

Patrones filogenéticos,
macroevolución y
adaptación

Seriación indicativa u obligatoria antecedente, si es el caso:

No tiene seriación

Seriación indicativa u obligatoria subsecuente, si es el caso:

No tiene seriación

Objetivo general: Iniciar a los estudiantes en la aplicación de métodos macroevolutivos para entender los principales patrones filogenéticos (de diversificación, de evolución morfológica y biogeográficos) descritos a la fecha.

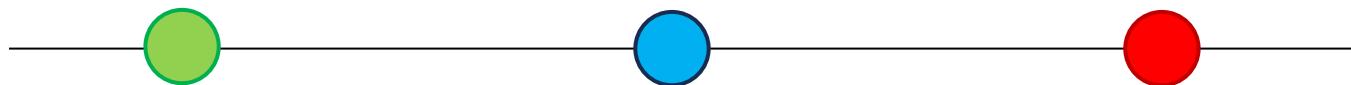
Objetivos específicos: (en si caso)

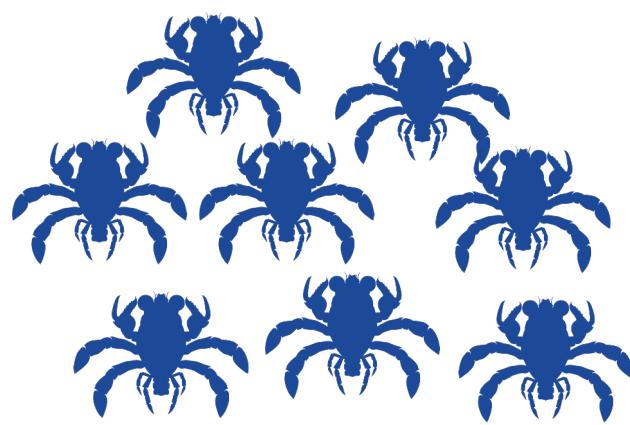
Temario	Horas	
	Teóricas	Prácticas
Unidad 1 <i>(Se anota el nombre de la unidad y en su caso los subtemas que contiene. En caso de haber subtemas, ponerlos bajo el formato de numeral, es decir: 1.1, 1.1.1 en su caso, 1.2 etcétera)</i> U 1: Patrones de diversificación 1.1 introducción al proceso de diversificación y que herramientas tenemos para calcular una tasa 1.2 Tasas de extinción y eventos de extinción masiva 1.3 Especiación dependiente de un carácter: modelos de la familia SSE	10	10
Unidad 2 U 2: Patrones morfológicos 2.1. Hipótesis y modelos de evolución morfológica 2.2. Reconstrucción ancestral de caracteres 2.3. Coevolución de rasgos 2.4. Identificación de tendencias en evolución morfológica	10	10
Unidad 3 Patrones biogeográficos 3.1. Modelo DEC uso y limitaciones 3.2. Modelo BIB uso y limitaciones 3.3. Diversificación dependiente del rango geográfico 3.4. Desarrollo de proyecto de investigación <i>(así consecutivamente hasta el número de unidades temáticas que tenga el programa de la actividad)</i>	12	12

Evaluación

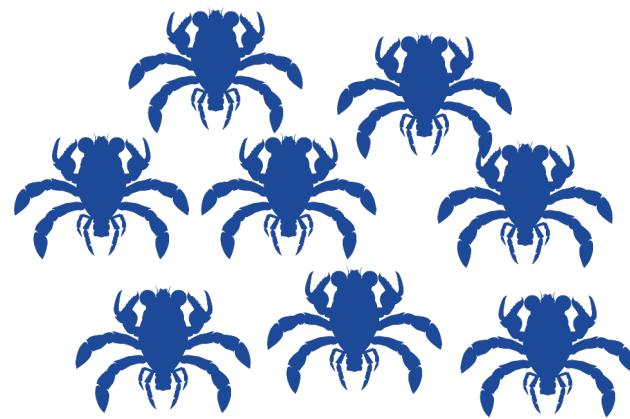
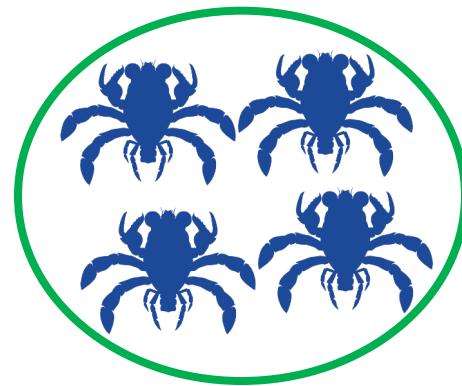
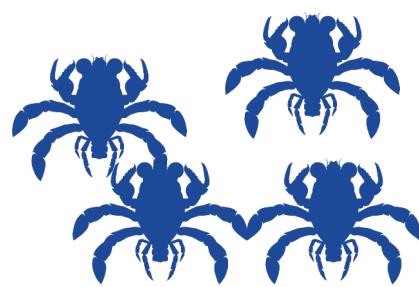
- Exámen por unidad **30%**
- Participación activa **30%**
- Proyecto final **30%**
 - Cómo aplicarian cualquiera de los métodos del temario en su proyecto
 - Escrito que contenga Objetivo y Material y Métodos
- Prácticas **10%**

Tempo and mode in Macroevolution

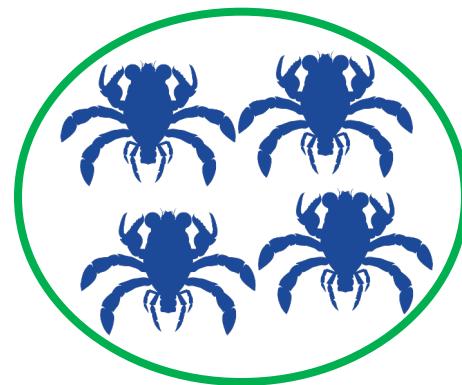
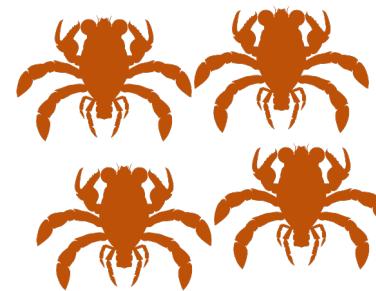
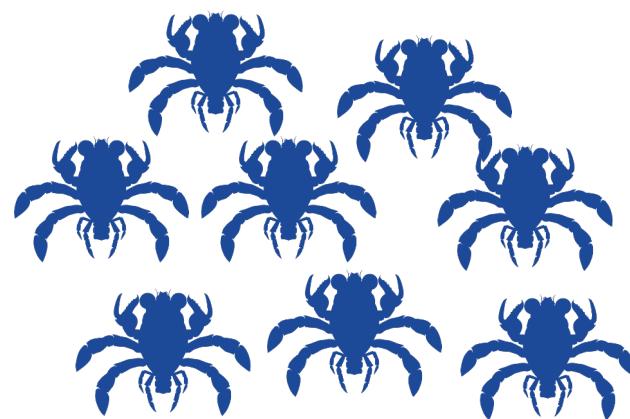
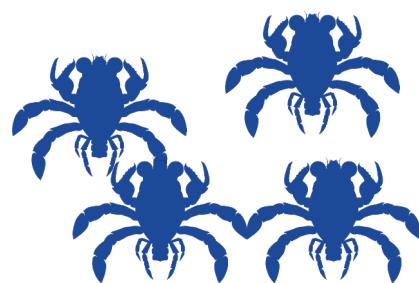
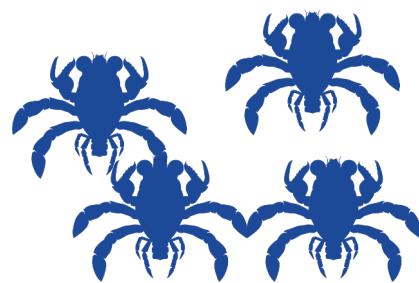




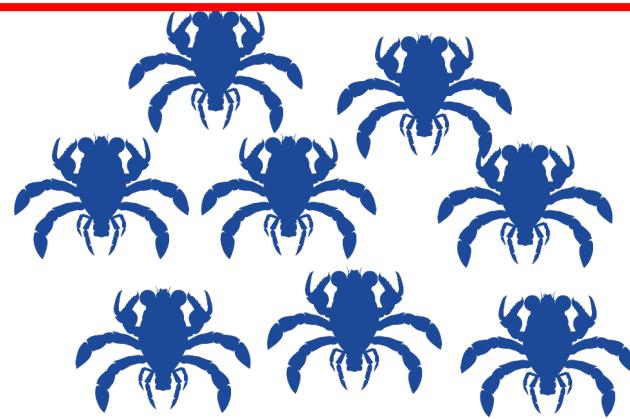
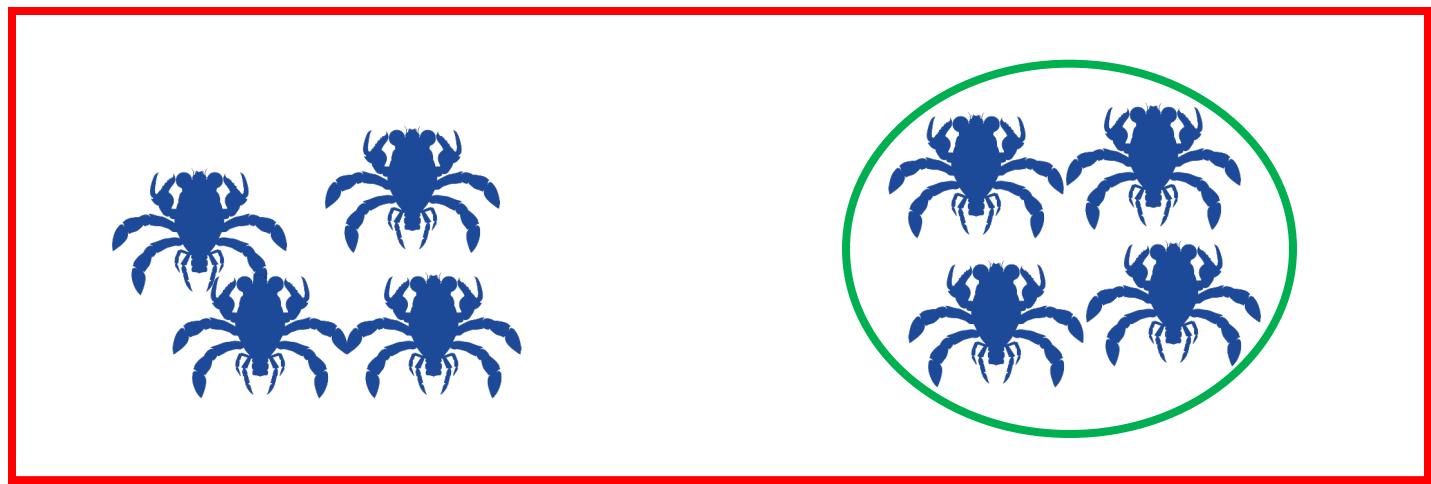
Tiempo



