

# Phylogeny of the dragonfly genus *Erythemis* Hagen, 1861 (Anisoptera: Odonata)

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Comparative Genomics 2

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# Who are *Erythemis*?

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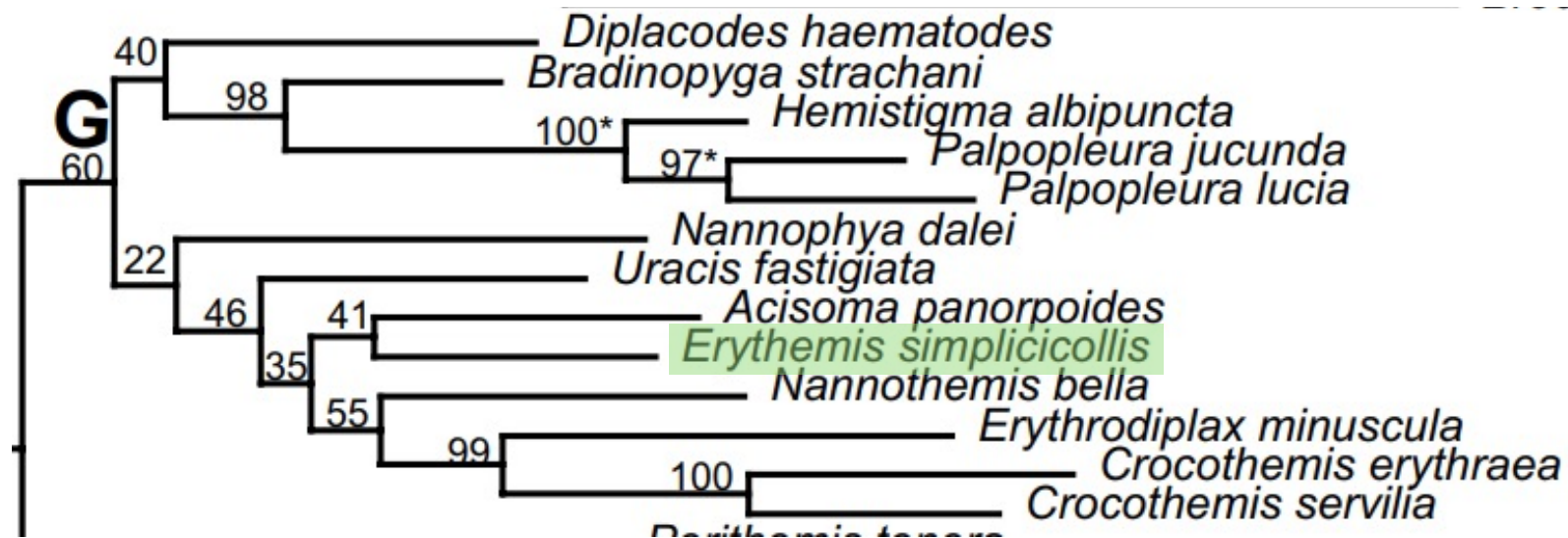
Ten species

- *Erythemis attala* (Selys in Sagra, 1857)
- *Erythemis carmelita* Williamson, 1923
- *Erythemis collocata* (Hagen, 1861)
- *Erythemis credula* (Hagen, 1861)
- *Erythemis haematogastra* (Burmeister, 1839)
- *Erythemis mithroides* (Brauer, 1900)
- *Erythemis peruviana* (Rambur, 1842)
- *Erythemis plebeja* (Burmeister, 1839)
- *Erythemis simplicicollis* (Say, 1840)
- *Erythemis vesiculosa* (Fabricius, 1775)



