

Meeting Minutes of the W-6 Technical Committee Meeting  
Date: Friday, June 21, 2019

Location: Hulbert Hall, Room 409, WSU Pullman Campus

\*Note: Participants were present or participated virtually/off-site, via zoom or conference call

Officers:

Chair – Carol Miles (attending the meeting virtual/off-site)

Vice Chair – Ian Ray (attending the meeting virtual/off-site)

Secretary – Joe Kuhl (attending the meeting in person/on site)

2019 W6 TAC participants:

In person (Hulbert Hall, Room 409, WSU Pullman Campus):

Joseph Kuhl, University of Idaho, Moscow, ID, Email: [jkuhl@uidaho.edu](mailto:jkuhl@uidaho.edu);  
Peter Bretting, National Program Leader, email: [Peter.Bretting@ars.usda.gov](mailto:Peter.Bretting@ars.usda.gov);  
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Lisa Taylor, ARS WRPIS, Pullman, WA, email: [lisa.taylor@ars.usda.gov](mailto:lisa.taylor@ars.usda.gov)

Called In:

Carol Miles, Washington State University, Mount Vernon, WA, email: [milesc@wsu.edu](mailto:milesc@wsu.edu);  
Ian Ray, New Mexico State University, Las Cruces, NM, email: [iaray@nmsu.edu](mailto:iaray@nmsu.edu);  
Ann-Marie Thro, National Program Leader, email: [athro@nifa.usda.gov](mailto:athro@nifa.usda.gov);  
Dan Parfitt, University of California, Davis, CA, email: [fzparfit@plantsciences.ucdavis.edu](mailto:fzparfit@plantsciences.ucdavis.edu);  
Gary Kinard, ARS NGRL, Beltsville, MD, email: [Gary.Kinard@ars.usda.gov](mailto:Gary.Kinard@ars.usda.gov);  
Harold Bockelman, ARS NSGC, Aberdeen, ID, email: [Harold.Bockelman@ars.usda.gov](mailto:Harold.Bockelman@ars.usda.gov);  
Joseph Postman, ARS NCGR, Corvallis, OR, email: [Joseph.Postman@ars.usda.gov](mailto:Joseph.Postman@ars.usda.gov);  
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Michael Giroux, Montana State University, Bozeman, MT, email: [mgiroux@montana.edu](mailto:mgiroux@montana.edu);

Unable to connect:

Kevin Jensen, ARS FRR, UT, email: [Kevin.Jensen@ars.usda.gov](mailto:Kevin.Jensen@ars.usda.gov)

8:00 a.m. to 8:25 a.m.: Participants call in/connect

**Opening remarks:**

The meeting was called to order by Chair Carol Miles at 8:25am. There were brief opening remarks regarding agenda and connectivity. No discussion occurred. The agenda was approved without edits.

**Scot Hulbert, Administrative Advisor report, remark and budget**

In 2018 Scot Hulbert was interim, in 2019 he became permanent Administrative Advisor. In May 2019 the NRSP budget request was reviewed and submitted. It included a standard 3% increase. Recently the state hired Ms. Saber Glass as the Pullman Farm Manager, starting on June 17, 2019. A seed cleaning position will soon be advertised.

**Peter Bretting (ARS National Program Office)**

Peter Bretting presented slides titled: The National Plant Germplasm System: 2019 Status, Prospects, and Challenges. Over the last 15 years the rate of germplasm distribution has doubled from ~125,000 to ~250,000 accessions. Genome scientists have become a new primary customer base of NPGS. NPGS funding peaked in 2010-2012 and has been stable since 2014, following a low in 2013. Some key challenges for the NPGS include: managing and expanding the NPGS operational capacity and infrastructure to meet the increased demand for germplasm and associated information, recent and upcoming NPGS personnel retirements including hiring and training new staff, developing and applying cryopreservation and/or in vitro conservation methods for clonal germplasm, BMPs and procedures for managing accessions and breeding stocks with GE traits and the occurrence of adventitious presence, acquiring and conserving additional germplasm, especially of crop wild relatives. Approximately one third of Plant Genetic Resource managers will retire in the next 5 years, there is not comprehensive program to train new PGR managers. In 2018 Gail Volk and Patrick Byrne hosted a workshop in Ft. Collins that discussed designing and developing a training program for PGR management. This led to a NIFA Higher Education Challenge grant proposal that was submitted focusing on two tracks, standard university course(s) and USDA staff, on-the-job training. Three areas of permanent NPGS budget increases were highlighted: \$1.9 million for coffee genetic resources, \$1.0 million for citrus genetics resources, and \$500,000 for industrial hemp genetic resources.

