**Herbaceous Ornamentals Crop Germplasm Committee Meeting Minutes**

*Friday, July 10, 2015*

**Location:**

Ohio State University

139 Howlett Hall

2001 Fyffe Rd.

Columbus, OH 43210 USA

**Attendees:** Alan Blowers, Pablo Jourdan, Ryan Warner, Jim Ault, Mike Uchneat, Marvin Miller, Susan Stieve, Justin Marotta.

**Attendee via teleconference:** Peter Zale, Shaun Broderick, Rosanna Freyre, Zhanao Deng, Jeff Carstens, Peter Bretting, Gary Kinard, Alan Meerow, Kelly Oates

Meeting called to order at 10:00 AM

1. Welcome by Alan Blowers, HO CGC Chair, and Pablo Jourdan, OPGC Director. Introduction of attendees.

2. Summary of 2013 HO CGC meeting.

A verbal summary of the 2013 HO CGC meeting was presented since minutes from the meeting were not available. Principal outcome of the meeting was a recommendation to proceed with genotyping of the Phlox collection using Next Generation Sequencing. The recommendation was followed by a crop evaluation proposal to do the analysis and it was funded (see below).

3. General HO CGC Business

Review of CGC role by Pablo Jourdan-advising genebanks which curate herbaceous ornamentals, review proposals for exploration and evaluation, serve as a voice and provide perspective.

*Potentilla* crop descriptor review by Jeff Carstens. 50 of about 300 Potentilla species are represented in the collection. Descriptor list submitted is extensive and comprehensive, including morphology, phenology, chemistry, etc. NC7 is interviewing for a new Horticulture Technician position on Monday, July 13 (temporary, renewable); this person may help use the descriptor list to characterize the collection. Pablo suggested rather than modifying the descriptor list that it be put to use and could be modified in the future as needed. Shaun asked whether it would be possible to add representative photos of each species, Jeff replied that the goal will be to add a photo to each accession (there may be more than one accession per species). Shaun commented that quality of photos on GRIN may be lacking, need flower close up in addition to whole plant photo, larger image sizes needed. Jeff offered to create a tutorial on how to best use public GRIN and distribute it to the membership. In order to characterize *Potentilla* the collection would first need to be grown out, it would be a few years before data can be collected.

Pablo made a motion that we approve the Potentilla descriptor list, Jim Ault seconded. Unanimous approval. Note-Gary Kinard reminded us that curatorial staff for the crop/CGC in question are *ex officio*, as are NGRL, and ONP and cannot vote.