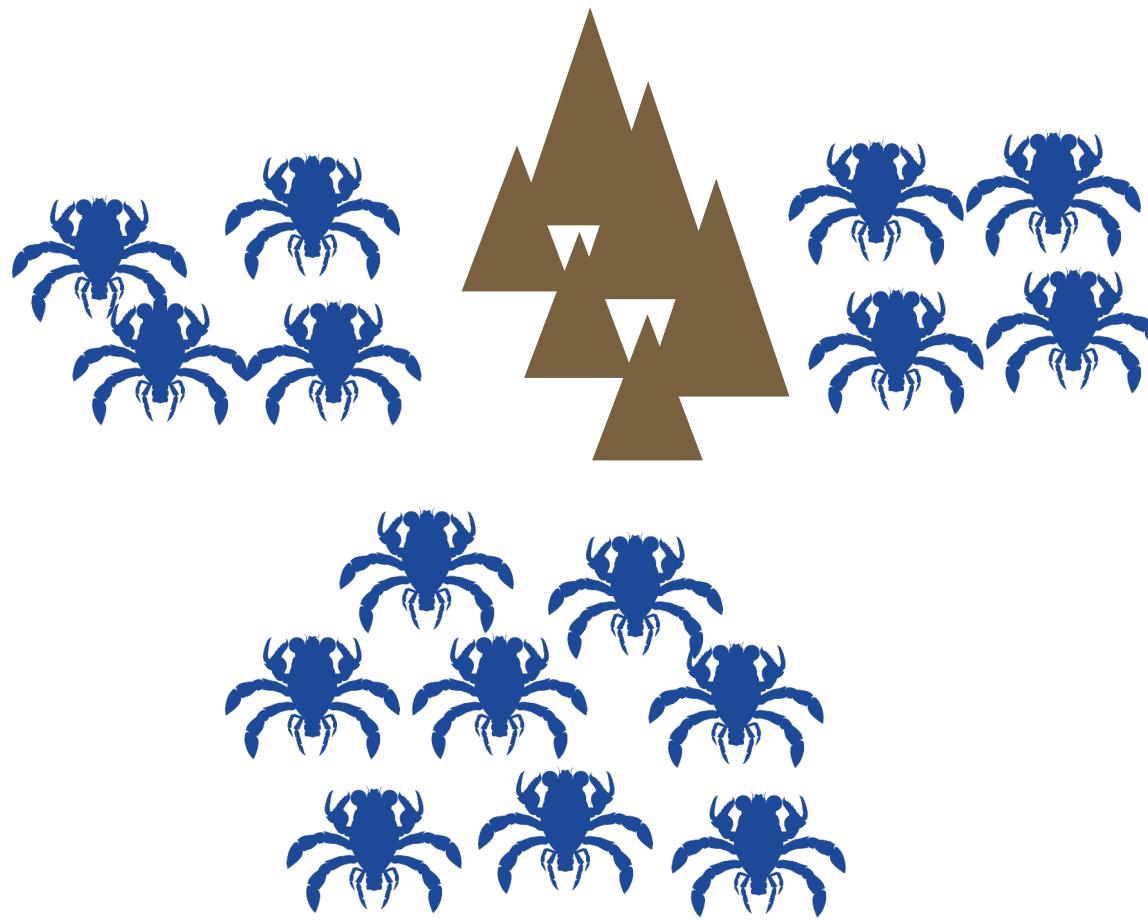
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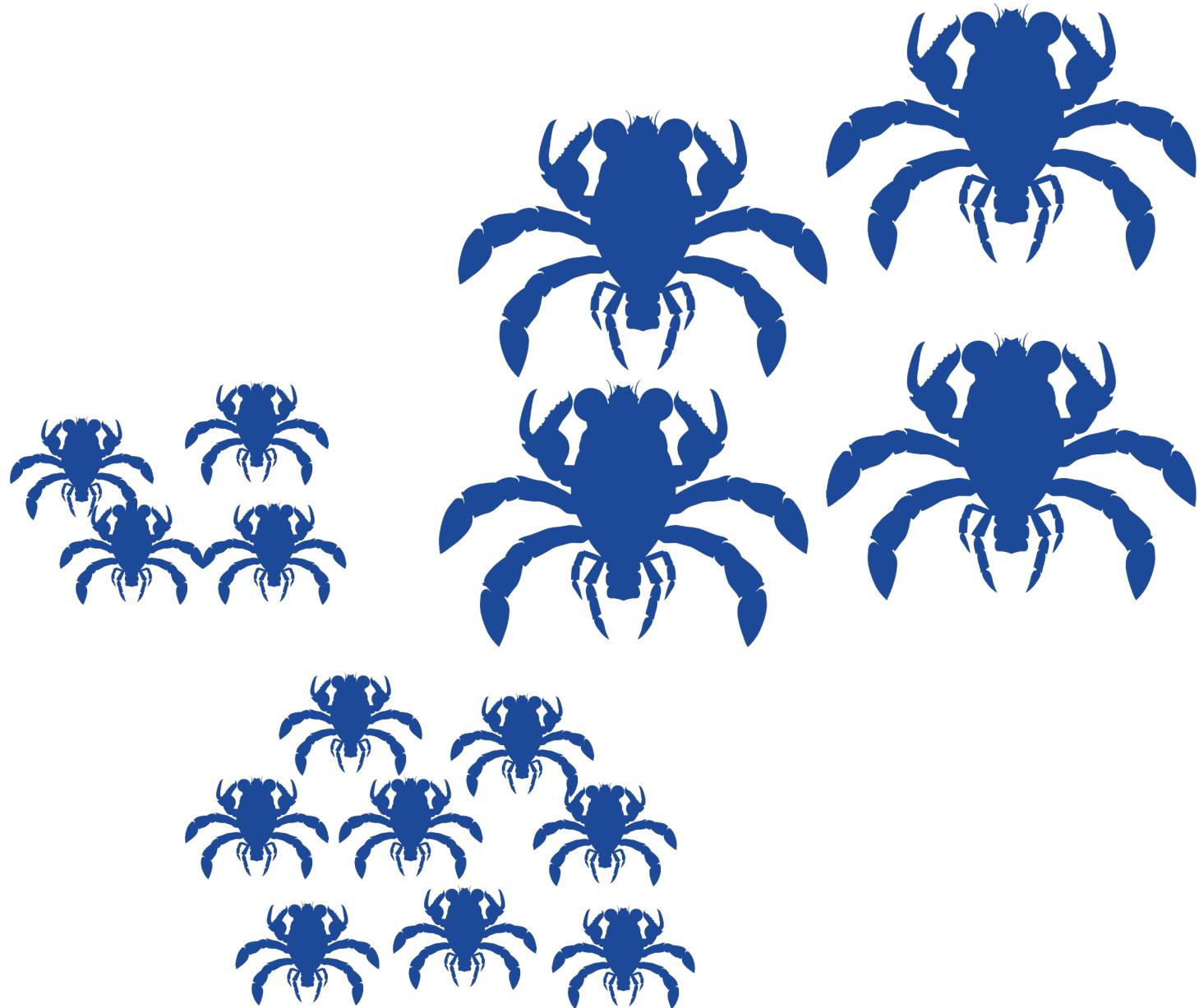
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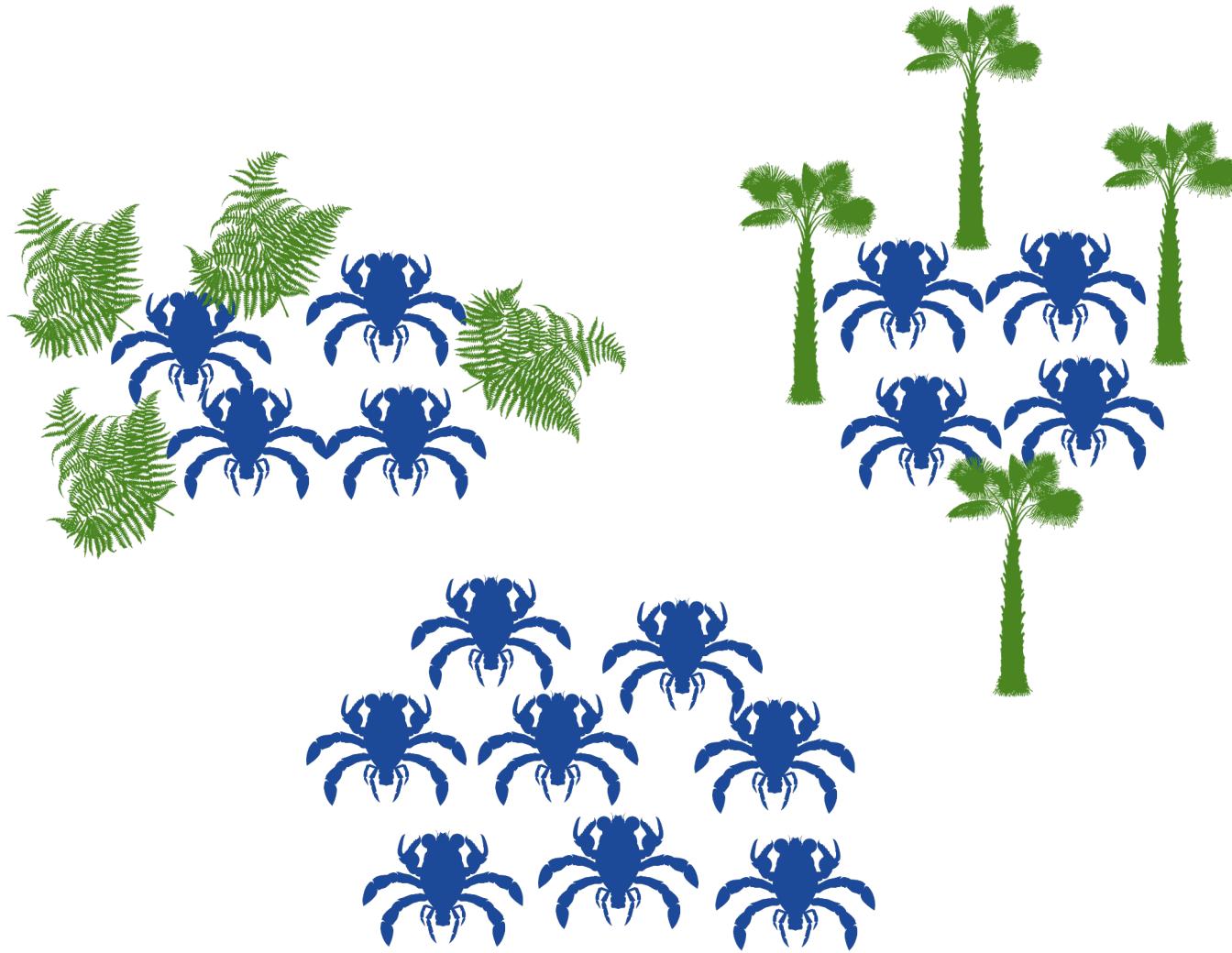
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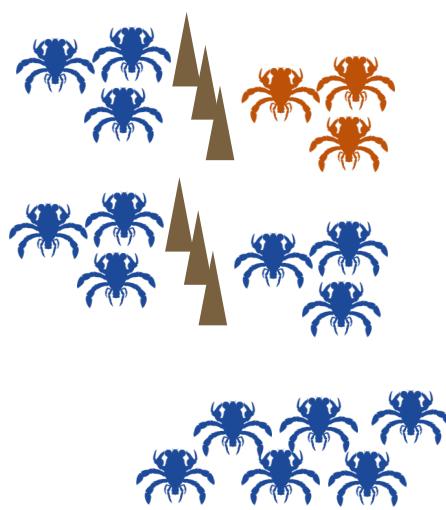
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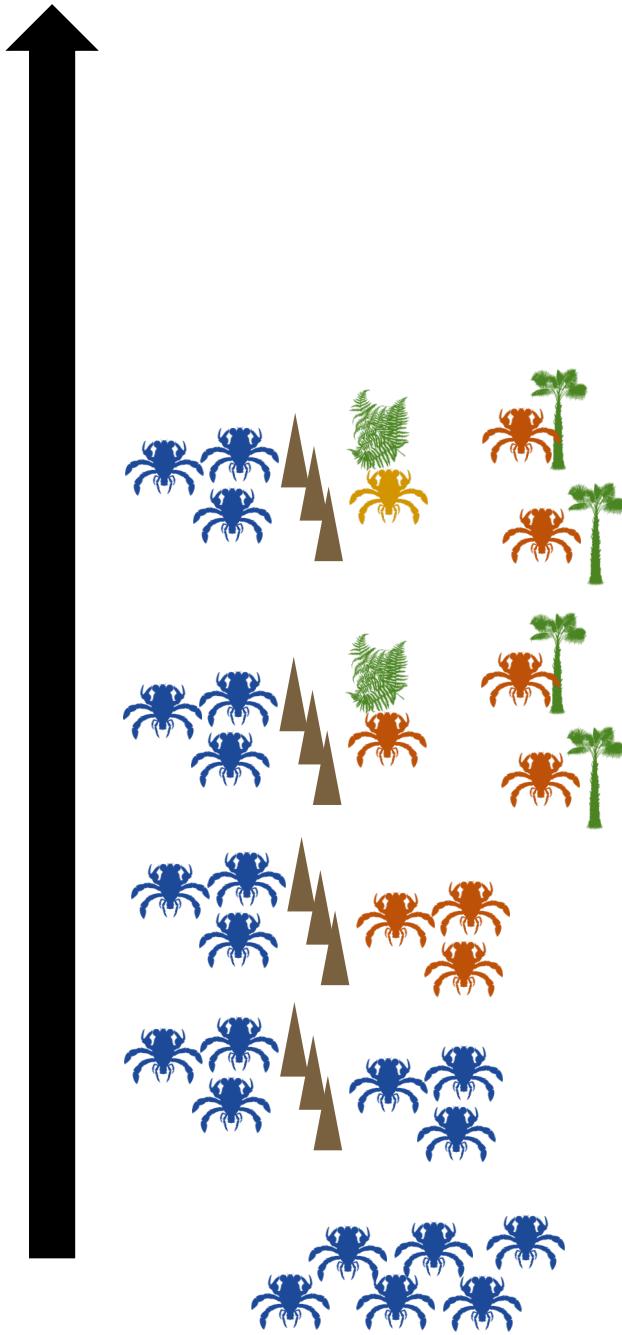
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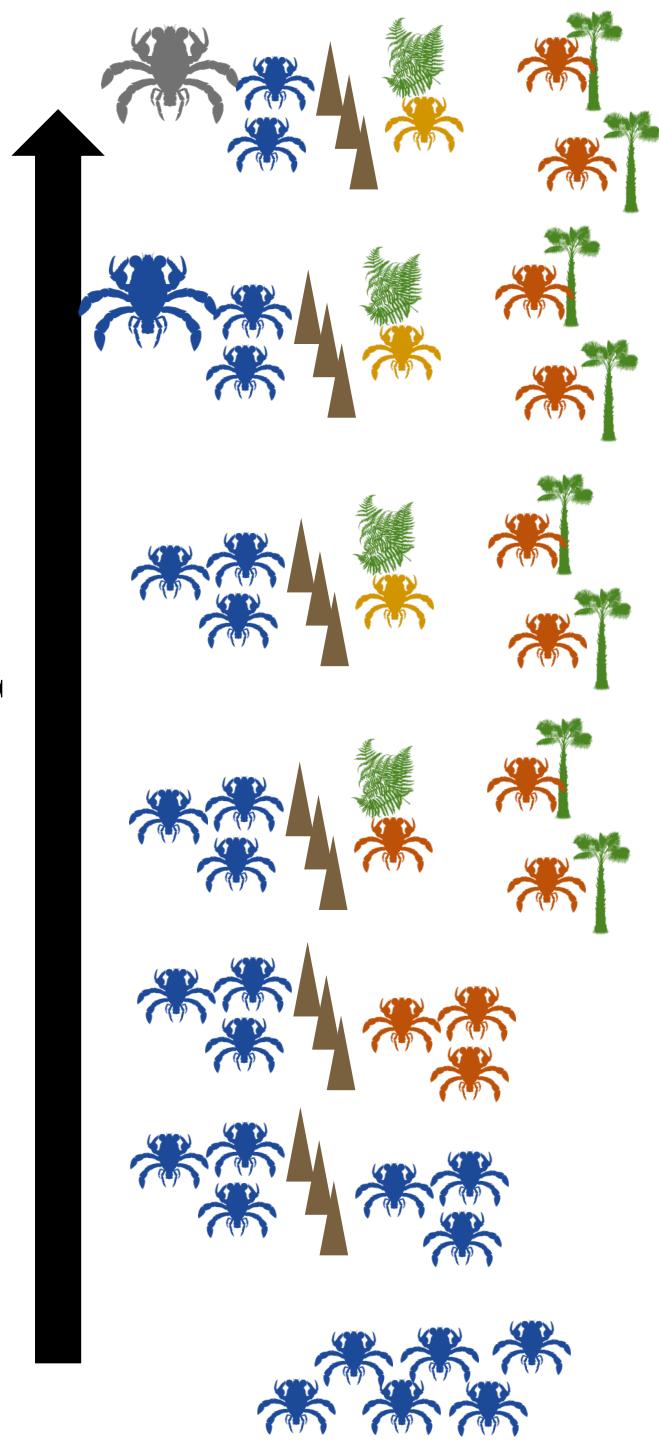
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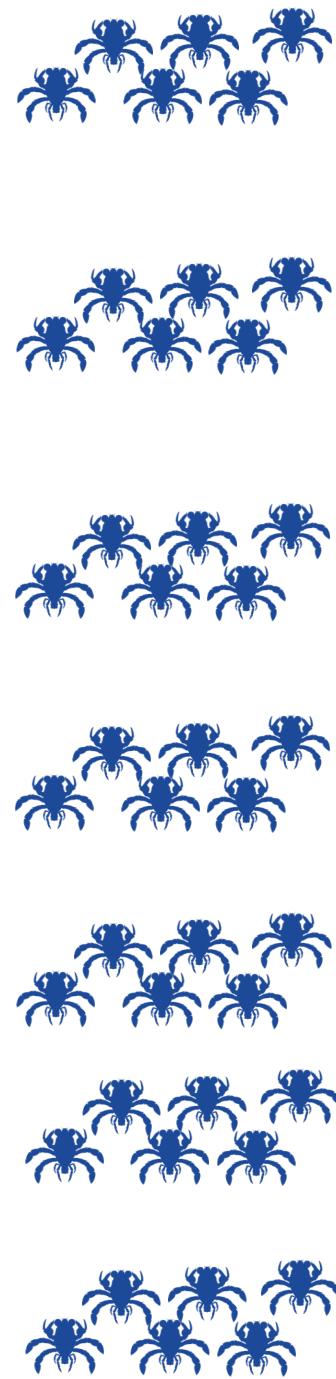
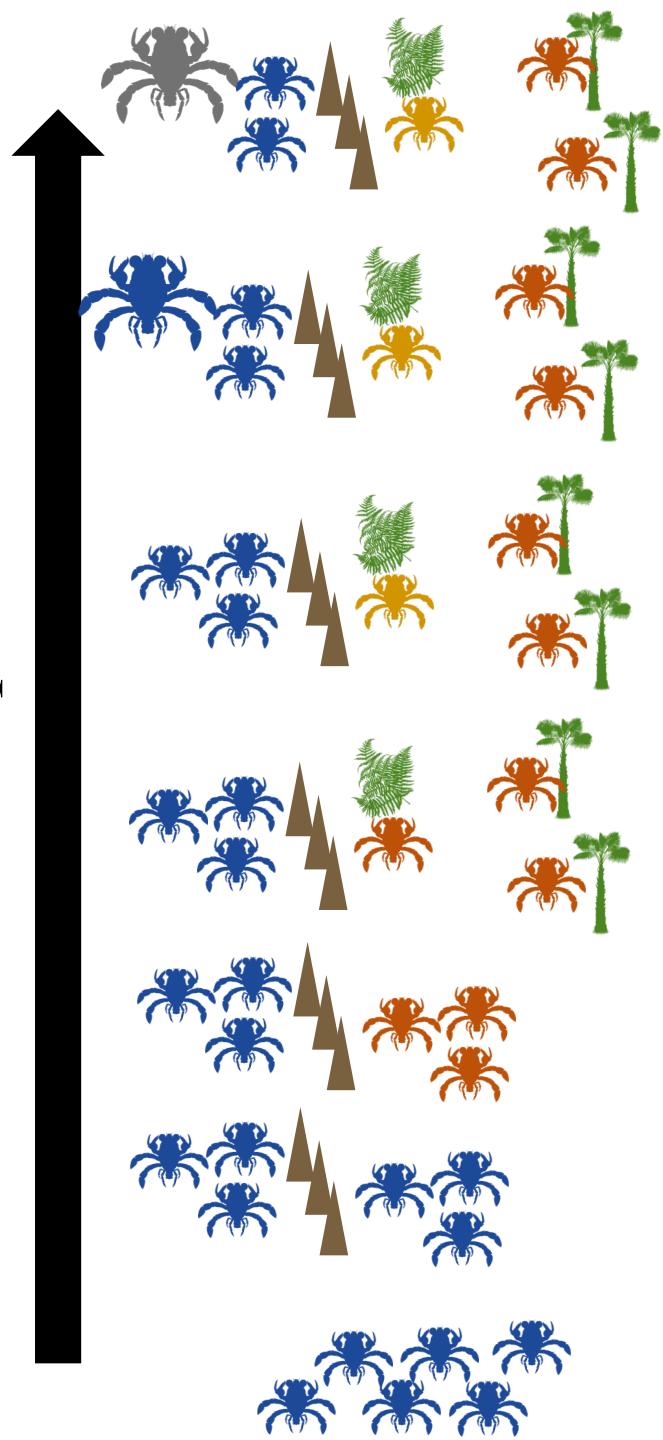
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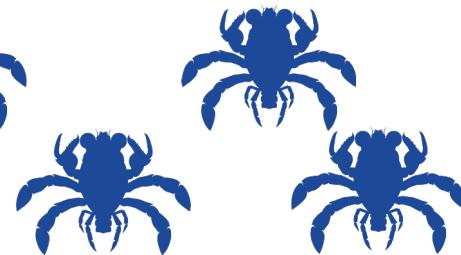
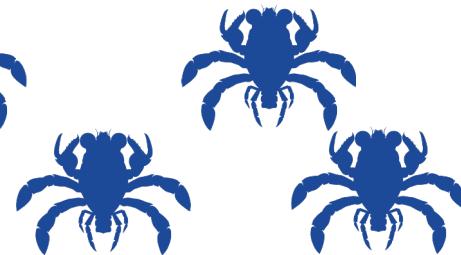
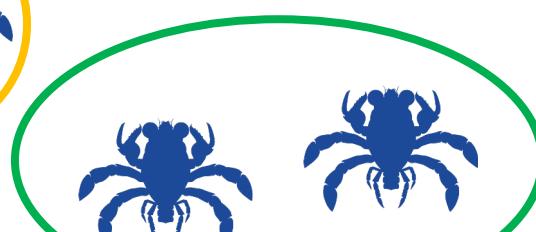
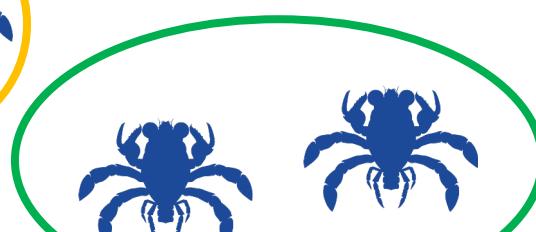
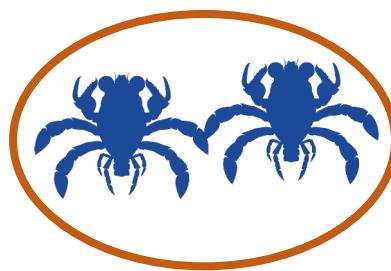
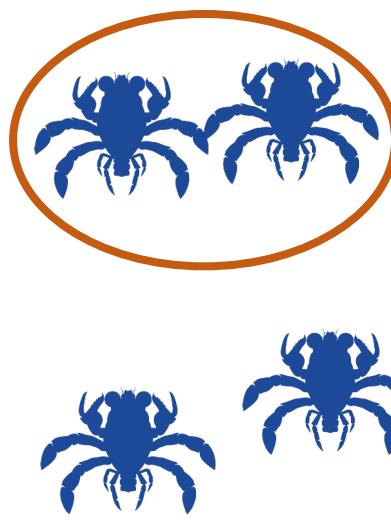
