky) and girdles quickly."

Adrien has contacted new members in his District and has had a few requests for tree identification.

DISTRICT 6...T. Urling Walker, Director, 315-782-3153 (Counties of Jefferson, Herkimer, Lewis, Oneida and St. Lawrence)

Tom has been working with the Thompson Park Conservancy to develop an area within the Watertown zoo. He anticipates that by the coming spring there will be a good display area with six trees and an explanatory plaque. In another educational effort, Tom participated in the Annual Cooperative Extension's Environment Days program for the benefit of surrounding schools.

Of the eight experimental trees planted in the different exposures, four or five are still surviving in some state. "It would appear the extreme conditions of weather, both winter and summer, are a detriment to their growth," Tom said. At last word, nuts supplied to the Ranger School in Wanakona a few years ago have been planted randomly in the forest that the school manages.

DISTRICT 7...ROY HOPKE, DIRECTOR 600-648-5512 (Snowhawke@Juno.com) (Counties of Broome, Cayuga, Chenango, Cortland, Madison, Onondaga, Oswego, Tioga and Tompkins)

In May, District volunteers planted 40 trees in the Sherburne plantation and Roy anticipates some male flowers there this coming season. The plantation was sprayed with the "Cornell mixture" in May by Bob Nowack and the feeling is that the effort seemed to protect the trees to some extent.

On the educational front, the District had two small-scale plantings at high schools in Chenango Forks and Windsor. Three trees were planted at the Chenango Valley State Park with wire fences erected to protect them, along with an explanatory chestnut sign to inform the public. All of this was accomplished thanks to State park personnel.

Donowick, Ellis and the Burdicks continue to collect large amounts of seed for TACFNY use. Donowick made a deal with DEC to collect seed on their land, but he had to share the seed with DEC (and the squirrels).

Roy reported: "Sadly we had blight enter two of our plantings (seven and ten years-old) and kill back some of our trees. This is a reminder that we do not have forever to find an answer to controlling the blight."

DISTRICT 9...BILL SNYDER, DIRECTOR 716-839-5456 (Counties of Allegany, Cattaraugus, Chautauqua, Erie, Niagara and Wyoming)

45 volunteers turned out at the Zoar plantation to help maintain the 600 tree area. 112 new seedlings were planted to replace trees lost to the drought or other causes.

Bill White continues his TACFNY efforts along the Southern Tier. He is working with Jamestown's Forecom, a forest management group. Forecom plans to create an eight-foot high fenced area to eliminate deer damage to hardwoods including nut-bearing stump sprouts of American chestnuts. Bill has been actively in search of remnant American chestnuts, as well as pollinating trees and collecting nuts for the CESF program and the harvest exchange. On the educational front, he is working with BOCES schools, including one in Salamanca where he supplied seed for a planting program.

Glen Gelinis has been helpful in taking the TACFNY story to different audiences. He participated in a Cornell Extension Field Day where tree problems and care were discussed.

FROST VALLEY ANNUAL MEETING

The 9th Annual Meeting of the New York Chapter of TACE was a real treat –with no tricks involved– over the October 30th-31st weekend. Beautiful, warm and sunny, it was ideal for all the activities, particularly the GPS workshop where members went outdoors for hands-on training.

This was preceded by an orientation slide show, and was followed by a concentrated GIS (Geographic Information System) workshop where the first official GIS map section, showing trees from Cattagaurus County, was produced to begin our NYS Chestnut Map.

The weekend Annual Meeting began Friday night with the setting up of exhibits, the enjoyment of old friends and the fun of finding new ones over soup and salad; then fireside sitting in Hussey Lodge where we were all together in one place.

On Saturday morning, after nibbling on John Gordon's roasted chestnuts, the business meeting began with reports by TACFNY officers, District directors and committee chairs.

Some items noted in the Science and Education reports: Stan Wirsig, Research Vice President, congratulated the Embryo Gathering Teams and related that they had the CESF research group working night and day receiving 4000 embryos for this year's work during the small window of time when the embryos were ready.

He also announced that the Reader's Digest grant obtained through District 3 Director Frank Munzer, provided 5 GPS units to be shared among the Districts. GPS teams and events will be set up during 2000 to record and coordinate data for the new NYS American chestnut map.

Glen Gelinas, Education Chairman, gave an overview of what goes into the promotion and production of the Charlie Chestnut kits and program. There was also a discussion period concerning how to help develop the program in a member's local area.