4. Discussion of highlights of NPGS germplasm center and National Program reports

* Western Regional Plant Introduction Station (submitted by Barbara Hellier)
	+ Report submitted, Barbara not available to discuss.
	+ Jim Ault stated he was disappointed to read about all of the current vacant positions. Alan Meerow stated that during the sequestration many were offered and took early retirement. The ARS is in the process of posting some vacant positions, but there are budgetary constraints.
* North Central Regional Plant Introduction Station - Jeffrey Carstens (via teleconference)
	+ Recent focus on how to prioritize the herbaceous ornamental collection
		- Prioritization of genera based on three factors 1) commercial demand and utilization, 2) number of germplasm requests, and 3) research interest as reflected in published manuscripts.
		- Jim Ault commented that *Carex*, identified as low priority, is of interest as a grass replacement.
		- Marvin Miller commented on *Plectranthus*, listed as medium priority, may be more important. *Freesia* and *Anemone* also of interest to the industry. Jeff commented that *Anemone* seed difficult to work with.
		- Shaun commented that *Perovskia* may be more important than “low”, especially in light of drought tolerance.
		- Kelly asked why *Alcea* and *Malva* are designated high priority, and also more generally how priority genera are generally chosen. Pablo replied industry relevance, likelihood of being able to work on the genus (access to germplasm); 80% of OPGC effort generally spent on priority genera, 20% on other genera in the collection (e.g. *Stokesia*).
		- Kelly asked whether any germplasm sites are able to keep tissue cultures, Pablo replied yes: OPGC, NCGRP, Corvalis, possibly others.
		- Marvin asked whether there were any accessions that could help with California drought. Others commented that we are having above average rainfall in the Midwest. Justin commented that hardiness also needs to be considered, there have been high *Perovskia* losses with the harsh winters in the Midwest in recent years.
		- Jeff asked for comments/direction from the HO CGC regarding prioritization of genera maintained at NC7.
* Subtropical Horticulture Research Station *-* Alan Meerow (via teleconference)
	+ Budgetary constraints, no dedicated GRIN data technician.
	+ Released 5 amaryllis hybrid clones, being patented, ARS publicizing their availability.
	+ Working on *Hippeastrum* pigment molecules.
* Office of National Programs National Plant Germplasm System - Peter Bretting (via teleconference)
	+ See report for graphs on NPGS status
	+ Mismatch between demand and budget, ability to meet demand for germplasm and information
	+ Highest NPGS priorities continue to be maintenance of germplasm, then regeneration, documentation and data management; acquisition can be high or lower priority depending on urgency. Lower priorities include (in order) distribution, characterization and evaluation, enhancement, and finally research in support of preceding priorities.
* National Germplasm Resources Laboratory – Gary Kinard (via teleconference)-audio difficulties so will e-mail his comments later.
	+ Peter Bretting commented on GRIN Global, it is being used by international cooperators. Version 2.0 is being rigorously evaluated for cyber security prior to being released for use in the U.S. by the NPGS. Hopefully it will be released by the end of the calendar year, but uncertain.
	+ Gary Kinard commented that 2 factor authentication for all users will be required starting August 15; this may be a problem for non-federal network (e.g., OSU) users…will need a password and a physical key (e.g. a LincPass).
* Ornamental Plant Germplasm Center - Pablo Jourdan
	+ Three graduate students have completed research and graduated (Peter Zale, Steven Haba, Andres Bohoroquez Restrepo).
	+ Research generated a lot of data which needs to be analyzed and published.
	+ Issues with Phlox seed production, working on move from clones to seed.
	+ Research on cut flower longevity, flow cytometry, butterfly rearing for phlox pollination.
	+ Justin Marotta raised the issue of the OPGC budget, will contact U. S. senator Sherrod Brown and ask what is being done politically about the budget.

Lunch Break 12:30-1:00 PM

4. Discuss the highlights of germplasm center reports, continued

* North American Plant Collections Consortium Report
	+ Submitted by Pam Allenstein, not present to discuss.

5. Proposals and project updates:

* 2013 Germplasm Evaluation Proposal: *Flower Color and Anthocyanidin Pigment Profiles of the Phlox Collection in the National Plant Germplasm System* by (PI) Pablo Jourdan and (co-PI) Susan Stieve (completed).
	+ M.S. research conducted by Andres Bohoroquez Restrepo, scanned flowers, analyzed and with Tomato Analyzer software.
	+ Found similar pigments produced different colors, and vice versa.
	+ Andres graduated spring 2015
	+ Data to be published and added will be added to accession information in GRIN information
	+ Marvin Miller brought up the term metameric, where colors apparently change in different lights, at different angles, with different textures, etc.
* 2014 Plant Exploration Proposal: *Exploration and Collection of Lilium, Phlox and Rudbeckia Germplasm in the Klamath Mountains Region of Northern California and Adjacent Coastal Range* by (PI) Pablo Jourdan (postponed to 2015).
	+ Deferred until 2015 due to California drought, which unfortunately is ongoing.
* 2015 Germplasm Evaluation Proposal: *Genotyping-by-Sequencing the Phlox Collection*

*in the National Plant Germplasm System* by (PI) Pablo Jourdan and (co-PI) Leah McHale (funded).

