

Chestnut Tree

The Pennsylvania Chapter of
The American Chestnut Foundation



We had a challenging pollinating season this year. New Graves lines and new sources of resistance were initiated.

Volume 5 Number 3

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September 2000

PA Chapter Reorganizes and Proposes a New Executive Committee

This year, the Officers and Board Members who comprise the Executive Committee will reorganize as approved by a vote of the PA-TACF members last December. Three current members will stay on to complete their term.

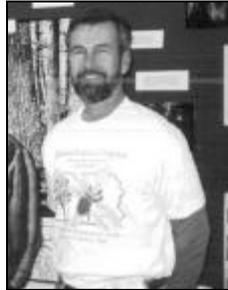
President Al Eelman appointed a Nominating Committee who unanimously nominated six new officers who are on the ballot in this newsletter.

**Please complete and mail the ballot on page 7.
Your vote is important !**

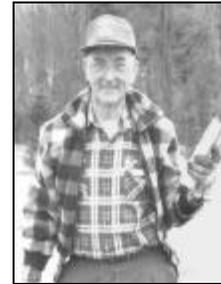
Reorganization Chart of Officers and Positions



Vice President and President Elect
(Two Year Term. Automatically becomes President in two years)
Nominee: **Bob Summersgill**



President (Moves to the position of Past President in two years)
Nominee: **Phil Gruszka**



Past President
(Voting member of the board for two years)
Incumbent: **Al Eelman**



Board Coordinator for Tree Breeding Program
Incumbent through 2001:
Ann Leffel



Board Coordinator for Membership
Incumbent through 2001:
Tom Pugel



Board Coordinator
Incumbent through 2001:
Bill Peifer



Board Coordinator for Data Management
Nominee: **Blair Carbaugh**



Board Coordinator for Education
Nominee:
Tracey Coulter



Board Coordinator for Finance
Nominee:
Lee Saufley

(Not Pictured) Board Coordinator for Communications Nominee : **Greg Yochum**

Calendar of Events:

Sept 15—Oct 5	Harvest Time
Oct 20, 21 & 22	TACF Annual Meeting in Abingdon, VA
Nov 4	PA Chapter Autumn Meeting in Montour
Nov 30	December Newsletter Mailed
Jan 6—11	PA Farm Show

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Autumn Meeting at the Montour Preserve November 4th

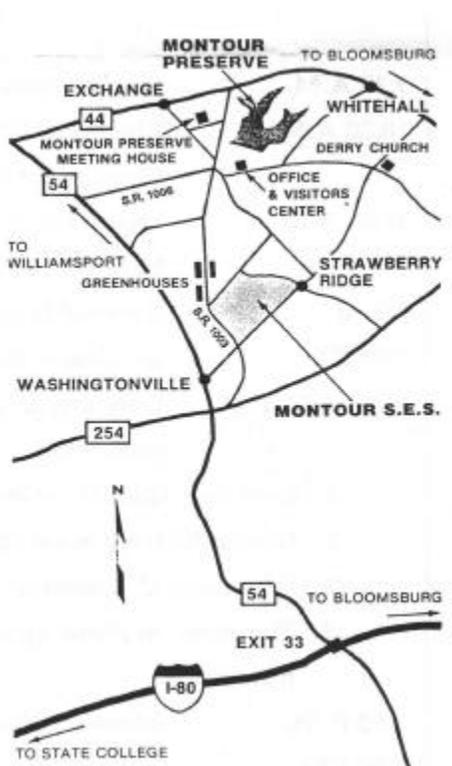
Once again, we have an excellent opportunity to return to the PP&L Montour Preserve north of Danville, PA. (See map below) The meeting will be held at the Visitors Center which has displays and exhibits focusing on wildlife, Indian culture and land management practices.

The featured speakers will be **Dr. Kim Steiner** of Pennsylvania State University, Forestry Department speaking about the PSU role in chestnut breeding and research. **Dr Bob Leffel** PA Chapter Scientist speaking about the PA-TACF backcross breeding program.

