

How many lineages of the stingray genus *Hypanus* are there and why does it matter?

Dr. Flavia F. Petean

Postdoctoral Fellow – CONICET

Instituto Tecnológico de Chascomús

Argentina

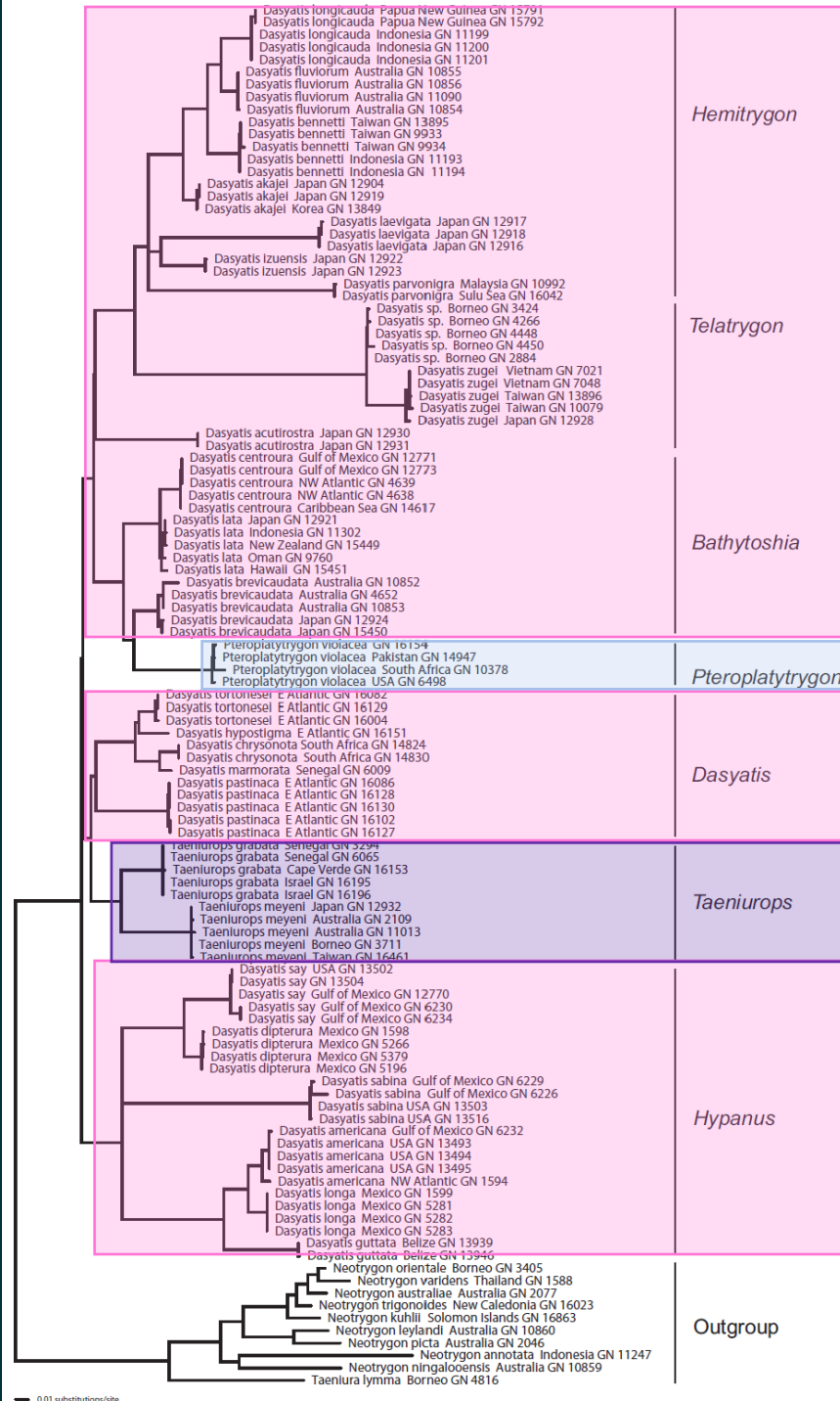
Yang, L.; Corrigan, S.;
Lima, S.; Naylor, G.



