OUT OF THE WOODS

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Ash dieback: a lethal disease of ash trees

Hymenoscyphus pseudoalbidus
(Chalara fraxinea)

Across the country in a year

http://ashtag.org

Science is too slow in emergencies

Structure of science inhibits collaboration and sharing

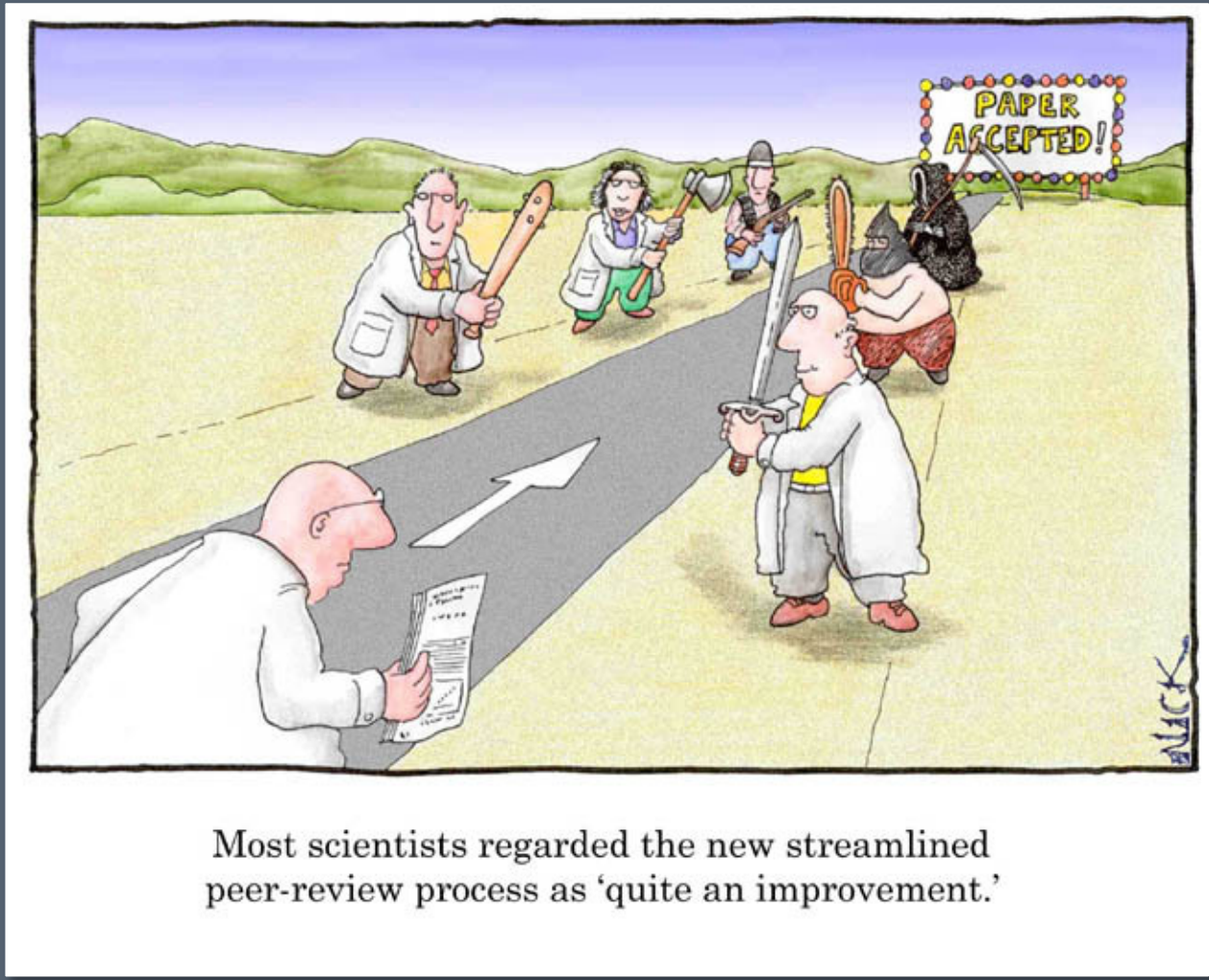
crowdsourced analyses, open access data

let the experts at the data

“two heads are better than one”

