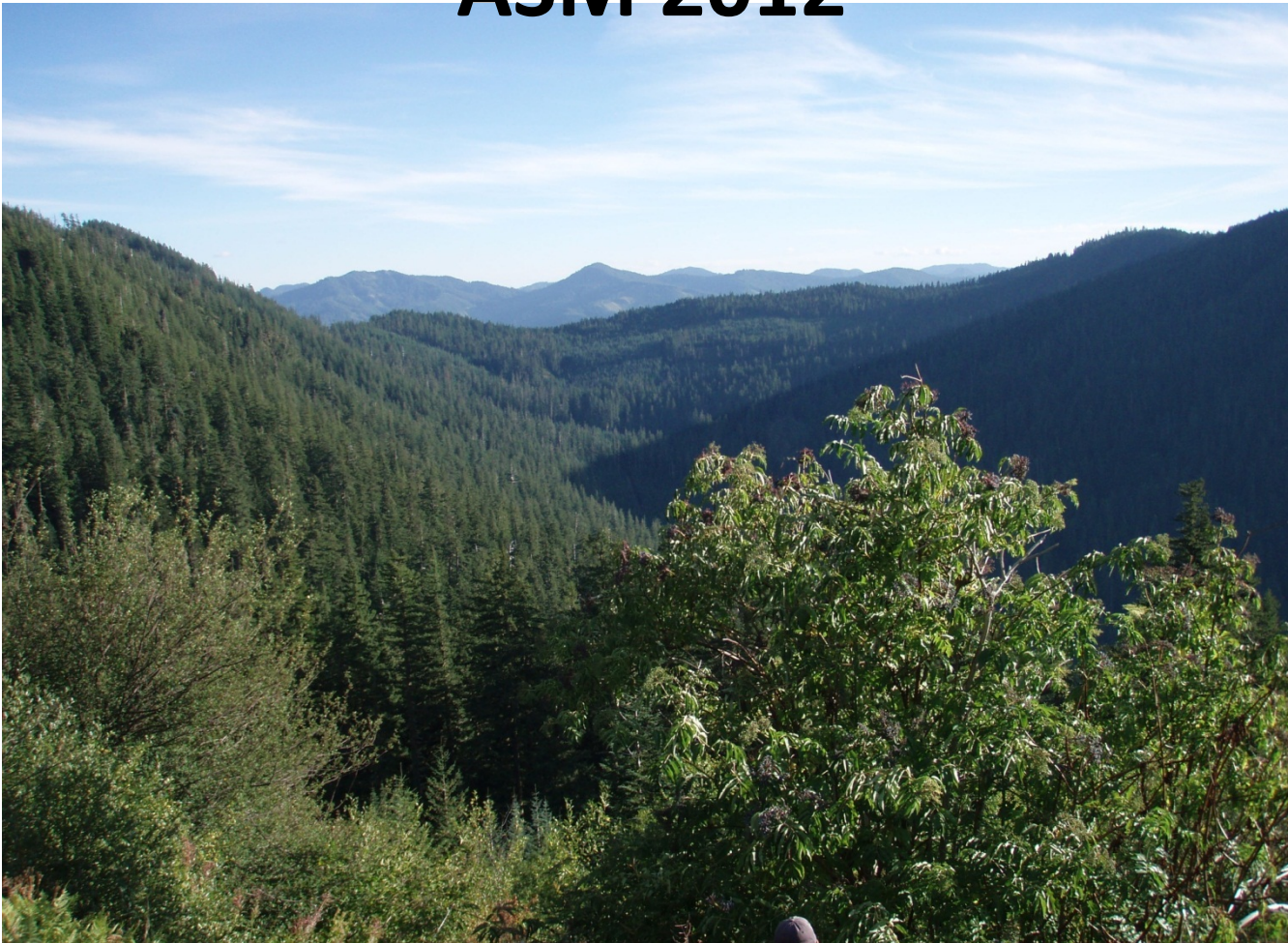


Notes from LTER Phenology and Climate Change Working Group ASM 2012



LTER ASM 2012 Working group – Phenology, trophic interactions and climate change

Co-organized by Sherri Johnson and Mark Schulze, AND

- Participants:
- NTL – Gosia Golub, Jake Walsh, Alison Mikulyuk
- CAP – Stevan Earl
- HBR – Mary Martin, John Campbell, Nina Lany
- KNZ- Brett Sandercock, Dan Carter, Ben VanderWeide,
- JRN – Josh Haussler
- CDR – Elizabeth Kleynhans
- BNZ – Elena Sparrow, Jan Dawe
- CWT/HFR – Paul Frankson, Jackie Mohan
- CWT – Rose Graves, Jeff Hepinstall-Cymerman
- AND- Christina Murphy, Sarah Hadley, Kari O’Connell, Chris Thomas, Rebecca Hutchinson
- AND/BES -Molly Charnes
- PIE – Robert Bushsbaum
- LUQ –Jess Zimmerman, Bob Waide
- KBS- Suzanne Sippel

Phenology Working Group Agenda

- **Short presentations from 3 sites**
- **Informal updates from other sites/
Collaborations with other networks**
- **Discussion of response metrics**
- **Possible cross site comparisons and next steps**
 - New comparisons
 - Syntheses
 - LTER working group proposal
 - Agency proposals – NSF, NASA, other

Phenology Working Group Presentations

- **Lake Phenology: Jake Walsh and Gosia Golub**
North Temperate Lakes LTER, Univ of Wisconsin
- **Schoolyards and phenocams: Katherine Bennett**
Harvard Forest LTER
- **Coordinated phenology of plants, insects, migratory birds: Mark Schulze**
Andrews Forest LTER, Oregon State University

Phenology programs at other sites:

- Coweeta – black throated Blue Warbler; MODIS green-up linking to birds; teacher quality improvement
- Plum Island – wading birds
- CAP – no current research, but interested
- Luquillo – 20 yr plant phenology through bi-weekly collection in traps; primarily reproductive
- Jornada – phenology of root growth; phenocams
- Hubbard Brook – 24 yrs of weekly observations of three tree species; phenocams; 25 yrs of malaise traps; 2 yrs of black light traps; birds; snow and soil temp