For those planning to stay overnight the following motels are in the area: **Days Inn, 570-275-5510, Key Motor Inn 570-275-4640, Red Roof Inn 570-275-7600, Hampton Inn 570-271-2500, and the Pine Barn Inn & Motel 570-275-2071.**

AGENDA

- 9:30 a.m. Registration, Coffee and Final Voting**
- 10:00 a.m. Progress of the PA Chapter**
- 10:30 a.m. Dr. Kim Steiner**
- 11:30 a.m. Dr. Bob Leffel**
- 12:30 p.m. Catered Lunch**
- 1:30 p.m. Workshops**
Chestnut mudpacking techniques
Pollination procedures
Chestnut Identification and
microscopic examination.
- 3:00 p.m. Installation of Newly Elected Officers**



York County Award

Bob and Ann Leffel were awarded the York County Conservation District award for their work in chestnut restoration at their Back Cross Farm in York County and across Pennsylvania.



Annual Awards Picnic, August 1, 2000, Forestry Resources Conservation Award Presented to Ann and Dr. Bob Leffel by Jeff Gossert and Keith Eisenhart of The York County Conservation District. Keith is the District Chairman.

Harvest Time

New sources of PA American chestnuts! That is the challenge! In order to incorporate as much diversity as possible into the breeding program, we are always seeking nuts from trees that have not been previously represented. We plant these throughout the state, in member orchards. The trees will be used in the breeding program when they begin to flower. There are nut bearing trees in most or all of the 67 counties of PA. Representation from every county is desired to increase the diversity of the gene pool.

You can help by harvesting nuts before the squirrels get them. When you locate an American tree with burs, harvest all the burs when you observe the trees' first open bur containing a brown, fully developed nut. (Burs with unpollinated seed usually fall first) We need a minimum of 15 nuts from each tree, more if you are so inclined.

Store the unopened burs in a dark, cool, dry, rodent-free location. Many of the burs will open during the next 10 days. After 10 days, open all the burs and place the nuts in the appropriate bag as described below. .

Store the nuts as they are released from the burs. Place nuts from each tree in separate perforated plastic bags as soon as they are removed from the burr and store in a refrigerator. **DO NOT FREEZE** Label nuts from each tree with collectors name and telephone number, location of tree, date of harvest, seed count and any other pertinent information.

As soon as harvest process is complete send the nuts to **Ann Leffel**, 13275 Laurel Rd., Brogue, PA 17309 by priority mail. Enclose leaf and twig sample with a locator form for verification of identity as an American chestnut. Tree location forms with all the needed information are available from PA-TACF, York office. Harvest begins about September 25 in the southeastern part of the state.

Breeding Program Challenges

by: **Bob Leffel, PA-TACF Breeding Program Scientist**

Breeding Blight-Resistant American Chestnuts - The Challenge of a BC3F2 Orchard



TACF Meadowview Research Farms 1999 Report presents data indicating that three incompletely dominant genes control blight resistance in 'Clapper' and 'Graves' backcross lines, rather than two such genes. Fortunately, Dr. Hebard prepared for this eventuality by recommending 100 BC seed for each of a minimum of 20 BC lines per source of resistance. PA-TACF has produced more than our minimum goal of 20 BC3 lines with Clapper resistance — a total of 4846 BC3 seed.

The expected, desired trihybrid homozygote, completely resistant to blight, in BC3F2 is 1 in 64, rather than 1 in 16 with the dihybrid hypothesis. Thus our workload is quadrupled for the BC3F2 generation! We began inoculations of PA-TACF BC3 Clapper lines at Brogue and Dornsife this spring, where 69% of the 1996 'Ort' line survived. If we assume 64% survival of BC3F2 trees upon flowering and the frequency of the desired trihybrid homozygote as 1 in 64, we will be selecting BC3F2 trees for intercrossing for BC3F3 at a frequency of 1 in 100 trees seeded or less!! Plant breeders have been accused of operating a "numbers game" and if so, the need for "numbers" is great!!

Intercrosses among screened, selected as moderately resistant (trihybrid heterozygotes) BC3 trees may be obtained via open-pollination or single crosses between BC3 lines. The Science Audit recommended single crosses via controlled pollination to avoid inbreeding and to provide pedigrees of resulting progeny. If we assume that we've identified several BC3 trees of each of 20 BC3 lines as parents, we can cross the 20 BC3 lines as 10 single crosses, avoiding crosses between sibs or half-sibs. How many seed per cross? It depends on how many BC3F2 trees we want that are homozygous for resistance. At the 99% level of probability, we need 423 trees for two, 640 trees for four, 835 trees for six, and 1021 trees for eight trees homozygous for resistance from each of the 10 single crosses (Hebard. 1999). We need 1280 seed per single cross for 1024 trees (80%) surviving for inoculation. Thus 1280 seed per single cross X 10 single crosses = 12,800 BC3F2 seed. We can produce blight-resistant American chestnuts with fewer lines and much smaller populations, but our Chapter goal should be as large and diverse an interbreeding population as possible for posterity!!