**Ann Marie Thro (National Program Leader, Division of Plant Systems-Production)**

Ann Marie Thro provided a NIFA update. Ann Marie will be retiring and will most likely be replaced by Ed Kaleikau. In October 2018 J. Scott Angle became director of NIFA. There is a need to educate NIFA about what NPGS does. Effort should be made to write non-technical summaries in reports that are exciting and highlight significant accomplishments.

**Robert Matteri (Area Director, PWA Area Office)**

Robert Matteri inserted additional comments during Peter Bretting's presentation.

**2018 TAC meeting minutes, discussion and approval**

The 2018 TAC meeting minutes were distributed to the committee as Appendix 3 in the WRPIS W6 report, starting on page 43. The first half of the minutes were scrolled through then skipped to the end, resolutions. Joe Kuhl motioned to approve the minutes as is, Ian Ray seconded, and the motion was unanimously approved.

\* It was noted that in 2020 the 2019 minutes should be sent out as a separate document to all state representatives approximately 2 weeks prior to the annual meeting so that a thorough review can be conducted prior to the 2020 meeting.

### **9:35 a.m. to 10:10 a.m.: Break**

### **Business meeting: ARS Site reports**

#### **NGRL, Beltsville, MD, Gary Kinard**

Dr. John Wiersema retired in June 2018 after more than 30 years as the curator of GRIN Taxonomy. Dr. Melanie Schori now has full responsibility for GRIN Taxonomy. Plant Exchange Office (PEO) supports the collection of germplasm for the NPGS through the management of a Plant Exploration and Exchange Program. The deadline for submitting proposals for explorations or changes to be conducted in FY 2020 is July 26, 2019.

Public website upgrades are in progress to provide new functionality. Examples include: responsive design to reorient content to the viewing platform (tablet, phone, etc.), and migrating GRIN to Microsoft Azure Cloud to comply with USDA mandate to consolidate and streamline databases.

A two-volume book on the crop wild relatives (CWR) native to the United States, Canada and Mexico is being published by Springer Publishing. The book presents descriptions, geographic distributions, potential usefulness and conservation status of the CWR and outlines strategies for their conservation. Volume 1 was published in December 2018 and Volume 2 is expected in February 2019. Many members of CGCs and NPGS staff are among the authors.

Since 2008, a project to provide thorough coverage of wild relatives of all major and minor crops in GRIN Taxonomy has been underway. We have completed our initial work on 232 major and minor crops from 119 genera, and an interface to query these data in various ways is available (<https://npgsweb.ars-grin.gov/gringlobal/taxon/taxonomysearchcwr.aspx>). We invite feedback from NPGS curators and CGC members for those CWR classifications already developed. A new CWR page will be developed in 2019 to allow users to search for trait class and breeding type data contributed by the Global Crop Diversity Trust.

#### **NSGC, Aberdeen, ID, Harold Bockelman**

Personnel:

Agronomist position (vacant since January 2017) has been filled by Scott McNeil  
Senior Bio Tech position now vacant. A second vacancy is likely.

The National Small Grains Collection (NSGC) presently holds 147,894 accessions of the small grains (wheat, barley, oat, rye, triticale, rice, and related wild species). This number includes more than 10,000 accessions of mapping populations with GSHO (Genetic Stock – Hordeum) and GSTR (Genetic Stock – Triticum) numbers, which will not be maintained for perpetuity.

NSGC distributed 30,810 accession samples in 624 separate requests in the past 12 months.

Approximately 35% of the distributions were to foreign scientists.

NSGC provided back-up samples to NLGRP totaling 228 accessions. About 99% of NSGC accessions have been backed-up.

NSGC is continuing efforts to capture voucher images of spikes, panicles, and seeds. The images and characterization data provide valuable information to both the germplasm user and for NSGC curation.

Evaluations of NSGC wheat landrace accessions are continuing for reaction to the Ug99 stem rust race in Kenya. We continue to coordinate the assembly of the Stem Rust Nursery in Kenya in cooperation with the Kenya Agricultural & Livestock Research Organisation, CIMMYT, and wheat and barley breeders in public and private programs throughout the U.S. The latest shipment in May included more than 2400 entries from U.S. public and private breeders and researchers.

### **NCGR, Corvallis, OR, Joseph Postman**

NCGR has 10 permanent Federal staff. Joseph Postman will be retiring and his position will be replaced, however he will continue as a collaborator at NCGR.