The Reforestation workshop started with an attention-getting figure complete with mask, cape, and a sharp-pointed digging tool, bounding in with a rousing salutation. When the disguise was removed, there was Fred Gerty, DEC Regional Forester, discussing the many aspects of introducing a tree into the forest. There is much to be considered,

such as selection of sites, impact on the ecosystem, and spacing, among other elements, when developing the plans for the future planting of the blight-resistant American chestnut.

Dr. Charles Maynard reported on the progress of the genetic research program (see science article). He was accompanied by several of his crew from CESF and introduced Sharon Bickel, Seth LaPierre, Cathy Catronis, Hongyu Gao, Haiying Liang, Bernadette Connor, and Rosie Mukherjee. Members enjoyed meeting them in person and having first-hand explanations of the excellent exhibits they had brought. We hope you can come again next year, folks. (Another sidelight: there almost wasn't a next year for this group! On their way home there was a clanking noise and a whole front wheel went rolling off. Fortunately they were near a gas station and had just started off.)

Sunday morning provided a trip to the Greenhouse, a nature hike, a distribution of Harvest Exchange nuts, and the open Board meeting.

The 9th Annual Meeting adjourned at 11:30 am, but the chestnut talk went on until 2:00 pm ending only because the Frost Valley staff started to put the chairs up on the tables. Remember where you left off: our next meeting is not that far away.

IN APPRECIATION

To all the many helpers at the Annual Meeting. You made it GO!

To **Walter Brown**
for bringing year-old seedlings
to share with members.

To those who brought the delicious
snacks for fireside sitting.

To **John and Janet Barra**,
talented members from Catskill, NY
for the handcrafted pencil holders
donated as a memento of the TACFNY
9th Annual Meeting. These pencil
holders are made of chestnut wood from
a 1920 barn found in the Catskills. And
also, many thanks for donating a
handcrafted American chestnut lazy
susan for the Annual Meeting drawing.

To **Gre Garzon**
TACFNY friend from Niagara Falls,
NY for the donation of a beautiful
copy of an oil painting "Under the
Spreading Chestnut Tree" for the
Annual Meeting drawing.

To **John Spagnoli**
for the donation of jars of Charlie
Chestnut Honey. His bees spent all
summer in Chestnut Ridge Park,
NY where school children have
planted American chestnut trees
from Charlie Chestnut Kits.

To **Chip and Crystale Leavy**
for the donation of 12 two-year-old
seedlings for the Annual Meeting drawing.



Robert L. Bishop II, Chairman of the A. Lindsay and Olive B. O'Connor Foundation (right) is honored at the Annual Meeting with a beautifully framed reproduction of an 1897 Lewis Leaf Chart. For several years, the O'Connor Foundation has granted \$5000, to be matched by TACFNY for research and education. The Presentation was made by TACFNY's president, Herb Darling (left).

RESEARCH PROGRESSES WITH TACFNY FIELD TEAMS ASSISTANCE

The CESF research teams are working on three fronts: developing transgenic treelets, improving the embryogenesis procedures for even better growth, and testing new aspects of the genes for blight resistance. And they all interact.

The embryogenetic work provides the material which the transgenic work uses in quantity for testing the growth of treelets using the genes provided from the lab testing blight resistance. Before that, TACFNY's Field Teams are in action providing juvenile embryos to start the whole process.

This year Dr. Maynard asked for burs from control-pollinated trees. This meant bagging branches and transporting pollen. Quite a job on our largest trees, but a lot was learned. Fortunately, the little second-generation saplings growing in the seed orchards (that we started 6 years ago) are beginning to bloom. As more of these trees begin to flower our pollination work will become easier.

The field teams also began to record flowering dates this year. In spite of the wide variation between different locations, probably from the hot and dry weather, there is some indication that bloom date is controlled by local temperature rather than, for example, length of day. It's very important for our transgenics to match the bloom dates of native American trees in different latitudes.

Despite the challenges of working with mature trees often located miles apart, the Embryo Gathering Teams were able to collect burs from 24 crosses and ship them to Syracuse. Added to the 8 crosses already in the bank, there were 32 crosses in all. The ESF team then extracted 3,894 embryos and established them in tissue culture. Initial contamination was less than 10%, a very low rate for field-collected material. As of late October, about 250 of the embryos had grown to a size where they could be scored for somatic embryo production. As expected,

many simply produced callus, and were discarded. However, they are still watching 38 cell lines closely. It will be several months before they know for certain which are embryogenic.