How to seed the BC3F2 orchard? Since we'll select among BC3F2 trees at a frequency of 1 in 100 or less, the surviving selected trees must be sufficiently close to one another, and isolated from all other chestnut, to provide seed production via open-pollination. The BC3F2 trees can be inoculated in the third year, as now we're selecting for complete resistance versus all lower resistance. A suggested planting plan?: 8 replications of 160 trees per single cross X 10 single crosses = 12,800 trees. Each sub-block of 160 trees will be seeded as 5 rows of 32 trees each with rows 7 feet apart and trees within rows 1 foot apart. With provision of some borders between sub-blocks and reps, the density of planting approaches 4000 trees per acre. After selection of about 50 trees per acre, each tree's space will average 871 sq. ft., equivalent to trees on 30' centers, a reasonable spacing for seed orchards. Thus the total acreage required is about 3.3 acres plus isolation. If the 12,800 seed produce 10,240 seedlings, we expect an average of 16 BC3F2 trees homozygous for resistance per single cross and at least eight per single cross at 99% level of probability. Dr. Hebard estimates that 10-year-old trees might produce 5000 nuts per tree — thus an orchard of 160 trees could produce 800,000 nuts by its tenth year!. Now that I've explained all of this ! CARRY ON!!!

Big Trees and The PFA Meeting

The Pennsylvania Forestry Association (PFA) is revising the 1993 *Pennsylvania's Big Trees* book. Join the search for the largest specimens of PA trees. Seven years ago, the largest tree in Pennsylvania was found in Franklin County. The sycamore stood 102 feet tall with trunk circumference of 31 feet 1 inch.

It will be a few years before you can find a blight-resistant American chestnut tree to top that, but we can still search for the largest living chestnut tree in PA. We have two candidates thus far and have heard of others. Contact PFA at 1-800-835-8065 or visit the web at www.paforests.org. For more info. check out their September 15-16 meeting in Green County as well. Anyone owning woodland or interested in forests will benefit from the tours and topics: Tour an outstanding tree farm and a sheep farm. Hear about coal mining industry influence on forests; bobcats; Southwestern Woodland Owners Association, etc., and meet some mighty fine people.

A Lost Bonanza for Wildlife Feeding

Before its demise, the American chestnut provided a tasty treat to wildlife of the Eastern U.S. Oaks may produce a bumper crop some years or nearly none. The chestnut flowers in late June, usually after the frost and it releases showers of nuts every fall. Large American trees were known to produce as many as 6,000 nuts compared to 1,000 of a white oak or 2,000 of a red oak of the same size.

Summertime and the Livin' is Easy

by: Sara Fern Fitzsimmons

Summer Intern

By: Ann Leffel

Well, I guess easy isn't exactly the perfect word. As I have come to find out through my stint as intern with the PA chapter, there is much to be done out in the chestnut orchards during the summer. I suppose that 'fun' would be a better word, but that's not how the song goes.

When I was first directly introduced to the PA chapter this spring at the Mt. Alto meeting, I was amazed at how much work everyone does to keep this organization going. That guy who makes trips every couple of weeks from central New Jersey (my old stomping grounds) to Westmoreland County. The bagging and pollination of 11 trees spread through 3 different state forests. Those people who have over 800 trees planted in their backyard. Not to mention the newsletters, presentations and slideshows. How do you all find the time to do all of this?

And then I realized about 5 weeks into my time here how easily one gets sucked into the American Chestnut Foundation way of life. After being on the road for 4 days out in western PA, I woke up in a bit of a haze the next morning, back in York, with the remnants of the past night's dream in my head. I had *dreamed* about thousands of chestnut trees, from seedlings to the giants of the past. They were all in perfect health and everywhere. The orchard keeper seemed to embody the combined characteristics of all the growers. He was enthusiastic, prepared, full of ideas, and, eh-hum, a little nutty. At that point, chestnuts had invaded every part of my being, including my unconscious thoughts, and I welcomed it.