#### **Stakeholder/Service Accomplishments**

- 12,669 accessions, 72 genera and 784 taxa of 674 species of temperate fruit, nut, and specialty crops were conserved.
  - Managed > 3,600 accessions of fruit tree and nut crops on 22 acres of orchard.
  - Obtained a total of 226 new accessions and 670 new inventory items in CY 2018.
  - Received 789 order requests and shipped 7001 items.
- International shipping is limited by inability to get phytosanitary certificates from other countries as they have a long list of issues or assurances that we can't certify

#### **Research Accomplishments**

- Determined a *Rubus* phylogeny using target capture sequencing
- Determined that the most recent common ancestor for *Rubus* is from North America and that it dispersed over land bridges to Asia, Europe, and South America during the early Miocene.
- Determined that *Rubus* diversified greatly on many continents (particularly China) during the middle of the Miocene.
- Detected black currant reversion virus infection in black currant (*Ribes nigrum*) collection; worked with APHIS to develop a national response plan for this disease.
- Chloroplast DNA sequence data was used to differentiate pear species groups, and to identify genetic relationships between pears and other related crops in collaboration with NCGRP, Fort Collins.
- 20 publications were listed for 2018-2019.

### **NCGR, Davis, CA, John Preece**

#### **Personnel Changes**

Howard Garrison retired. NCGR, Davis awaits permission to recruit.

Operational funds continue to shrink, there are no student workers on federal funds, however grant funds do support student workers.

Challenges for 2019 have included retirements and the furlough. UC Davis is helping out this spring, in particular with controlling powdery mildew and other diseases in field collections (grapes, peach and plum).

Germplasm distributions only go to researchers, not to the general public.

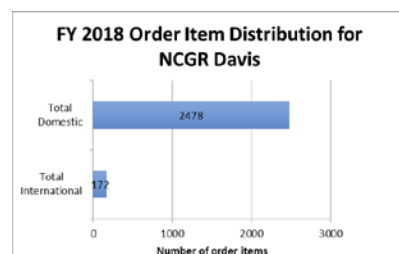


Figure 1. Number of items (cuttings, seed, pollen, etc.) distributed domestically and internationally during 2018.

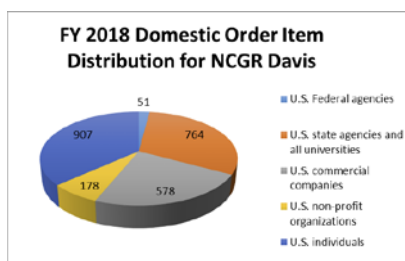


Figure 2. Number of items distributed to domestic customers during 2018.

#### New Acquisitions:

Limited land space makes it difficult to add to the collections. However, typically 150 *Prunus* seedlings clear APHIS quarantine annually. These are received and then planted 1 m apart within rows. During the winter of 2018/2019, there was a storm in Beltsville, MD that blew the top off the greenhouse with our *Prunus* crop wild relative seedlings, making retesting necessary. Therefore, no *Prunus* seedlings were received from APHIS this year. We expect to receive 300 trees next year.

#### NALPGRU, Parlier, CA, John Preece

##### Distribution

NALPGRU distributions are in the form of seed, green cuttings/propagules, tissue or rooted plants depending on the crop and the nature of the request, and are filled and shipped year-round. The trend in distributions from NALPGRU is flat after a decrease due to a change in policy regarding distributions to home gardeners (Fig. 1). In FY 2018, 83% of orders were sent to domestic cooperators (Fig. 1), and these were sent mainly to US Federal agencies and Universities (Fig. 2).

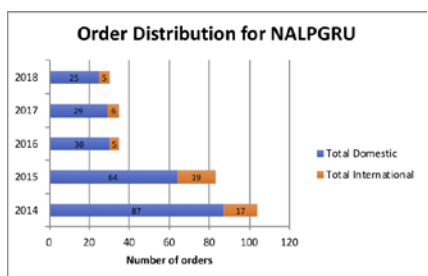


Figure 1. NALPGRU domestic and international distributions from FY 2014-2018.

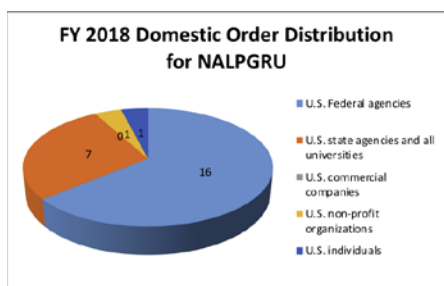


Figure 2. NALPGRU distribution to domestic customers during FY 2018.

#### TGRC, Davis, CA, Roger Chetelat

##### Acquisitions

The TGRC acquired two new accessions this year, both long storage, delayed ripening varieties from Spain. In addition, we rescued three accessions of *Solanum ochranthum* that had never been successfully grown for seed increase. Obsolete or redundant accessions were dropped. The current total of number of accessions maintained by the TGRC is 4,344.