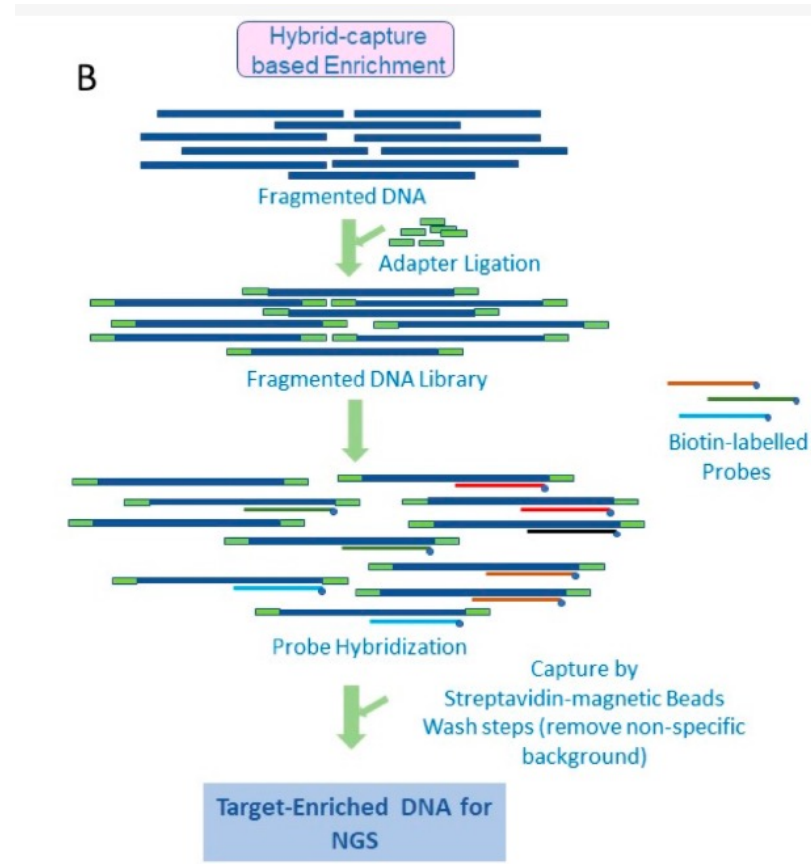
# Phylogenetic state of *Erythemis*

- Many studies of Libellulidae only use 1-2 species of *Erythemis*
- Sanger loci
- Yet to have a solid genus-level phylogeny



Ware et al. (2007)

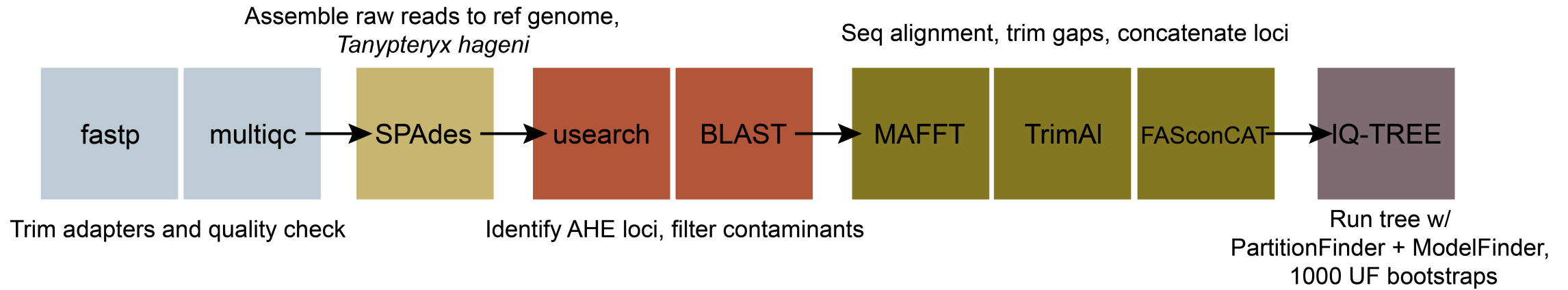
# Anchored Hybrid Enrichment (AHE)



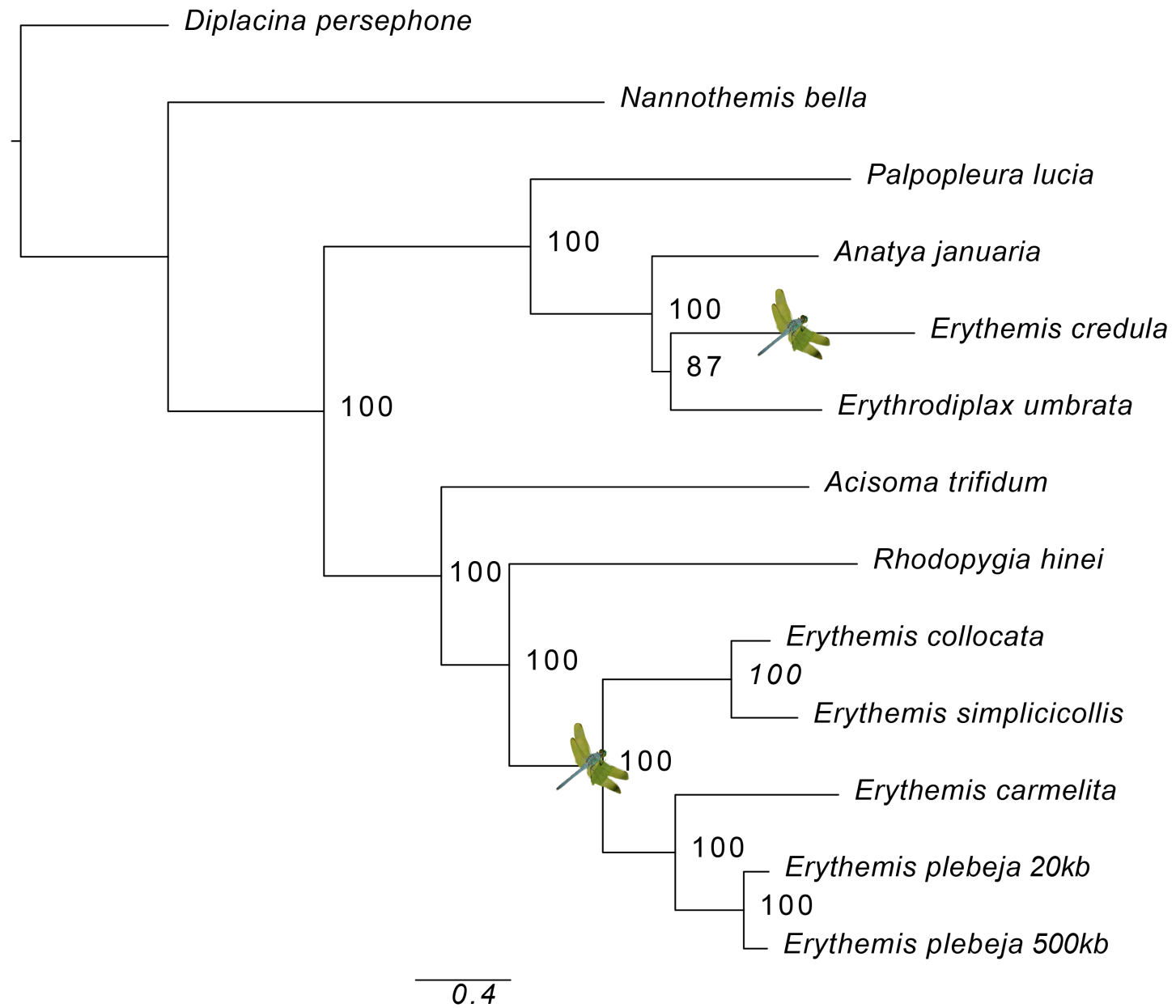
Singh et al. (2022)