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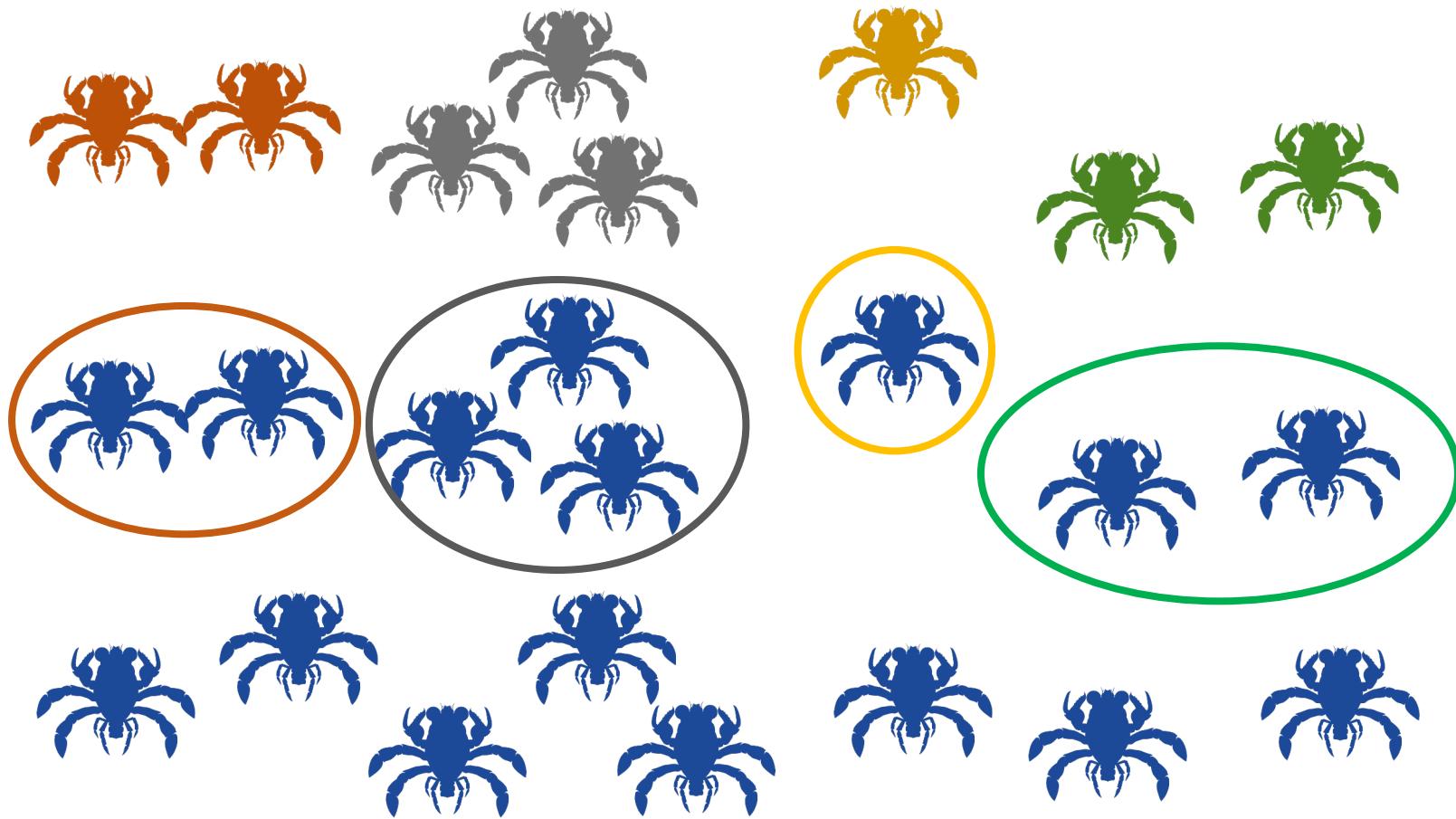
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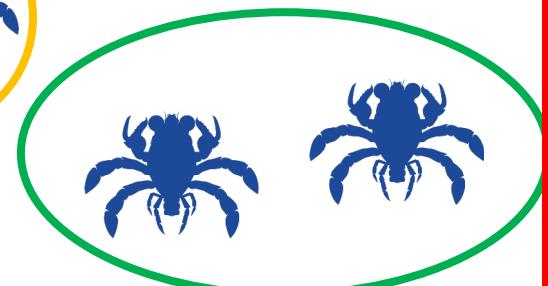
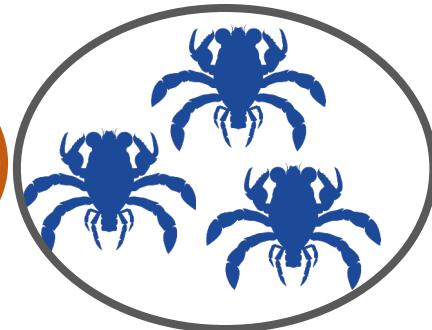
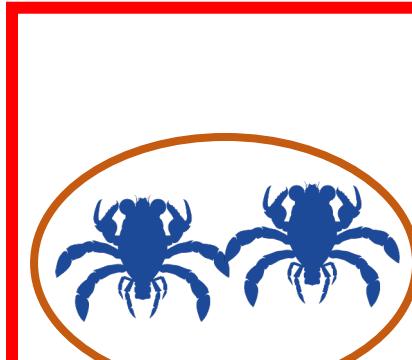
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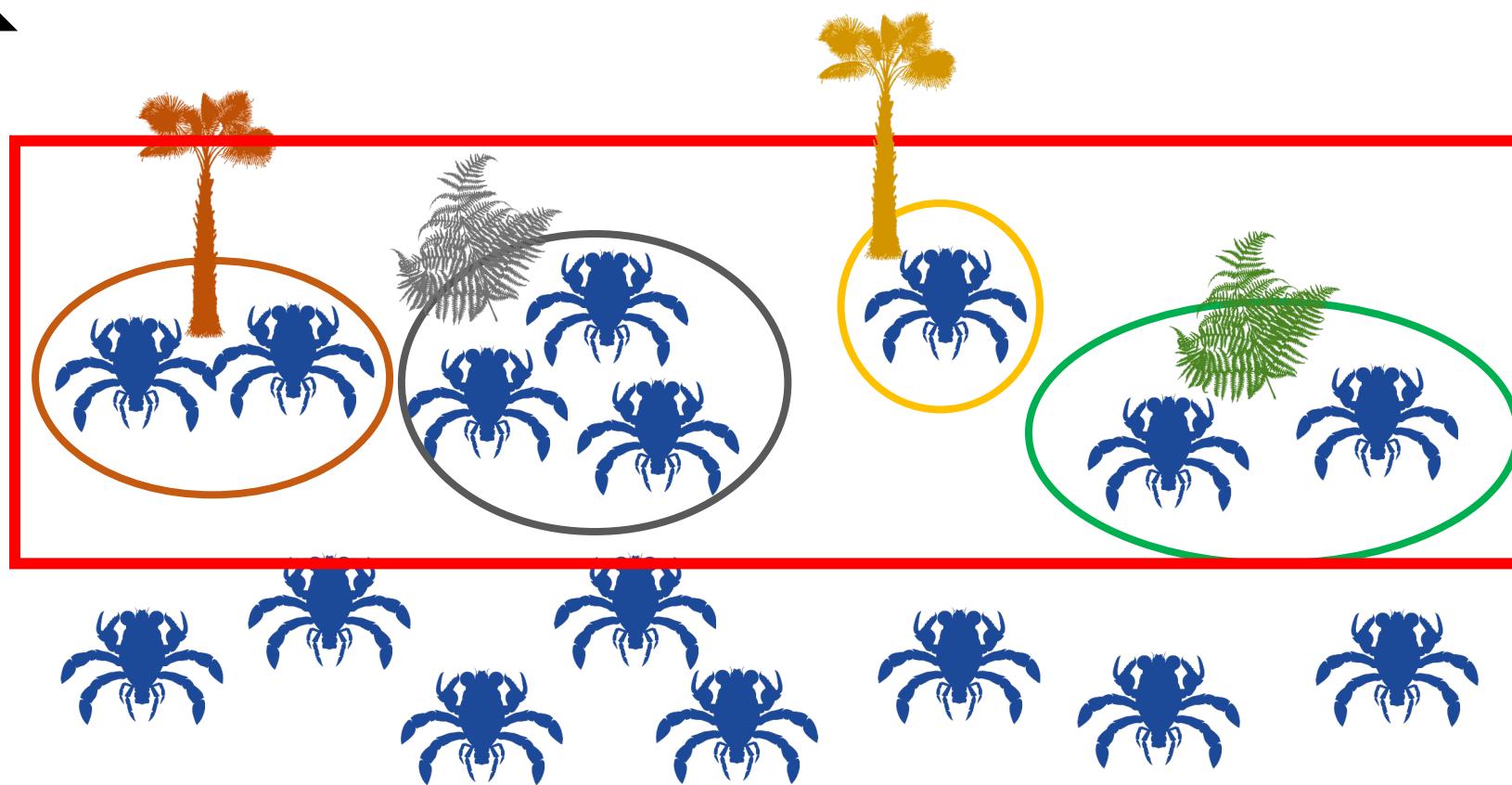
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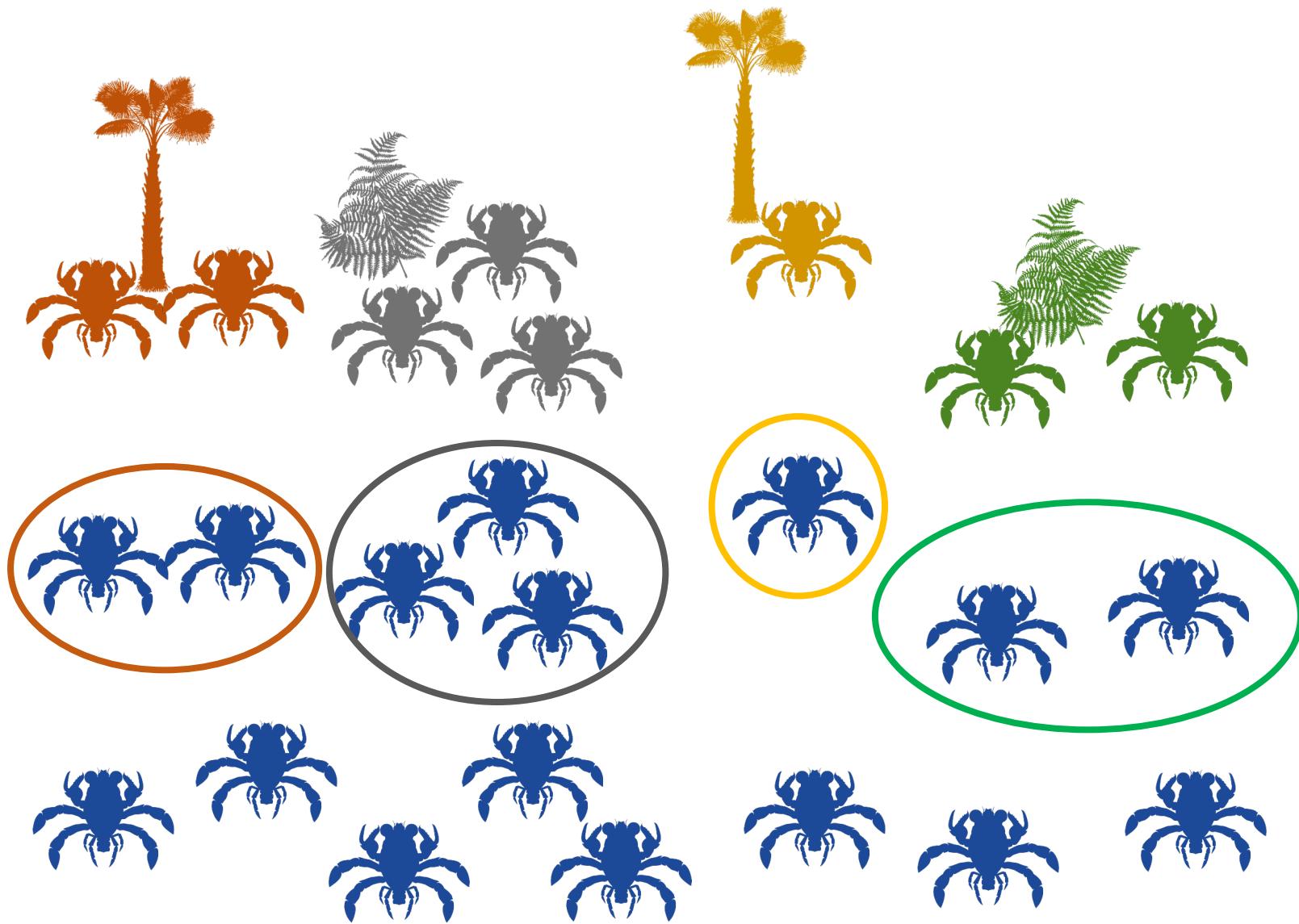
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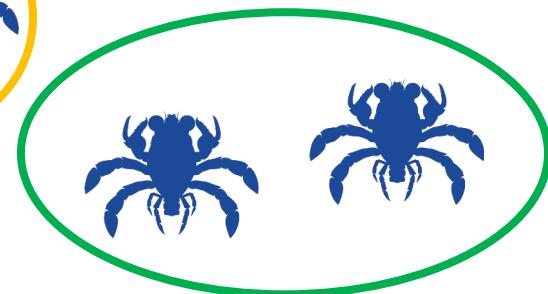
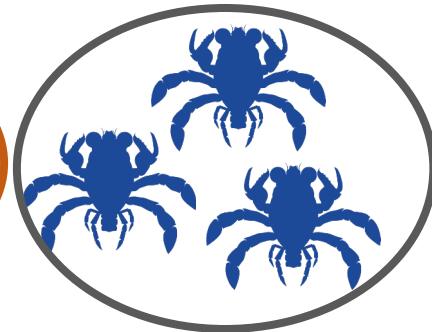
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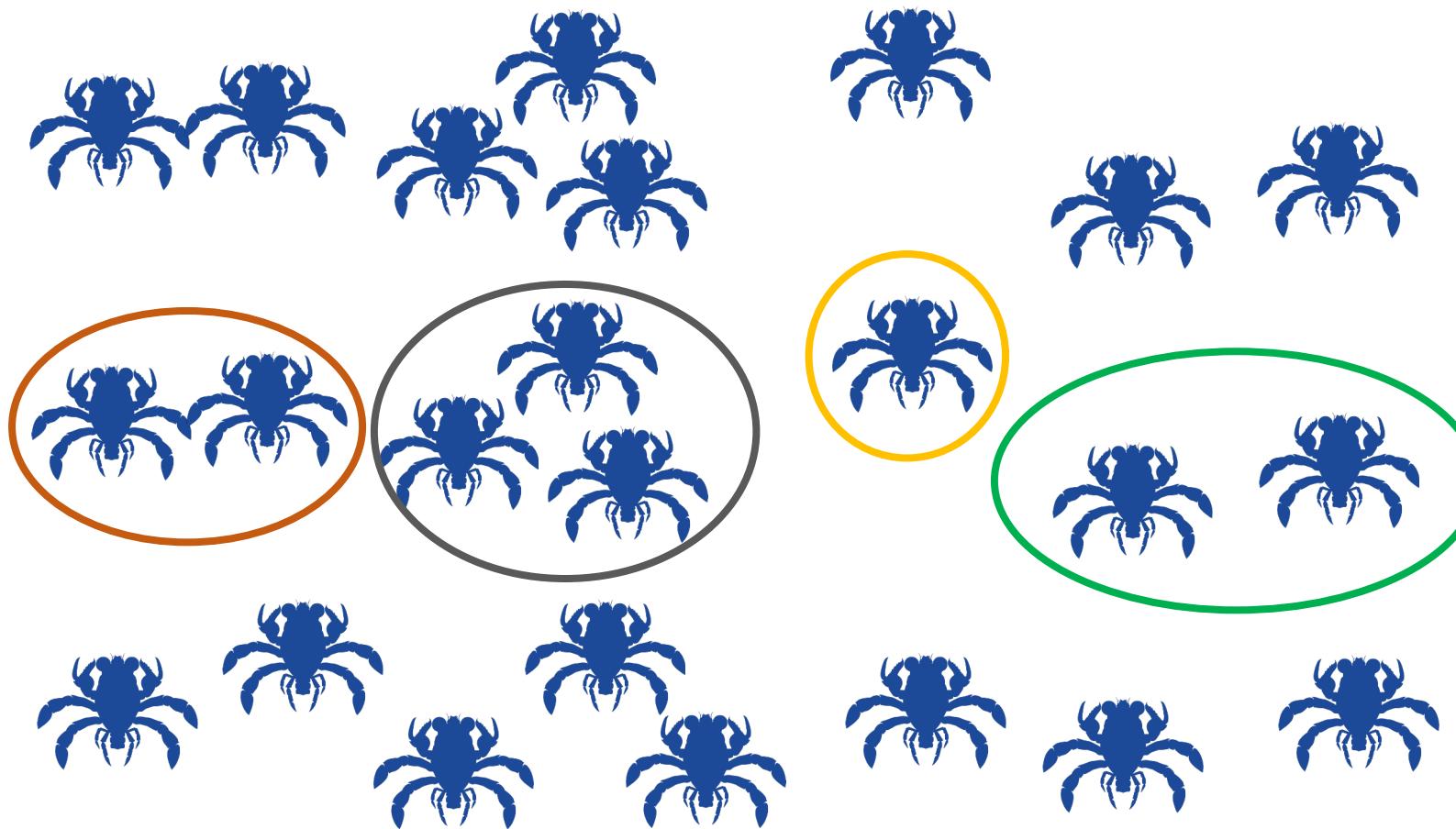
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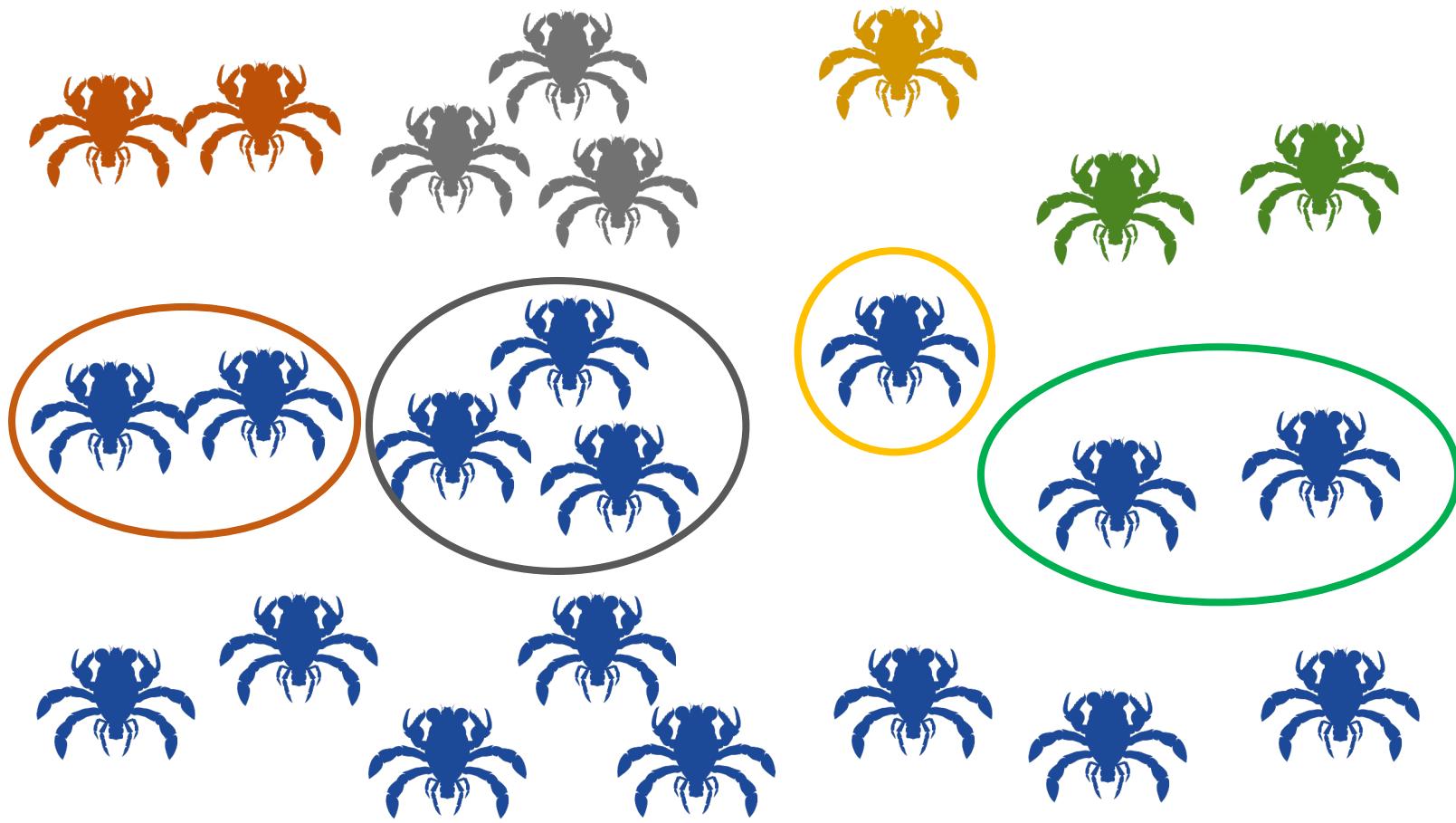
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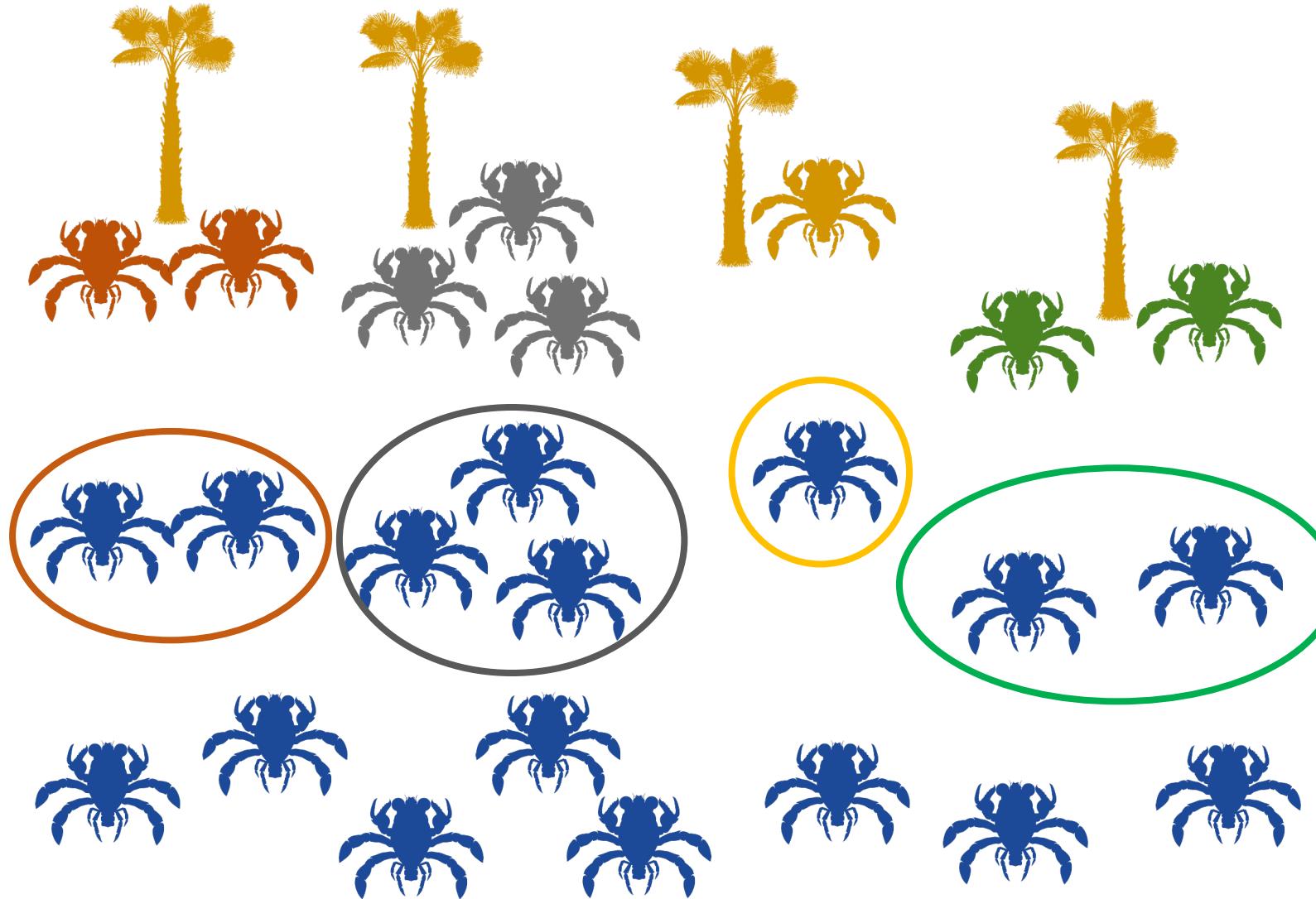
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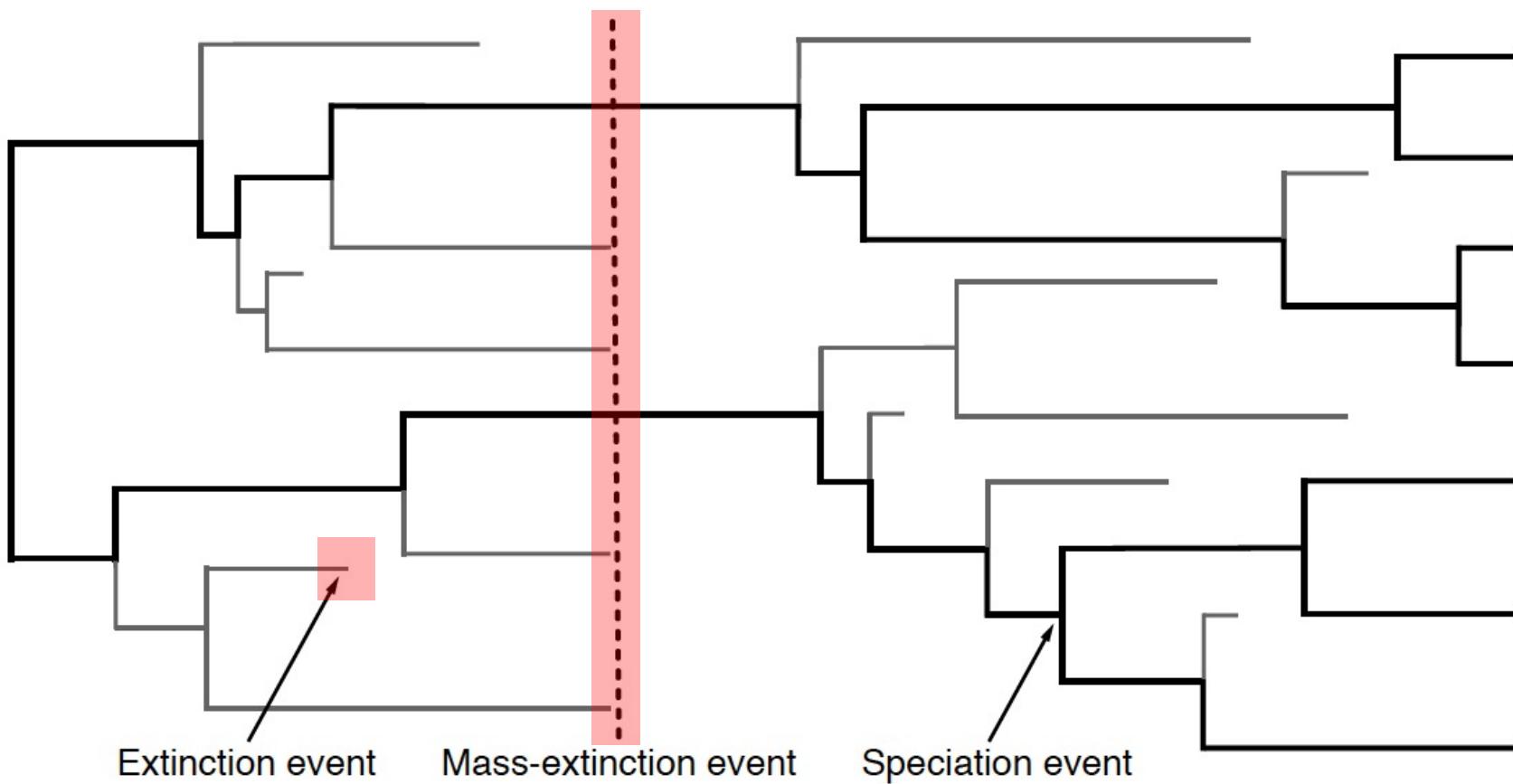
Tiempo