Tiago Costa



Bimini Shark Lab



3 genera

Pteroplatytrygon

Dasyatis

Taeniurops

Global distribution
Marine, estuarine, freshwater
Paraphyletic



Last et al., 2016

3 genera → 8 genera

Hemistrygon

Telatrygon

Bathytoshia

Pteroplatytrygon

Dasyatis

Taeniurops

Hypanus

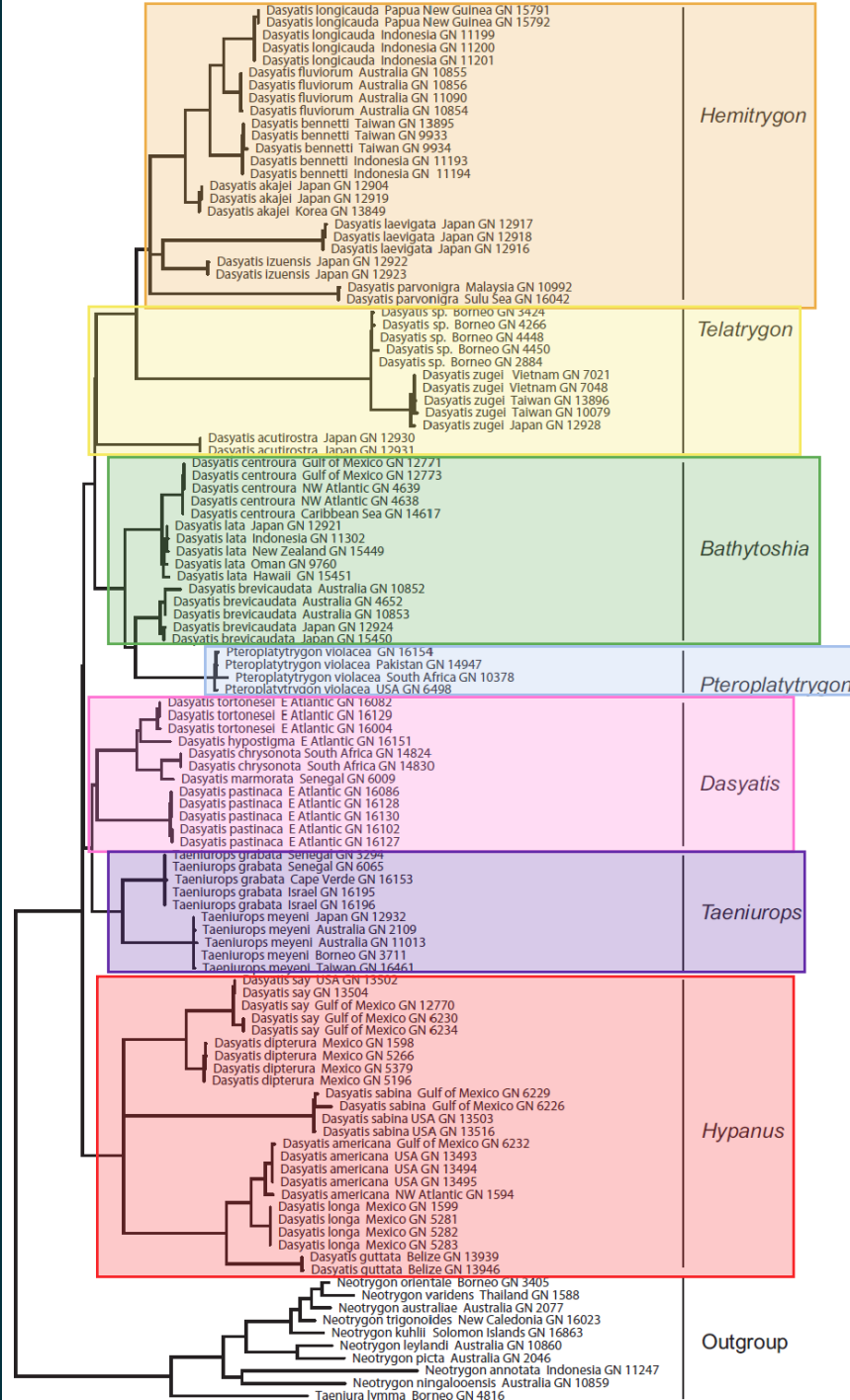
+ *Megatrygon*

Global distribution
Marine, estuarine, freshwater



PHOTOARK
© 2015 ARKAT

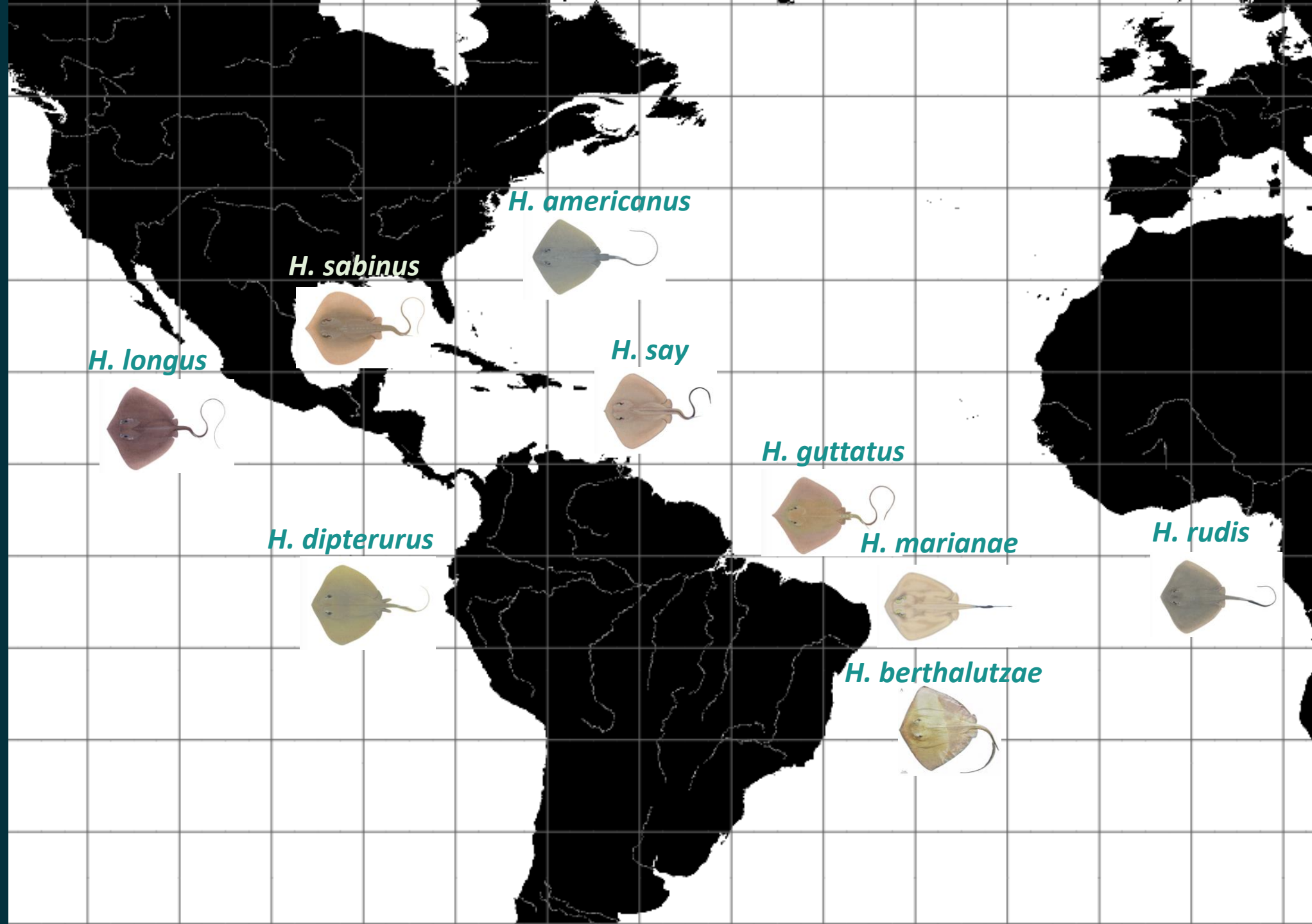