These embryogenic cultures will be used in the next round of genetic transformation experiments.

On the gene design part of the project, it was found by Dr. Powell and his team that the three genes which showed blight resistance in vitro will increase disease resistance in live poplar trees. (It is much easier to test genes in poplar first, before transferring them into chestnut, because it only takes about one quarter of the time to transform poplar.)

This is new evidence coming from the CESF team, that the genes they have been working on for so long will function correctly when cloned into a tree species. It is also a positive indication that the same genes have a good chance of conveying blight resistance when they are transformed into American chestnut.

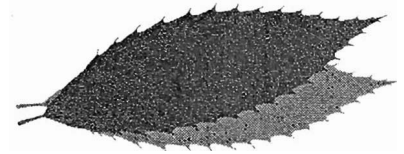
One of Dr. Powell's graduate assistants is also making progress cloning a stem-specific promoter (the genetic switch) which will only allow the genes to operate in the tree's stems, where the blight infects. When one of these promoters is finally isolated, it will replace the wound-inducible promoters currently being used.

While this work is progressing, we are joining with National in also looking forward to the overall goal of restoration and its problems. Part of the preparation for this is doing a current inventory and evaluation of our seed orchards, and other known American chestnuts, to use in breeding and research.

A professional survey is one of the goals for 2000 and a grant proposal has been submitted. An American chestnut map will be part of this, and with our new GPS capability our search teams can assist in the professional survey. They can now record more precisely the location of mother trees and seed orchards for our data base. It is vital that we watch the performance of seedlings and for that we have to be able to find them again.

How fortunate that this effort is beginning now, after the October 1999 Harvest Exchange, when members brought in over 8,000 nuts for exchange planting.

**CONGRATULATIONS AND
THANKS TO YOU ALL FOR YOUR
INVOLVEMENT AND HARD WORK.**



Because the known American chestnut trees on Long Island are not close enough to naturally pollinate (the species is self-incompatible), District 1 Director Dr. John Portente cross-pollinates trees by hand as shown above.

EDUCATION PROGRAM IS ON THE MOVE

This past school year introduced over a hundred teachers and many thousands of students in the Catskills to our 3rd-5th grade curriculum. It was also the first year that kits were sent out of New York State. Kits were provided to teachers and TACF members in several states. The largest number of kits were shipped to the Pennsylvania Chapter to involve their local schools in their restoration efforts.

Connecticut has used the curriculum in a new and productive manner. After introducing area teachers to the program, Phil Gordon said, "the project developed a life of its own." The teachers and students started finding wild trees, collected seed, and developed a relationship with their local National Resource Conservation Service office. The seedlings grown in these classrooms now grow in Connecticut stream corridors; planted and supported as a component of a stream bank stabilization program. American chestnuts may have found a permanent place in these conservation corridors and may provide an ideal approach for the redistribution of American chestnut trees. Great job, Phil!