Tiempo







Höhna et al., 2016; *Systematic Biology*

Tempo

Mode

Equilibrio Puntuado

Extinción Masiva

Vicarianza

Simpatría

Gradualismo

Novedad evolutiva

Tempo

Equilibrio Puntuado

Gradualismo

Mode

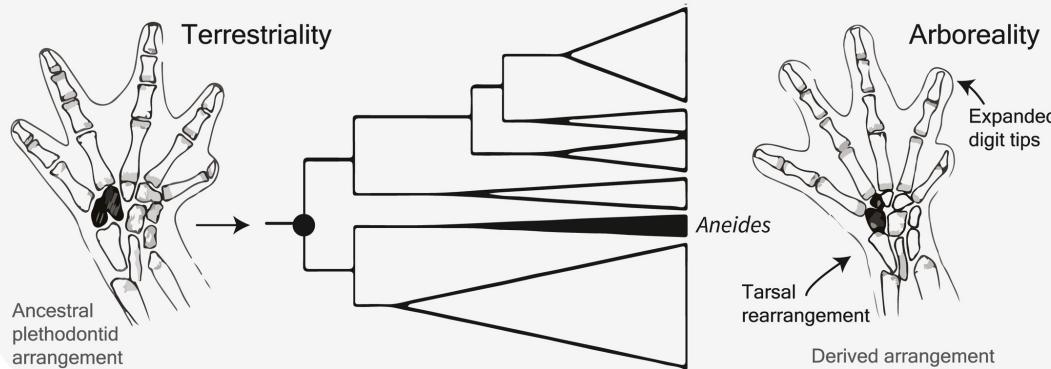
Extinción Masiva

Simpatría

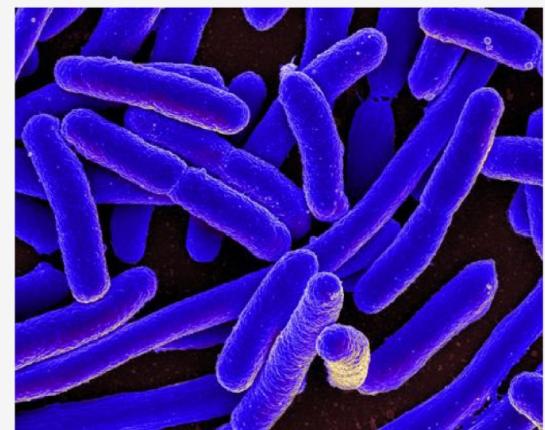
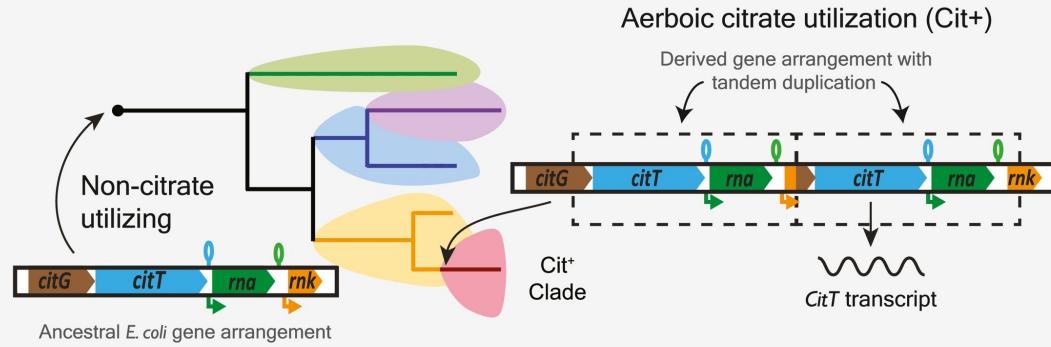
Novedad evolutiva

