ORNAMENTAL PLANT GERMPLASM CENTER

OPGC Quarterly Newsletter
February 2006

Director's Introduction

This issue reports on human resources and germplasm activities, both examples of the progress the Ornamental Plant Germplasm Center (OPGC) continues to make.

In the last three years, we have been very successful in attracting student helpers. Annually, we hire 10 to 15 student workers, mostly under the Federal Work-Study Program, to help us in our day-to-day activities.

Building on this core of student helpers, we are putting together a team of volunteers, consisting of Master Gardeners and gardening enthusiasts who come once a week to help us with many routine activities, and qualified researchers who help us with tissue culture work. We also have a high school internship program in which we have trained eight students in the last three years. The first story tells of these activities.

The second story reports on the first National Plant Germplasm System (NPGS) Curators Meeting in Chicago. The OPGC had a strong representation at the meeting with two curators and two assistants, and we actively participated.

The third story tells about one of the ways we acquire germplasm. In this case, Clonal Crop Curator Jennifer Ehrenberger was on vacation visiting her friends in Hawaii where she completed her M.S. degree. She took the initiative to collect germplasm at Lyon Arboretum. We now have some 3,000 accessions maintained at the OPGC.

The final story shows our commitment to germplasm distribution for research. The number of germplasm shipped samples increased from 189 in 2004 to 891 in 2005. We are anticipating further increases in germplasm distribution — an important activity of the OPGC as part of the NPGS.

Finally, we are looking forward to a busy year and to making further progress. If there are ways that you think we can collaborate, please write to me at tay.9@osu.edu. Thank you.

David Tay, Ph.D
Director

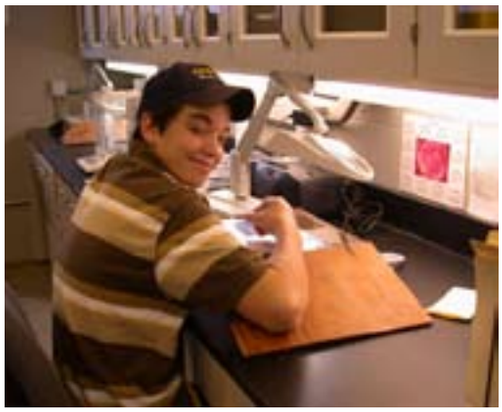
OPGC Volunteers Provide Quality, Speedy Assistance

Art Wells

The OPGC has been privileged to have several volunteers join us in our work. With the help of OSU Horticulture and Crop Science's Volunteer Coordinator Mary Maloney, we have assembled a weekly working group of seven volunteers, including Master Gardeners. Our working group is very skilled, with a good knowledge of plant culture, and has been a joy to have with us.

Recent projects have included processing the 2005 seed harvest and propagating and maintaining the greenhouse plants. We recently took cuttings of *Pelargonium* for the Center's trial garden this year. The work has never gone so quickly.

In addition to this all-purpose team of volunteers, we have had two individuals devoted to volunteering in our tissue culture lab — Li Xu and Srividya Murali. Their contributions have been instrumental in developing our growing *in vitro* collection.



Bill Fankhauser of the Graham School does seed analysis.

Local high schools have also made significant contributions, connecting us with three student interns from Columbus Alternative and two from the Graham School, a Columbus charter school.

Nancy Gosztyla (left) and Linda Johnson (right) take cuttings.

Master Gardener volunteers help Art Wells (left) clean seed.

Volunteers are a valuable resource in our work, allowing us to undertake more than could otherwise be possible and providing quality service so that we may do it well.

If you are interested in volunteer opportunities at the OPGC, please contact Art Wells at **wells.267@osu.edu.**

National Plant Germplasm System Curators Workshop Improves Interaction Among Sites

Susan Stieve

Russell Eckley, Jennifer Ehrenberger, Art Wells, and I attended the first ever National Plant Germplasm System (NPGS) Curators Workshop, December 5-6, 2005, in Chicago. This workshop was designed to improve interaction among sites with the goal of improving operation efficiency.

Issues discussed included:

- Germplasm Resources Information Network (GRIN) issues, including morphological and molecular marker evaluation. GRIN is the database where all accession information is stored.
- Germplasm acquisition.
- Taxonomy, including identification and correct nomenclature.
- NPGS accession inactivation guidelines.
- The relationship between active sites and the National Center for Genetic Resources Preservation (NCGRP, formerly the National Seed Storage Lab), including long-term storage of seed and clonal accessions, techniques, longevity studies, etc.
- Ramifications of restricted germplasm — such as Plant Variety Protection (PVP), quarantine, safety backup, etc. — material in the collection.
- Technology show-and-tell which included spatial data collection using personal digital assistants with GPS, bar-code-assisted data (PDA) collection, field data electronic collection devices, and photodocumentation.
- Regeneration issues including distribution of healthy propagules; clonal and seed concerns such as minimum population size, isolation of cross-pollinated species, pollinators, self- and wind-pollinated species, and germinating dormant seeds.

Workshop attendees from the OPGC returned with new ideas and the enthusiasm to apply them. These included using PDAs in conjunction with GPS technology during germplasm collecting trips, new methods of germplasm acquisition, how to get answers to taxonomy and accession identification questions, and practical tips for improving regeneration efficiency.