#### Distribution and Utilization

A total of 7,154 seed samples representing 2,045 different accessions were distributed in response to 339 requests from 263 researchers and breeders in 32 countries; at least 32 purely informational requests were also answered. The overall utilization rate (i.e. the number of samples distributed relative to the number of accessions available) was 165%. Information provided by recipients indicates our stocks continue to be used to support a wide variety of research and breeding projects. Our annual literature search uncovered 90 publications that mention use of TGRC stocks.

#### NLGRP, Ft. Collins, CO, Stephanie Greene

NLGRP was reorganized in 2018. Two management units were combined into one unit titled Agricultural Genetic Resources Preservation Research Unit, with two sections: Plants (seed, clonal, microbe) and National Animal Germplasm Program.

At NLGRP 80% of NPGS seed accessions are backed up, and 15% of clonal collections are backed up as cryopreserved samples.

#### Recent Activities:

Received and processed 52,379 samples; Black box collection from CIMMYT (wheat)-44,140 samples; Pullman back up status: entire collection (79%) - Beta, Lactuca, Poa; Conducted ~ 7800 germination tests; Prepared 15,000 NPGS accessions for shipment to Svalbard Global Seed Vault; Monitor tests for base collection - 6000 tests

10<sup>th</sup> Anniversary of Svalbard Shipment, switched from cardboard to plastic boxes to protect against warm temperatures and resulting moisture from melting ice.

A two-volume book on the crop wild relatives (CWR) native to the United States, Canada and Mexico is being published by Springer Publishing. (See Gary Kinard's report statement)

#### Looking forward:

- Filling vacancies! High priority: supervisory seed analyst, 2 analysts
- Working with NPGS curators to get 90% of active collections backed up at Fort Collins
- Working with curators to replace declining samples at Fort Collins

#### TPGRD, Hilo, HI, Tracie Matsumoto

TPGRD has a new crop to curate, coffee (*Coffea* species). As mentioned by Peter Bretting (see earlier summary), coffee is receiving newly allocated funds for genetic resource development. Currently there are 43 genotypes, and 674 trees in the Hawaii Agriculture Research Center (HARC) coffee variety trials. TPGRD has experienced several challenges over the last year. May through August the Kilauea Volcano eruption caused significant disruption to papaya production in Hawaii. The eruption also directly impacted germplasm by encroaching on the proposed site of a cacao field trial and damage to a cooperator papaya field. Another challenge was macadamia quick decline, where a new species of *Phytophthora*, *P. haveae*, has been proven pathogenic. A survey for the little fire ant turned up many positive sightings, and efforts are now being taken to address the plant pest. TPGRD is acting as a backup sight for the Avocado collection (Miami), this is in part due to the presence of avocado laurel wilt near the Miami location. Plants were first transferred from Miami to

Ft. Detrick where they were tested for laurel wilt and avocado sun blotch viroid prior to shipment to TPGRD.

### **WRPIS, Pullman, WA, Jinguo Hu**

Two recent retirees included Vicky Bradley (agronomy grasses and safflower) and Frank Dugan (plant pathology). WRPIS hopes to replace both positions. Mrs. Lisa Taylor started in April, 2019 as the Seed Storage and Databased Manager, replacing Dave Stout (retired March 2018). Mrs. Carla Olson started in June 2019 as the Program Support Assistant, replacing Mr. James Dann (relocated August 2018). State hires included Mrs. Saber Glass to the Pullman Farm Manager position as of June 17, 2019; Mr. Charles Golob returned to manage the WSU turf research program; and Mrs. Julia Christian was hired in August 2018 as one of the Pullman farm technicians.

Currently WRPIS manages 100,968 accessions from 169 countries, as of April, 2019. The number of accessions continues to increase, a steady increase since 2009 with the exception of 2016 where there was a slight decline (many accessions were transferred to other PI stations). The number of seed packets distributed has been increasing steadily, with 2018 having a record high of 44,659. The thirteen western states continue to use W-6 germplasm; between 18 and 30% of all germplasm requests.

Five research advancements made by WRPIS were highlighted: fungal communities associated with camas (*Camassia*) in six wetland habitats; SNP markers associated with four major nutrients in kabuli chickpea seeds; W6 table beet collection diversity in root shape, leaf density and color; new wild bean relative accessions recently acquired; alfalfa research project in Prosser, WA.

Four state reps are still needed for the W-6 technical advisory committee: Alaska, Arizona, Hawaii and Wyoming. Approximately 30 acres of farm land were lost to the Pullman-Moscow airport expansion. A new greenhouse has been built at the Central Ferry Farm.