Vicarianza

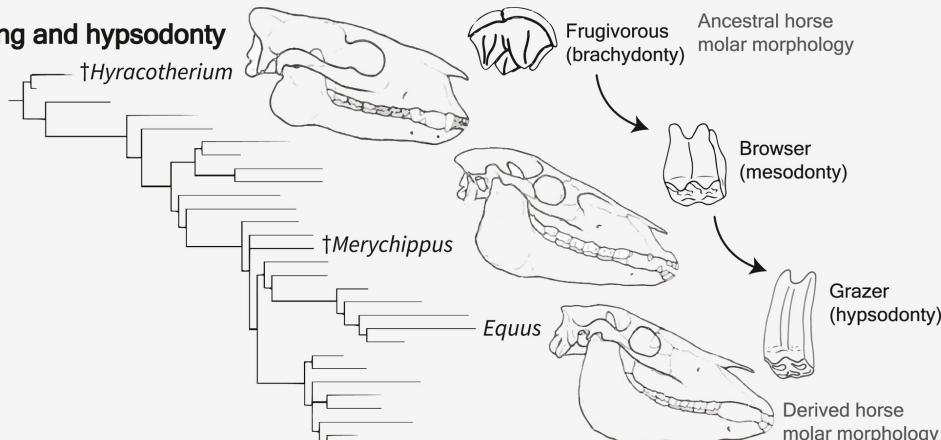
(A) Arboreality and digit modification



(B) Citrate utilization and promoter capture

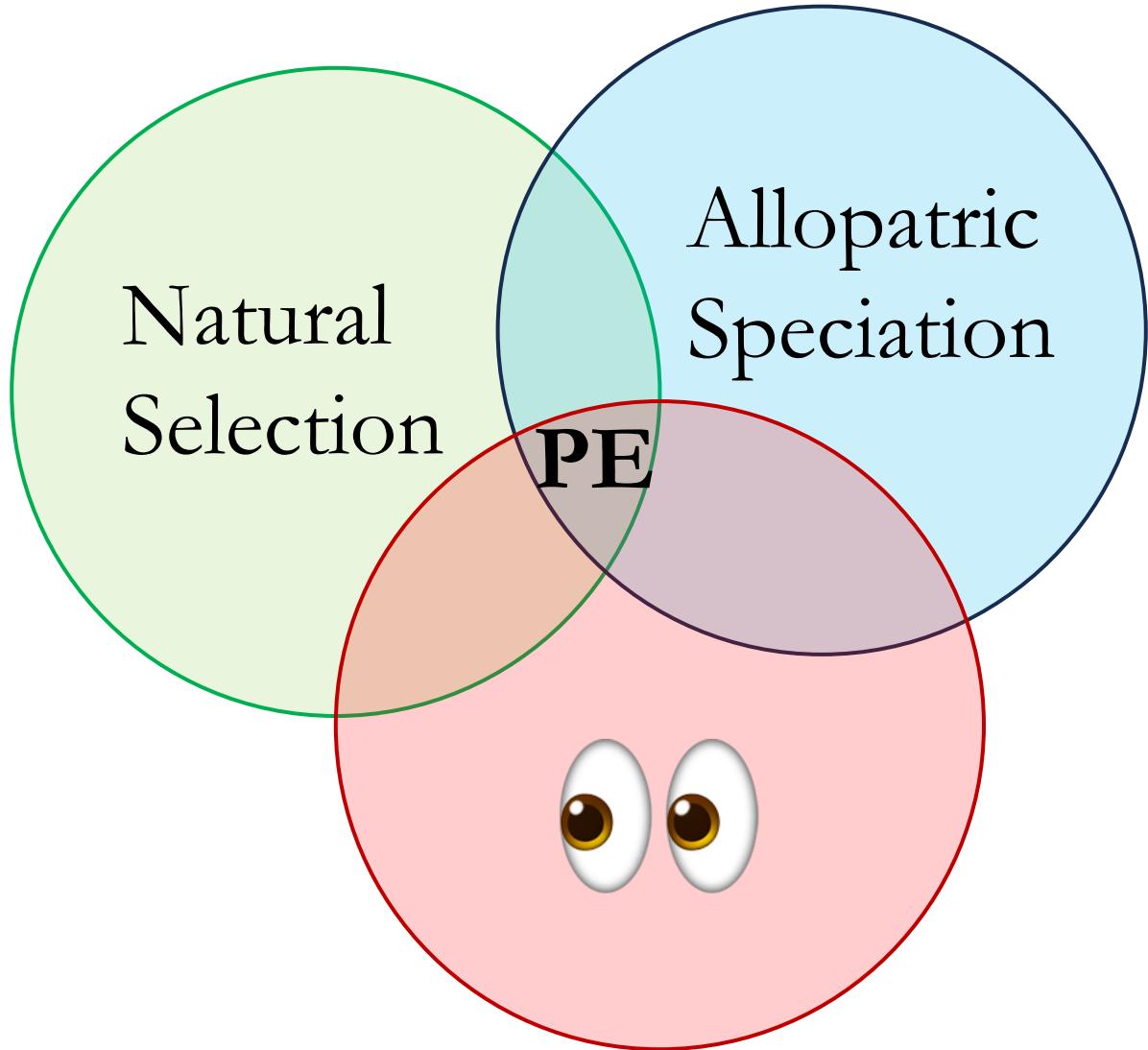


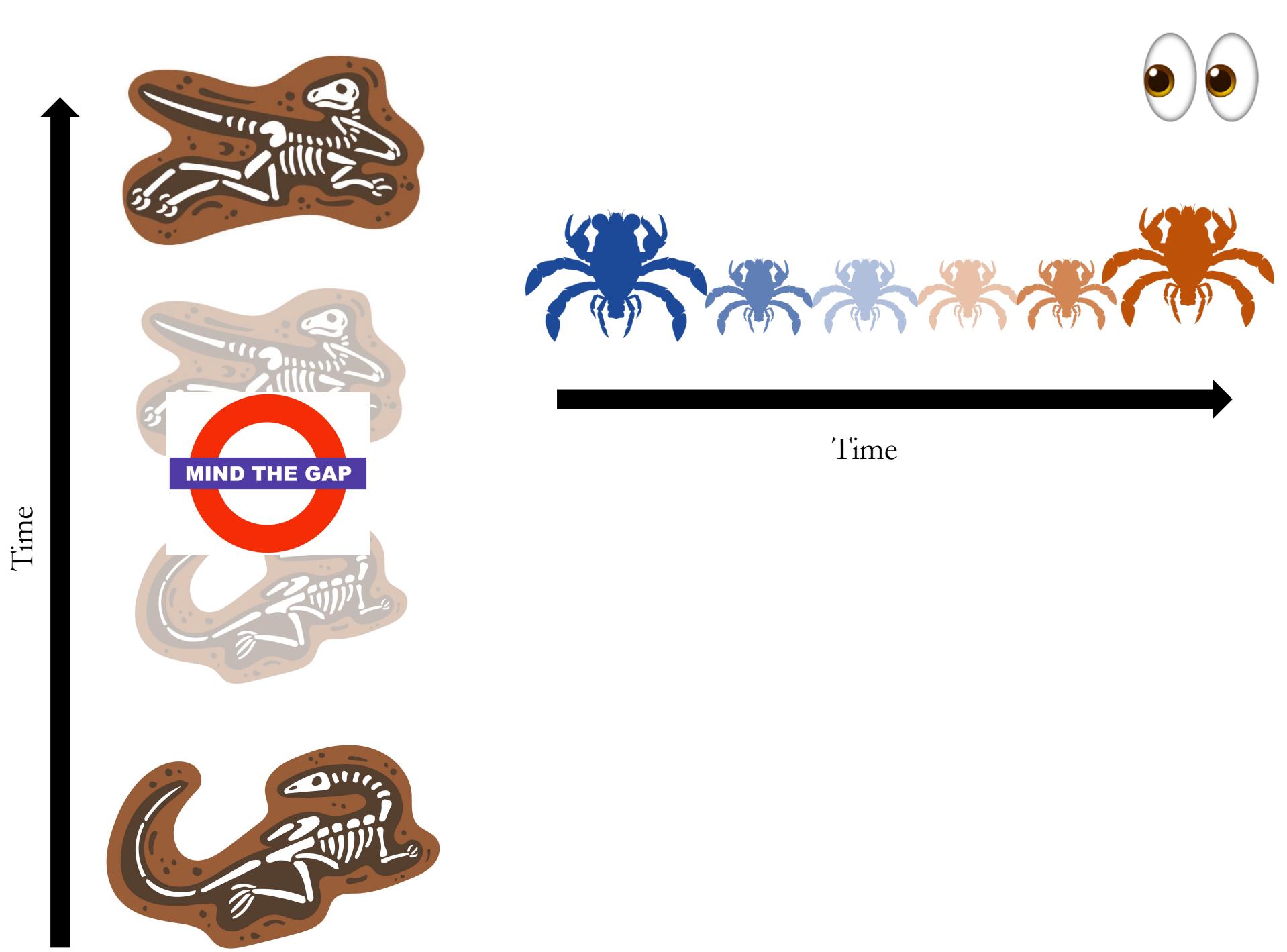
(C) Grazing and hypsodonty

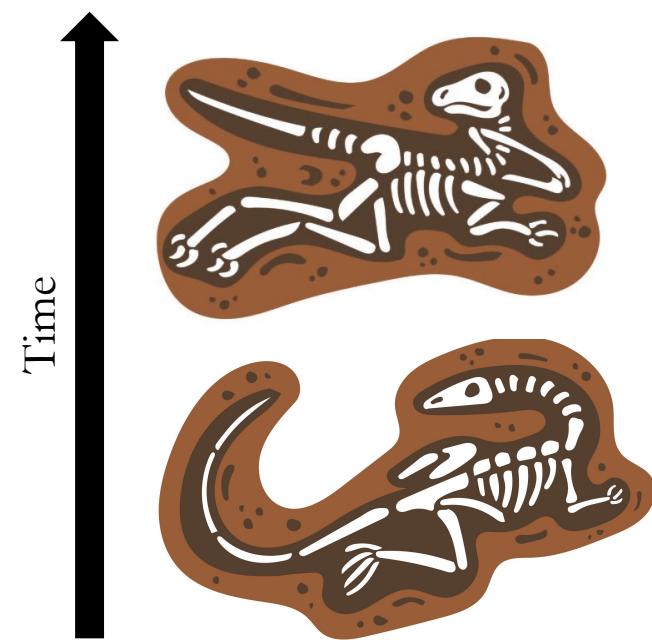
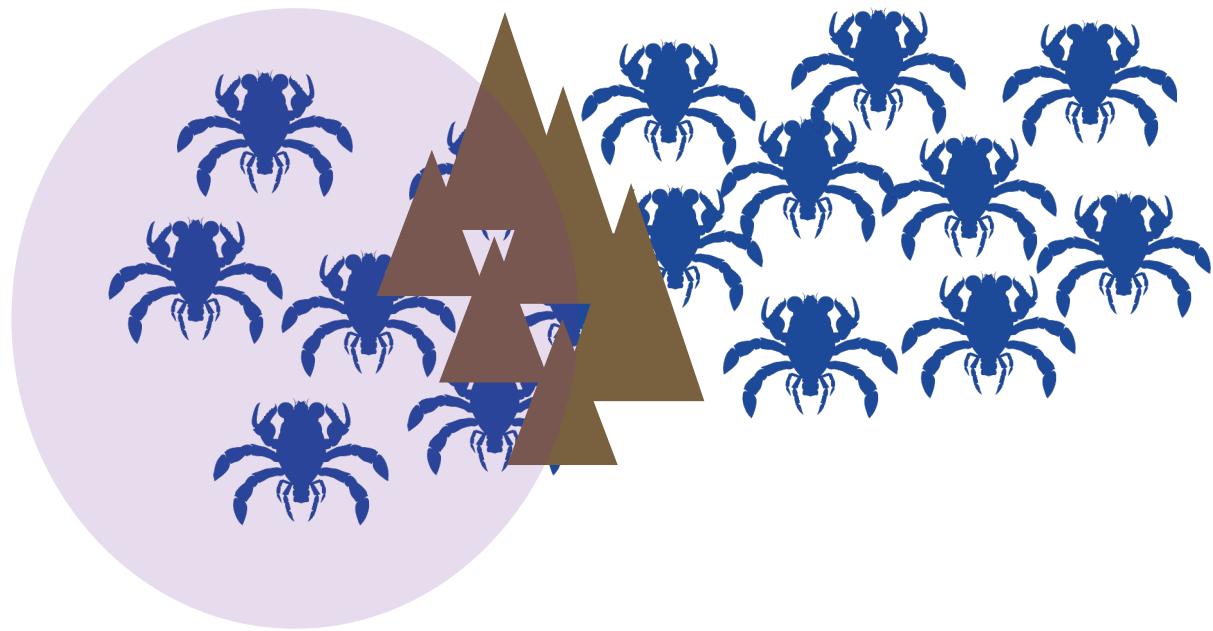


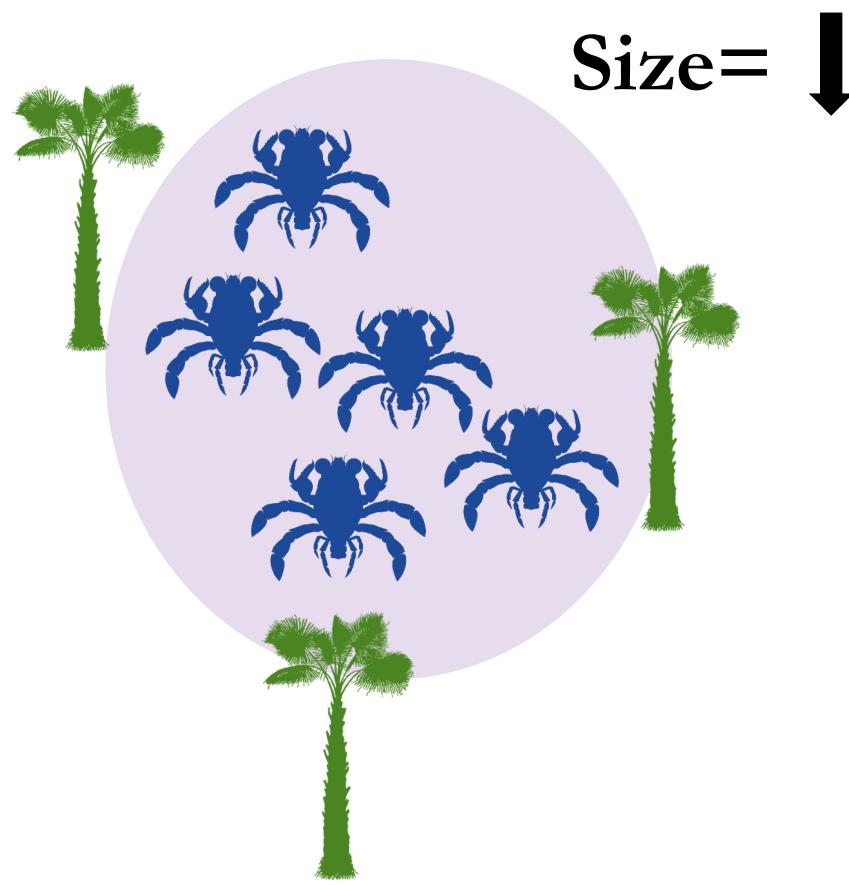
Punctuated Equilibria (PE)

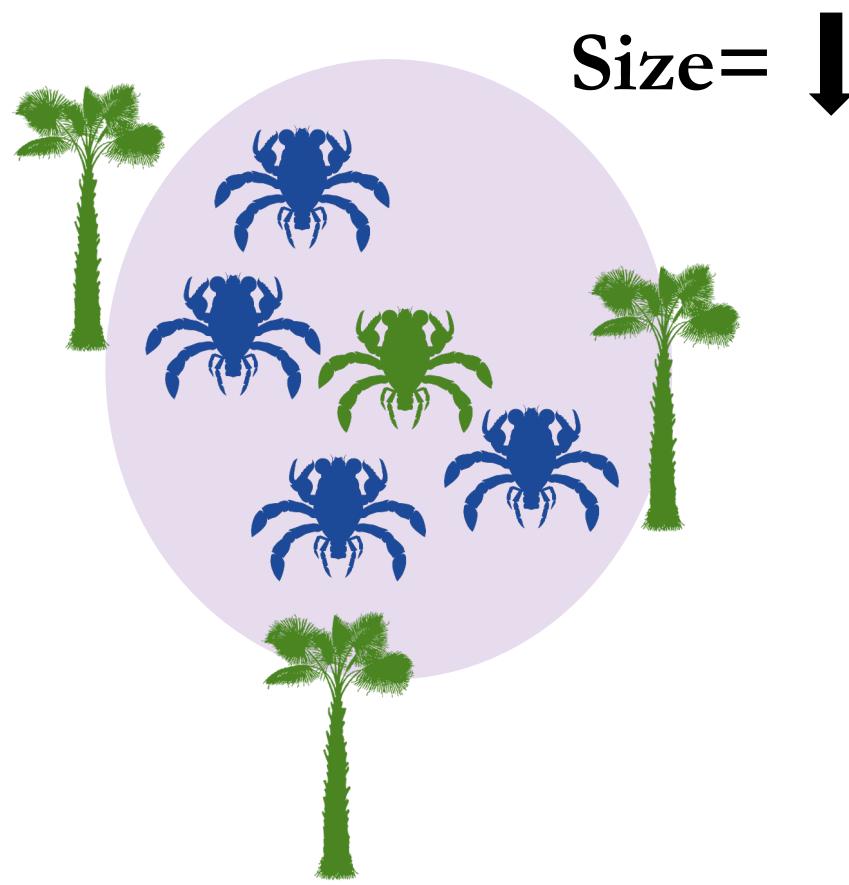
1970s by Eldredge
and Gould

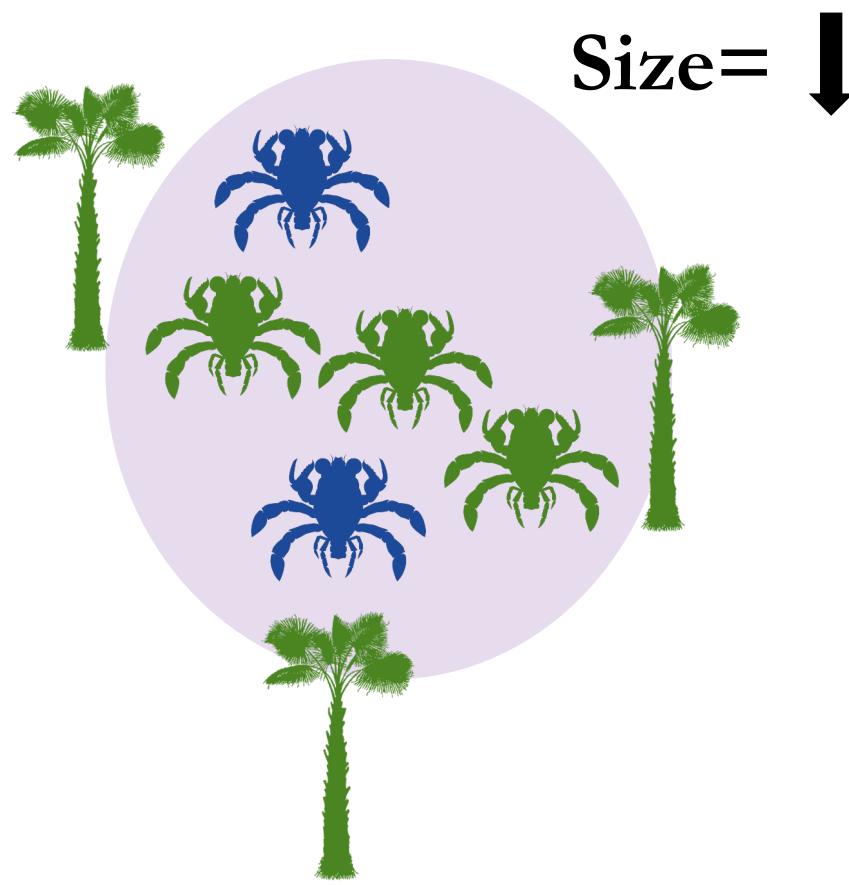


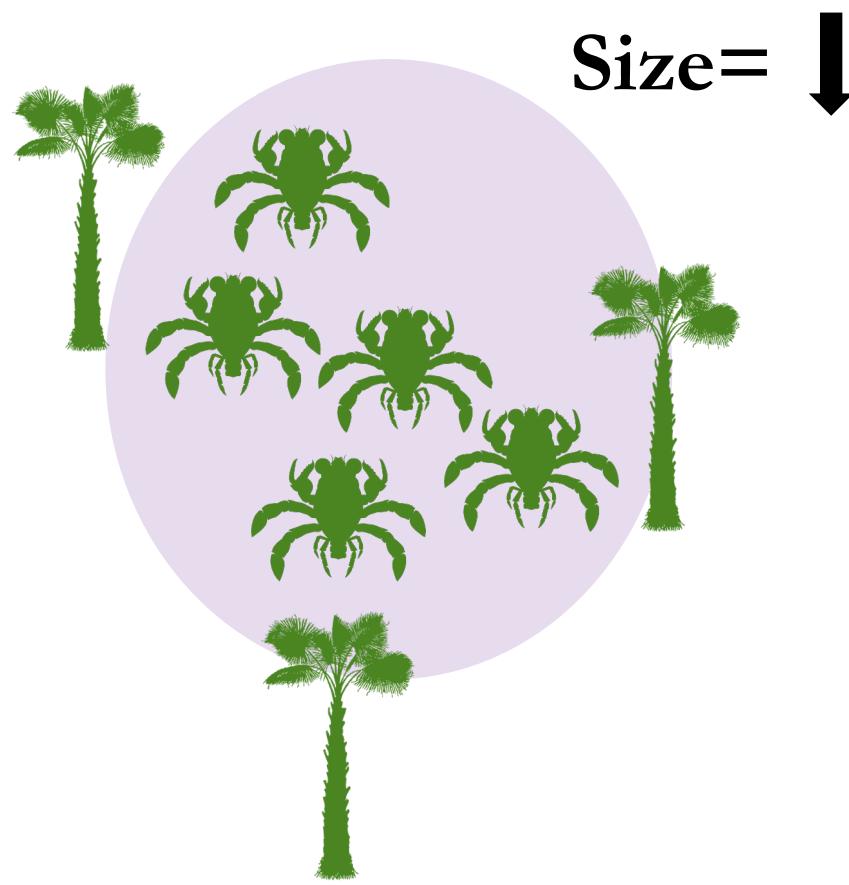










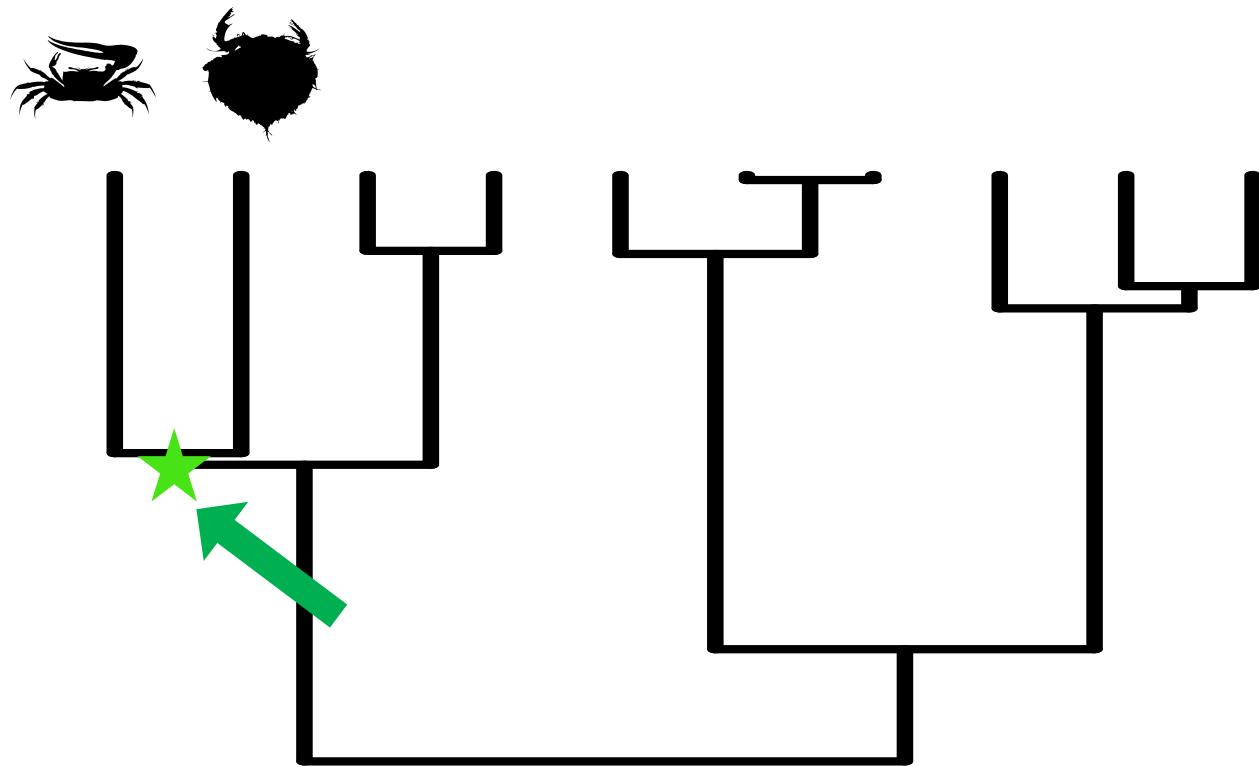


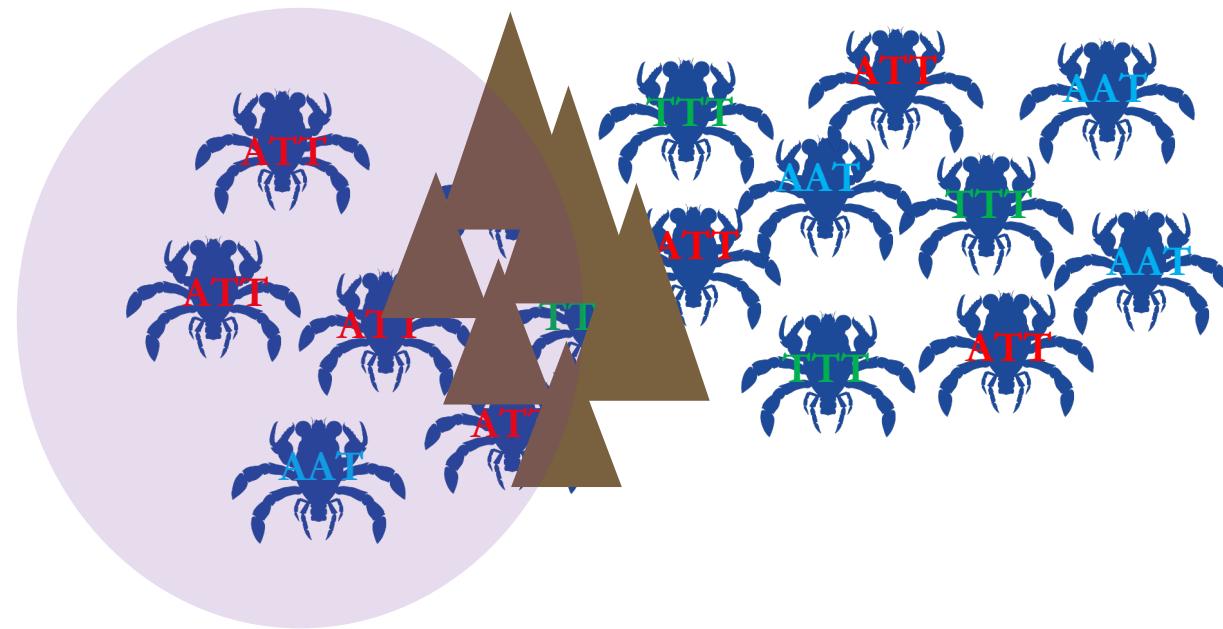
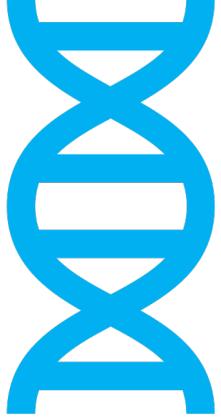
Punctuated Equilibrium