- Genomic scale loci
- Contains whole genes with fast, medium, and slowly evolving portions – useful for alignment and phylo signal
- Odonate probe set developed by Bybee et al. (2021)
- I used mix of 500 kb (1000 loci) and 20kb (92 loci) probe sets

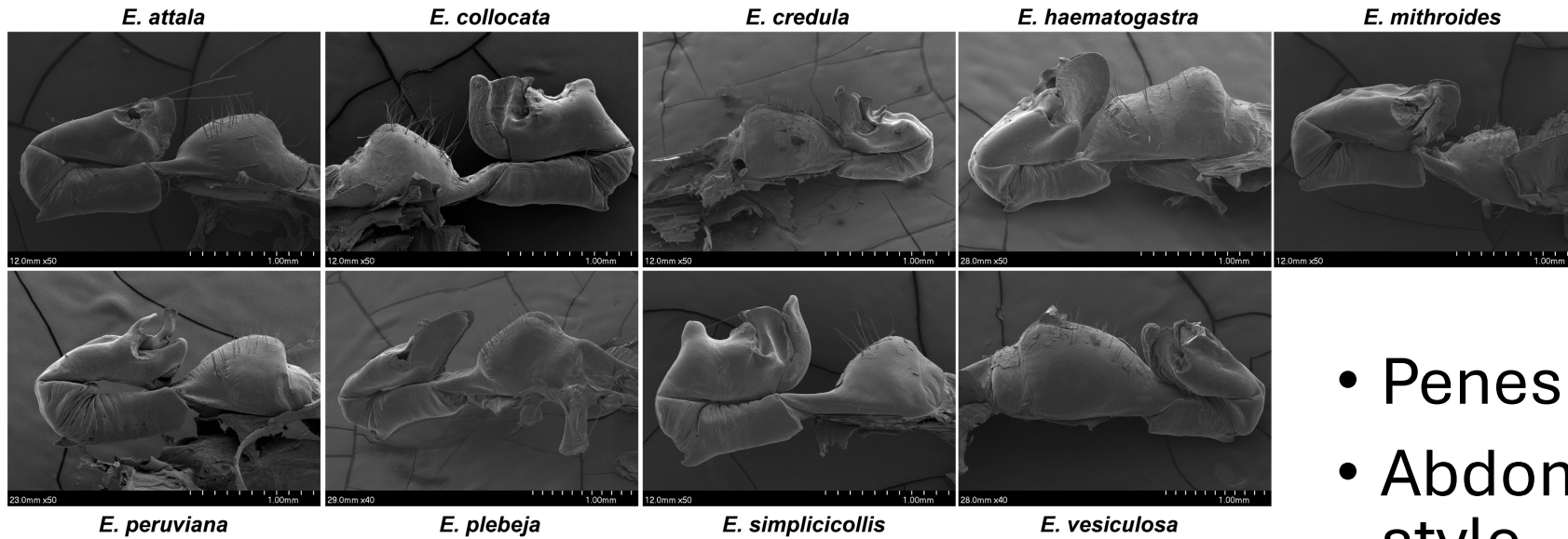
# The pipeline



Adapted from Newton et al. (in progress) and Breinholt et al. (2018)



# Future directions



- Penes morphology
- Abdomen thickness/flight style
- Fossil calibration