### **NCGRCD, Riverside, CA, Marylou Polek**

NCGRCD is currently composed of 8 permanent/term federal staff, five student workers, and a university/grant funded USDA APHIS MAC laboratory technician. Current program holdings include 1,881 accessions: 1,617 *Citrus* and related taxa; 147 *Phoenix* spp.; 115 citrus pathogens; and 2 date palm phytoplasma nucleic acid extracts. Distributions in 2018 included 5,350 budwood accessions, 1,956 seed packets, and 205 grams of pollen.

Citrus program status includes 570 sanitized and pathogen-tested citrus accessions, 406 have been successfully cryopreserved at NLGRP in Fort Collins, 97 are pending viability assessment, 17 accessions released from quarantine status in 2018.

Date palm program status includes: tissue cultures have been sent to NLGRP for cryopreservation, February 2019 date palm pollen was collected for cryopreservation, obtained positive controls for pathogen testing of new accessions, optimizing testing protocols for NCGRCD conditions, and initiated collaboration and submitted research proposals.

Accomplishments in 2018 include: successfully completed the requirement for two tests for Citrus greening pathogens in the protected screenhouse, 6 months apart and by external party, hold order lifted, and executed new compliance agreement in 2018.

The meeting was behind schedule, so the general discussion was postponed until the end.

### **Lunch break**

### **Start at 1pm, Business meeting: State reports**

### Colorado, Patrick Byrne

A total of 2,718 accessions were delivered in Colorado, constituting 117 orders to 55 unique addressees. This represented an increase in number of accessions from the previous year (2,450 accessions in 2017), but the number of orders was about the same (123 orders in 2017). Orders were shipped from the following locations in 2018: COR, DAV, GEN, HILO, NC7, NE 9, NR6, NSGC, NSSL, OPGC, PVPO, RIV, S9, SOY, TOB, and W6.

When broken down by recipient institution (see table below), by far the largest recipient was USDA's National Laboratory for Genetic Resources Preservation (NLGRP) in Fort Collins, accounting for 60% of accessions shipped. Companies accounted for nearly 15% of accessions, led by Cargill, which develops canola varieties at its Fort Collins location. Universities received 6.6% of accessions, mostly shipped to Colorado State University, and the Denver Botanic Gardens received 6.3% of accessions. Institution type could not be determined for 7.4% of accessions.

4 publications are listed in the Colorado state report.

<b>Institution type</b>	<b>No. of items</b>	<b>Percent</b>
Federal agencies	1695	62.4
NLGRP	1633	60.1
Other agencies	62	2.3
Companies	402	14.8
Cargill (canola)	331	12.2
Other companies	71	2.6
Universities	248	9.1
Colorado State Univ.	179	6.6
Other universities	69	2.5
Denver Bot. Gardens	171	6.3
Miscellaneous, not stated	202	7.4
<b>Total</b>	<b>2718</b>	<b>100.0</b>

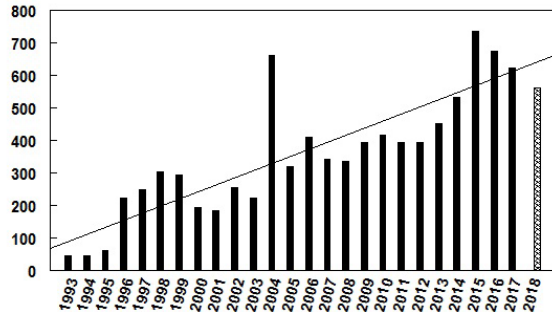
**California, Dan Parfitt in place of Charles Brummer** (anticipate Charles Brummer will report in 2020)

562 requests for plant introductions from California users were filled by the NPGS in 2018, somewhat fewer than the 624 from last year, representing 323 different users, similar to the 341 from last year. Figure 1 shows the usage of germplasm in California from the National Plant Germplasm System expressed by the number of requests for California from 1993 to the present.

The distributed germplasm was used for plant breeding research, testing in home gardens, and propagation of both clonal and seed propagated species. Several researchers used materials as reference materials or checks in their experiments. Academic institutions were significantly represented in the reports and the germplasm was used for a wide variety of research purposes. Much of the germplasm continues to be used for commercial breeding research (private, university or USDA). There continues to be interest in using the collections for molecular/biochemical studies, especially development of markers and molecular clones. Fewer reports were received from California Rare Fruit Growers members than in past years. Descriptions of intended germplasm use by the respondents are presented in a summary form below. I did not include institutional affiliations for the respondents, although that information is available if needed.