Seriously, I have loved this job since the first day. My daily commute takes about 3 seconds up 12 stairs at the Leffel house and the only gridlock occurs when the dogs are waiting at the door, prepared to welcome me to the new day with their morning chorus, inspired, it would seem, by some Yoko Ono tune. I have had the pleasure of traveling over 4000 miles of Pennsylvania, from Philadelphia to Presque. And it is the enthusiasm and imagination of the members, spawned by the diversity of their backgrounds, from foresters to engineers to salesmen, that never cease to amaze me.

I wanted to make this an opportunity to share my general thoughts on the experiences I have had working with the PA chapter of TACF, and to thank all of those who took the time to show me around their orchards and share their knowledge. Special thanks to Brad Stanback who provided the funding for my internship and, of course, to Bob and Ann Leffel and Mrs. Green for loaning me their basement room, putting up with my sense of humor, and daring to eat that Ethiopian meal.

All-in-all, it has been an incredibly enjoyable summer, and I have the members to thank for it. I suppose what we do is a 'labor of love', making what we do, although lots of work, all the more easy.

Sara Fern Fitzsimmons stepped into the Leffel Family farm life as the result of a great need of the PA Chapter and as a result of being selected for the Stanback Internship Program of Duke University. As a Master's candidate at Duke's Nicholas School of the Environment, she was well prepared for the project proposed by The American Chestnut Foundation. PA Chapter needed a sharp, self-motivated student with computer skills and biology knowledge to visit the chapter planting sites, record germination, survival, and tree heights, and to evaluate the planting site, tree culture, and other critical aspects of growing chestnut trees in the breeding program orchards.

Sara wrote in her application, "A primary interest of mine is studying invasive and exotic plant species, and therefore I hold great excitement for the current TACF project of restoring the American chestnut tree, the history of which is one of the best examples of how an exotic species can plague native fauna when introduced to a habitat that is not its own."

She's a native West Virginian, and had an inkling of chestnut history from her grandparents. Her great-grandfather and grandfather stockpiled chestnut wood just before the species' demise, making it possible to panel her brother's bedroom with chestnut not too long ago.

While in undergraduate school at Drew University she participated in a Marine Ecology course in Belize where she observed coral reef, grass bed, and mangrove communities. Sara also was a participant in a Drew University International Seminar in Eritrea, examining the development of environmental policy in that newly independent nation. We needed an adventurous person.

Her program at Duke includes forest ecology, forest pest management, and watershed hydrology to supplement her biology major at Drew.

With all that background and experience she was just about ready to tackle life with the Leffels.

After one week of orientation in the chestnut orchard on the farm, she immersed herself in the chestnut project, traveling to 56 sites all over the state. On return from each venture, she immersed herself in the computer, bringing all records up to snuff. She endured our farm routine -- up at 6:00; to bed by 10; when corn is in season, you eat corn every dinner; no time for TV; no college social life here; no social life at all except for the annual church picnic.....Her survival instincts were good.

She learned to eat real food, not snacks. The poison ivy only bothered her for a couple of weeks. Walking the dogs wasn't such a bad chore! And Bob's stories were all new to her!!! Sara, we really did enjoy that Ethiopian dinner you prepared made us eat with our hands.

Thanks for all your work for the Chapter. We knew you were hooked when you admitted that you too were dreaming about chestnuts! We'll really miss having you around the house. Hope the chestnut project continues to excite you. Best wishes and good luck in your education, your further adventures, and your interest in contributing your great talents to worthwhile efforts.



Sara Fitzsimmons with recently collected chestnut flowers at Meadowview, VA

Bagging American Chestnuts in the North Central Region

By Simon Ruhl



Editor's Note: Simon Ruhl is recently retired from a career in Mining Engineering. He is an avid hiker with experience on mountain trails in Europe and much of the USA, including Alaska. He lives with his wife and with his walking companion, Kate, an English Spaniel. He is the newly appointed Washington County Coordinator.

