

ITAP - Plant Pathogens Sub-Committee
Room 4-2240, GWCC
April 28, 2014
1:00PM

The plant pathogens sub-committee of ITAP met on April 28, 2014. Members present (in person): Deb Fravel (Chair), Julius Fajardo (Executive Secretary), JoAnne Crouch, Rosalind James (new member who is the ARS National Program Leader for Invasive Pests of Crops), Bob Davis, Yazmin Rivera; (on the phone) Megan Romberg, Gloria Abad, and Betsy Randall-Schadel.

Members discussed supporting full genomic sequencing of fungi and oomycetes not yet represented, or not well represented, in databases. Sequencing data are foundational to metagenomics projects to understand community composition, function, and interactions of microbes. Current initiatives that would be facilitated by this information include the American Phytopathological Society's (APS) Phytobiomes Initiative and ARS research on the soil microbiome. In addition, these data are a valuable resource for development of detection and identification tools.

JoAnne Crouch developed a list of fungi that have been sequenced to date (attached to this email). Her list indicates that approximately 180 plant pathogens and 407 non-pathogens have been sequenced. Her list was compiled from the 1000 Fungal Genomes website and other published data. There are likely other sequences not yet published. JoAnne indicated two things that stand out in her list, that we need better coverage in *Rhizoctonia* and the rust fungi. She indicated that fungal genomes range in size from a 13 MB fern pathogen to a 700 MB rust. Most ascomycete genomes are about 50 MB. Gloria Abad is currently working on *Phytophthora* species complexes. Megan Romberg pointed out the importance of knowing the exact identity of the fungus specimen being sequenced, confirming its purity, and archiving a curated sample.

Action items:

1. Acquire prioritized lists of candidate fungi for sequencing. Send lists to Deb Fravel.
2. Identify people who have or can get authentic specimens that are completely free of contamination. Suggested in #1 above and coordinated by Deb with communication to our committee. Arrange for archiving and curating specimens.
3. Identify someone to extract the DNA and send it off for sequencing. Coordinated by Deb with communication to our committee. Deb will check into having all sequencing done at (Joint Genome Institute) JGI.
4. Develop a working document for our activities by the APS meeting in August.
5. Coordinate our activities with 1000 Fungal Genomes and other ongoing activities.
6. Consider writing a review article regarding the high priority list of fungi needing sequencing for publishing in Plant Disease or a similar journal. JoAnne Crouch.

The committee discussed having invasive plant pathogen talks on the agenda for future ITAP meetings. JoAnne Crouch suggested a talk out fungal genomes for invasive fungal species. Yazmin Rivera volunteered to present on invasive oomycete plant pathogens.

Deb Fravel will check what plant pathogens are/are not included in the Invasive Species Compendium discussed by Hilda Diaz-Soltero in the ITAP meeting. Our committee can then decide if we need to take action to add additional information on invasive species.

Rosalind James will find out if viruses are included in the Invasive Species Act.

An interesting article on species extinctions caused by pathogens was mentioned. It can be found in Nature (2012) 484:186-194 (www.nature.com/doi/10.1038/nature10947).

Next meeting will be at the APS meeting. Communication will be by email or phone as needed until then.

Meeting adjourned.