Figure 1. Requests for NPGS Germplasm from California



### Idaho, Joe Kuhl

In 2018, 1,810 accessions were requested in Idaho from the National Plant Germplasm System. The total number of accessions was significantly down from 2017 and 2016 when 3,024 and 5,709 accessions were requested, respectively. A total of 63 orders were placed from Idaho in 2018, down from 83 orders in 2017, and significantly down from 107 orders in 2016. Unlike in past years orders were skewed towards private requesters with state and federal groups approximately half of private orders. The major user groups (assessed by the number of accessions requested) in 2018 were once again USDA scientists (primarily based in Aberdeen, Idaho) accounting for 69% of total accessions, while state and private entities accounted for 14% and 16% of total accessions, respectively. While the number of private orders placed in 2018, 31, was about the same as 2017 (32 orders), state and federal orders were approximately half the number seen in past years at 14 and 18 orders, respectively. University researcher requests made up the vast majority of requests from state agencies. The top four private requests were from companies, Mountain River Kirby with 61 accessions, Cascade Specialties with 57, Alforex Seeds with 45 accessions and JR Simplot with 69 accessions. USDA-ARS Aberdeen, Belayneh Yimer, placed the largest request(s) with three orders totaling 884 accessions, primarily for rust research. A breakdown of accessions requested in 2018 by genus and species was not available.

6 publications are listed in the Idaho state report.

### Montana, Michael Giroux

Twenty-three recipients received a total of 2,394 plant germplasm accessions in Montana during the last year. 1,723 of the accessions went to one private breeder with the next biggest portion (369) going to Montana State pulse breeder Kevin McPhee. We also continue to have several individuals requesting accessions of various species including tree fruit and raspberries to screen for those that may tolerate MT winters.

NPGS Site	Sent #	Species	Primary Purposes
DAV	1	grapes	Breeding cold hardiness
NE9	1	Tomatoes	Educational
NSSL	1	cereals	Varietal development
SOY	2	soybean	Varietal development
NC7	29	Corn, camelina	Varietal development
COR	30	Raspberry, apples, pears	Breeding for short season fruit varieties

S9	71	Guar, cowpea	Guar breeding, cowpea for sawfly parasitoids
GEN	72	Grapes, raspberries, apples	Home orchard breeding and demonstrations
W6	416	Pulse crops	Pulse crop breeding, genetics studies, disease
NSGC	1772	Wheat and wheat relatives	Breeding and production of “ancient grains”
Total		2395	

11 publications are listed in the Montana state report.

### **Nevada, Melinda Yerka**

Table 1 summarizes NV use of the NPGS in FY 2018. Fifteen (10 in 2017) individuals from Nevada placed 39 orders (17 in 2017) and received 2138 (91 in 2017) accessions from the NPGS in 2018. Plant materials were used for historical/anthropology (11%), genetics research (57%), botanical/taxonomic investigations (4%), breeding/variety development (20%), and education/teaching (8%) efforts. The division between genetics research and breeding/variety development is especially blurry this year due to the initiation of my own new plant breeding and plant genetics program in 2017 at the University of Nevada, Reno (UNR), wherein initial germplasm development using molecular strategies requires extensive genetics work to identify alleles in the most promising parent lines in a new area. Researchers at UNR continue to be the primary users (54%). All users were contacted via email and 4 out of 13 responded. Users reported one manuscript in total.

**Table 1. Summary statistics for NV in FY 2018.**

	<b>Historical</b>	<b>Genetics</b>	<b>Taxonomy</b>	<b>Variety Devo</b>	<b>Teaching</b>
<b># accessions used for each purpose</b>	234	1217	96	427	167
<b>% accessions used for each purpose</b>	11	57	4	20	8
<b># requests for each purpose</b>	11	12	6	6	4
<b>% requests for each purpose</b>	28	31	15	15	10

1 publication is listed in the Nevada state report.

Discussed during or after the Nevada state report included:

GWAS studies at times poorly utilize wild species accessions, leading to a large number of accessions being requested from NPGS, but not significantly contributing to the GWAS analysis. It might be possible to provide better assistance for GWAS studies to avoid excessive wild species requests.

A number of germplasm users in Nevada requested germplasm for anthropological purposes, primarily for seed identification. For these type of requests NPGS might be able to decrease the number of seeds sent.

### **New Mexico, Ian Ray**

Twenty-three individuals from New Mexico placed 40 orders and received 478 accessions from the NPGS in 2018. In general, these materials were utilized for agronomy, anthropological,

bioremediation, botany, genetics, physiology, taxonomy, and plant pathology research (74%); educational and demonstration programs (5%), varietal development (13%), and undeclared use (8%).

Two responses to highlight:

**Cramer, Chris;** New Mexico State University, Las Cruces, NM: received 122 Allium/onion accessions to evaluate their susceptibility to Fusarium basal rot using seedling screening and mature bulb screening methods. We are also conducting a regeneration for a number of the accessions for the NPGS.