Our team met at the Moshannon District Forest office on June 28th at 7:30 am. It was a gorgeous morning: cool, low humidity. It reminded me of my ferry trip along the Alaska Marine Highway in July of 1999. In fact, it was on that trip that I met an enthusiastic member of TACF-PA from eastern PA, Lee Saufley, who peaked my interests in the organization. I joined in the fall, went to the Mt. Alto meetings in the spring and even accepted the responsibility of Washington County coordinator. And now, for some hands-on experience, I am working with Lee's pollination team.

The Moshannon Bureau of Forestry District supplied us with a bucket truck with the capability of lifting four people to a height of 70 feet, and which, in a former life, had been used to de-ice the wings of B-52's. Of equal importance was its role today. Our goals on this trip were several. First, we wanted to select American mother trees for health, form, site, growth rate and apparent blight resistance. We would then test standard white pollination bags versus the non-standard brown bags on those selected trees. After bagging, we would test pollination success with various types of pollen, specifically between dry pollen and fresh pollen on catkins. In the end, we hoped to maximize production of BC3 seed that would have the Graves source of resistance, and, of course, to have fun and observe wildlife in the Moshannon, Sproul, and Elk State Forests.

The tree named Alex R. (78ft tall, 13in dbh) tree is certainly superior: straight bole, symmetrical branching and a strong crown. This tree was located by one of the foresters while managing a timber sale. The tree was subordinate and at the time and not flowering. The forester then eliminated the undesirable competing stems, recognizing that the chestnut had great potential on such a great site.

In Sproul State Forest is a tree named Simon Girty

(27ft, 6in). This tree had been called in only a few days before by Ann Leffel. It had beautiful female flowers and was definitely a healthy tree with flowers located near the terminal bud, which is normal, but the tips showed at least 20 inches of new growth. Therefore, the bags could not be tied to old growth on the twigs as recommended.

Although we select for superior growth characteristics, it is those characteristics that can often work against a pollinator. Even with a 70 foot bucket truck, we were unable to reach most of the flowers on the Dehass, Davie tree (80ft, 16.5in) and we couldn't even get one bag on the Elk tree (90ft, 17.3in), not even on the lowest branches. Does anyone out there have connections to the Beaver Stadium Crane?

On the other end of the spectrum, 'poor' trees can often be spectacular seed producers. The Three Runs tree (28ft), a small and heavily blighted group of sprouts, averaged more than five burs per bag, with several having as many as nine. Although this could result in abundant seed production, I am told the bags will all burst from the voluminous bur development and many seeds will fall to the ground. To minimize this seed loss, harvest dates will be scheduled earlier than normal.

All in all, our bagging and pollination trips were incredibly successful. We pollinated a total of 539 bags on 11 trees with 9 different Graves pollens. With an average



Forester Wayne Wynick standing beside the 13in Alex R Tree.



Lee Saufley in Sproul State Forest

of 2.7 burs per bag, at 3 nuts per bur, we have a potential harvest of 4,366 BC3 seed. I would like to thank all of the members of the Saufley pollination team: **Blair and Mary Carbaugh, Alex Reinke, Jodi Gribik, Lee Saufley, Steve Kardohuli, Dan Livingood and Wayne Wynick.**

I was able to do some hiking, and saw bears, deer, turkey, 3 rattlesnakes and 1 coyote. I was very pleased to be part of this great tree restoration effort and must say kudos to the entire pollination team. I feel so indebted to **Bob and Ann Leffel** for getting our breeding program on the move, and our whole team hopes that **Dr. Kim Steiner** is ready .

ELECTIONS 2000

Membership Voting for an Executive Board

At the Autumn Meeting at Montour Preserve we will install new officers based on your votes.

President Al Elman appointed a nominating committee consisting of himself, Ann Leffel of Brogue, York County; Dr. Bill Lord of Pittsburgh, Allegheny County; Dave Armstrong of Hanover, York County and Tom Pugel of Reigelsville, Bucks County. The Nominating Committee unanimously approved six nominees who agreed to serve if elected. Each position carries a two year term.

Board Coordinators are responsible to form action teams or committees and coordinate their activity in each of their functional areas.

Biographical information of each of the nominees follows:

Presidential Nominee: Philip Gruszka.