* + Money will be received by end of July
	+ Sequencing will be done at Cornell Genomic Diversity Facility
* 2016 Plant Exploration Proposal: To be determined, deadline in two weeks.
	+ Jim Ault suggested Phlox collecting with Peter Zale. Peter suggested more work needs to be done with the *P. glaberrima* complex, considering the scope of the OPGC GBS work.
	+ Rosanna asked whether this material collected must be released to the NPGS immediately. The answer is yes, though once collected material is sent to the appropriate germplasm center it may be several years before it is bulked up and available for distribution.

6. Highlights of research on ornamental plant germplasm.

* Peter Zale-Longwood Gardens
	+ Will be reinvigorating the breeding program including canna, clivia, camellia, etc.
		- Phasing out clivia breeding
		- Breeding for camellia hardiness
	+ Also curatorial work-NAPCC accreditation, collection, verifying taxonomy
* Shaun Broderick-Mississippi State University
	+ http:/blogs.msucares.com/ornamentals/
	+ examining the process of speciation in *Penstemon*
* Kelly Oates-Walters Gardens
	+ Working on tissue culture build-up of stock before variety release, also maintain virus-free stock, or may to work to clean up material depending on what is needed.
	+ Hans Hansen head breeder-*Phlox*, *Hibiscus*, *Heuchera* breeding.
* Rosanna Freyre-University of Florida-Gainesville
	+ Breeding *Ruellia*, has produced three sterile cultivars
	+ Has done flow cytometry, polyploidization, pgr research
* Zhanao Deng-University of Florida Golf Coast Research and Education Center
	+ Caladium, canna, lantana, other breeding and genomic research
* Ryan Warner-Michigan State University
	+ Petunia breeding, generate industry resources, transcriptome sequencing
* Jim Ault-Chicago Botanic Garden
	+ Currently focusing on breeding *Phlox*, particularly interspecific hybridization, polyploid induction, tissue culture.
	+ Retiring in 7 years.
* Mike Uchneat-Garden Genetics
	+ Has been breeding phlox
	+ Breeding annuals, perennials, woody ornamentals, vegetables
	+ Frustrated with lack of international cooperation, need for access to new germplasm for breeding; need to re-purpose other genera for ornamental use, e.g. oil plant collection (cuphea).
	+ Pablo mentioned there are many native North American species with ornamental characteristics left to explore.
	+ Rosanna mentioned Nagoya protocol as it relates to the Convention on Biological Diversity and international collection, unclear how this may relate to herbaceous ornamentals.

7. Re-purposing of ornamental plants and how the HO CGC/OPGC might contribute to this effort – Marvin Miller/Pablo Jourdan leading the discussion.

* Discussion of what the Crop Vulnerability Report is and how this traditional report (which is written by the CGC) is and how it might be rethought to be more effectively written and used by the HO CGC
* Marvin Miller raised importance of non-ornamental characteristics which are also important
	+ Environmental-e.g. riparian buffers, erosion control, light, noise and air pollution in cities, shoreline conservation, drought tolerance
	+ Economic-landscaping and how it is used in urban setting…drive traffic to city parks, increase value of homes.
	+ Psychological and sociological benefits-how plants in an urban setting nurture the soul; gardens, green public spaces, green roof
	+ May add these as considerations in a crop descriptor list.
	+ Jim Ault cited Prairie Nursery (Westfield, WI) as a good resource for lists of plants for certain environmental conditions, pollinators, etc.
	+ North Creek Gardens American Beauties program releases native plants which have been selected for garden cultivation.

8. Other

Jim Ault discussed *Asclepias* hybridization. Self-incompatible, very difficult to hand pollinate, damage causes latex leakage and flower death. Try growing a cage with one representative of each species. Kelly Oates mentioned some tropical *Asclepias* may be dangerous to monarchs, more information needed on this…host to protozoan that infects the butterfly and causes wing deformities. Susan is curious whether the protozoan would be seed transmitted.

9. HO CGC administration (chair, secretary) and future meetings.

Ryan Warner agreed to be HO CGC Chair starting in August 2015

Shaun Broderick will be Secretary and Chair-elect.

Next meeting may be prior to Cultivate’16.

Meeting adjourned 3:20 PM.