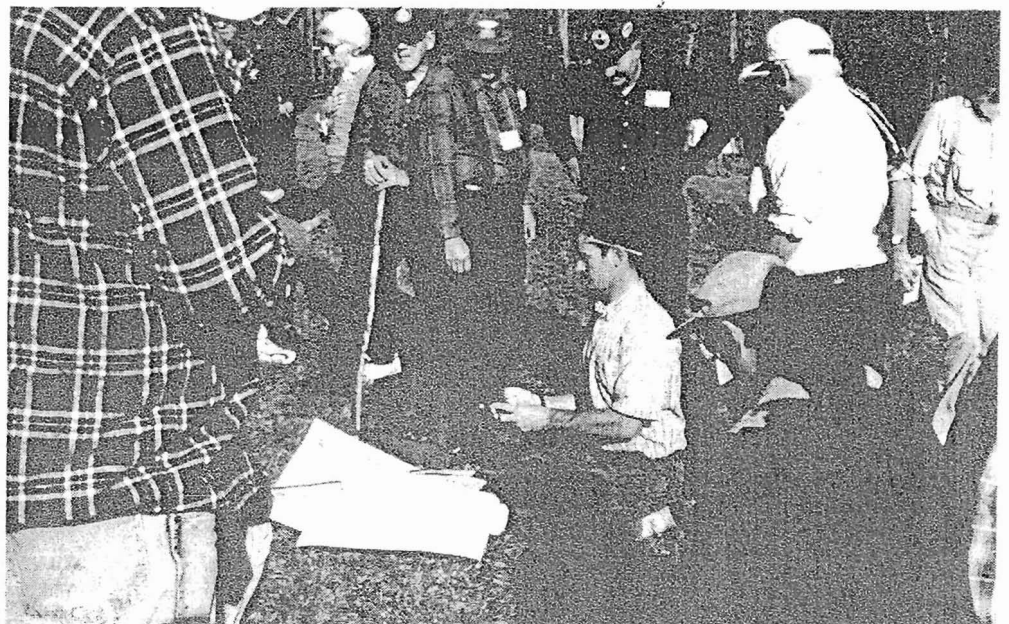
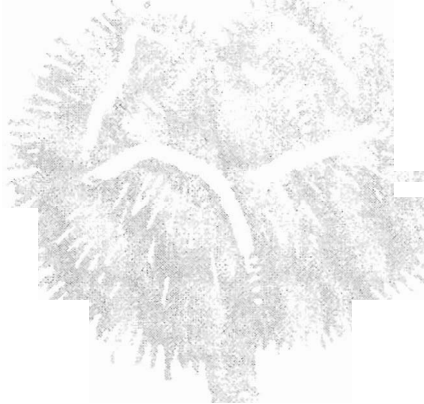
Back in New York, in the Catskills, teachers in every elementary school in Delaware county are now actively using our education program. In Broome and Ulster counties, approximately 85 percent of the elementary schools have received the curriculum. In Chenango, Greene, Otsego, Schoharie, and Sullivan counties, approximately 50 percent of elementary schools have the curriculum. Developing a list of available planting sites continues. Support for this regional program implementation was provided by the A. Lindsay & Olive B. O'Connor Foundation.

Aligned with the strategic plans of both the National Foundation and our State Chapter, preparations for moving the education program and its support from the New York Chapter to the National Chestnut Foundation by 2000 have begun. Our education project is now grant driven and outside the normal chapter operation's budget. Grant support and donations to support year 2000 education will be necessary during this critical year not only to retain active teachers in New York and provide seed for their classroom activities, but also to make ready the curriculum package, correspondence for use in other states, and to create the management systems and

procedures necessary to support program growth.

Collection of specimens for the new curriculum kits has been proceeding well. Thanks to John Gordon, Grimo Nut Nursery, Goose Watch Winery, and Herb Darling for providing the Nuts, Burs, Leaves, and wood sections. Invaluable help in specimen collection and processing thanks to Daniel Kosowski and Dawn McGloclan. Special thanks to Science Kit & Boreal Laboratories for support and supply of hand lenses.

DONATIONS TO SUPPORT THE WORK OF THE EDUCATION PROJECT SHOULD BE MADE OUT TO TACFNY AND DESIGNATED TO SUPPORT THE EDUCATION PROGRAM.



David Sherf, Co-director of the Frost Valley Roehn Technical Center (kneeling) instructs TACFNY members at the Annual Meeting on the use of GPS and GIS for mapping the location of known American chestnut trees in NY State.

GOALS 2000

The following are Goals for the year 2000 as approved by the Board of Directors at the 1999 Annual Meeting.

GOAL I INCREASE MEMBERSHIP

- A. Target 6 Presentations per District to service clubs and other organizations during 2000.
- B. Mailing to non-renewals.

GOAL II LOCATE NEW WILD CHESTNUT MOTHER TREES AND MAP KNOWN AMERICAN CHESTNUTS

- A. Establish search teams in each district to seek new trees.
- B. Use GPS parties to locate and record known American chestnuts for developing the NYS American chestnut map.

GOAL III COMPLETE PROFESSIONAL SURVEY OF NYS MOTHER TREES TO ESTABLISH CHARACTERISTICS AND CURRENT CONDITION OF TREES TO ENABLE CHOICES OF THE MASTER TREES.

GOAL IV EXPAND EDUCATIONAL PROGRAM

- A. Seek grant before implementation.
- B. Develop new planting sites.

