

# Phylogenetic cleaning

We are using the time-calibrated phylogeny from Magnacca and Price (2015), specifically the Newick file provided as Supplementary data 1. Below are a few questions about matching the phylogeny to the spatial data

## Definition of the picture wing clade

What do we want to do with *Drosophila primaeva* and *D. adventitia*? According to Magnacca and Price (2015) these are both outside the picture wing clade. However, we have spatial data for *D. primaeva* (the sister of the picture wings); we do not have spatial data for *D. adventitia* (sister to the clade comprised of picture wings plus *D. primaeva*).

## Non-matching names

Some names from the spatial data are not found in the tree, and conversely some names in the tree are not found in the spatial data. Currently, there are 42 species in the spatial data that do not have a match in the phylogeny. These species account for 10.3% of the spatial records. Can we further match any of these taxa (e.g. by synonymy)?

Below is a table (in alphabetical order) of names from one source that don't match in the other.

Present in spatial data not tree	Present in tree not spatial data
aglaia	
alsophila	
assita	
atrimentum	
cilaticrus	
differens	
	eximia
gymnobasis	
gymnophallus	
heedi	hirtitibia
hemipeza	
hirtipalpus	
kinoole	kuhao
lasiopoda	lauoho
liophallus	
macrothrix	
mulli	
neoclavisetae	
neogrimshawi	
nr_truncipenna	
nukea	
obscuripes	
ocellata	
opuhe	
oreas	
ornata	

Present in spatial data not tree	Present in tree not spatial data
paenehamifera	paeniamifera
paucicilia	panoanoa
peniculipedis	papaalai
pilatisetae	papala
pisonia	pohaka
psilophallus	
psilotarsalis	
reynoldsiae	
sharpi	
spaniothrix	
spectabilis	
tarphytrichia	
touchardiae	
toxochaeta	
uniseriata	
varipennis	
villitibia	

## References

- Magnacca, Karl N, and Donald K Price. 2015. "Rapid Adaptive Radiation and Host Plant Conservation in the Hawaiian Picture Wing *Drosophila* (Diptera: Drosophilidae)." *Molecular Phylogenetics and Evolution* 92: 226–42.