



(Penn State Xi Sigma Pi honor students visit Humboldt)

***The Louis W. Schatz Center for Tree Molecular Genetics
Pennsylvania State University***

Progress Report

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Prepared by:
John E. Carlson, Ph.D.
Director, The Schatz Center for Tree Molecular Genetics
Associate Professor of Molecular Genetics
School of Forest Resources
Pennsylvania State University
814-863-7561; jec16@psu.edu

<http://schatz.cas.psu.edu/>



This report covers activities in *The Louis W. Schatz Center for Tree Molecular Genetics* at Pennsylvania State University for the period of January 1 to June 30, 2004. This marks the completion of the first full year of activities in The Schatz Center on both the University Park and Mont Alto campuses of Penn State following the establishment of the complete Schatz endowments in 2003. Highlights from the past six months include a tour by Penn State students of the Humboldt area guided by Gordon Schatz, a visit by Henry Schatz to Mont Alto to accept the Centennial Fellowship Award on behalf of Dr. Schatz; and the initiation of Schatz Center activities at the Month Alto campus. Details on progress in each program in the Schatz Center at Penn State follow:

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The Schatz Student Travel Fund – By far the highlight of the past year in the Schatz Center was our trip to Arcata, CA, in May. Six undergraduate students in the Xi Sigma Pi forestry honor society accompanied Dr. Carlson on the trip which took us by air to San Francisco followed by a pleasant van drive north to Humboldt County. The students were rewarded for the time and effort that they volunteered to help with Dr. Carlson’s research experiment on American Chestnut in the university’s research forest. Mr. and Mrs. Schatz were wonderful hosts and guides and we sincerely appreciate the chance that we had to visit with them. The



students had an experience of a life time touring towering redwood forests, tidal pools on the beach, the Schatz Energy Center, and the Humboldt State University campus. We were impressed with Gordon’s redwood regeneration experiments, and the beautiful Schatz facility in the university research forest. The Penn State students all remarked on how great it would be to work and study in such a setting, and how they wished that all their fellow forestry students could have the opportunity to make such a trip. We look forward to repeating this visit in coming years just as soon as earnings

from the Schatz Student Travel Endowment have again accrued sufficiently,

THE PENN STATE MONT ALTO CAMPUS received three gifts in 2003 from Louis W. Schatz and his family for the Louis W. Schatz Center for Tree Molecular Genetics, including:

- 1) The Schatz Professor of Forest Genetics
- 2) The Schatz Tree Genetics Colloquium
- 3) The Schatz Undergraduate Awards

The Schatz Professor of Forest Genetics at Mont Alto. In February 2004, following discussions with the Schatz family, the Schatz Professorship was changed to *The Louis W. Schatz Program Support Fund for Forestry* to enrich the student experience at Penn State Mont Alto by providing monies to support the Forest Technology program. Mr. Henry Schatz visited the Mont Alto campus in April 2004 and accepted a Centennial Fellowship award on behalf of his father (see photo). No funds have been spent from *The Schatz Program Support Fund for Forestry*. The Forest Technology Program is allowing the funds to accrue to purchase new laboratory equipment.



Schatz Tree Genetics Colloquium at Mont Alto. Dr. Beth Brantley is working with Dr. John Carlson at University Park to invite members of the tree genetics community to participate on a Board of Directors that will help in planning the colloquia. No funds to date have been spent; however, monies will be used to facilitate a meeting of the Board this fall/winter at Penn State Mont Alto to plan for the first Schatz Tree Genetics Colloquium. We would like to hold the first Colloquium in the Spring of 2006.

Schatz Undergraduate Awards at Mont Alto. Penn State Mont Alto did not have a recipient of the Schatz Undergraduate Award during the 2003-2004 academic year as the program was still so new. Funds have been carried over to the next academic year, and we look forward to naming an academic scholar for the next report.

*The Schatz Center's home in the new School of Forest Resources Building at University Park is now much closer to becoming a reality with the initiation of work this summer at the construction site. The completion date is now expected in December, 2005. We look forward to a grand opening ceremony in 2006. To follow the progress on the building, please refer to the web site at <http://www.sfr.cas.psu.edu/AboutSFR/Building/default.htm> where the *Schatz Tree Genetics Center* is prominently featured and links to floor plans are available (the Schatz Center will be located on floor 3 – the Molecular Genetics and Quantitative Genetics labs and offices). The official Ground Breaking Ceremony is scheduled for Friday October 29, 2004 at 2pm. News concerning the ceremony will be available at the above web site.*

Schatz Center Endowment for Library Collections:

The Schatz library fund has permitted the university's main library to obtain electronic subscriptions to the National Research Council of Canada journals (Canadian Journal of Botany, Canadian Journal of Forest Research, and Genome). This is the first time that faculty at Penn State have had online access to these journals, which are important publications in forestry, plant science, and molecular genetics.