The Bur
New York State Chapter
Of the American Chestnut Foundation Inc.
c/o Buffalo Museum of Science
1020 Humboldt Parkway
Buffalo, NY 14211

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TWO LARGEST AMERICAN CHESTNUT TREES IN STATE WEAR DEATH

The importance of locating existing American chestnut trees throughout NY state was emphasized by the news of the near-death of the State's two largest trees. The largest is 50 years-old with a 23-inch diameter(dbh) and stands 80 feet tall. The other is only slightly smaller. Both are infected with the same fungus that has nearly forced the American chestnut into extinction.

Cross-pollination of research-developed fungus-resistant trees with at least 100 different genetic lines from NY State will provide the diversity believed necessary to prevent inbreeding after restoration in NY State. So far there are less than 35 lines represented in our District seed orchards. Finding new, mature trees for seed production becomes an essential task as research draws closer to reaching its goal. (See article "Search Teams 2000".)

ELECTIONS

The following were elected to the Board of Directors for the year 2000 by TACFNY members attending the Annual Meeting.

Lewis Decker	Ted Kozlowski
Thomas Deacon	Dr. Charles Lamb
Jim Donowick	Dr. John Potente
John Ellis	T. Uriing Walker
Adrien Gaudreau	Bill White
Craig Hibben	

The following were elected officers of TACFNY for the year 2000 by the Board of Directors.

Herb Darling, President
Stan Wirsig, Vice President
Arlene Wirsig, Treasurer

SEARCH TEAMS 2000

Are you going out in the woods today, or next weekend, or sometime when either the mood strikes or Spring comes? We need you!

While you're enjoying doing your thing, take along the American chestnut TACFNY identification form and watch for that precious object, an unrecorded wild American chestnut tree.

Having lost several of our biggest trees, we don't want to lose any more to blight, if we can find them. Hopefully we can give them some maintenance and harvest the nuts to save the genes for our seed orchards.

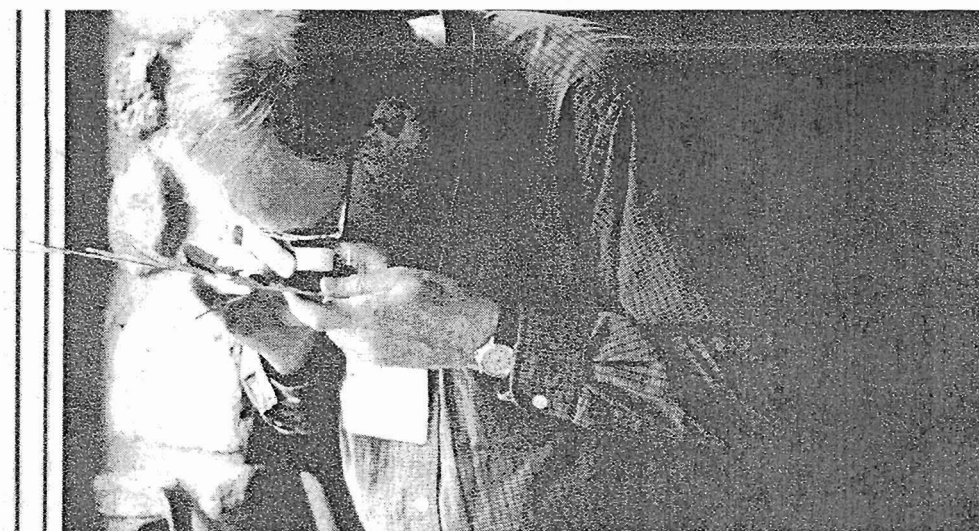
We want to preserve the proven good characteristics.

Call or email the following for the forms and information:

Herb Darling 716-632-1125
Stan Wirsig 716-745-7772
or email: swirsig@stargate7.net

If you are lucky and find a new tree, collect a twig with leaves and mail it, along with the location form, to Dr. Richard Zander, Buffalo Museum of Science, 1030 Humboldt Parkway, Buffalo, NY 14211 for examination. All American chestnuts then will be given a number and placed in our data base, with a big hallelujah.

We hope to develop Search Teams in each district during this coming year. There also will be GPS parties formed to record known chestnut trees with coordinate data for the new GIS New York Chestnut Map. Let us know if you'd like to participate and help in this effort.



Dr. Richard Zander, the TACFNY specialist for identification, uses a magnifying glass to closely inspect leaves brought to the recent Annual Meeting. It is of utmost importance that hybrid's or other chestnut species do not contaminate TACFNY's seed orchards.