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The calamoid palms ■ have over 500 species spread across the world, but their higher-level relationships were a bit of a mystery. Until now.

Out today in #MolecularPhylogeneticsAndEvolution:

A robust phylogenomic framework for the calamoid palms <u>https://t.co/JiCbSUIheH</u>

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First some background info, so that you know what we are talking about:

Calamoid palms look a bit like snakes ■ (don't they!?!), because their fruits are covered in overlapping scales. And with their often fierce spines, they are equally fearsome.





They are classified into 17 genera, 10 subtribes and 3 tribes. They have an amazing variety of growth forms, from stemless to climbing to tree habit.



But as I said, their relationships have been a bit of a mystery. Here's the varying relationships previous studies found over the last 20 years.

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We tackled this mystery with a phylogenomic approach: we sampled almost a thousand genes (a hundred times more than previous studies!) of 75 species representing all calamoid tribes, subtribes and genera.

The resulting data matrix is pretty massive...



With all this data, we were able to reconstruct the higher-level relationships with new confidence, and these results were stable no matter what method we used (we tried out quite a few...). Here's the strict consensus tree from all eight species trees we made.





For relationships among tribes and subtribes, a clear majority of gene trees supported the main topology. That's why we think that our results are very robust on that level.

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However, in subtribes Ancistrophyllinae and Plectocomiinae, there was a lot of gene tree conflict - similar proportions of gene trees support the 3 different possible relationships among genera.

Why? Hybridisation? Incomplete lineage sorting?

Further research needed!



Finally, a huge thanks to my fantastic supervisors <u>@BillJBaker</u>, <u>@w_eiserhardt</u>, <u>@Chomicki_G</u> and Simon Hiscock (@OxfordPlants), and all other (equally great) co-authors: <u>@SidonieBellot</u>, <u>@RowanSchley</u>, <u>@tlpcouvreur</u>, and palm legends John Dransfield and Andrew Henderson.

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If you want to read more, feel free to use the below link for free access to the paper - it will work until 13 March 2021.

https://t.co/JiCbSUlheH