**Puppala, Naveen;** New Mexico State University, Clovis, NM: received 104 peanut accessions for variety development research. Two mapping populations were received in January 2018. These materials were developed through a collaboration between NMSU and ICRISAT, India. These materials went through quarantine before releasing it to NMSU, Peanut Breeding program. As the seeds received were very few, I grew them for seed increase in 2018. In May 2019, I planted them under two locations with two replications. We will be taking physiological measurements during the growing season. The final report will be ready by the end of this year. We appreciate the help from USDA-NPGS, in timely release of the material.

No publications were identified in the New Mexico state report.

#### **Oregon, Shawn Mehlenbacher**

Oregonians continue to use the PI system extensively. Users include state and federal researchers as well as private seed companies and private individuals. Oregon is a major user in the western region, along with California and Washington.

Shawn A. Mehlenbacher, Dept. of Horticulture, Oregon State University, Corvallis, OR 97331. Resistance to eastern filbert blight (EFB) is a top priority objective of the OSU hazelnut breeding program. Structure exposure tests to identify sources of quantitative resistance were initiated in the early 1990s, and recently summarized. Potted trees are exposed under a structure topped with diseased wood, in the spring, and cankers are counted and measured in December of the following year. Accessions with quantitative resistance have fewer and smaller tankers, identified as mean of total canker length per tree on a square root scale. 'Tonda di Giffoni' from southern Italy (high quantitative resistance) and 'Lewis' (moderate quantitative resistance) are included as checks. The list includes 120 accessions, of which 67 are the result of seed collections (38 from Turkey, 5 from Armenia, 11 from Georgia, 6 from Azerbaijan, 6 from southern Russia and one from Crimea). Selections were made from each seed lot and propagated for further testing. Their incompatibility alleles were identified. One tree of each was donated to the USDA Repository in Corvallis. Additional selections have remained free of EFB after structure exposure, greenhouse inoculation, or field exposure in New Jersey. The combined collections of OSU, USDA-ARS-NCGR and Rutgers University include 171 accessions with very high resistance. Many of these have been used as parents in breeding. Using progenies that segregate 1:1 for resistance, resistance loci have been identified on linkage groups 6, 7 and 2. Simple sequence repeat (SSR) markers have been developed for these three regions and will be used in the pyramiding of resistance genes.

15 publications are listed in the Oregon state report.

**Utah, Kevin Jensen** (Kevin was not available to give his report)

### **Washington, Carol Miles**

In 2018, 123 Washington State residents requested a total of 14,662 germplasm samples from 18 National Plant Germplasm System (NPGS) repositories or stations, more than twice as many samples as the previous year. Recipients were with universities [40 (WSU 33, UW 3, PNW Natl. Lab 2, Central WA U 1, Clark College 1)], USDA (13), private research groups (8), commercial firms, seed companies and nurseries (18), and non-profit organizations (9), as well as 35 private individuals. Recipients received germplasm (in the form of seeds and cuttings) in 233 orders. Recipients reported 16 journal publications that included germplasm received from NPGS, and several recipients highlighted the importance of the value of NPGS as a system for acquiring material for research work such as the development of new breeding lines.

Requestors from the last 5 years totaled 495 individuals, of which 8 (1.6%) had requested material every year, 18 (3.6%) had sent requests 4 years, 32 (6.5%) had requested material 3 years, and 80 (16.0%) had sent in requests 2 years. The remaining 357 requestors (72%) were one-time-only.

### **Alaska, Arizona, Hawaii and Wyoming, Lisa Taylor/Dave Stout**

#### **Alaska**

For 2018, NPGS shipped 17 orders with a total of 1,805 items (21 from WRPIS) to 10 people in Alaska. Fifteen orders were submitted over the GRIN-Global Website and two others were through emails or other means. We received 5 responses to our email questionnaire from requestors.

#### **Arizona**

For 2018, NPGS shipped 73 orders with a total of 1,752 items (98 from WRPIS) to 47 people in Arizona. Forty-nine orders were submitted over the GRIN-Global Website and two other 24 were through emails or other means. We received 7 responses to our email questionnaire from requestors.

#### **Hawaii**

For 2018, NPGS shipped 41 orders with a total of 505 items (14 from WRPIS) to 27 people in Hawaii. Thirty orders were submitted over the GRIN-Global Website and eleven others were through emails or other means. We received 6 responses to our email questionnaire from requestors.

#### **Wyoming**

For 2018, NPGS shipped 13 orders with a total of 103 items (37 from WRPIS) to 5 people in Wyoming. All thirteen orders were submitted over the GRIN-Global Website. We received 2 responses to our email questionnaire from requestors.

### **Open discussion:**

The 2020 meeting will be in Logan, UT in late June. Jinguo will not be at the meeting since he will be retired.

Dan Parfitt contributed the following ideas:

- To facilitate germplasm use reporting SurveyMonkey could be used to collect germplasm user data. SurveyMonkey might be used in place of the receiving written responses via email.
- Impact statements should address Hatch and REEport
- GRIN-GLOBAL might be able to be programmed to request user feedback
- Rephrase question 2, originally:

“Did you release any plant material(s) to the public in 2018 that was partially or fully derived from any NPGS germplasm(s) that you received in 2018 or previously?”

Suggested change:

“Do you plan to release...?”

The question was asked if curators use information in state reports to adjust priorities, provide information to users? The general consensus was yes, the state reports are useful to curators.

GWAS analysis might be facilitated if an algorithm could be used to determine which germplasm would be best suited for GWAS.

Discussion of SurveyMonkey:

SurveyMonkey could provide users an easy way to address how germplasm was used, potentially using less narrative (as required in an email response).

Could SurveyMonkey be used to combine responses across all 13 western states? Possibly.

The surveys should focus on germplasm response: breeding, molecular markers, etc...

State reps could provide users with a list of accessions requested, then ask them to respond to SurveyMonkey. Dave Stout said that using web order numbers, a list of accessions could be recovered.

Within SurveyMonkey the survey could use drop down menus, to allow users a suggested list of responses, and therefore allow quantification of responses.

The publication of research using Plant Introduction (PI) numbers could be a way of tracking germplasm use: one suggested database is Phytozome.

Discussion regarding the use of current GRIN data:

It was pointed out that GRIN already collects intended use of germplasm. State reps should go back to the Excel files provided by W6 and see if data contained within intended use could be used for state reports. Follow-up questions would still be needed to assess germplasm/breeding releases and publications.

More emphasis needs to be placed on getting users to assess how germplasm received many years ago has contributed to germplasm releases and publications.

Note: Carol followed up after the meeting and found for Washington State that of the 234 requests in the Excel file, 33 (14.1%) did not fill in the “Intended Use” column (choices are: Research, Education, and Other) and 32 (13.7%) did not fill in the “Intended Use Notes (objectives)” column.

The “Intended Use Notes” entries varied from one or two words (e.g., breeding, variety development) to several sentences. Based on the entries from 2018 Washington germplasm requestors, there is not enough information to write a robust state report on germplasm use and impact. So while it is a good idea to streamline our reporting, the information on the current web form does not provide enough information.

Discussion of the relocation of alfalfa to Central Ferry.

The Central Ferry environment is completely suitable to growing alfalfa.

Labor is an issue due to the isolated location, it is far from major towns. Pullman might be the best location for anyone working at Central Ferry. The closest town of significance is Pomeroy. Pullman is ~one hour drive from Central Ferry.

The nearest alfalfa grower to Central Ferry is approximately five miles away. Even if this farm changed to growing GE alfalfa germplasm in Central Ferry would be better off than growing it in Prosser. Prosser is becoming more and more crowded.

Nominations for the Resolution Committee:

Melinda Yerka and Shawn Mehlenbacher agreed to serve as the resolution committee. Jinguo will provide additional information to Melinda and Shawn if needed.

Dan Parfitt provided:

What does the resolutions committee do?

Some examples of resolutions are to a) thank the hosts for organizing and hosting the meeting b) recognize members retiring from the committee c) recognize retirements from the WRPIS d) recognize retiring committee chairs e) promote to decision makers for improved WRPIS funding, facilities, etc.

Budget discussion:

The proposed FY20 budget of \$456,625 includes a 3% increase of annual salary and benefit for WSU employees. This is \$10,368 more than the FY19 budget approved at the 2018 TAC meeting. Shawn motioned to approve the FY20 budget as shown, Dan seconded. The motion passed unanimously.

Resolutions for discussion:

Resolution 1: The W-6 Technical Advisory Committee thanks Brian Irish, Tracie Matumoto, Bo Gao, others? and the staff of the USDA ARS WRPIS in Pullman, WA for their efforts in organizing and hosting the 2019 W-6 meeting with teleconference and Zoom options.

Resolution 2. The W-6 Technical Advisory Committee thanks Dan Parfitt for his many years of service to W-6 Regional Technical Advisory Committee. The committee also wishes to thank Frank Dugan for his many years of service to WRPIS, Pullman.

A motion to adjourn was made and seconded. The motion was unanimously approved.

Adjourn ~4pm.

W6 TAC Secretary: Joe Kuhl