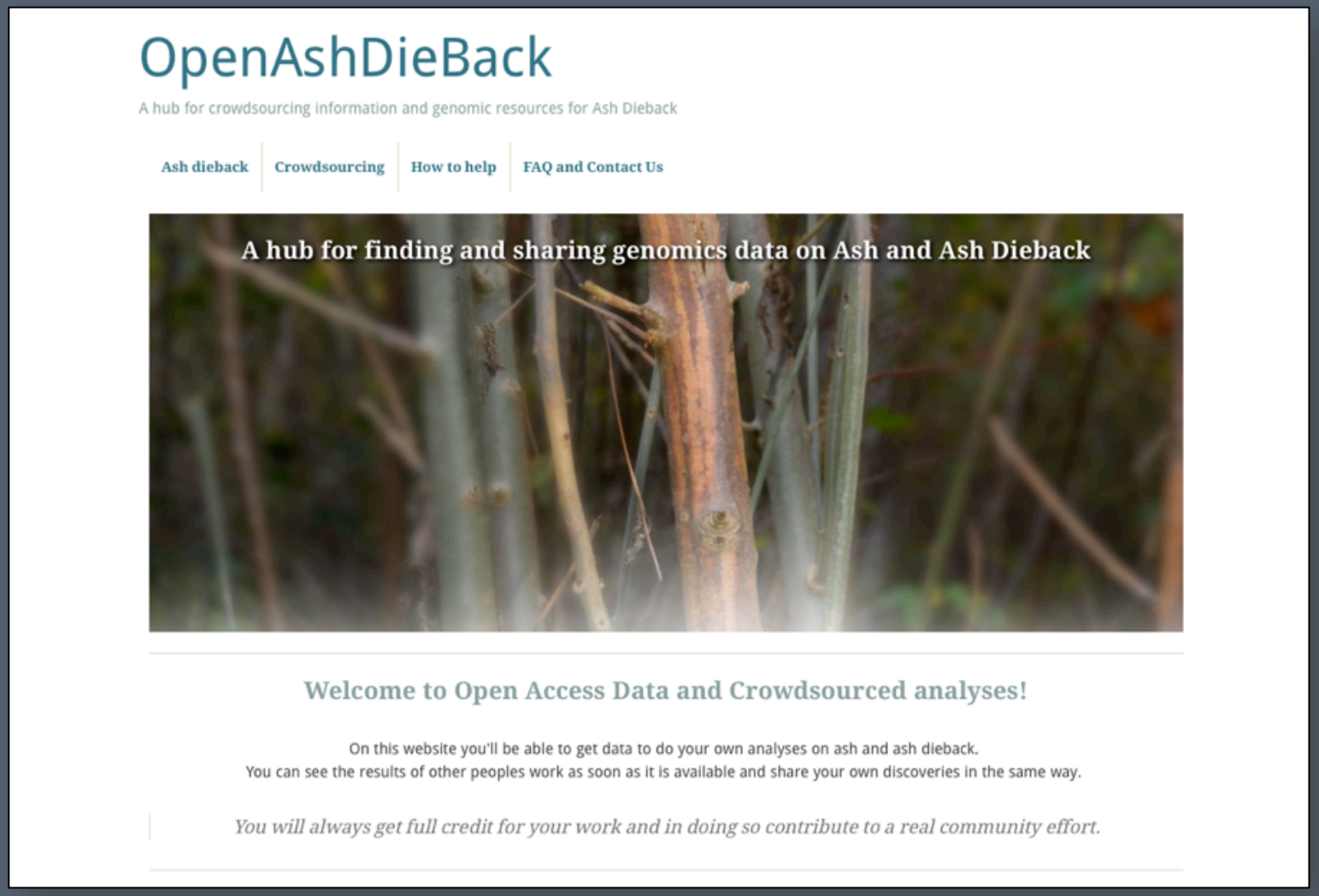
Live peer review – a global on-line lab meeting

let the experts review the results as they appear – live filtering



Most scientists regarded the new streamlined peer-review process as 'quite an improvement.'

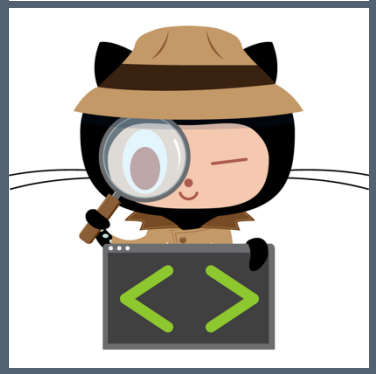
OADB: an initiative to fast-forward collaboration on Chalara dieback of ash