Last et al., 2016

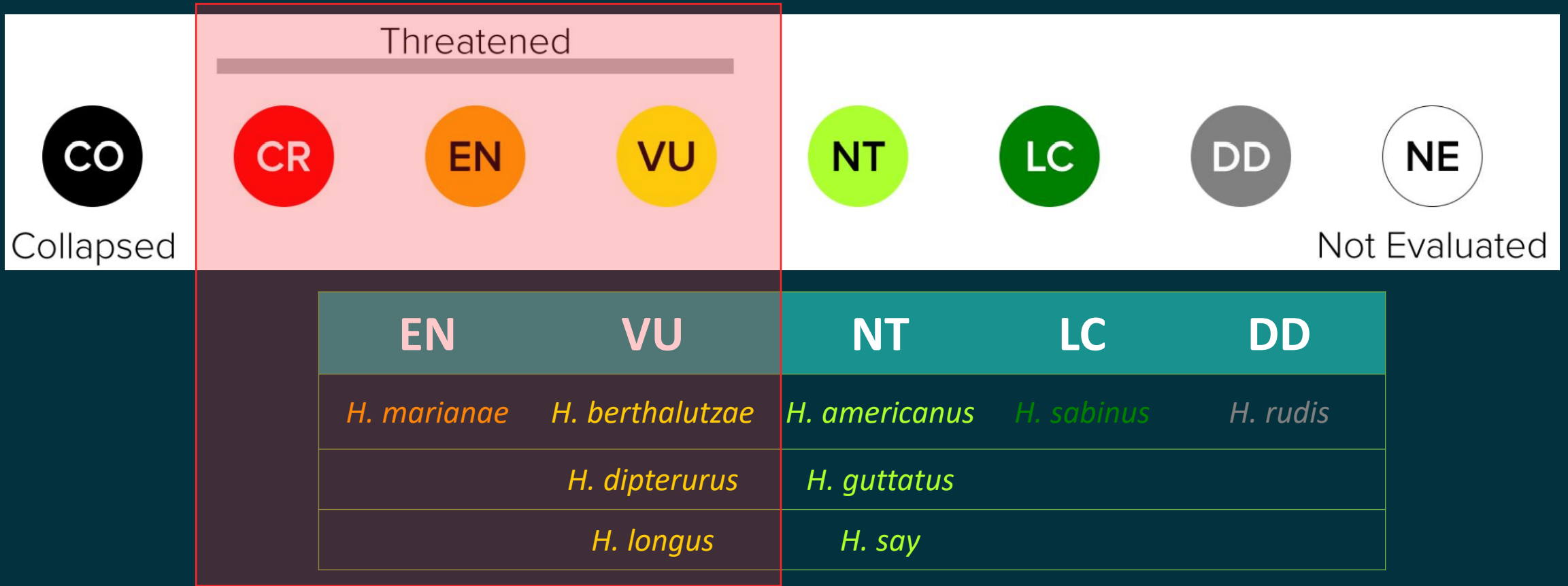


Outgroup

Hypanus

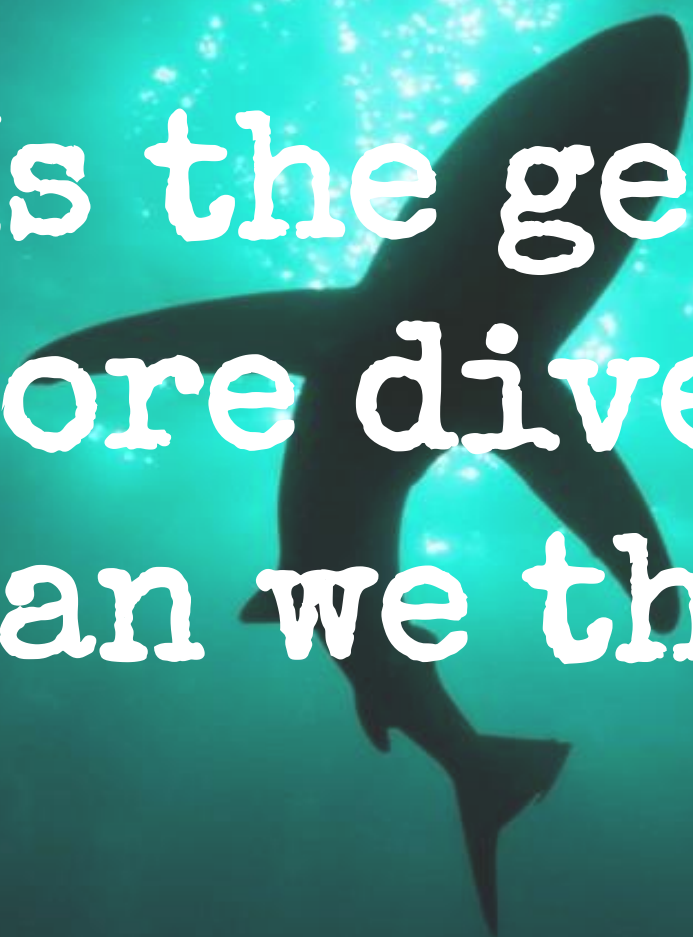
- 9 valid species;
- Variable size;
- Marine to estuarine;
- Wide to restricted distributions





9 valid species → 4 are under threat

- Many barriers posed by the American continent
- Their biology, distribution



Is the genus
more diverse
than we think?

What could be the consequences for conservation?