1970s by Eldredge
and Gould

The predominant pattern of evolution

throughout deep time is that of stasis ‘punctuated’ by brief intervals of rapid evolution, which often occurred during speciation events





Punctuated Equilibrium

Review

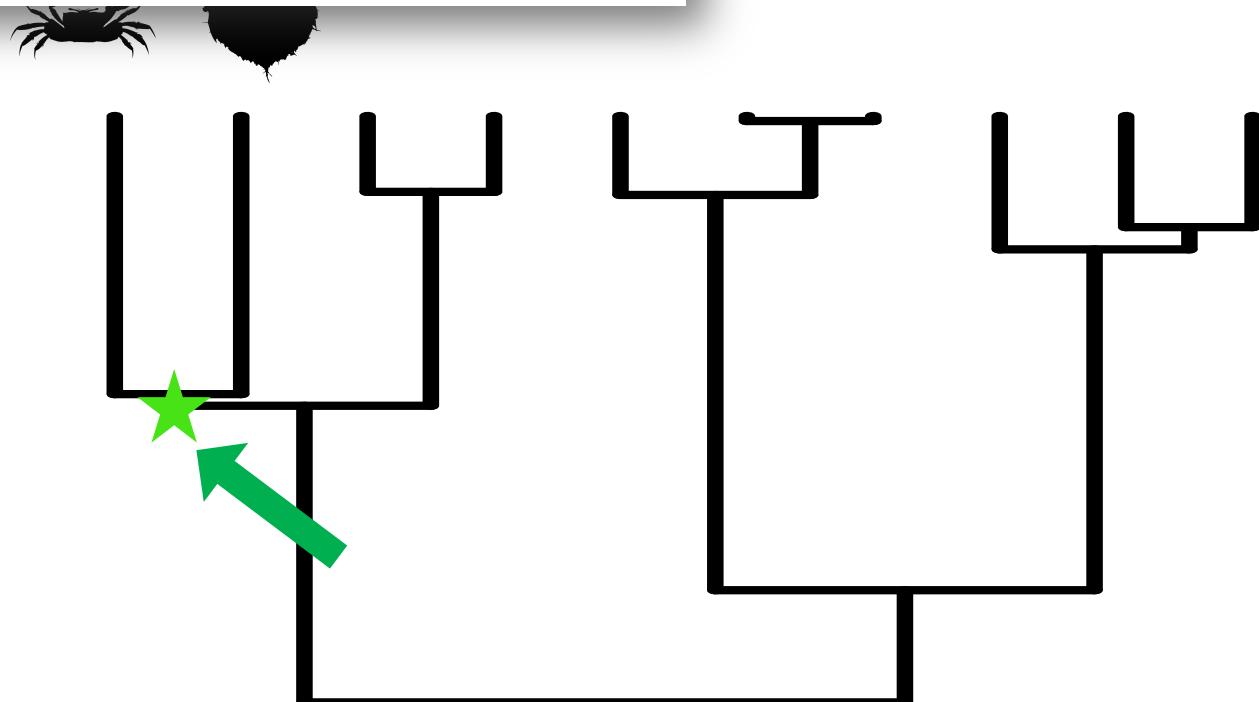
Cell
PRESS

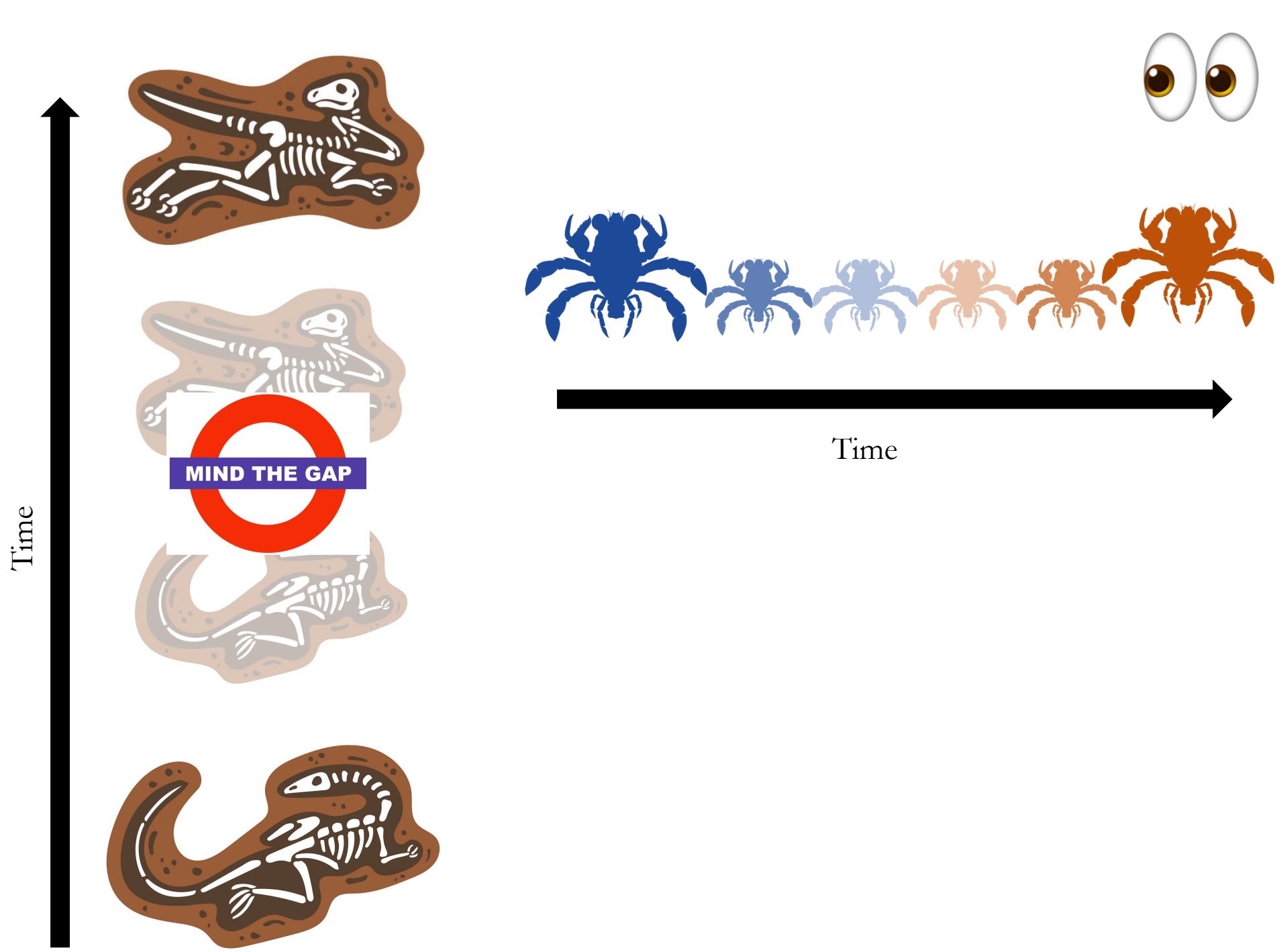
Feature Review

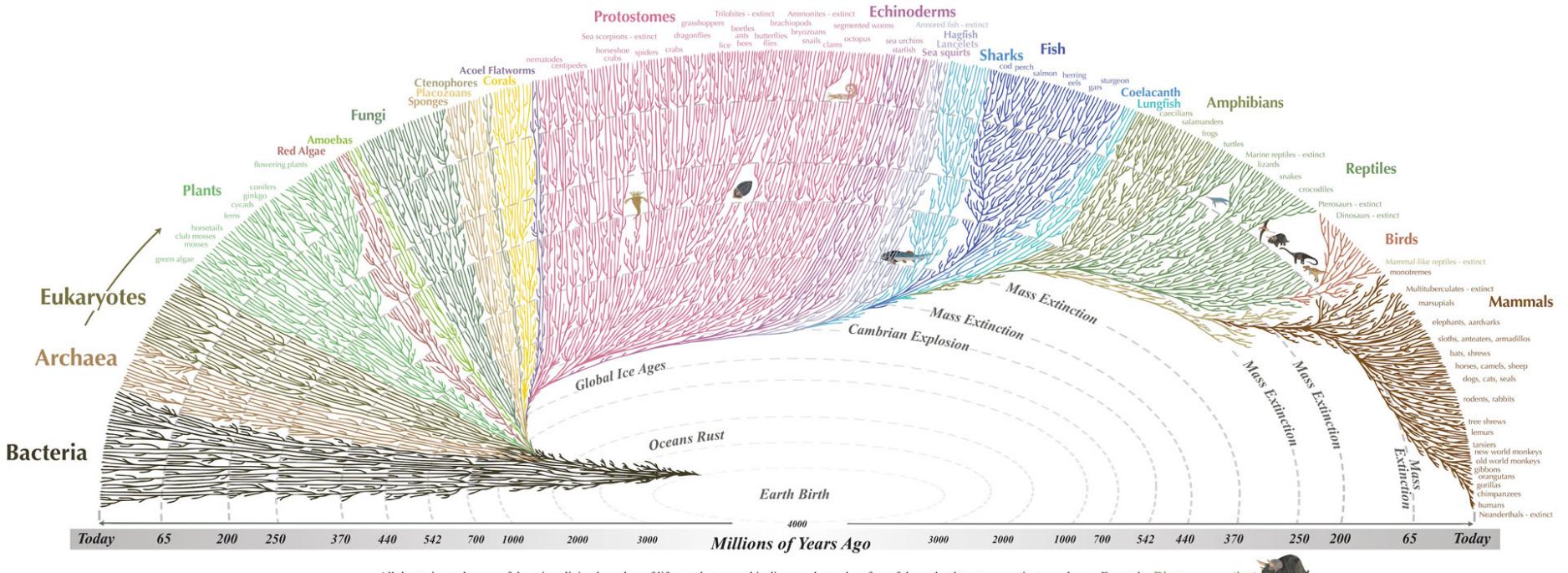
Is there room for punctuated equilibrium in macroevolution?

Matthew W. Pennell, Luke J. Harmon, and Josef C. Uyeda

Department of Biological Sciences and Institute for Bioinformatics and Evolutionary Studies, University of Idaho, Moscow,
ID 83844, USA



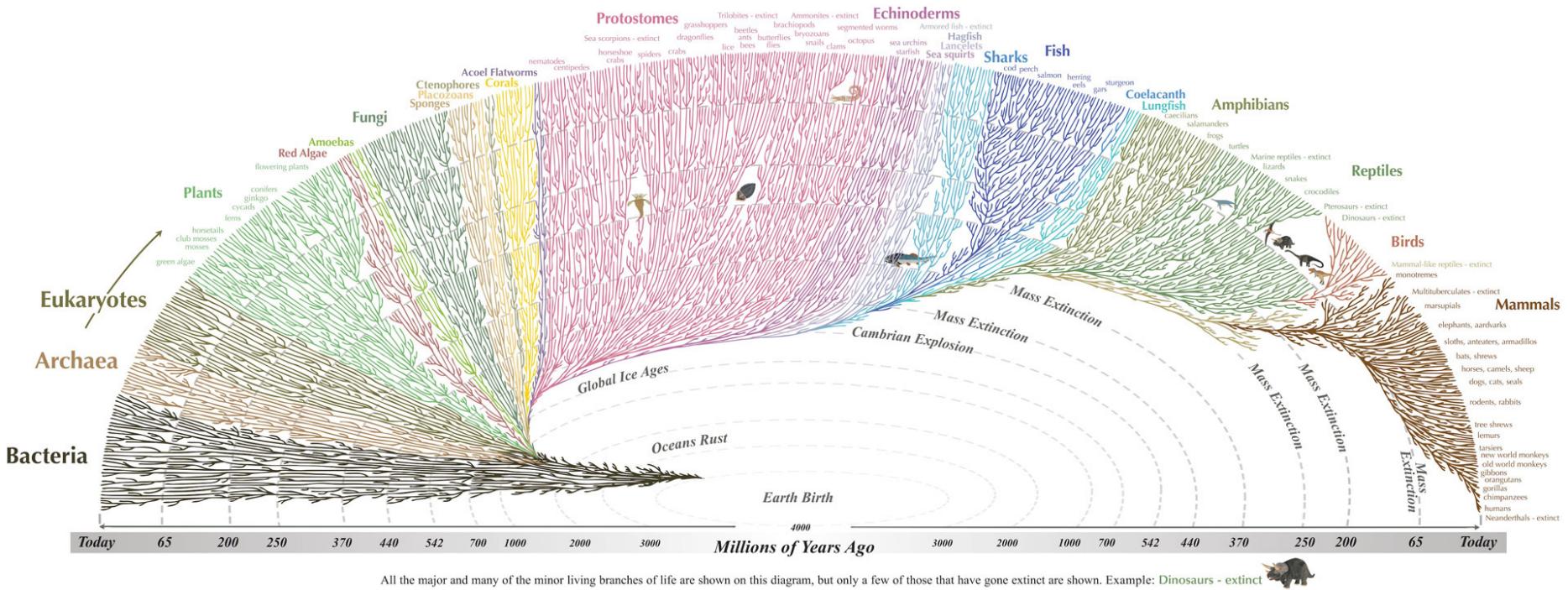




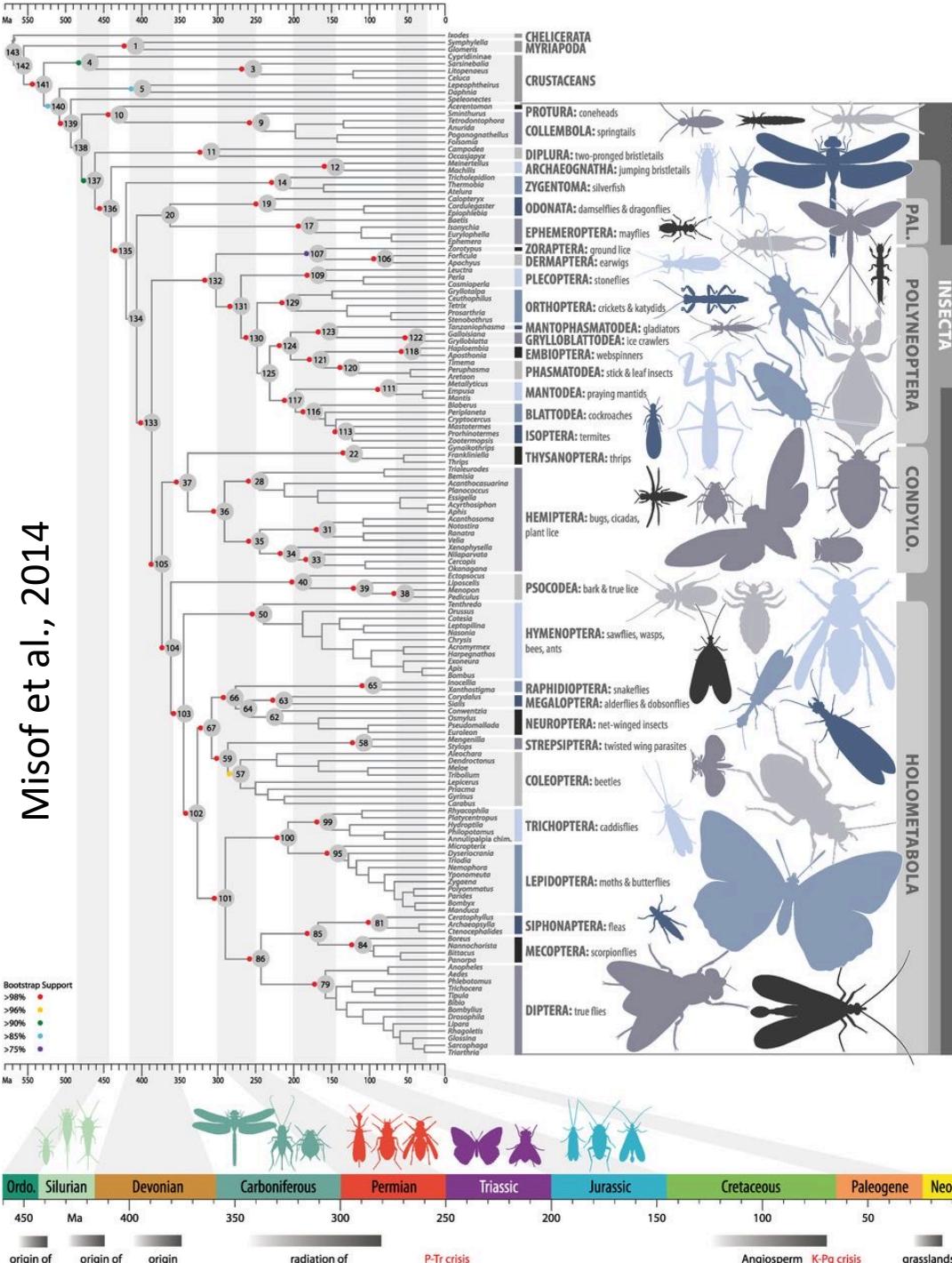
All the major and many of the minor living branches of life are shown on this diagram, but only a few of those that have gone extinct are shown. Example: Dinosaurs - extinct