http://oadb.tsl.ac.uk

Attribution of contribution with GitHub

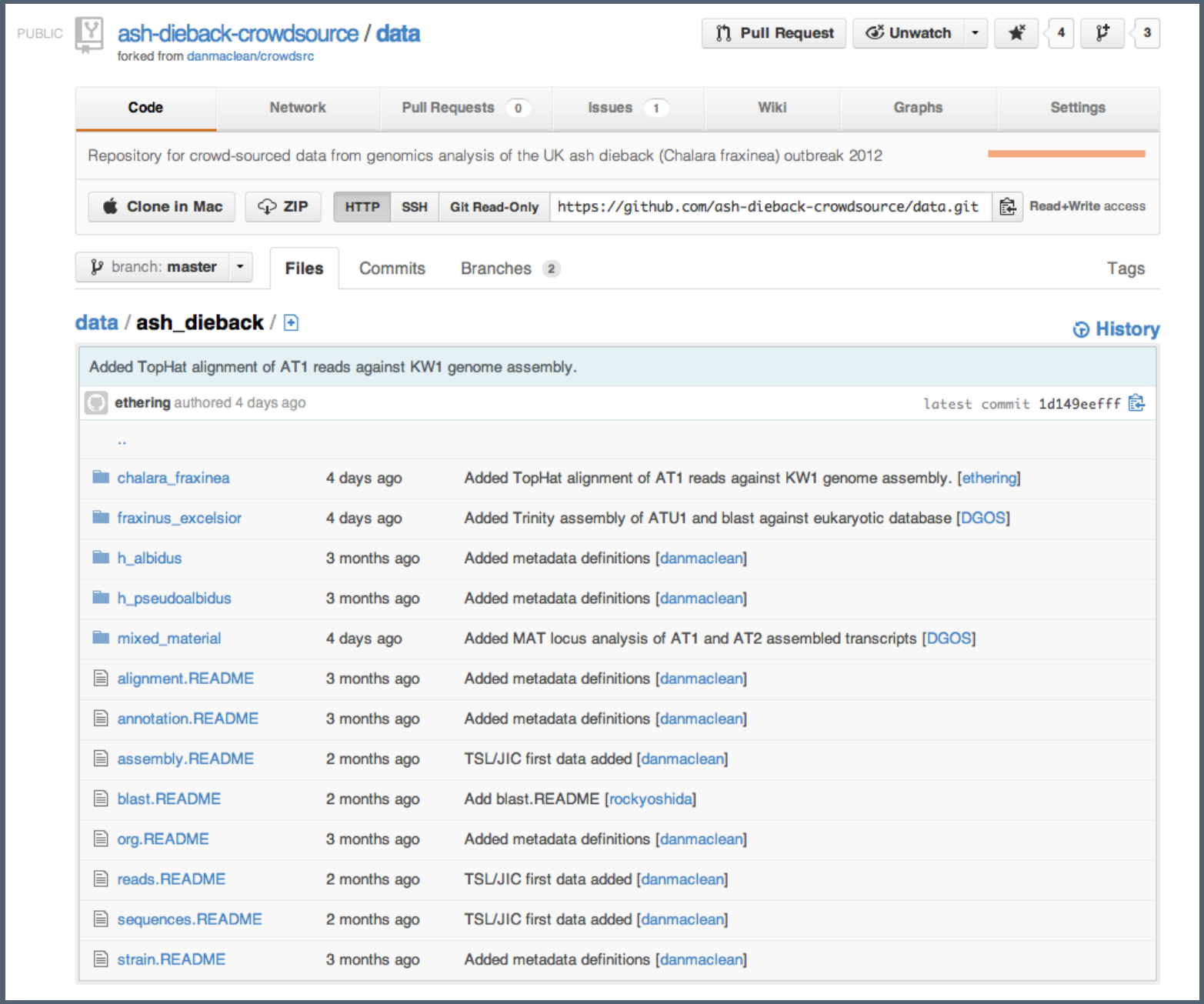
version management and contribution tracking



push back

pull data

make change



https://github.com/ash-dieback-crowdsource/data

MacLean *et al. GigaScience* 2013, **2**:2
http://www.gigasciencejournal.com/content/2/1/2

COMMENTARY Open Access

Crowdsourcing genomic analyses of ash and ash dieback – power to the people

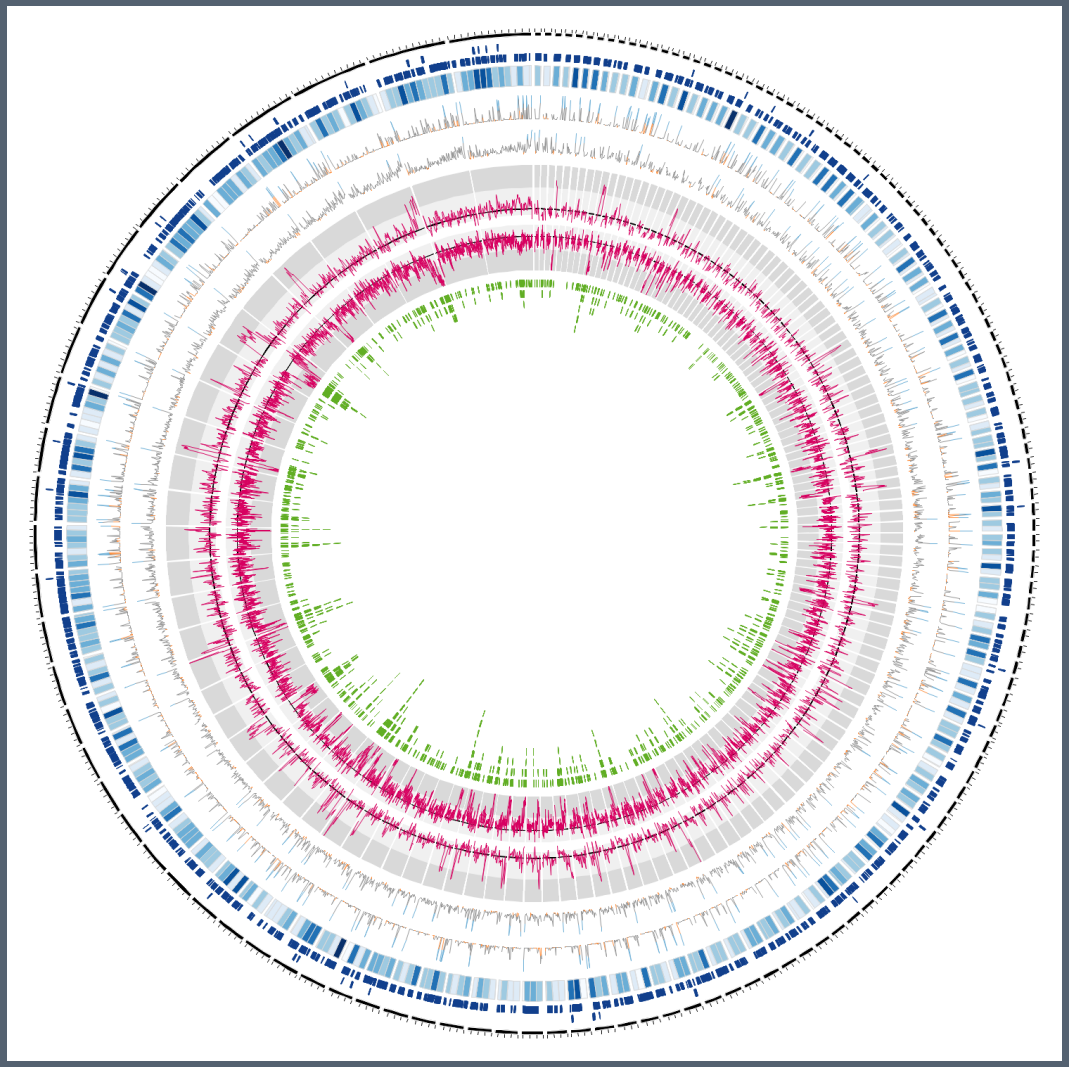
Dan MacLean[1*], Kentaro Yoshida[1], Anne Edwards[2], Lisa Crossman[3], Bernardo Clavijo[3], Matt Clark[3], David Swarbreck[3], Matthew Bashton[4], Patrick Chapman[5], Mark Gijzen[5], Mario Caccamo[3], Allan Downie[2], Sophien Kamoun[1] and Diane GO Saunders[1]