135 samples

**Mitochondrial target
capture**

11,471 base pairs

Phylogenetic Analyses

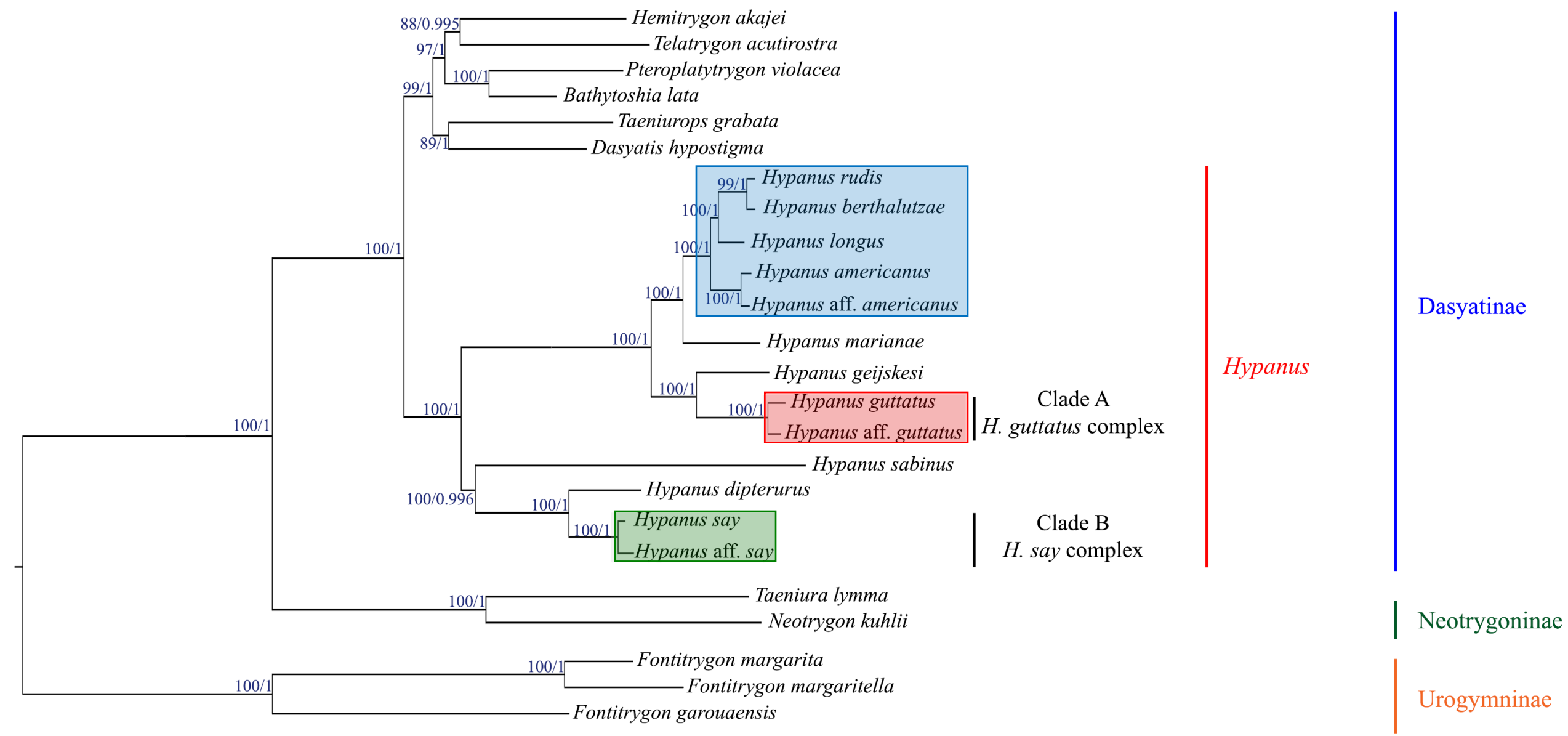
ML and BI

**Lineage Delimitation
Analyses**

