



iEvoBio

GMOD for Evolutionary Biology

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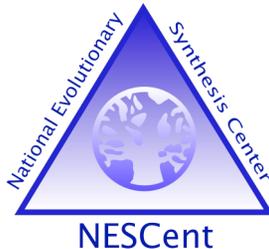
GMOD Help Desk

US National Evolutionary Synthesis Center (NESCent)

clements@nescent.org

Informatics for Phylogenetics, Evolution, and
Biodiversity Conference (iEvoBio)

29 June 2010



Overview

- GMOD Project
- GBrowse_syn synteny viewer
- Natural Diversity Module for Chado
- Tools for Evolutionary Biology Hackathon



Introduction: GMOD is ...

- A set of interoperable open-source **software** components for visualizing, annotating, and managing biological data.
 - GBrowse, JBrowse, Apollo, Galaxy, MAKER, Chado, CMap, BioMart, InterMine, ...
- An active **community** of developers and users asking diverse questions, and facing common challenges, with their biological data.



<http://gmod.org/>

iEvoBio

Who uses GMOD?

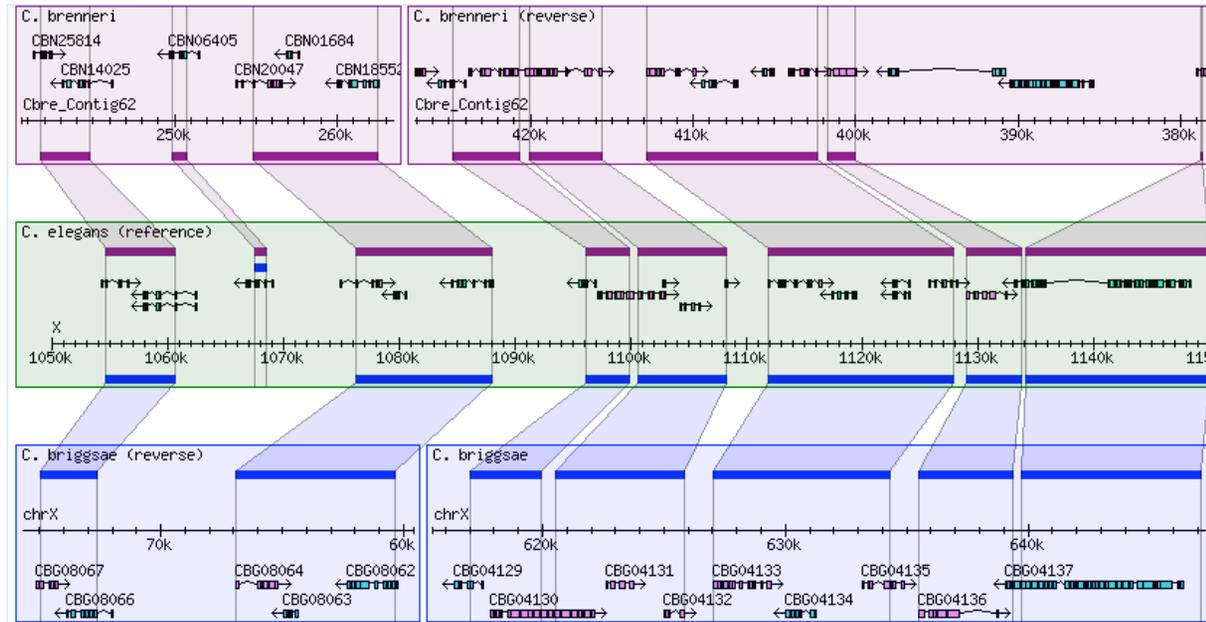


Plus hundreds of others

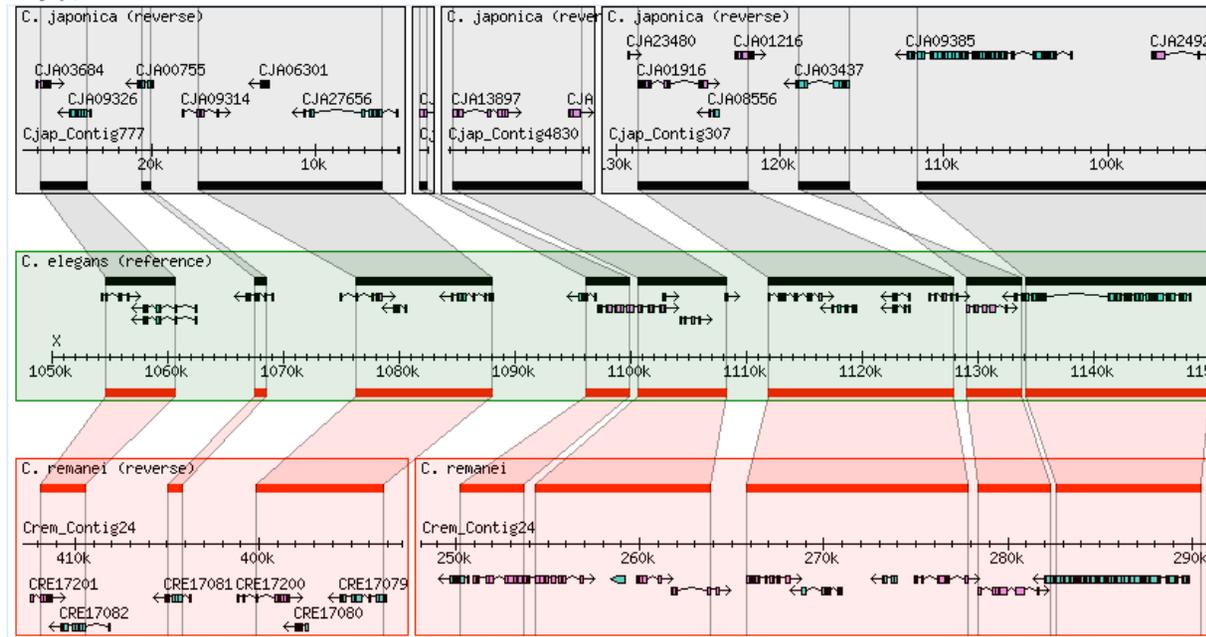
GBrowse_syn

- Synteny viewer
- Sheldon McKay formerly CSHL, now Arizona
- GBrowse based
 - Familiar interface
 - Same data sources
- Reference compared to one or more related species.

■ Cbre, Cbri



■ Cjap, Crem



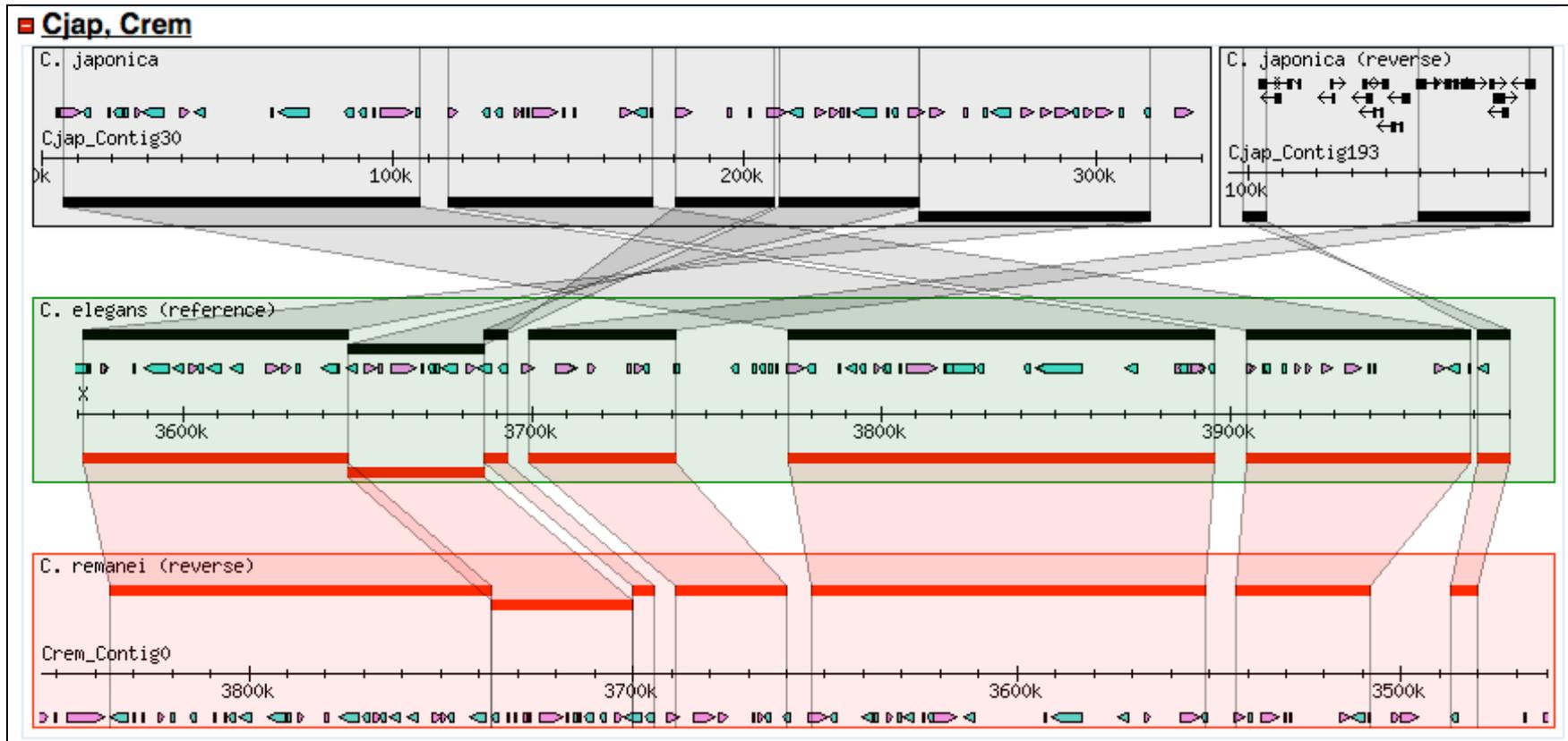
WormBase.org, *C. elegans* compared to 4 other species



http://gmod.org/wiki/GBrowse_syn



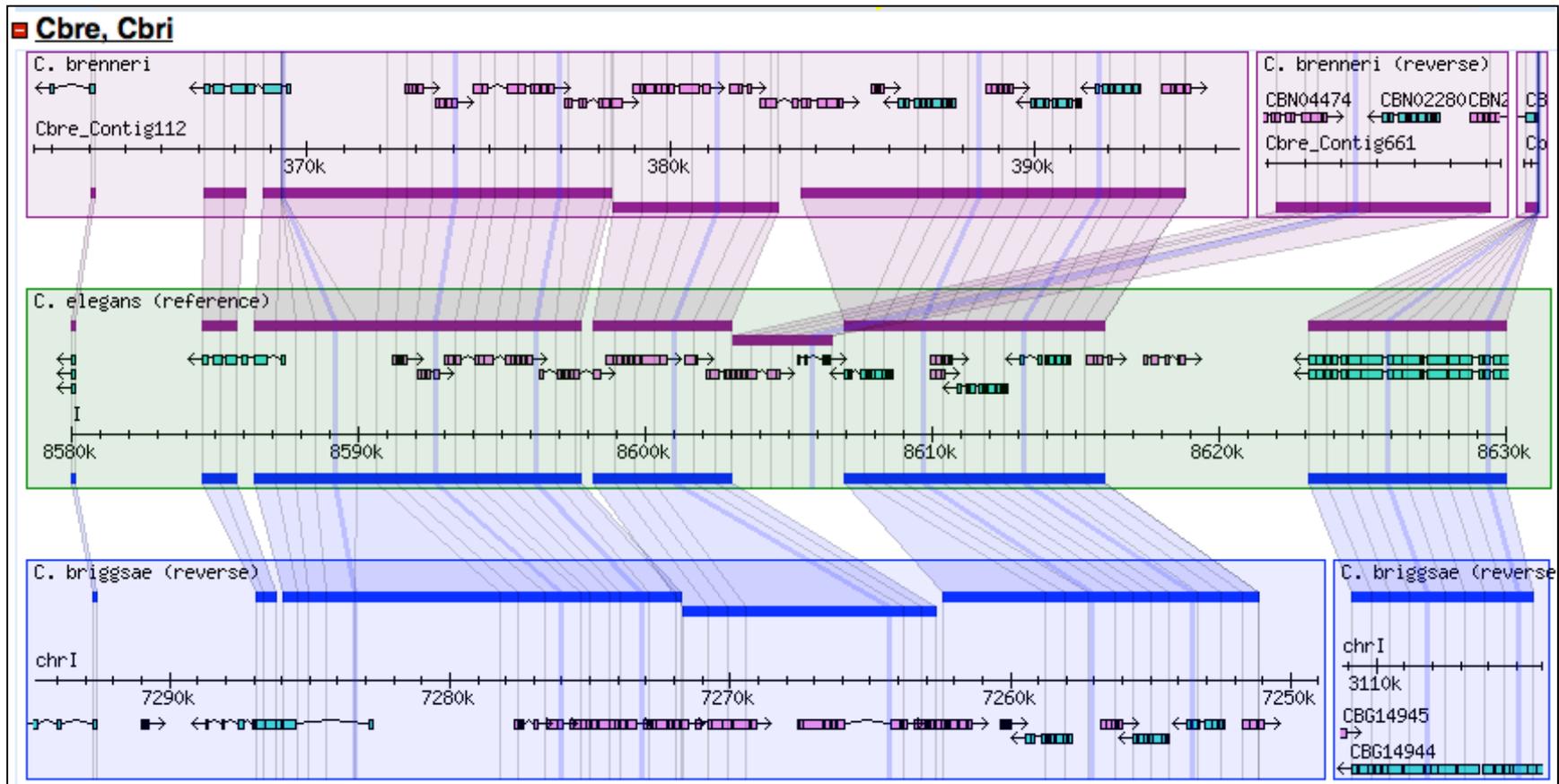
GBrowse_syn



WormBase.org

- Syntenic blocks, inversions
- Non-contiguous syntenic blocks

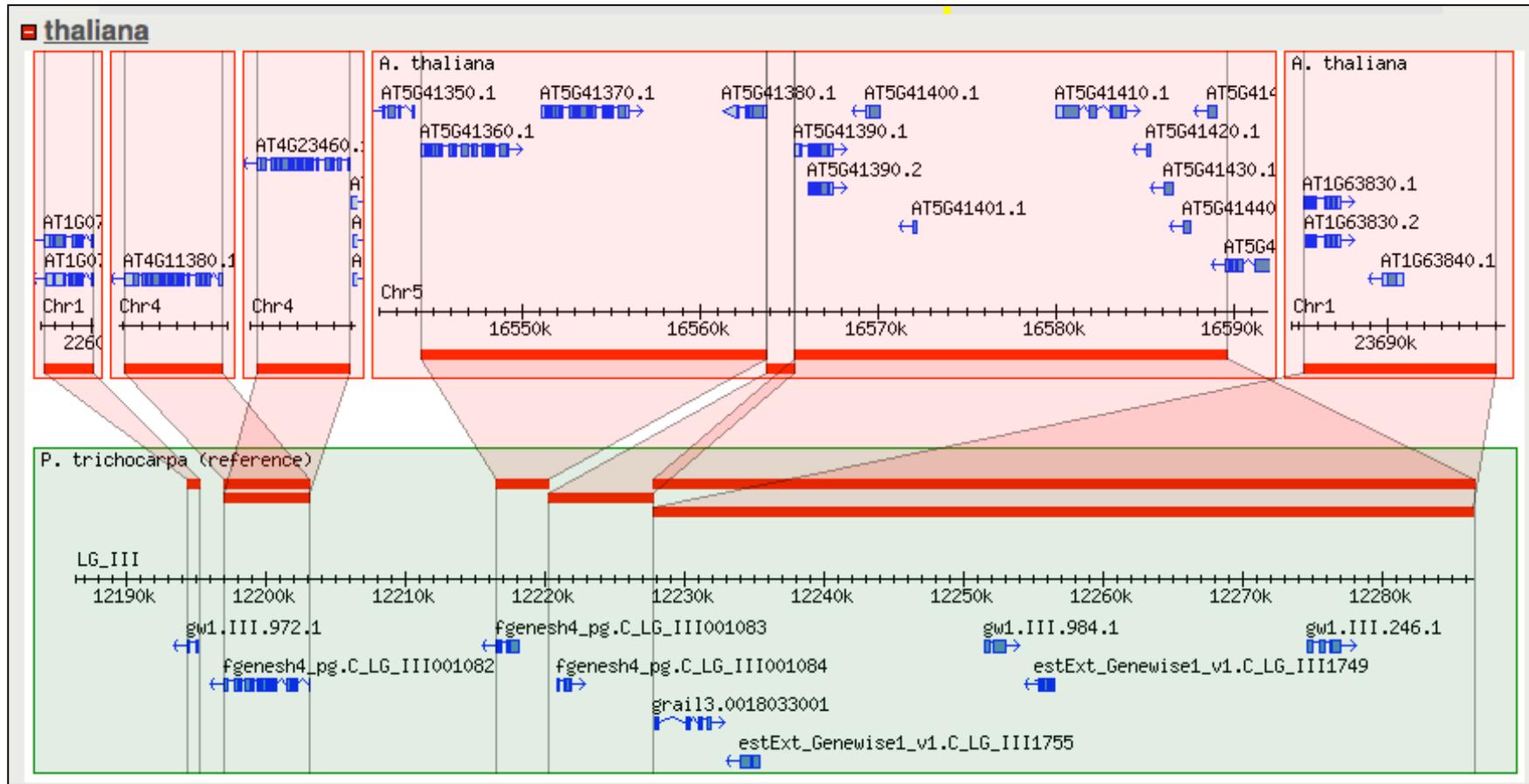
GBrowse_syn



WormBase.org

- Synteny based on orthology, bases, ...
- Bases good for showing indels

GBrowse_syn



TAIR (Arabidopsis.org)

- Can also show duplications
- *A. thaliana* vs. poplar

Chado Natural Diversity Module

- Developed starting with GDPDM (Gramene, Cornell)
- It has diverged since then
- Core concepts
 - **assay** - an experiment, field collection, or cross, connected to:
 - the **stock(s)** that are used and that result
 - the **protocol(s)** that are used in the assay
 - the **project** that the assay is a part of
 - the **geolocation** (if any) of the assay

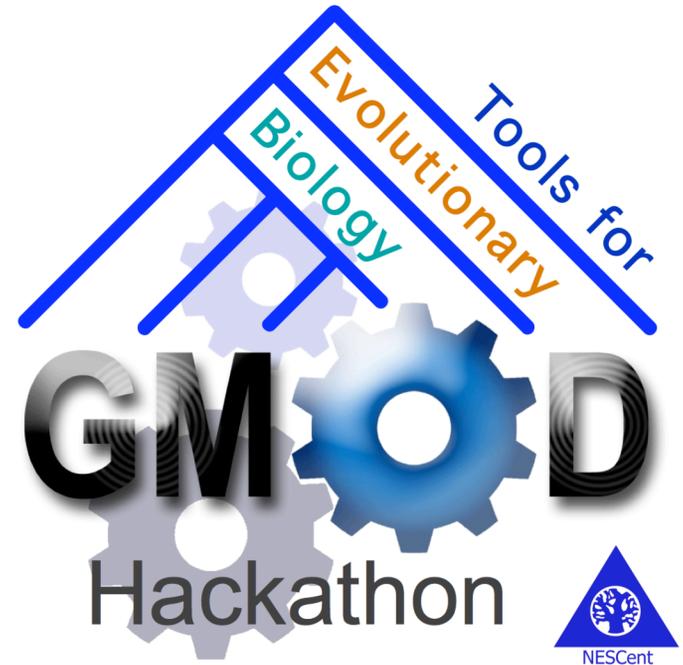


http://gmod.org/wiki/Chado_Natural_Diversity



Hackathon

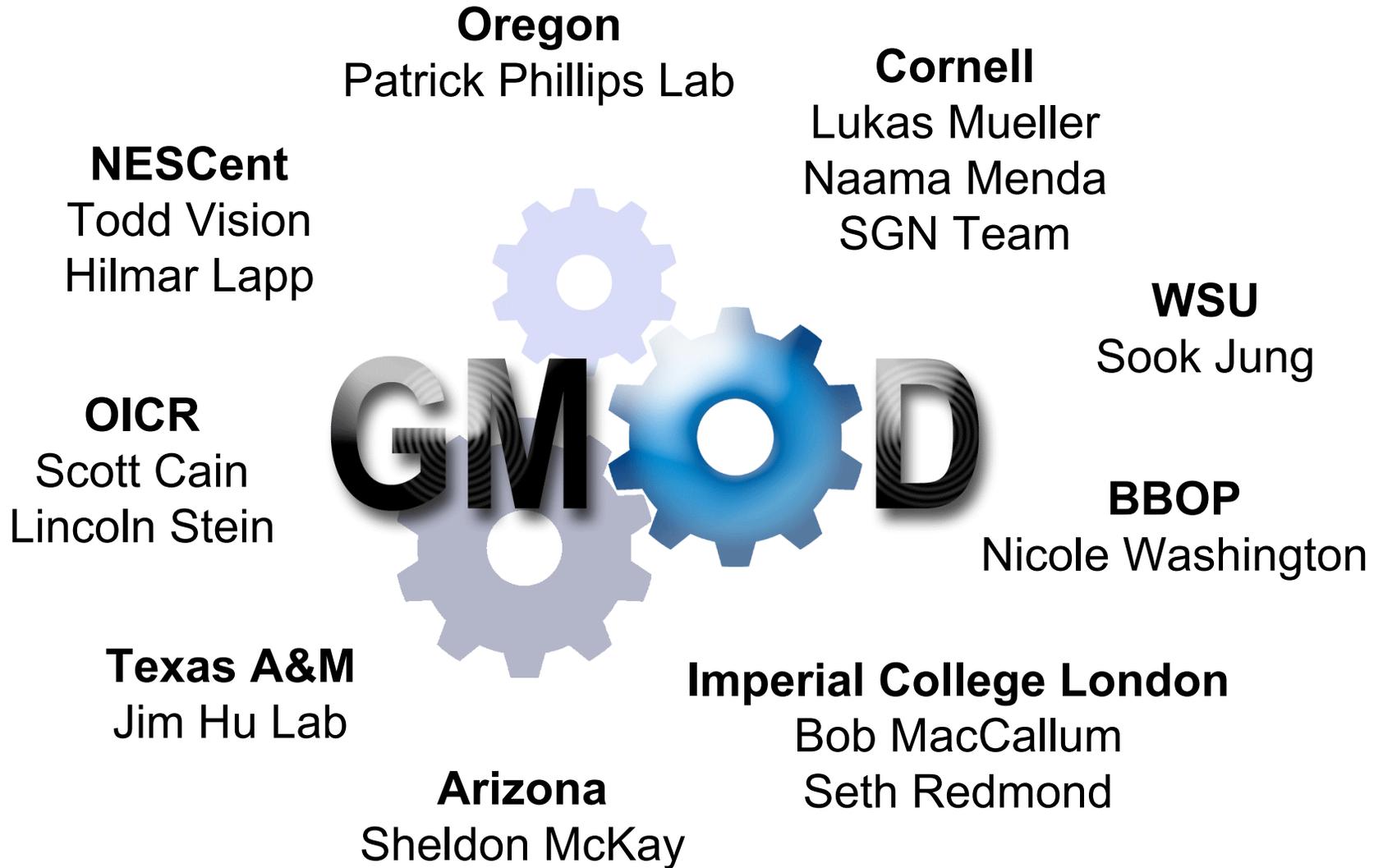
- At NESCent, November 8 - 12, 2010
- Specific objectives
 - Visualization
 - Comparative genomics
 - Phylogenetic data and trees
 - Population diversity and phenotype support
- Call for participation: August 1 - 25



http://gmod.org/wiki/GMOD_Evo_Hackathon

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Acknowledgements



Thank You!



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