doi:10.1186/2047-217X-2-2

Github Stats

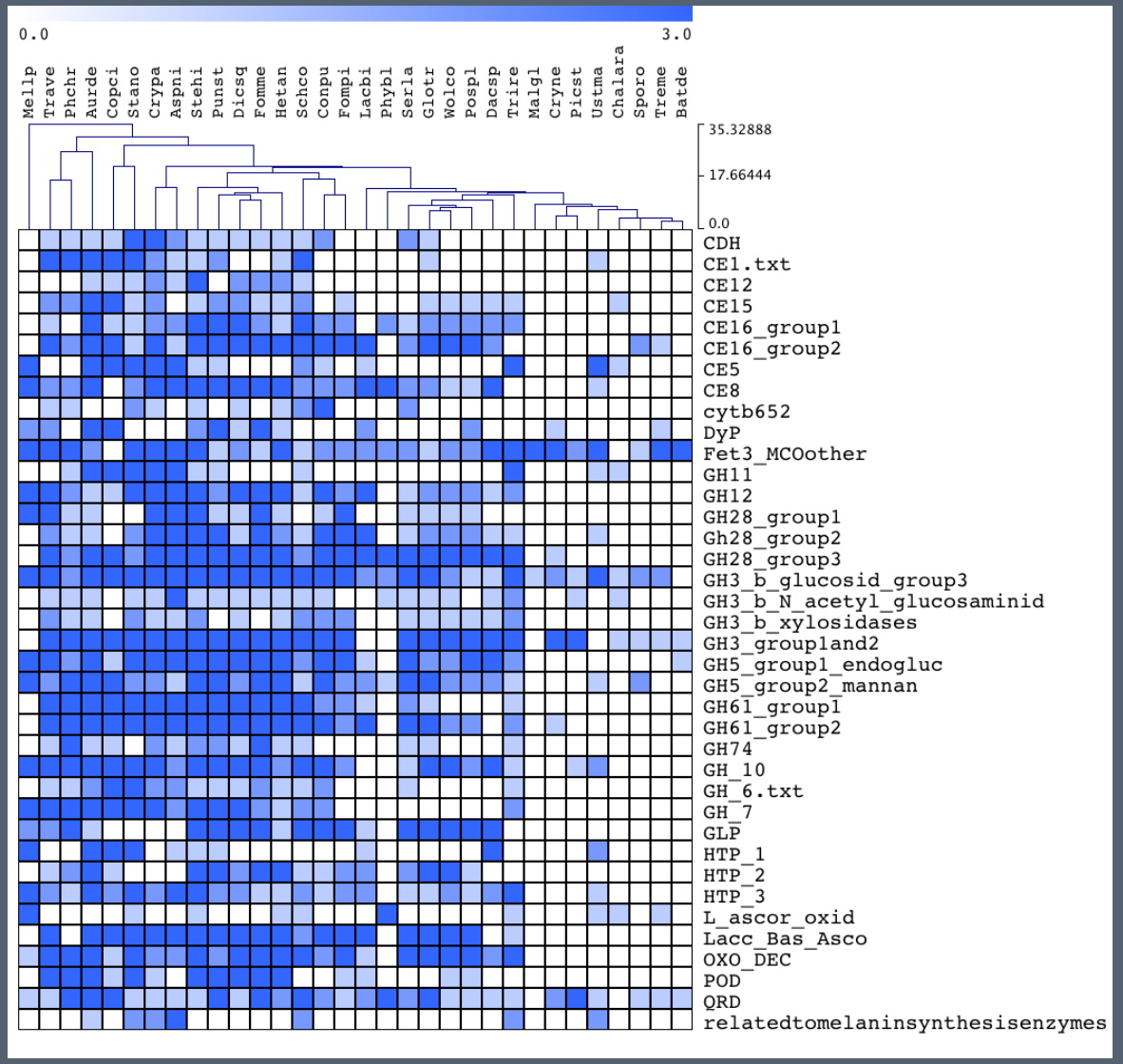
Number of signups: **40**
Directory size (not including reads): **8.8** Gb
Number of commits: **165** *(from 13 individuals)*
Number of posts to blog/wiki: **30**