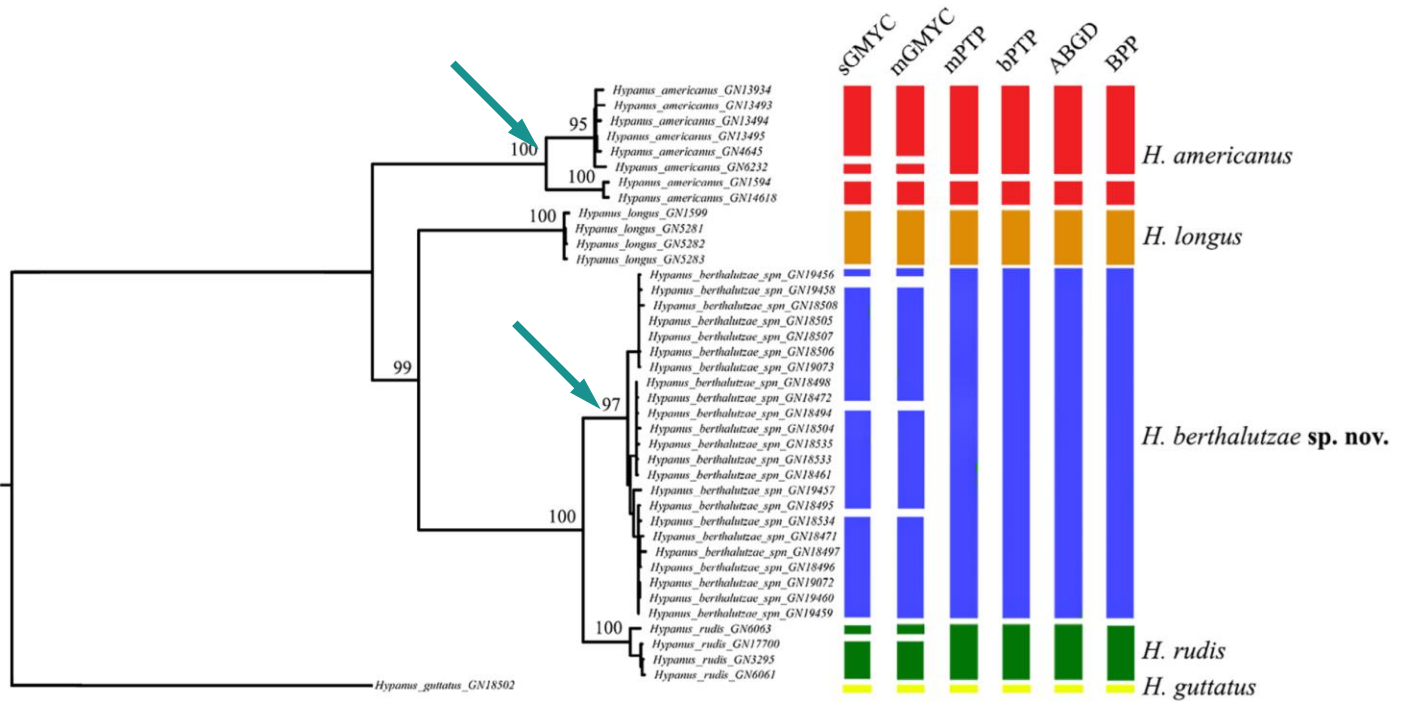
GMYC, PTP, ABGD, BPP



Phylogenetic Relationships within the subfamily Dasyatinae

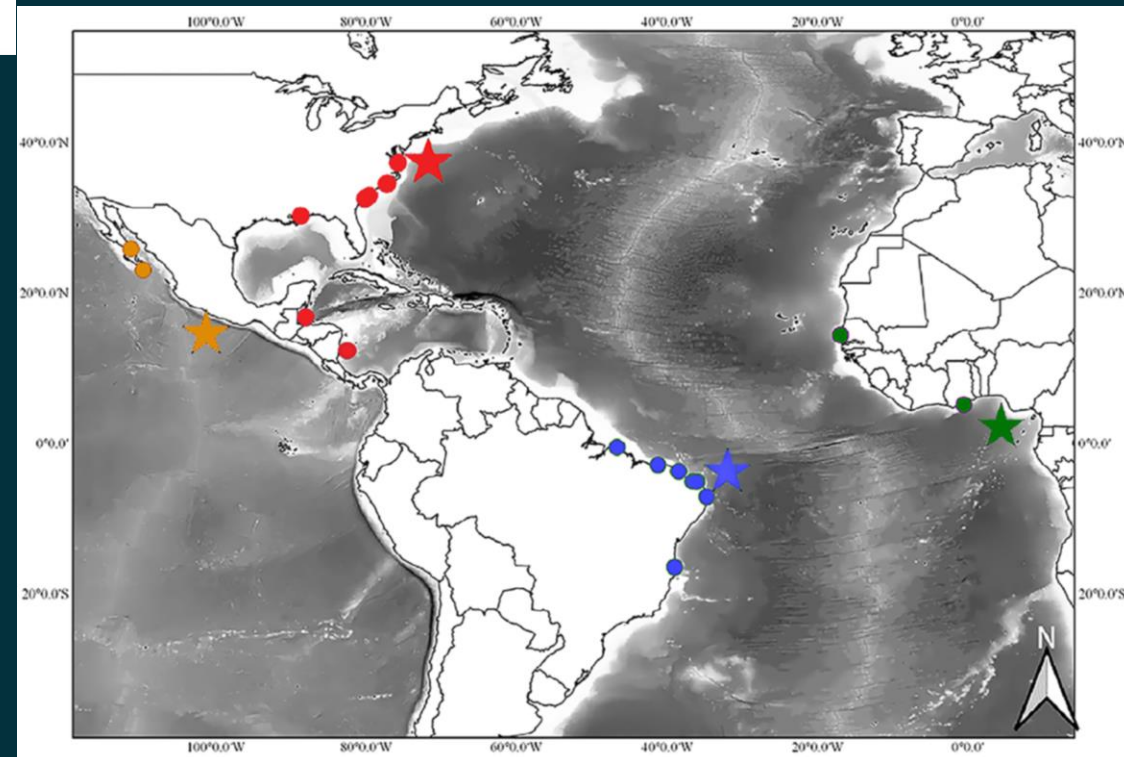


Nodes' values: bootstrap/posterior probability