- Konza – 1st flowering dates (informal starting 2000); herbarium samples back to 1890s
- Harvard Forest – 20 years of spring phenol of plants; diameter growth phenology; root phenology; K-12 52 schools, plant phenology, vernal ponds, wooly adelgid
- * Bonanza Creek – remote sensing; GLOBE; White spruce bud break and elongation 2002-04 & 2010-2012; K-12 program
- * Sevilleta – 2002-2012 plants monthly observations
- * *Not at this session, but at earlier phenology session*

Other Phenology Networks

- National Phenology Network (<http://www.usanpn.org/>)
- GLOBE phenology (<http://www.globe.gov/web/phenology-and-climate/overview>)
- Project Budburst (neoninc.org/budburst/)
- Phenocam Network (<http://phenocam.sr.unh.edu/webcam/>)
- Picture Post (<http://picturepost.unh.edu/>)
- Digital Earth Watch (<http://dew.globalsystemsscience.org/>)
- E-Bird (<http://ebird.org/content/ebird/>)
- Project Noah (<http://www.projectnoah.org/>)
- I naturalist (<http://www.inaturalist.org/>)
- Epi Collect (<http://www.epicollect.net/>)
- Discover life (<http://www.discoverlife.org/>)
- Journey North (<http://www.learner.org/jnorth/>)
- NTL ice in ice out (<http://www.lternet.edu/sites/ntl>)
- Forest Watch Maple watch
(<http://www.forestwatch.sr.unh.edu/maple/maplesci.shtml>)
- Hummingbird monitoring network (<http://www.hummonnet.org/>)

Various ways to process digital images for phenology:

- Picture Post (<http://picturepost.unh.edu/>)
- PhenoCam Image Processor
(<https://sites.google.com/site/koenhufkens/blog/phenocam-imageprocessor—standaloneversions>)
- Digital Earth Watch (including Analyzing Digital Images
(<http://www.globalsystemsscience.org/software>)

Discussion of metrics of responses among sites or years

Biological responses

- First event
- Last event
- Duration
-

Abiotic drivers

- Extremes
- Cumulative
degrees

Taxonomic resolution

- Species specific
- Community
- Ecosystem processes
- Trophic linkages