Phil is a current board member of PA-TACF. He is a Forestry graduate of the University of Illinois with post-graduate academic credits in tree sciences and business law. Phil's career path is centered around the care of trees: four years with the Davey Tree Expert Company, eleven years DBA Forest Tree Service, Inc. and nine years with Longwood Gardens, Inc. Interests and hobbies are fairly diverse; hunting, fishing, flying and environmental stewardship.

Vice Presidential Nominee: Robert Summersgill

Bob is the current Secretary of PA-TACF. He attended Colgate University. After a successful career with Mercantile Stores which does three billion dollars in annual sales, Bob took early retirement. He now deploys himself around Pennsylvania in the chestnut business –planting, pollinating and harvesting any place he is needed. Bob also maintains over 600 chestnut trees at his Stahlstown, Westmoreland farm.

Board Coordinator for Finance - Nominee:

Lee Saufley.

Lee is currently the Regional Coordinator for the nine counties of the South Central Region. Lee received a degree in Civil Engineering from the University of Delaware. He retired from his engineering management duties after 33 years. Since then, Lee has been involved in dairy and beef cattle farming. He is currently operating a Christmas tree farm at his home in

Hummelstown, Dauphin County. Lee is devoted to the hardwood regeneration (especially the American chestnut) throughout Pennsylvania.

Board Coordinator for Data Management Nominee: Blair Carbaugh.

Blair is a currently a board member of PA-TACF. He received his Doctorate degree in Biological Sciences and is a Professor Emeritus at the University of Lock Haven University. He is fully involved in the Forest Stewardship Program and as a consultant in Environmental Education. Blair has been active in TACF since 1995 and our resident expert in chestnut species identification.

Board Coordinator for Education Nominee:

Tracey Coulter.

Tracey is the current Treasurer of PA-TACF who works at two jobs as well as attends PSU, Mont Alto in pursuit of a degree in forest technology. She joined TACF in 1992 and is one of our most energetic supporters. Tracey is also our Coordinator for Cumberland County.

Board Coordinator Nominee for Communications: Gregory Yochum.

Greg is currently the PA-TACF Coordinator for Allegheny County. He obtained an Associate in Science in Horticulture Technology and Landscape Design. He began working for The Pittsburgh History & Landmarks Foundation (PHLF) a non-profit organization, while in High School. Upon graduation he was appointed Horticulturist for PHLF, working in its efforts to preserve & restore historic landscapes.

Presently he has conducted surveys of garden opportunities in Pittsburgh's South Side and provides consulting services to Kentuck Knob, Designed By Frank Lloyd Wright and located near Uniontown, PA.

ACTION PERSONNEL AND TEAMS NEEDED

Board coordinators will be seeking volunteers to specialize in various aspects of Chapter operations. If you have some background or expertise in the following areas please contact the York Office (717-852-0035 or email: pachapter@acf.org:

These areas are: **Grant writing, treasurer, newsletter publication, environmental education, automated data analysis or programming, administration and data entry, non-profit law or non-profit administration.**

BALLOT INSTRUCTIONS

Please vote. We would like to hear from all our members!

Instructions

1. Check to see if you are a Pennsylvania Chapter member. Your address label will have a **red star** if you are a member and eligible to vote.
2. Non-PA Chapter members may return the ballot to indicate a change of address or the attendance of your family at the Autumn meeting at Montour Preserve.
3. Members: Remove this entire page from the newsletter and complete the ballot on the backside.
4. Indicate if your return address has changed.
5. Please let us know if you are attending the Autumn meeting at Montour Preserve by checking the box.
6. We welcome your comments on the ballot.
7. Fold the page with the York Address out, fold and tape.
8. Please use a first class stamp.

Thanks for your help and participation!

Name _____

Address _____

City, State, Zip _____

Check here if this is an address change

Please use
a 33 cent
stamp

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The American Chestnut Foundation
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OFFICIAL VOTING BALLOT OF PA-TACF FOR YEAR 2000

Please check blocks or provide an optional write-in vote.

President: Phillip Gruszka or _____

Vice President: Robert Summersgill or _____

Board Coordinator for **Finance: Lee Saufley** or _____

Board Coordinator for **Data Management: Blair Carbaugh**
or _____

Board Coordinator for **Education: Tracey Coulter**
or _____

Board Coordinator for **Communications: Gregory Yochum**
or _____

Do you plan to attend the Autumn meeting at Montour Preserve? YES

Please provide any comments:

