RosEXEC Minutes

STRATFORD ROOM, TOWN & COUNTRY HOTEL

8-10 AM PDT, 11 JANUARY 2016

AGENDA

ATTENDEES:

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- Cameron Peace (Chair), Ksenija Gasic (Vice Chair), TBD (Secretary)
- Self-introduction and sign-up sheet
- Adoption of minutes from 28 October 2015 (teleconference)
  i. Minutes approved.

MEMBERSHIP
- Results of elections:
  i. New members for start of 2016: Bob Curtis, Steve Knapp, Jim McFerson, Mercy Olmstead, Vance Whitaker, David Chagne (International liaison; IL), Eric van de Weg (IL)
  ii. *Rotating off: Stan Hokanson, Des Layne, JD Swanson, Judson Ward, Mike Wisniewski, Fabrizio Costa, Mick Considine*. Appreciation for service.
  iii. Summary of new member election process and outcomes
    - Once you rotate off, you must sit off for one year, but will be eligible for election the following year.
    - The Vice Chair becomes the Chair of the Membership Subcommittee – responsible for coordinating nominations and elections. (E.g. elections to be held later in 2016 will be coordinated by Ksenija Gasic)
      - At least 11 people agreed to nominations (US), 4 international liaisons (IL) this year – lots!
    - *D. Chagne:* We should be representing Asia better, so can we get more nominations, or increase the IL by one to dedicate to an Asian counterpart?
    - Options –
      i. Leave as is -
      ii. Add a new position and fill that with an Asian representative (hopefully)
      iii. Dedicate IL positions to different areas
        - South America, Southern Hemisphere, Asia, Europe?
      iv. Need to change the bylaws and when will it be effective? (include in vote to members)
    - There is a template for running the elections and will be passed on to the Vice-Chair
    - Election process was greatly facilitated by Dorrie, Sook, and GDR team.
- Secretary election
  i. Nominees: *Mercy Olmstead*, voted in by acclamation.
  ii. Take notes and work with D. Main to set up future meetings.

GDR ADVISORY BOARD
- Report from GDR – Q4
  o Background: GDR has been funded through 2020, and GDR reports quarterly to RosEXEC, who acts as the advisory panel.
  o GDR needs to keep up-to-date with incoming data and that the tools are functional.
  o Received a lot of new data from Clemson and Anna Blenda – trying to get it into GDR. WSU has a number of undergraduates beginning to work on the data
    - GDR is one of the few databases that collect QTL data; Soybase is the only other one that does this.
    - Sook working on updating the ontologies
  o Templates for people that are submitting data; success with getting journals to direct authors to GDR and to cite GDR

- o Clemson peach database – all data will be part of GDR
    - All phenological data will be imported
- o Have done a redesign of the website; not live until just before RGC8
    - Will include a script that tracks the type and number of data, and can pull up a report.
    - Conversion from Tripal1 to Tripal2 because of the custom modules, and will release to the whole Tripal community.
    - Will include a redesigned home page and also more audio-visual tools on how to use the database.
    - Need to have some help from the RosEXEC community to help test the functionality
- o Communication and outreach – newsletters, publications, and presentations
- o 5,000 users from 51 different countries, and there is steady use of GDR.
    - Black raspberry genome will not be public until it is published, although will be ready to go once it is published.
- o Reference transcriptome pipeline is being developed to include EST data and short read transcriptome data (sometimes it is hard to find the contigs that are published).
    - "RefTrans." Will be released as a Tripal module for other communities to use
- o Working on TripalBIMS (breeding information management system) will be ready by RGC8; perhaps by early March
    - Will ask focused group from RosEXEC to test the site.
- Comments from RosEXEC to GDR
    - o *C. Peace*: Regarding continuing to add in QTL, please continue. Useful! – e.g., the statistics of the increasing number of QTLs helps to report to the community and to funding agencies.
    - o *C. Chen:* Why are the reference transcriptome sequences not being developed for species and only the genera?
        - NCBI version for apple – but can we do it like barley and rice by chromosomes?
        - Need to integrate MDP number (MDP; *Malus domestica* predicted) from NCBI and GDR so that scientists can use the maps and get to the physical locations of genes?
    - o *R. Velasco*: trying to keep up with genome, v2.0 is being overtaken by v3.0, but should be available by RGC8.
    - o *R. Velasco*: what is the goal for GDR? Is the goal to have all fruit and horticultural plants?
        - <u>No</u> – just Rosaceae
        - Trait and gene ontologies should be well-coordinated and homogeneous so that comparisons are compatible across the world.
    - o What is the strategy for including NGS data?
        - Will take the data and line those up against the reference genome. Just don't want the raw reads; only taking BAN files.
            - However, it has to be published.
        - Can there be a link to a page with this data?
    - o *Mohammed:* New rose genome is not yet available, but 1.5 Mbases are available from a Chinese rose. Both heterozygous and homozygous rose genomes are being sequenced.
        - How to name the genes? Standardized protocols? Can the one for Rosaceae be used?
    - o *C. Dardick*: When you search for genes with the different versions of the genome (e.g., Peach v2.0), can there be a link to what it was on the v1.0?

- o *J. McFerson*: Wants to commend Dorrie and the GDR team, the partnership with RosEXEC and the international community. It's good to see the realization from genes, database to breeding outcomes.
  - o *L. Meisel*: - will there be a place on GDR for metabolic data, for metabolomics research?
    - Can house the data on GDR, but not originally in the plan for these four years.
      - Chemical data from food industries, focused on dietary supplements, particularly those from Rosaceae crops.
    - Phenomics data – it's big data, but not yet ready to use for breeding decisions.
    - Next iteration of the grants, and may include plant-pathogen interactions.
  - o *E. van de Weg*: what is the connection between GDR and RosBREED?
    - Haploblocks and haplotypes are being integrated into GDR
    - FlexQTL
    - Identity-by-descent (IBD)

ROSACEAE SPECIES WEBPAGES FOR GDR – *S. JUNG*

- Informational pages (text, tables and pictures) about Rosaceae species – update
  - o Got some text for *Rubus*, *Malus* and *Malus x domestica*
  - o Still need volunteers for *F. vesca, F. ×ananassa*
    - Apricot, almond, black cherry, tart cherry
    - Give link to ones that exist for use as a template
  - o International and domestic entries are welcome
  - o Link to Google Document at:
    http://bit.ly/1naGz7o

NON-RESEARCH UPDATES

- Industry update
  - o *J. McFerson* – about 75% expanded production expected in the tree fruit industry in the next year
    - Tree nut plantings are increasing
    - Labor availability is the number one issue, genetic approaches to solving these issues
    - Climate change, water availability, disease
    - Not enough scientists in the world – setting priorities are important
    - With breeding programs, if money is being saved then why do they cost as much or more than they ever did?
    - Genetic engineering - let the citrus industry pioneer this and see what happens for the tree fruit industry
      - *R. Velasco* – what about the development of 'HoneySweet' that is resistant to sharka? Why wouldn't consumers accept this since sharka is to the European industry what HLB is to citrus?
      - It will be an economic decision. Sometimes growers are switching crops from plum or peach to apricots.
  - o *B. Curtis* –
    - Food Safety Modernization Act
    - Water issues – drought, quantity and quality
      - Rootstocks are needed! Particularly with the lack of fumigation products.
- GMO regulatory & market update

- - - o Interesting that Campbell's
  - Extension: Info and tech transfer to industry
    - o Genetics information to the community – don't need to talk about the technology or overpromise
      - RosBRIEFs
    - o Need a new section for future agendas – Position Descriptions!
      - There is a position for a disease mechanisms and resistance for Rosaceae trees at Cornell (Geneva)
    - o Blackberry, grape, peach breeding position available at the University of Arkansas (J. Clark)
    - o Cherry/Apple breeding position at Summerland (C. Hampson)
    - o MSU Tree Physiology program position is open (J. Flore position)
  - Steve Knapp has taken over the UC-Davis position and Pat Edger has taken over at MSU from Jim Hancock.

- Large-scale projects
  - o RosBREED 2 – *C. Peace*
    - Had annual AP meeting on Thursday, next internal project meeting is in March.
    - Review of the 1st year of progress and focused on deliverables towards the objectives
    - Newsletter every quarter – if you don't get, please sign up for it.
  - o RosRosette – *D. Byrne is the leader*
    - There will be a presentation by a student in the project today.
    - Put the quarterly updates on GDR.
  - o NSF for Apple and Peach tree architecture – *K. Xu, C. Dardick*
    - Now in its second year – trying to develop a high-throughput phenotyping platform using cameras.
    - Generating a lot of transcriptome data that will be put into GDR
- Competitive federal grant project reports and other relevant AFRI/NSF projects
  - o Newly funded projects within Rosaceae
    - NSF for pentaploid strawberry – Poster 1107 and 1109 – *T. Davis*
    - NSF plant genome – *C. Dardick*
      - Comparative evolution for Rosaceae (strawberry, peach, apple, and red raspberry)
      - Starting with fruit embryo development and molecular pathways
    - Clemson received private funding to advance *Armillaria* rootstock research (Wells Fargo Bank)
      - Submitted multi-state crop block grant with MSU to fund this research
    - Kenong Xu – received funds for apple project - "Elucidating the Gene Networks Controlling Branch Angle and the Directional Growth of Lateral Meristems in Trees," a National Science Foundation (NSF) grant.
- 2nd edition of book "Genetic and Genomics of Rosaceae – Recent Advances and Application of Knowledge"

- Germplasm (genetic resources)
  - Crop Germplasm Committees and USDA-ARS germplasm status
    - *K. Gasic I* - Will have Prunus CGC in Davis since they replanted their collection
    - *G. Fazio* - K1 orchard has been removed – *M. sieversii* at the apple repository in Geneva, NY
      - *S. Brown* – student looking at apple compounds in the germplasm collections that have implications for sugar uptake in diabetics.
        - Leaf and fruit level comparisons at the genetic level
  - Plant Breeding Coordinating Committee
    - Coming up with a whitepaper to address vulnerabilities in the crop germplasms.
    - K. Evans (WSU) is the Rosaceae rep, Mike Doerr
  - NAPB
    - J. McFerson is the advocacy committee chair and would like short descriptions of success stories along the lines of RosBRIEFS to show impact of breeding
    - For funding opportunities and stakeholders
  - USDA collection evaluation data (GRIN-Global) – status, utility
    - When will it be released?

UPCOMING MEETINGS
  - 3rd International Symposium on Biotechnology of Fruit Species: 27 Apr - 1 May 2016, at Antalya, Turkey
  - Rosaceae Genome Conference - RGC8: 22-24 Jun 2016, at Angers, France
  - National Association of Plant Breeders Annual Meeting, hosted by Cotton Incorporated and North Carolina State University, Raleigh, NC, 15-18 August, 2016
  - 11th International Symposium on Integrating Canopy, Rootstock and Environmental Physiology in Orchard Systems: 28 Aug – 2 Sep 2016, Bologna, Italy
  - 4th Symposium on Molecular Markers in Horticulture: 7-10 Mar 2017, Napier, NZ
  - 8th International Cherry Symposium: 5-9 June 2017, at Yamagata City, Japan

OTHER ANNOUNCEMENTS

Meeting adjourned at: 10:01 AM

Minutes by Mercy Olmstead (Secretary), minor edits by Cameron Peace (Chair)

RosIGI Meeting Agenda

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10 AM – NOON PDT, 11 JANUARY 2016

INTERNATIONAL PROJECT COLLABORATIONS

- EUBerry
- Horizon 2020

ROSACEAE GENE-NAMING STANDARDIZATION SUBCOMMITTEE

- Paper published and recommendations – update

"ROSMAP" COMPARATIVE GENOMICS TOOL

- Completion of v1.0 and proof of concept – update

PHENOTYPING

- Standardized phenotyping
- High-throughput phenotyping, high-resolution phenotyping, phenomics

WHOLE GENOME SEQUENCES AND PHYSICAL MAPS

- Updates on status of Rosaceae genomes

ENABLING TECHNOLOGIES IN GENOMICS AND GENETICS

- Sequencing
- Annotation
- Transcriptional profiling
- Genome-scanning SNP arrays
- Reference maps
- MTL and QTL methods/software and discoveries
- Trait-predictive DNA tests and their platforms
- Diversity/relatedness – approaches and progress
- Parentage/pedigree verification – approaches and progress
- True-to-type verification – approaches and progress

ROSACEAE "SCAN PLAN" MEETING (HELD 8 JAN 2016)

- Summary of proposed strategies for moving forward with high- and low/med-throughput genotyping platforms