Chalara genome has AT-rich repeat rich structure



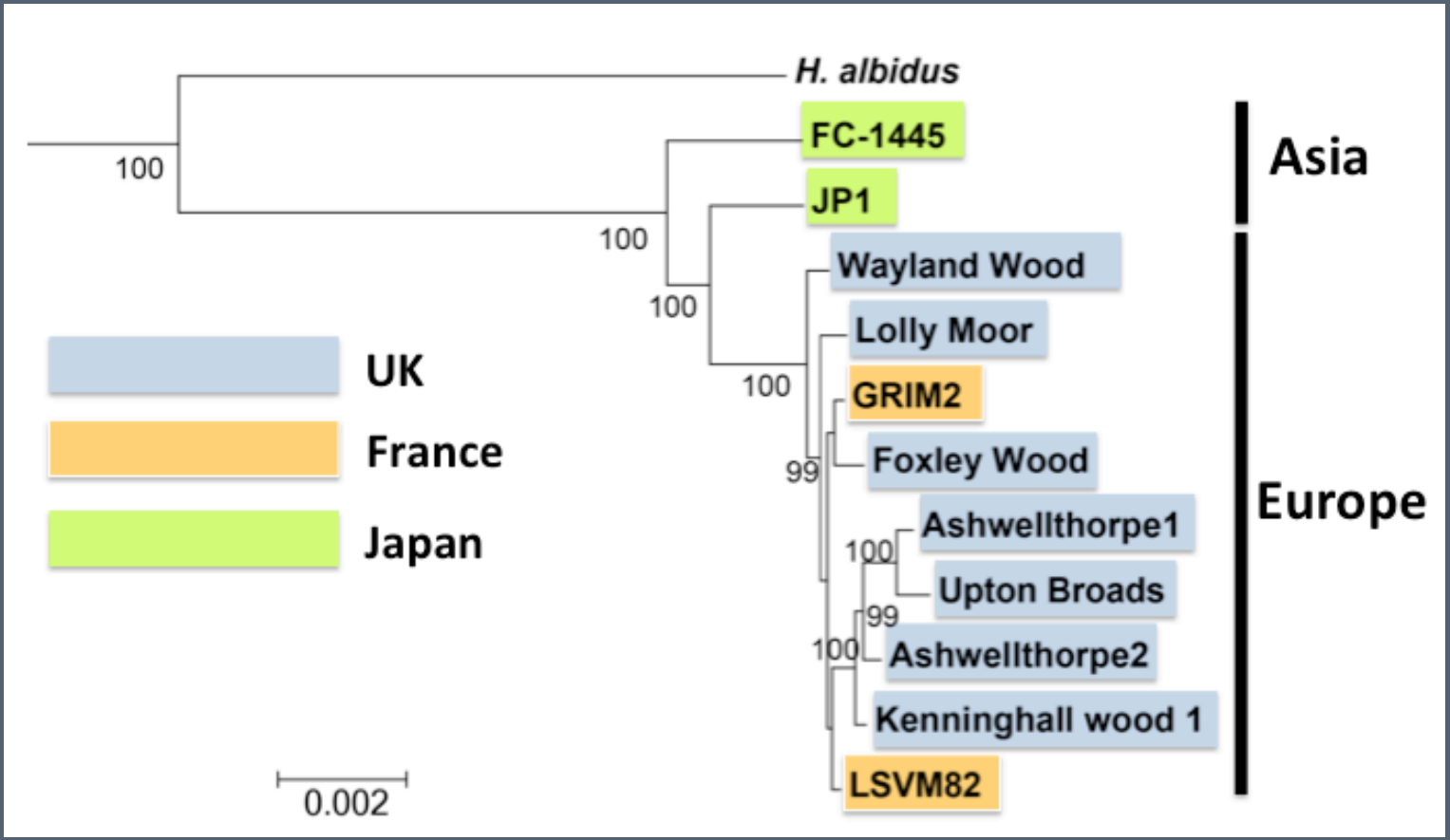
http://dx.doi.org/10.6084/m9.figshare.791640