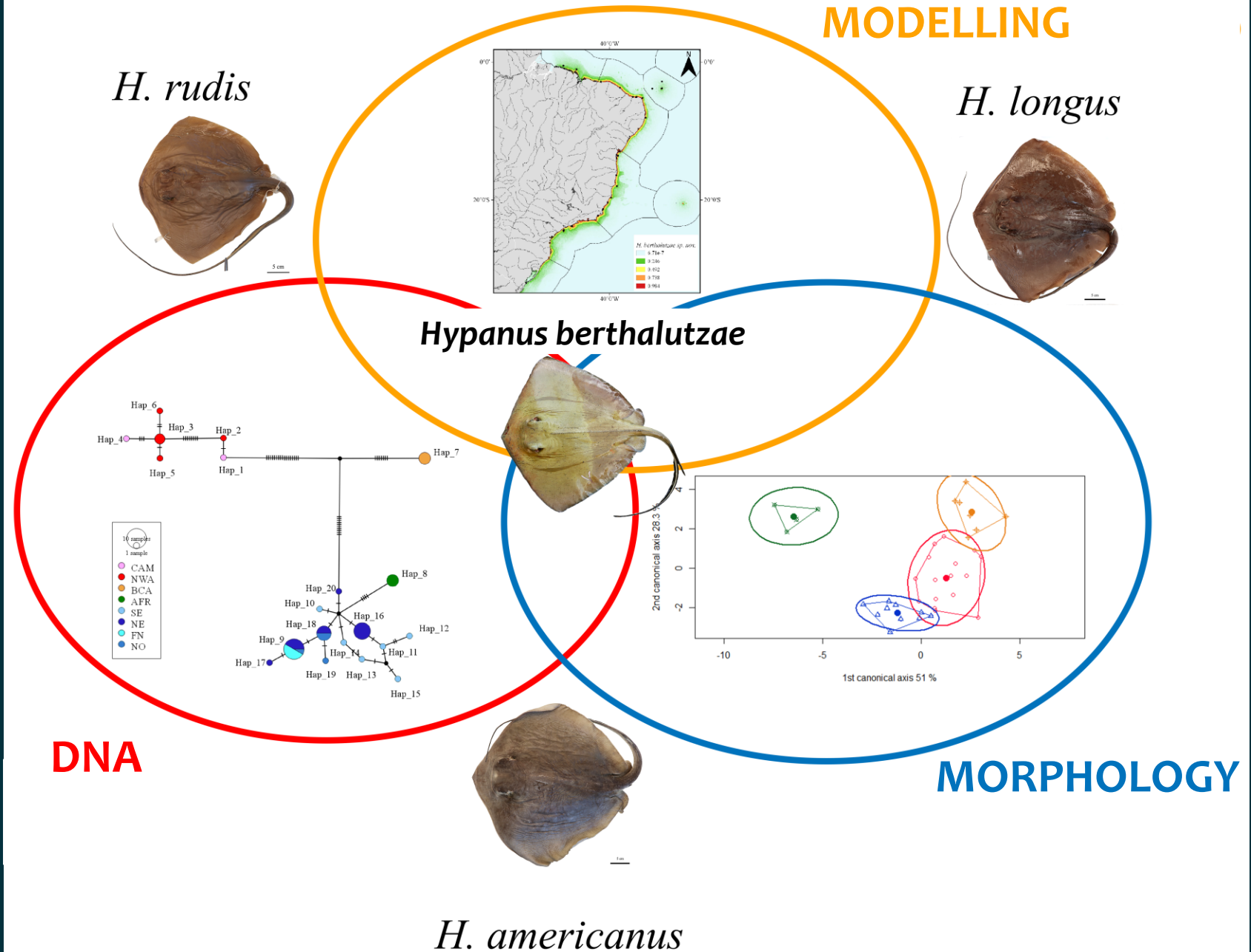
Petean, Naylor & Lima, 2020

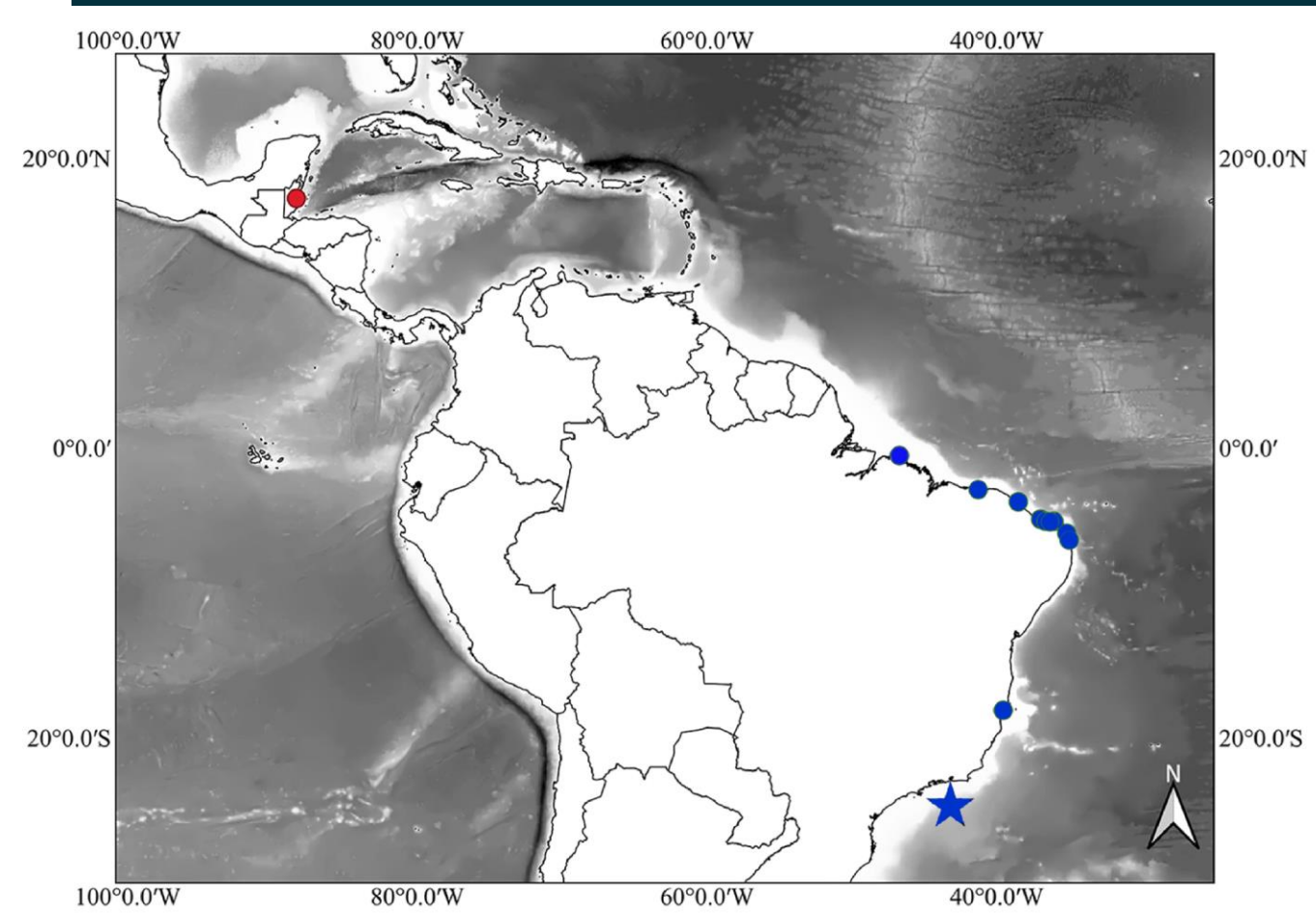
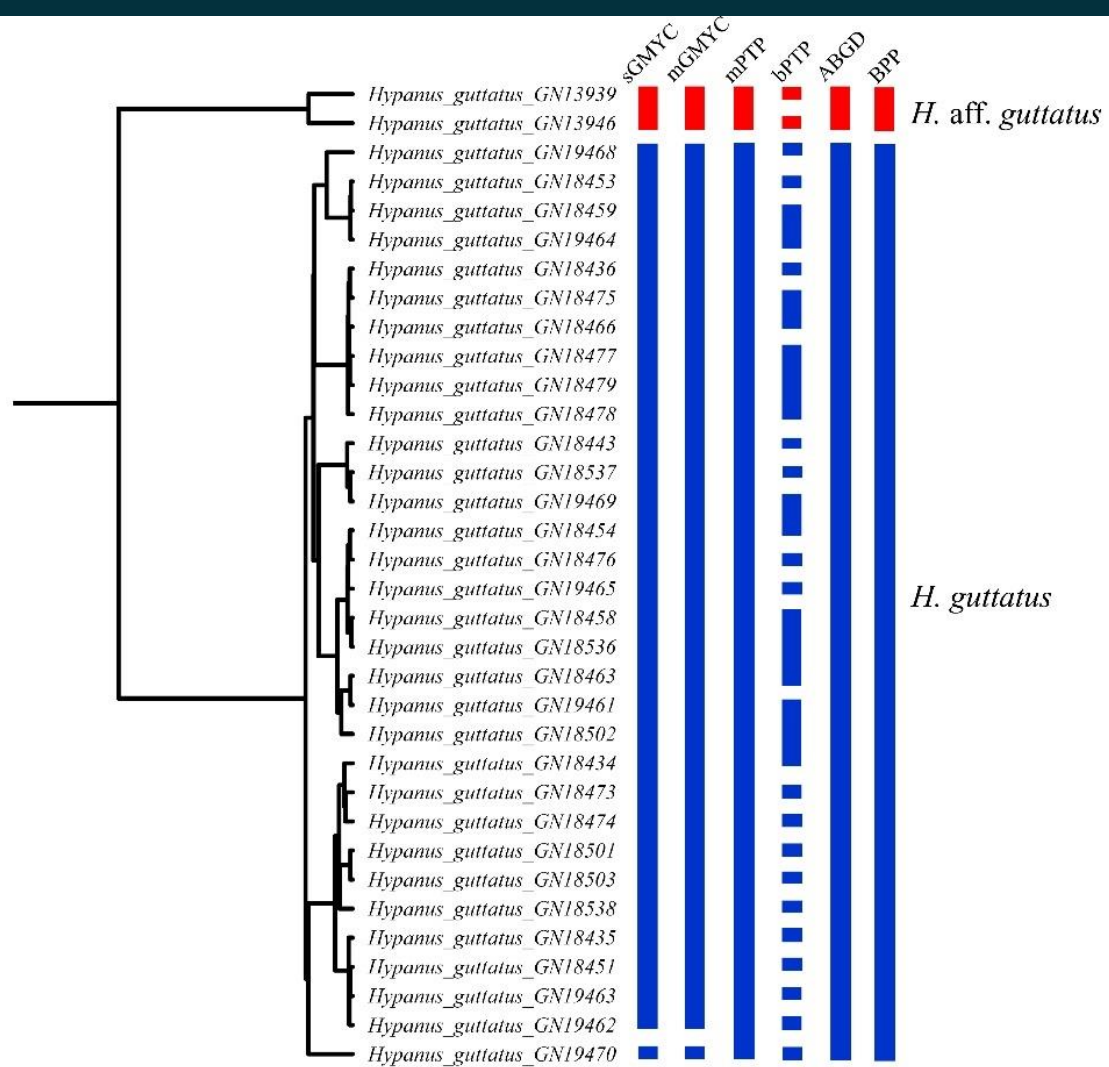
H. americanus group