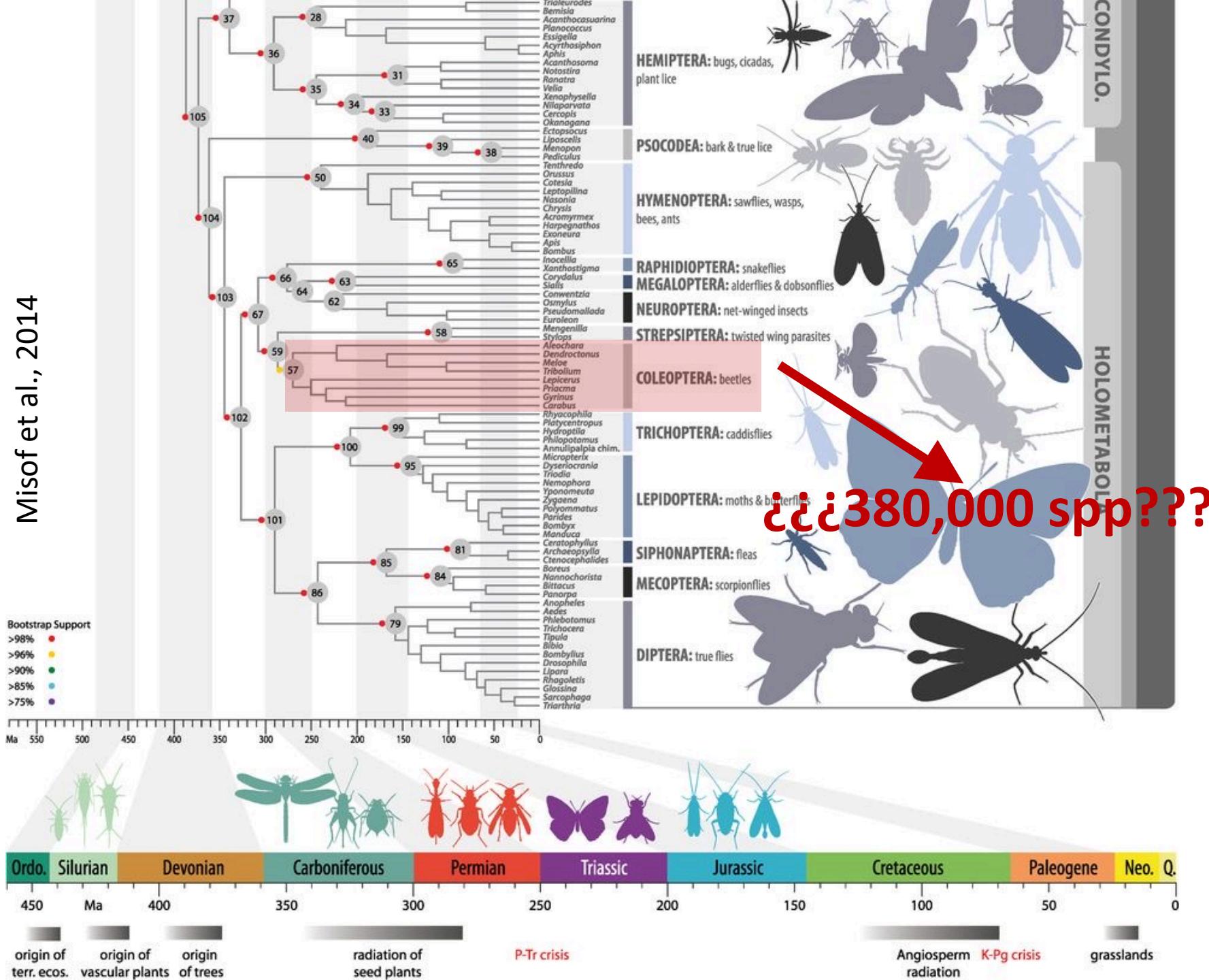


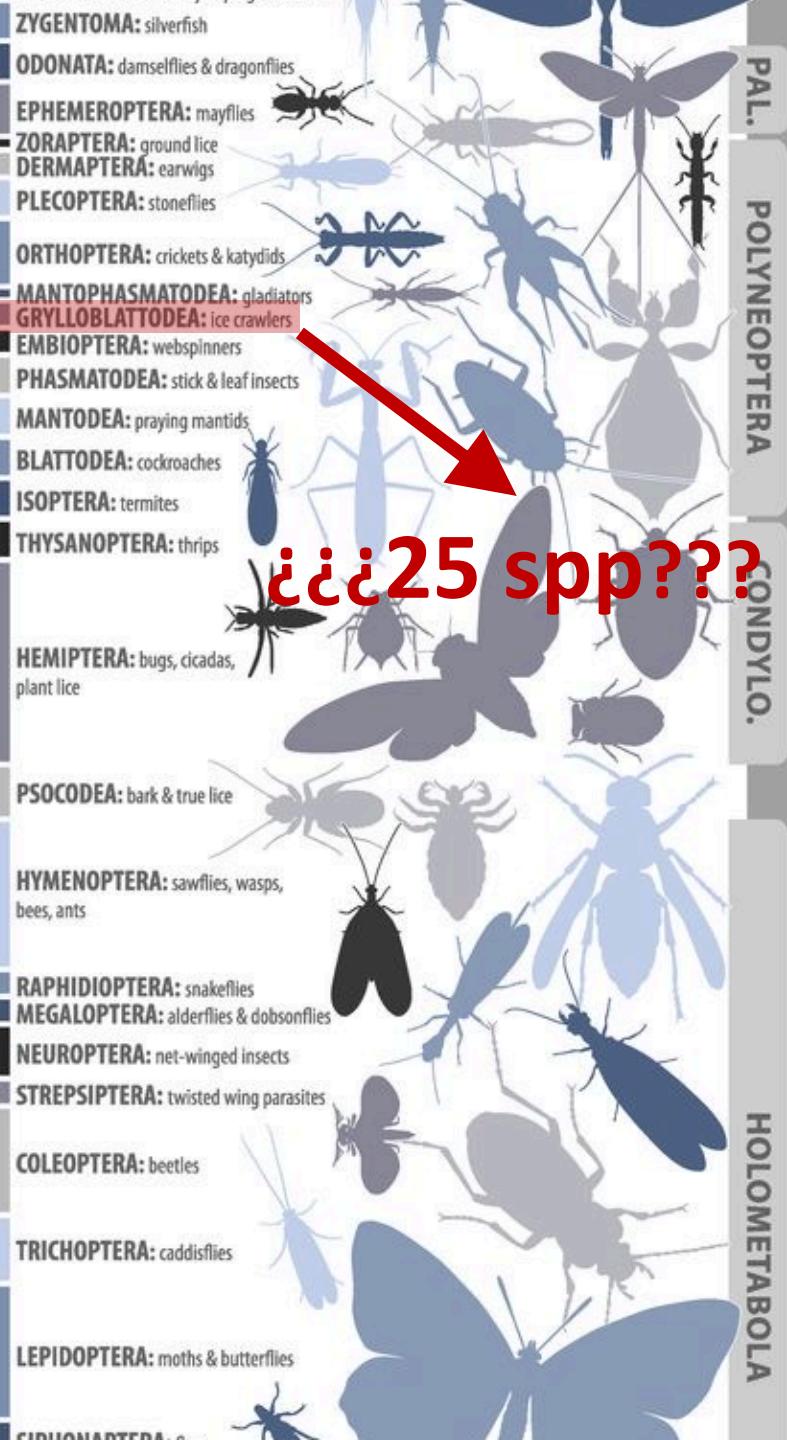
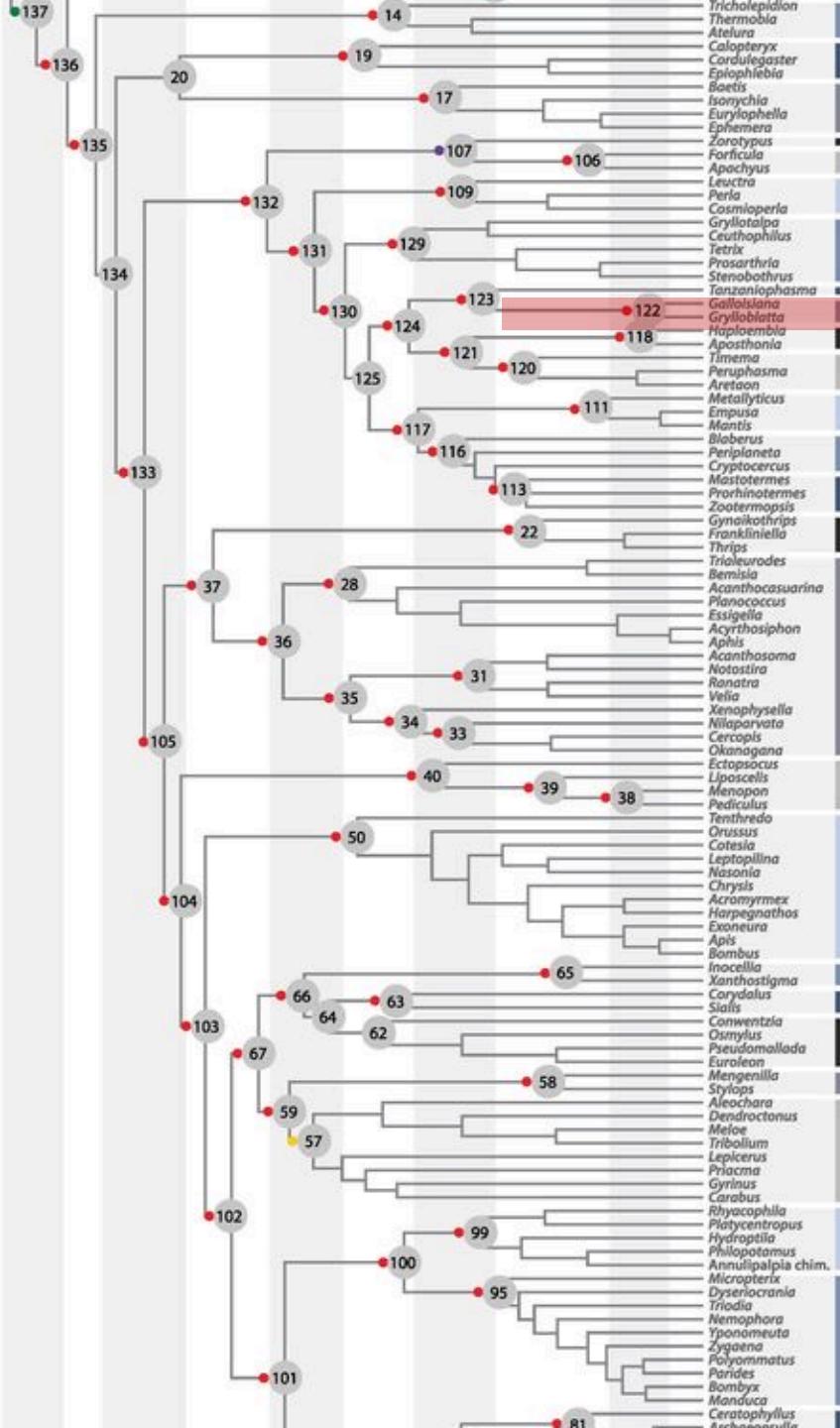
La diversidad actual no es producto de un único mecanismo evolutivo, ni es gradual ni silenciosa (Gould, 1989; Foote, 1997)