Chalara lacks wood-digestion enzymes



http://dx.doi.org/10.6084/m9.figshare.791635

European isolates are distantly descended from Asian ancestor



http://oadb.tsl.ac.uk/?p=648

NORNEX – an international ash dieback consortium

THE SAINSBURY LABORATORY

John Innes Centre

TGAC
The Genome Analysis Centre™

Forest Research

University of Exeter

fera
The Food and Environment Research Agency

the gene pool

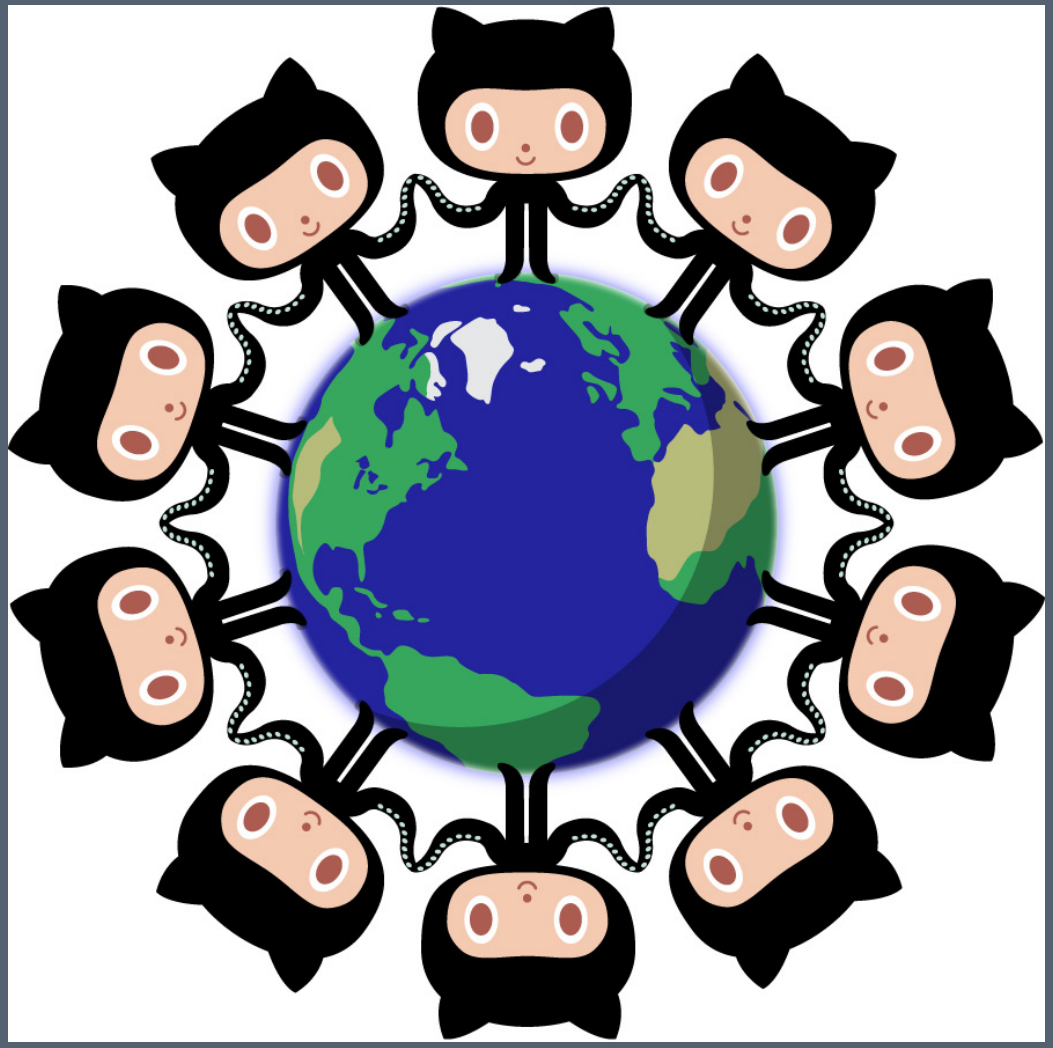
emr
east malling research

Natural Environment Research Council

skog+ landskap

University of Copenhagen

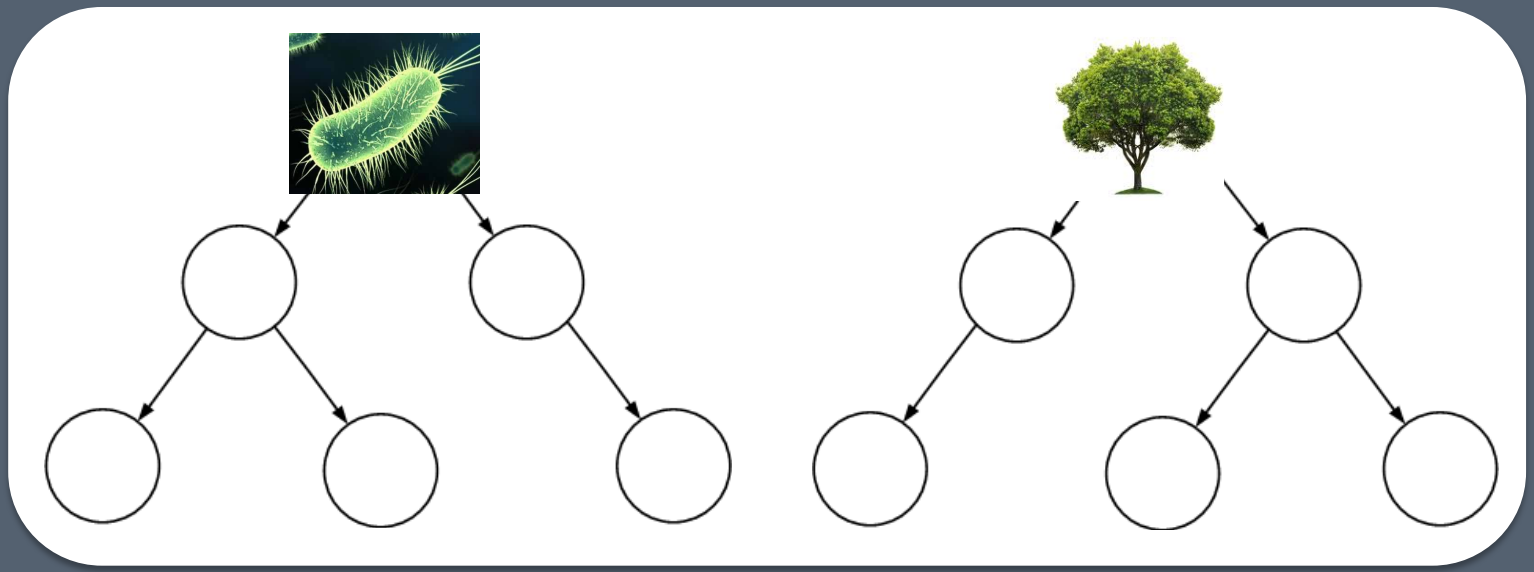
Crowdsourcing future: building better communities