Integrative taxonomy

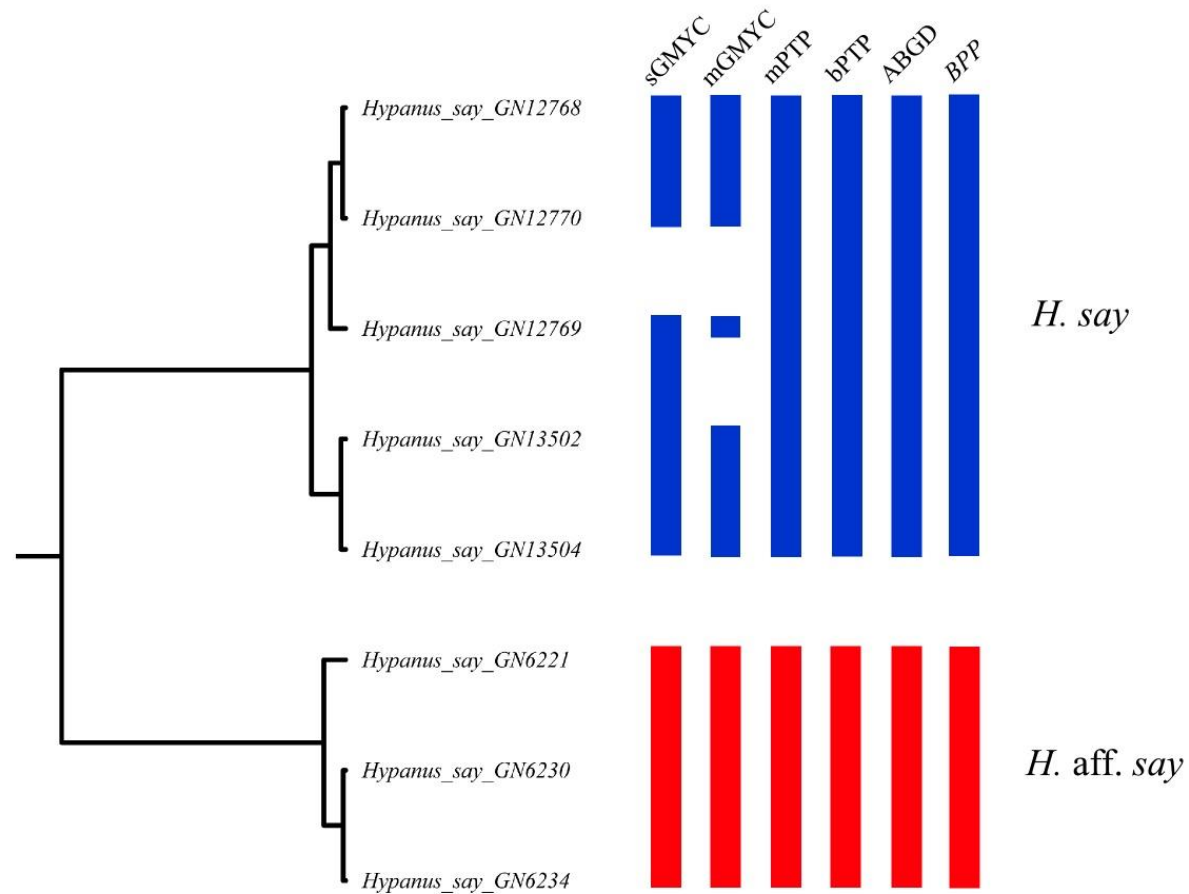
ECOLOGICAL NICHE MODELLING





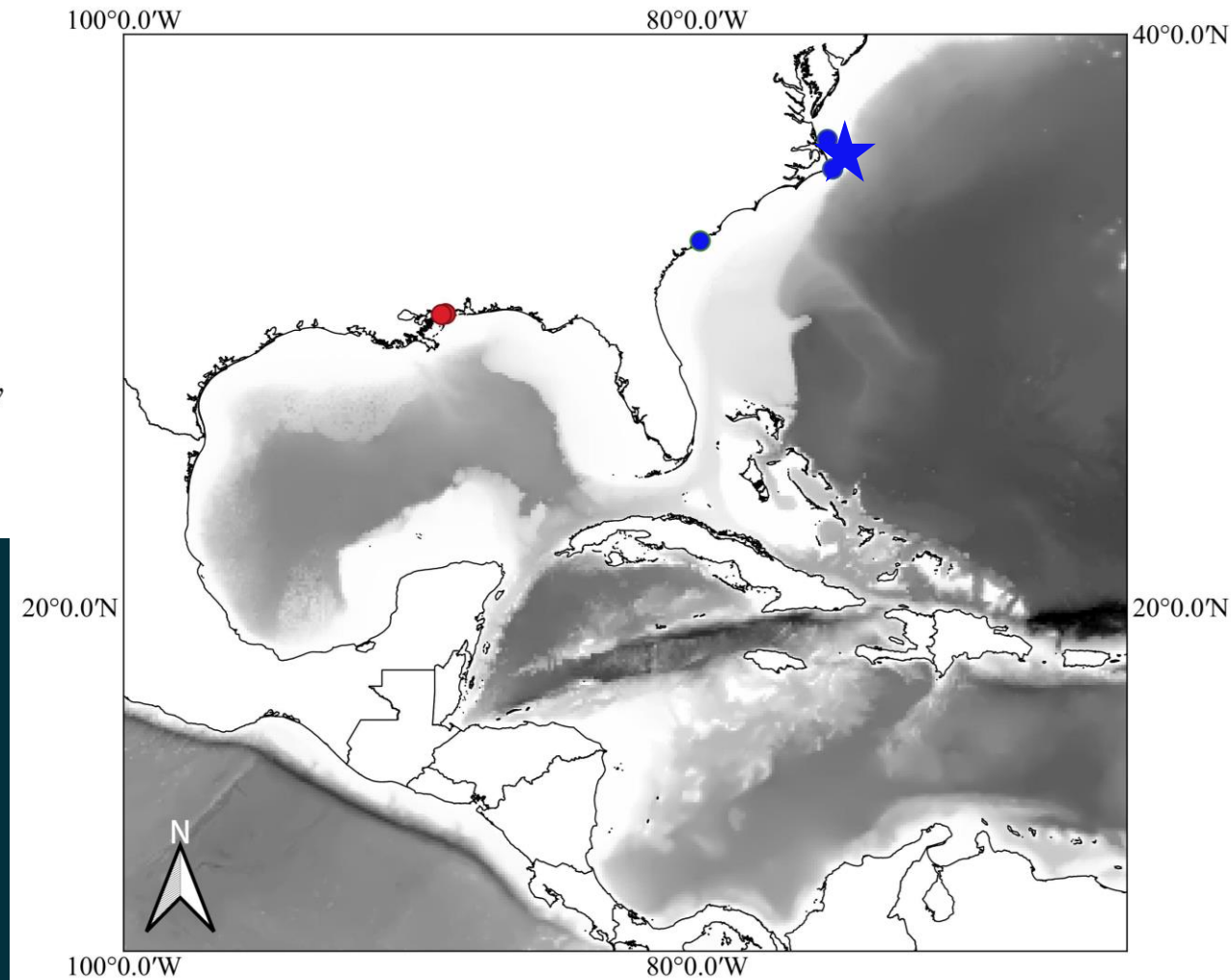
H. guttatus complex

Clade A

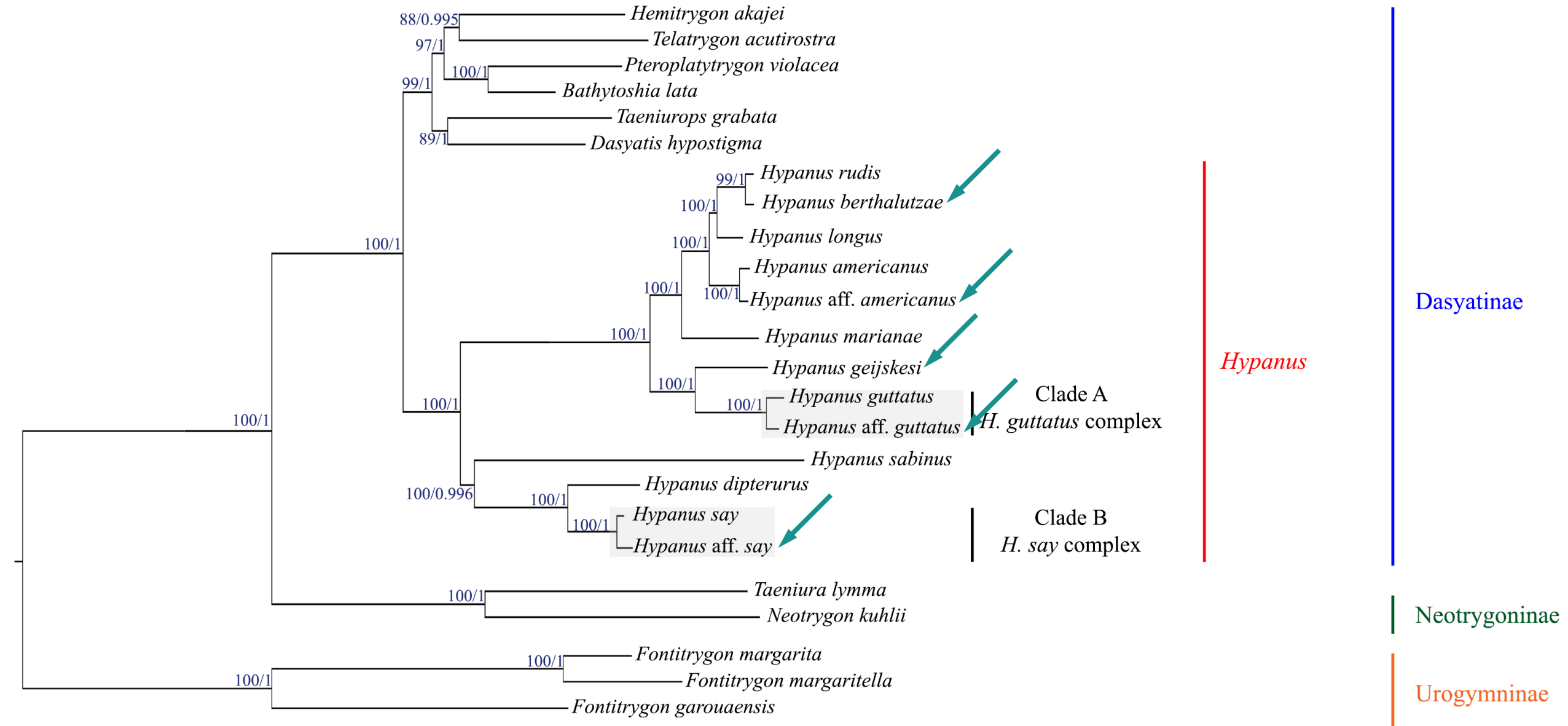


H. say complex

Clade B



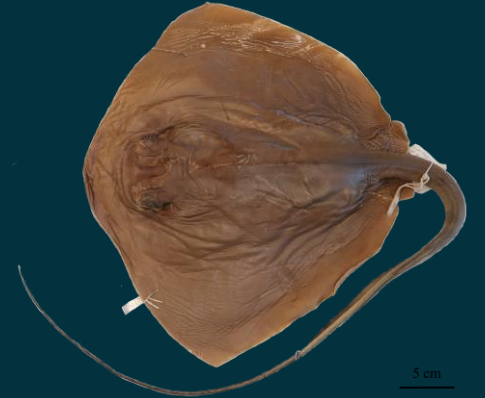
Since the genus resurrection by Last *et al.*, 2016 with 8 species...

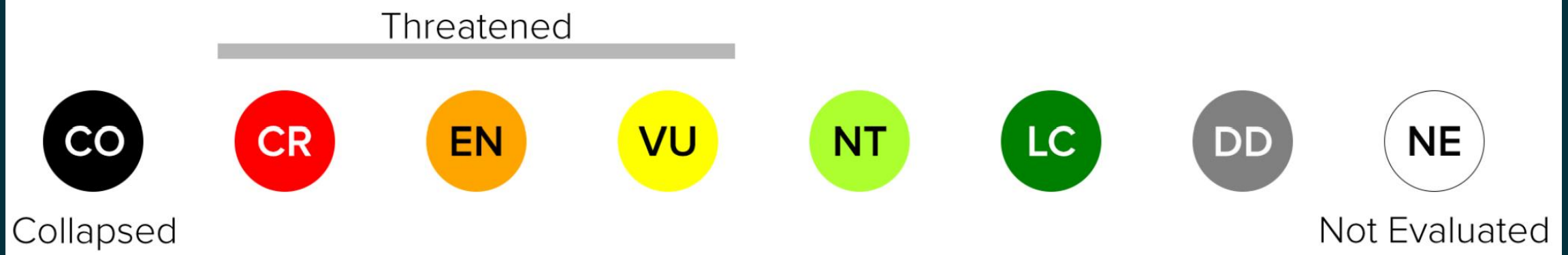


...14 lineages



Former species ID	Suggested species ID
<i>Hypanus americanus</i>	<i>Hypanus americanus</i>
<i>Hypanus americanus</i>	* <i>Hypanus</i> aff. <i>americanus</i>
<i>Hypanus longus</i>	<i>Hypanus longus</i>
<i>Hypanus rudis</i>	<i>Hypanus rudis</i>
<i>Hypanus americanus</i>	* <i>Hypanus berthallutzae</i>
<i>Hypanus marianae</i>	<i>Hypanus marianae</i>
<i>Hypanus guttatus</i>	<i>Hypanus guttatus</i>
<i>Hypanus guttatus</i>	* <i>Hypanus</i> aff. <i>guttatus</i>
<i>Fontitrygon geijskesi</i>	* <i>Hypanus geijskesi</i>
<i>Hypanus dipterurus</i>	<i>Hypanus dipterurus</i>
<i>Hypanus say</i>	<i>Hypanus say</i>
<i>Hypanus say</i>	* <i>Hypanus</i> aff. <i>say</i>
<i>Hypanus sabinus</i>	<i>Hypanus sabinus</i>
<i>Fontitrygon colarensis</i>	* <i>Hypanus colarensis</i> ?





CR	EN	VU	NT	LC	DD
<i>H. geijskesi</i>	<i>H. marianae</i>	<i>H. berthalutzae</i>	<i>H. americanus</i>	<i>H. sabinus</i>	<i>H. rudis</i>
<i>H. colarensis</i>		<i>H. dipterurus</i>	<i>H. guttatus</i>		
		<i>H. longus</i>	<i>H. say</i>		

If these new lineages are indeed new species, are they already under threat before they are even described?



THANK YOU!



ffpetean@gmail.com
flaviapetean.weebly.com



@ictiomulheres 

The logo for @ictiomulheres features an orange circle containing a stylized orange fish. To the right of the circle is an orange female symbol (a circle with a vertical line and a horizontal line).