Most important of all workshop benefits was establishing contacts and networking with personnel from other genebanks within the NPGS so we know whom to contact when questions arise.

As a result of the positive response from all personnel in attendance from many genebanks, it is anticipated that this workshop will be held again, probably in alternate years.

Lyon Arboretum in Hawaii Donates New Germplasm to the OPGC

Jennifer Ehrenberger

In June 2005, I met with the staff of Lyon Arboretum in Honolulu, Hawaii, to discuss the donation of germplasm to the OPGC.

What is now Lyon Arboretum started in 1918 as a forest-restoration project by the Hawaiian Sugar Planters' Association (HSPA) Experiment Station on land that was devastated by cattle. HSPA acquired 124 acres of land and placed it under the authority of Dr. Harold L. Lyon, a young botanist from Minnesota. In a period of over four decades, Dr. Lyon obtained and planted approximately 2,000 tree species on the grounds.

In 1953, under the direction of the University of Hawaii at Manoa, the emphasis shifted from forestry to horticulture. Over the past 30 years, nearly 2,000 ornamental and economically useful plants have been introduced to the grounds. More recently, the arboretum has dedicated itself to becoming a center for the rescue and propagation of rare and endangered native Hawaiian plants.

Lyon Arboretum staff members conduct research, reach out to the public through their educational program, serve the public in numerous ways, and devote time to important projects like germplasm conservation.

My tour of Lyon Arboretum facilities included the tissue culture and seed labs and the arboretum grounds. Ray Baker, research associate, and I entered the densely wooded arboretum grounds, plant list in hand, and collected many tropical plants of several genera for the OPGC. Our collections included the following: 4 *Anthurium* sp., 5 *Begonia* sp., 1 *Dieffenbachia* sp., 1 *Hillebrandia* sp., 1 *Impatiens* sp., 1 *Neomarica* sp., 25 *Philodendron* sp., 5 *Spathiphyllum* sp., and 1 *Viola* sp.

After passing inspection at the plant quarantine office, plants were packed and taken on the airline as cargo to the OPGC. When the plants were received at the OPGC, they were propagated and are now curated here. The plants are established at the OPGC, and many are very healthy.

The beautiful landcape of Lyon Arboretum in Manoa Valley, June 2005.

Ray Baker inspecting one of his favorite palms — Joey Palm, Johannesteijsmannia altifrons, June 2005.

If you are interested in these plants for your research, please feel free to contact me at **ehrenberger.1@osu.edu.**

The OPGC would like to thank Ray Baker, Nellie Sugii, Alvin Yoshinaga, and Clifford Morten for their generous contribution of time and plant materials.

Germplasm Distribution Continues to Increase

Eric Renze

The OPGC shipped 71 orders containing germplasm from 40 genera in 2005. Distributions continued to increase from previous years; in 2004, 18 orders containing accessions from 18 genera were shipped.

This increase is due to both the increased awareness of the germplasm conservation work being done at the OPGC, and OPGC staff having a better understanding of GRIN (Germplasm Resource Information Network) to process the distributions in a more timely manner.

Documentation is enclosed with each shipment. This includes a letter from the OPGC Director, a return postcard acknowledging germplasm receipt, germplasm disclaimer, and a *Help Us Grow* card containing information for potential money or germplasm donors on the OPGC endowment, and a list of the priority genera we are focusing on conserving.

The OPGC follows the USDA policy of only distributing germplasm for research use. A letter to be enclosed in response to non-research germplasm requests was developed and is being used.

In future years, distributions will continue to increase as the OPGC becomes more widely known in the germplasm user community.

2005 Germplasm Samples Shipped	
Genus	**No. of Samples Shipped**
Antirrhinum	54
Aquilegia	2
Asclepias	3
Aster	2
Begonia	71
Campanula	3
Chrysanthemum	2
Clematis	1
Cleome	24
Consolida	1
Coreopsis	26
Cosmos	1
Delphininum	2
Dianthus	60
Gypsophila	14
Iris	18
Leonotis	1
Leucanthemum	27
Liatris	3
Lilium	3
Myosotis	1
Oenothera	32
Osteospermum	10
Passiflora	26
Pavonia	1
Pelargonium	362
Penstemon	8
Petrorhagia	1
Petunia	9
Portulaca	12
Rudbeckia	29
Silene	2
Stokesia	3
Tagetes	26
Talinum	1
Turnera	2
Verbena	8
Veronica	2
Viola	4
Zinnia	34
Total	**891**

Ornamental Plant Germplasm Center Endowment

The first specialized flower genebank in the world.

We invite you to be a part of the global effort to save our heirloom flowers by contributing to the OPGC Endowment. Please help ensure that our children and grandchildren will be able to enjoy the beauty of the flowers that our forebears left us.

Our mission is to conserve the world's wealth of flower diversity to bring happiness and health to humankind.

The OPGC benefits include:

- Preservation of unique genetic materials for present and future crops that are resistant to pests and diseases.
- Plants requiring fewer economic inputs; e.g., water, fertilizers, pesticides.
- Promotion of consumer product appeal through expansion of crop diversity in form, color, and fragrance.
- Biological activity for pharmaceutical, nutriceutical, agrochemical, and functional food uses.

All levels of contribution are welcome.

To contribute:

Please make check payable to:

The Ohio State University, Account # 645512

Please send your contribution to:

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