gee-fu - multi-organism feature version DB

assemblies

annotations



https://github.com/wookoouk/gee_fu

doi:10.1093/bioinformatics/btr442

https://geefu.oadb.tsl.ac.uk

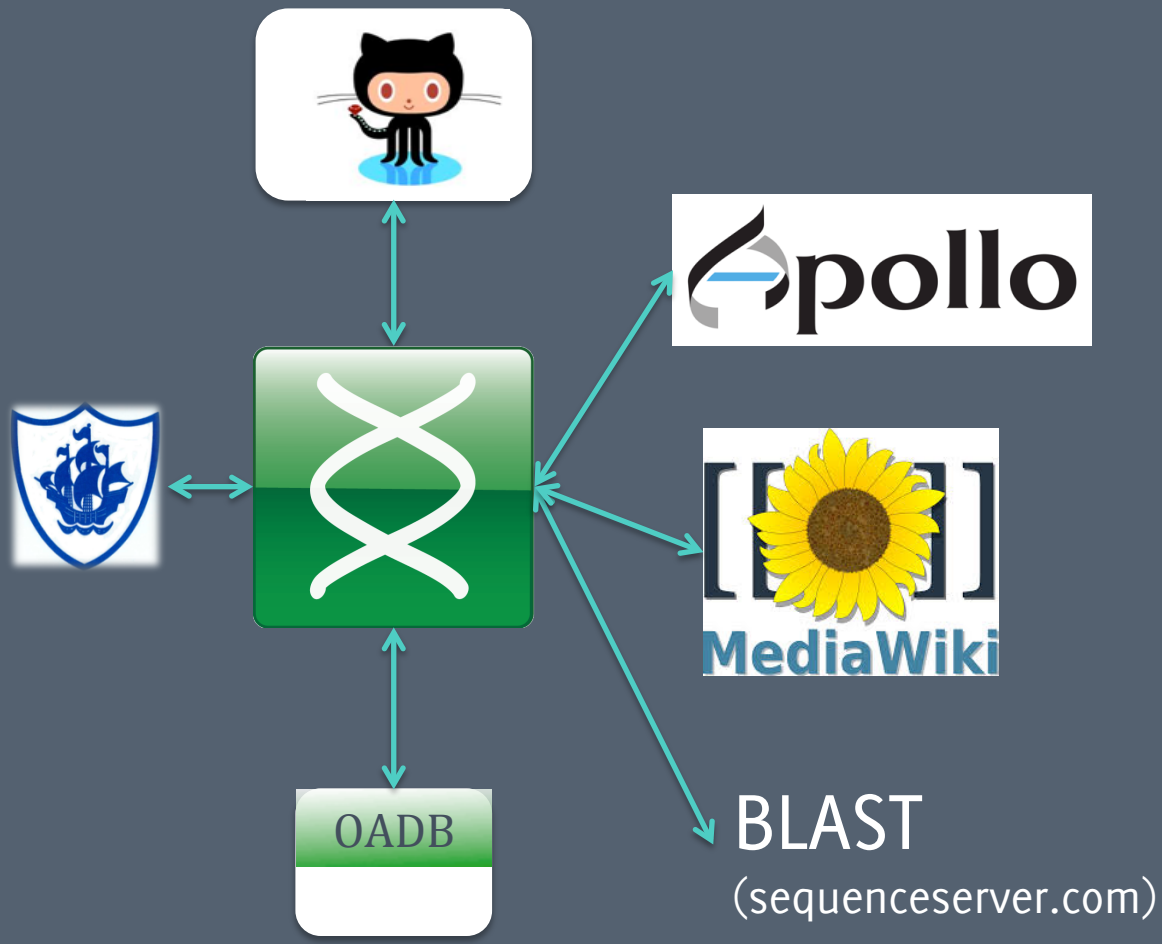
bio-samtools

doi:10.1186/1751-0473-7-6

bio-svgenes

doi:10.1093/bioinformatics/btt294

Extended crowdsource infrastructure



certification of contribution through badge collections

http://openbadges.org

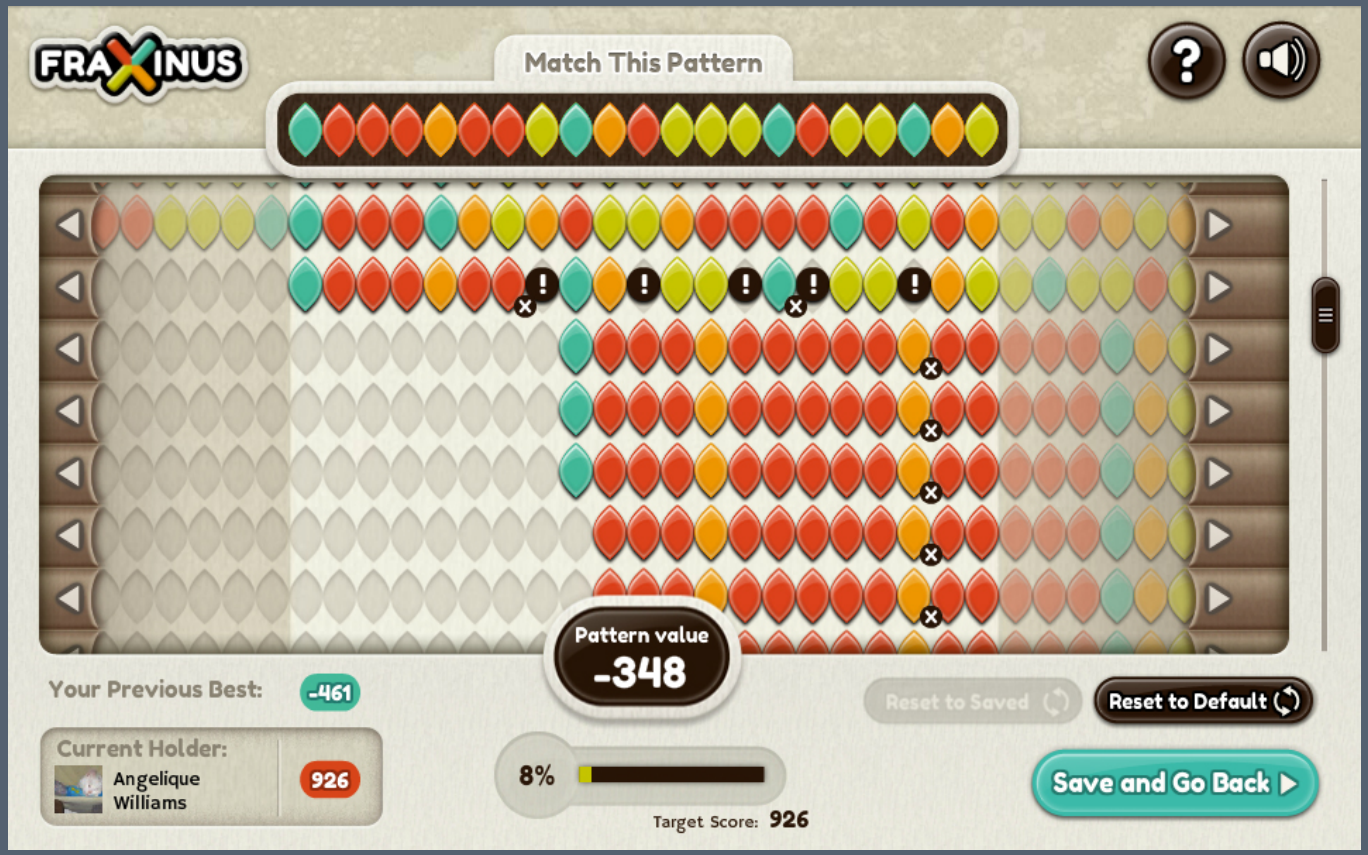
Merit: A web app for issuing Mozilla Open Badges built on Java Play Framework 2
https://github.com/wookoouk/merit

Citizen Science – People Power

humans are smart, numerous and love games

FRAXINUS

http://apps.facebook.com/fraxinus



The Sainsbury Laboratory
TSL

BBSRC
bioscience for the future

TGAC
The Genome Analysis Centre™

Built by:
teamCooper
DIGITAL AMUSEMENTS

competition helps re-analysis

Lots of people are playing

›18 k unique players (36k visits)
126 different countries
›100 players at a time

Each of 10, 000 patterns played – some retired

Average game time – 18mins

The game of science needs to change to be useful in emergencies

acknowledgements

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TGAC
The Genome Analysis Centre™

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Martin Page
Graham Etherington

Sophien Kamoun
Kentaro Yoshida
Diane Saunders
Suomeng Dong
Joe Win
Daniel Bunting
Rachael Glover

Team Cooper

Thomas Down

everyone on
oadb.tsl.ac.uk

All players of Fraxinus

GATSBY

BBSRC
bioscience for the future

All links in this talk

http://tinyurl.com/dan-maclean