The Schatz Visiting Scholars Program is now receiving applications from excellent researchers, due to our efforts in advertising the program over the past year. The Visiting Scholars Program may prove to be the flagship of The Schatz Center at Penn State by raising the international profile and external visibility of the center. Interest in future sabbaticals at Penn State through the Schatz Visiting Scholars Program have been expressed by outstanding faculty at several institutions in the US, Canada and Europe. Also, the College of Forestry in the University of the Philippines, and the Korean Forest Genetics Institute, and The Institut Teknologi Bandung (Technology University in Bandung, Indonesia) are all pursuing Memorandums of Understanding to develop collaborative research projects with The Schatz Center at Penn State, which will be facilitated by the Visiting Scholars Program.

The Schatz Post-Doctoral Fellowship was the first component of the Schatz Center that Dr. Schatz funded, beginning in 1998. In the last report (January, 2004) we announced the successful recruitment of two outstanding young scientists as new Schatz Post-doctoral Fellows - Dr. Abdoulaye Traore and Dr. Haiying Liang. Dr. Traore joined the Carlson lab in the Schatz Center at University Park in December of 2003, and Dr. Liang arrived at the end of March of this year. Information on the background, skills, and interests of Dr. Traore and Dr. Liang were provided in the previous report. Although they have been at Penn State for just a short time, both have already made remarkable progress in their research, and have raised the level of research in the Schatz Center and in the Carlson lab considerably. Dr. Traore has used his



extensive previous experience with tree micropropagation, together with our previous research results, to quickly develop a very promising protocol for multiplication of Douglas-fir shoots in tissue culture. Dr. Carlson successfully leveraged the Schatz Center funds to obtain a grant from the Pennsylvania Department of Agriculture to fund a graduate student to work with Dr. Traore on further development of the Douglas-fir micropropagation system for use by the Christmas tree industry. The Ph.D. student, Chien-Chi

Chen, is well qualified for the project, with extensive previous experience at Penn State on growth and adaptation of tree seedlings to greenhouse and field conditions

Dr. Liang, our other *Schatz Post-Doctoral Fellow*, is leading *The Schatz Center's* research projects on tree genomics, starting with yellow poplar (*Liriodendron tulipifera*). Yellow poplar is currently the leading hardwood export from the US, and is used for lumber, composites, and paper production. Dr. Liang's work is progressing very well on use of our yellow poplar DNA library (<http://www.greenbac.org>) to characterize genes important in flowering (<http://fgp.bio.psu.edu/fgp/>) and production of wood. Dr. Liang is assisting in the preparation of new grant proposals to national funding agencies for additional support for this area of research.

The Schatz Awards for Undergraduate Research are available to students at both the University Park and Mont Alto campuses to conduct research under the supervision of Penn State faculty associated with the Schatz Center. At University Park, Schatz Scholars have often been students in the Schreyer Honors College who conduct their honors thesis research projects in the center. Our most recent honors student was Mr. Matt Diskin who conducted a genetics project on American Chestnut with Dr. Kim Steiner. Matt graduated in December of 2003 with top honors (the student with the highest grade point average at the university). This is an indication of the quality of students that the *Schatz Undergraduate Research Awards* are permitting us to attract to forest research. Matt continued as a research assistant in the Schatz Center until May, 2004, working with a graduate student in the Schatz Center on a molecular genetics project. Matt assisted Drs. Steiner and Carlson organize a conference in Asheville, North Carolina, on chestnut restoration for the National Park Service, at which Matt gave an excellent talk on his research. Recruitment of undergraduate Schatz Scholars for the new school year is ongoing on both campuses. Each Schatz Scholar is awarded \$1,000 for research, publication and travel expenses related to their project. Two students at University Park have recently submitted applications for projects to start in September.

Public Outreach Activities in the Schatz Center included participation in the annual Pennsylvania State Farm Show in January 15 - 17, 2004, in Harrisburg, PA. The Schatz Center's displays featured our collaborative research projects with The American Chestnut Foundation. The hands-on demonstration of DNA extraction from tree leaves that we conducted was again very popular with visitors to the Farm Show. This was an excellent opportunity for us to explain to the public what the Schatz Center is and why research with trees is so important. In addition the Schatz Center Visiting Scholars fund co-sponsored a visit to Penn State and a seminar



presentation by Dr. Amy Brunner from Oregon State University, who talked about her ground breaking research on the genetics of flowering in trees. Such co-sponsorship of high profile speakers in graduate seminar programs helps increased appreciation of the Schatz Center on campus, as well as with the visiting speakers. Also, two of Dr. Carlson's PhD students were actively involved in conducting DNA fingerprinting workshops in biology classes at the local high school again this past year. This outreach exercise teaches the high school students about molecular biology, gives the graduate students experience in teaching, and is an ideal opportunity to show high school students that research with trees is fun and up-to-date.

Faculty Members in the Schatz Center presently include:

Henry Gerhold, Kim Steiner, and Marc Abrams in Forest Resources at University Park, Beth Brantley and Craig Houghton at the Mont Alto campus, Jack Schultz and Heidi Appel in the Entomology Department, Claude dePamphilis in the Biology Department, David Eissenstat, Mark Gultinan, and Jonathan Lynch in the Horticulture Department, and John Skelly, emeritus professor in Plant Pathology.