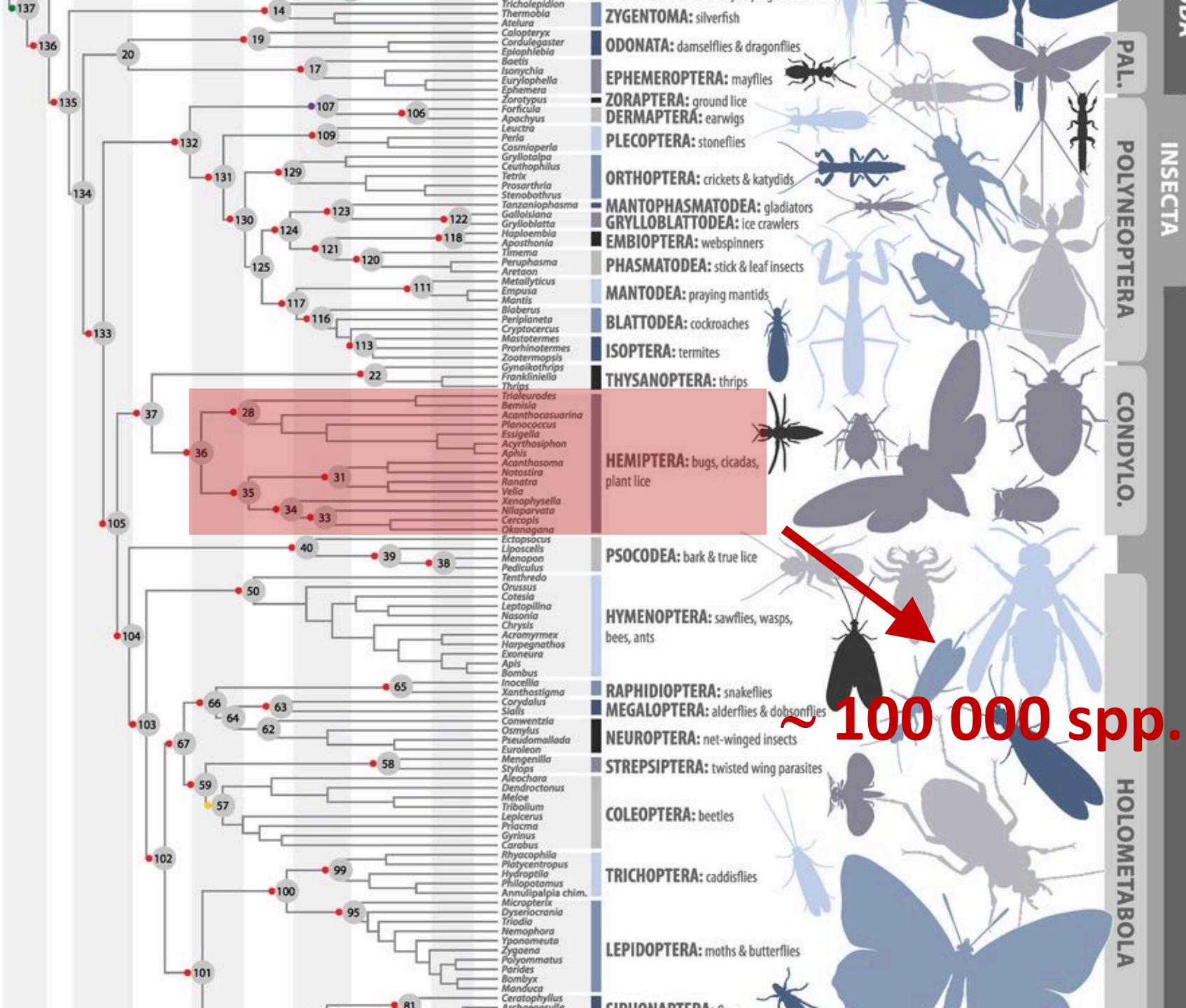


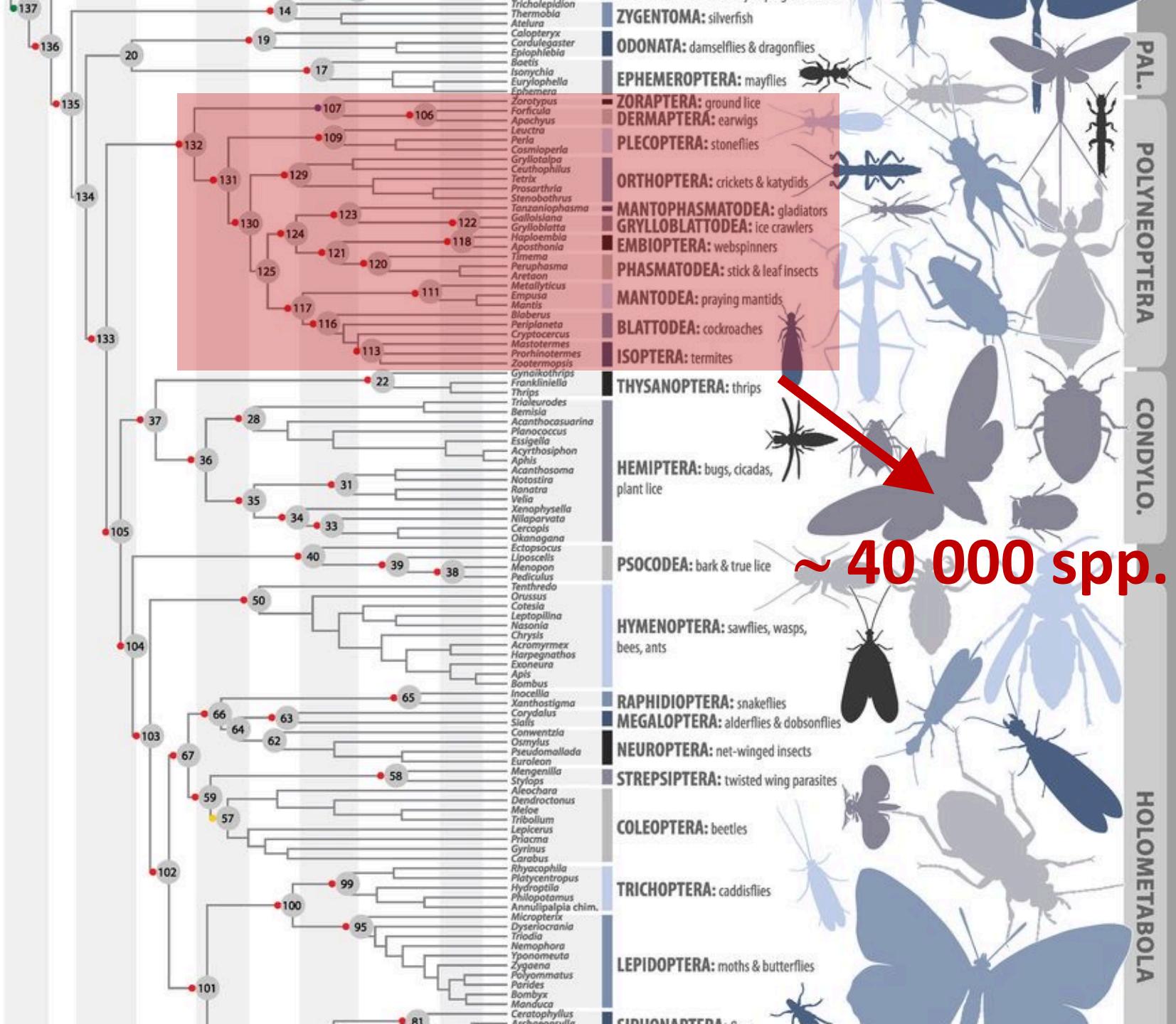
Misof et al., 2014

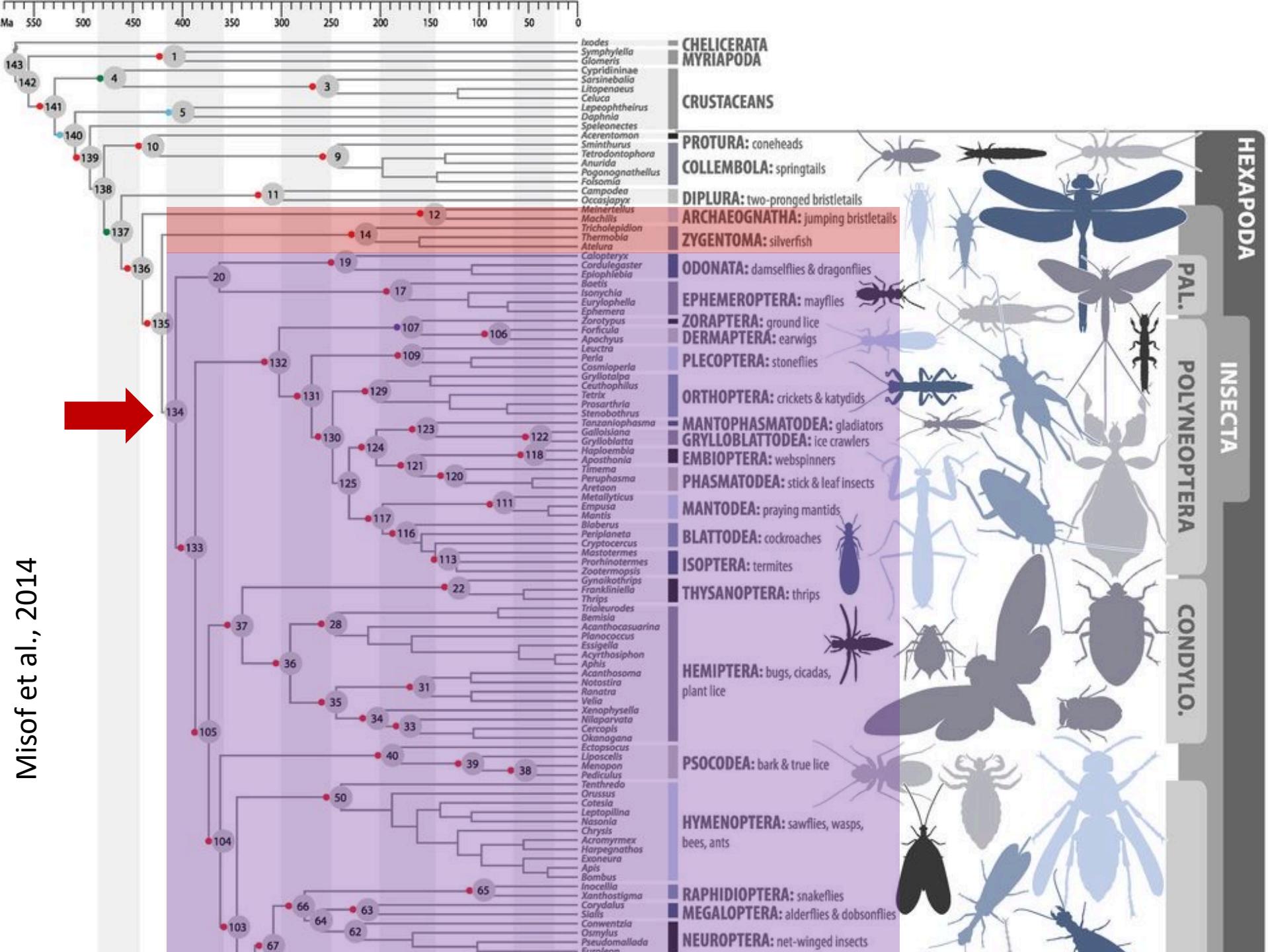


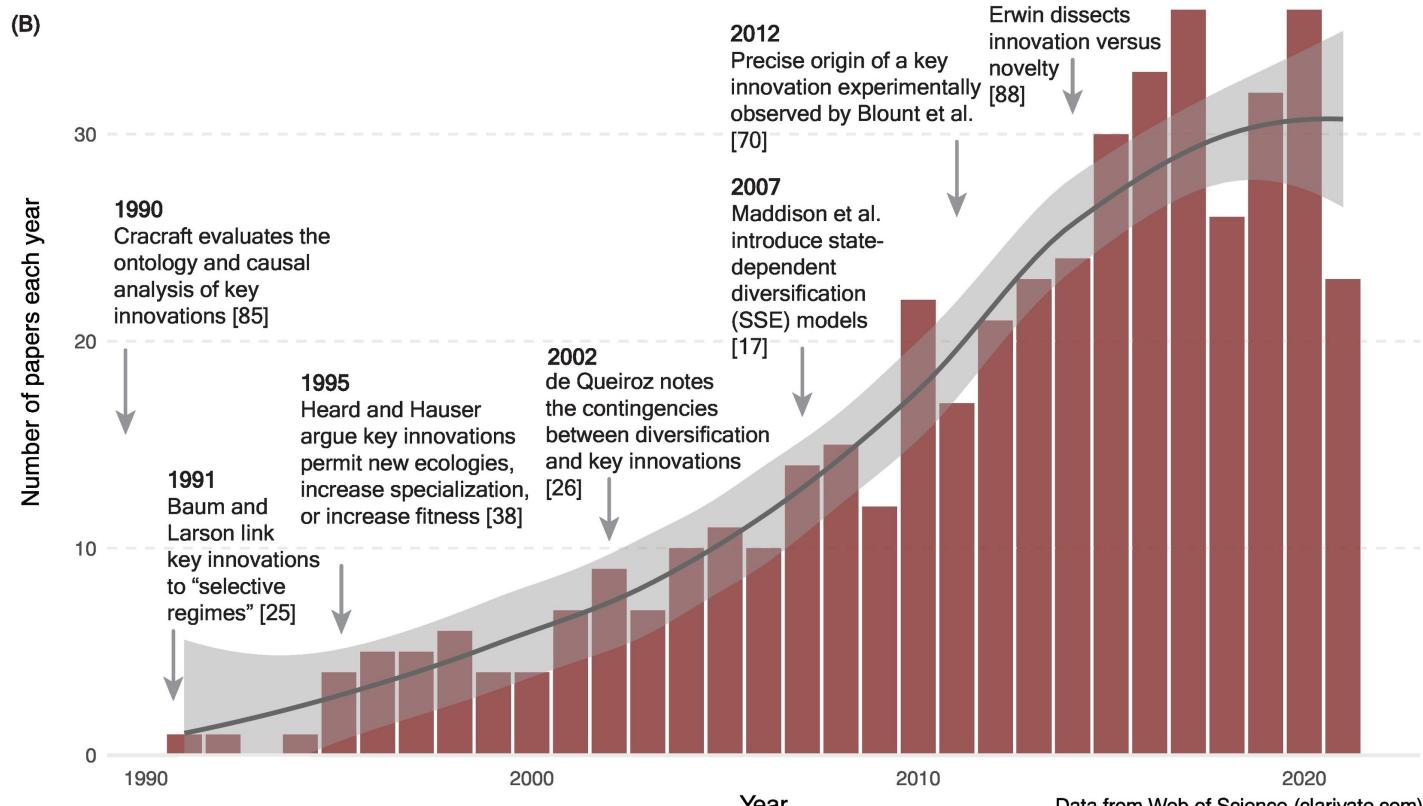
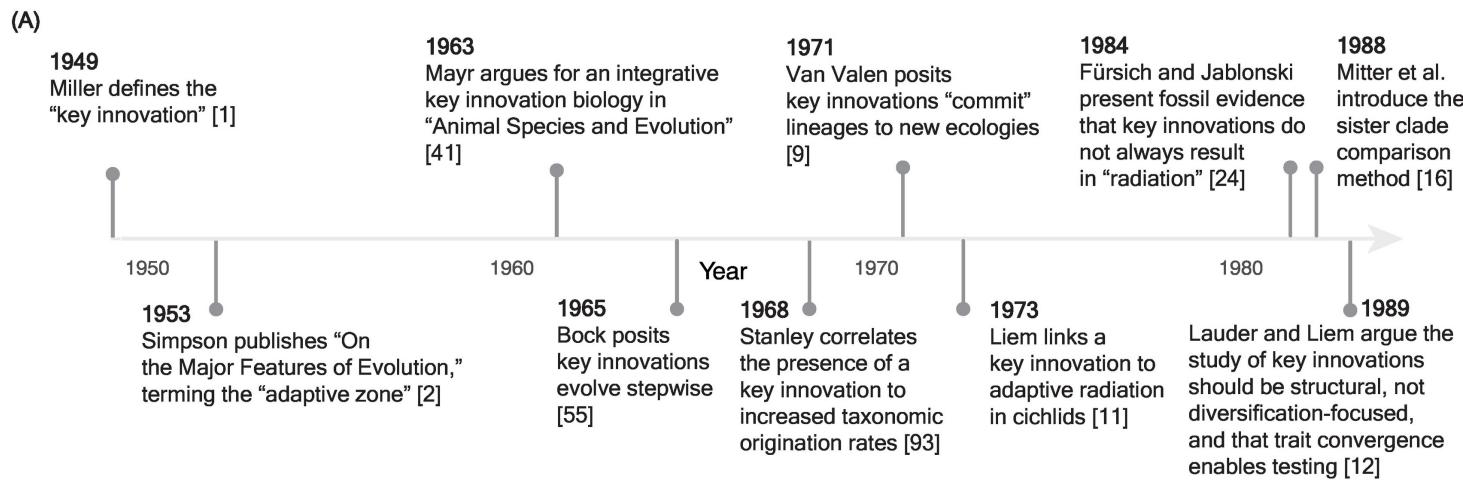


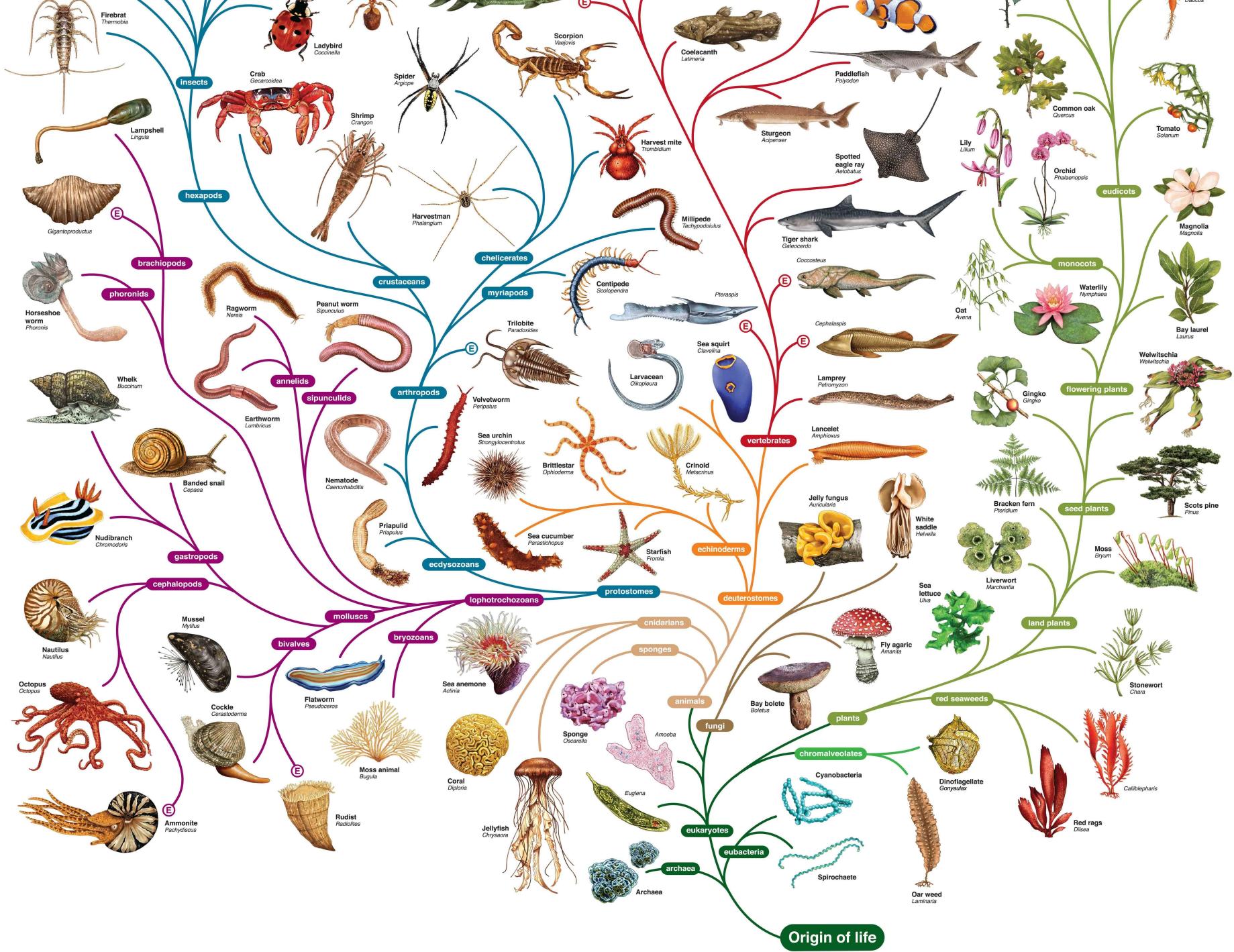


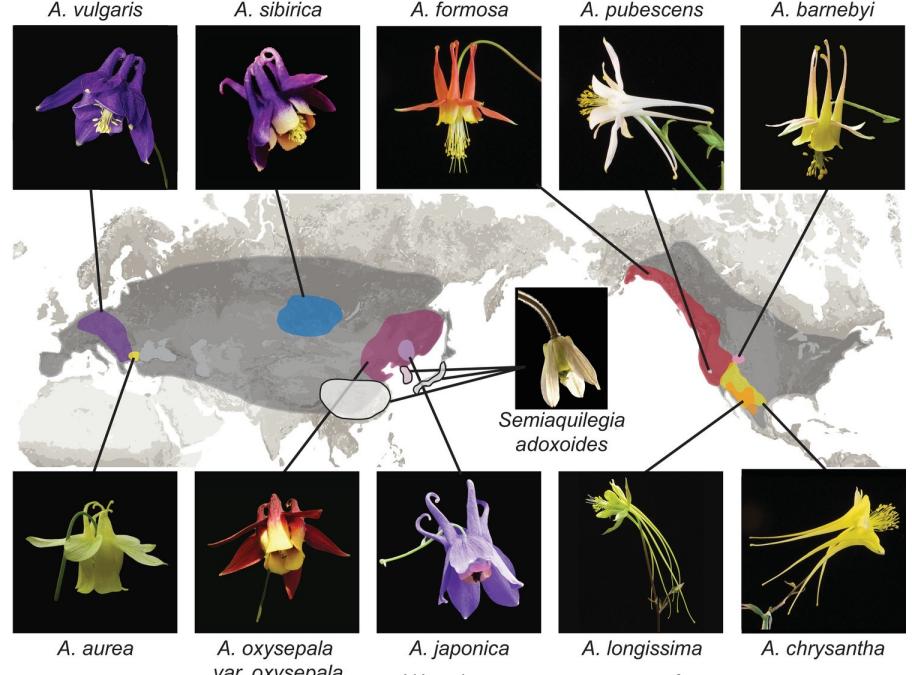
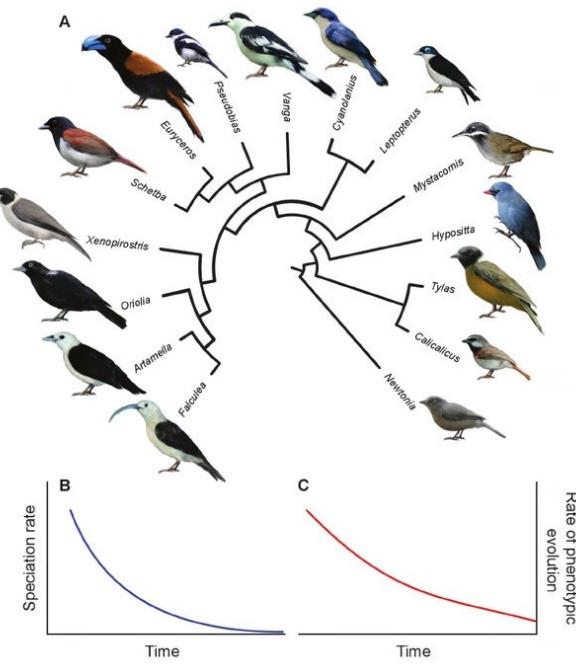




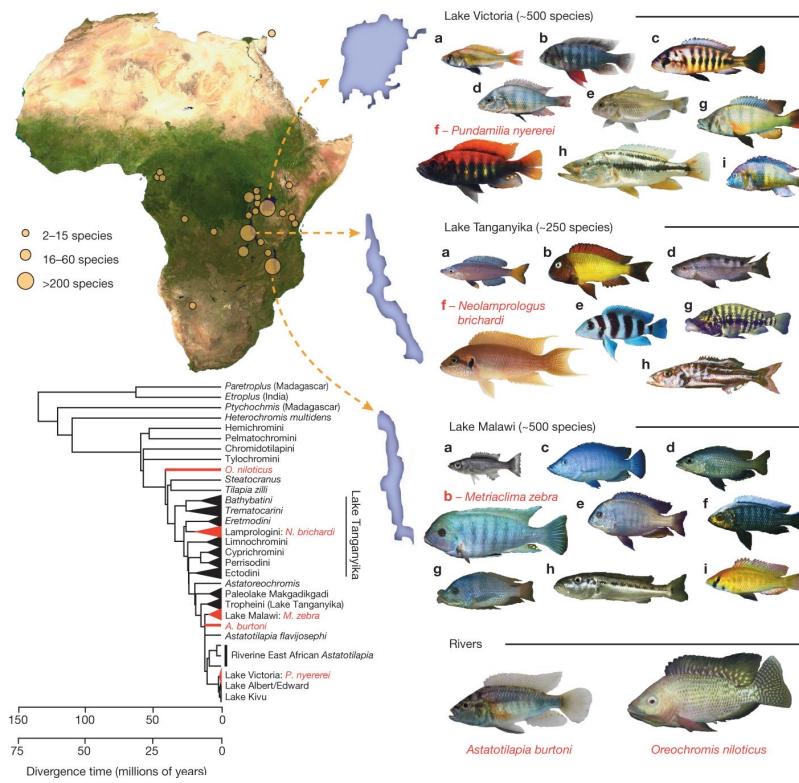




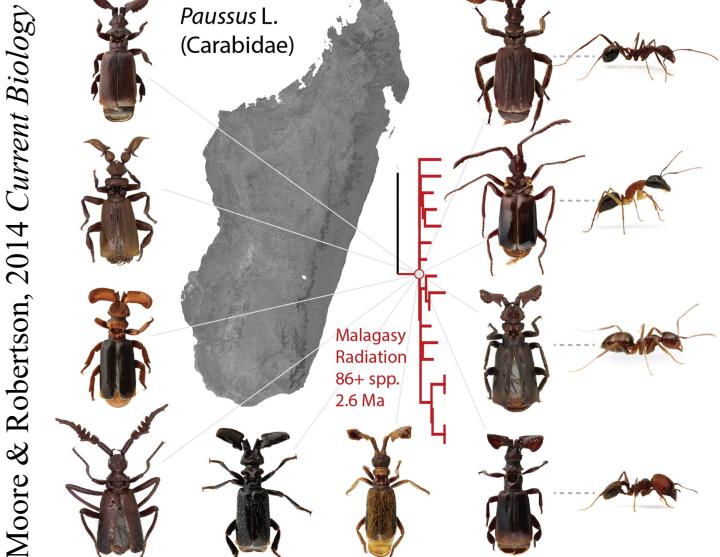


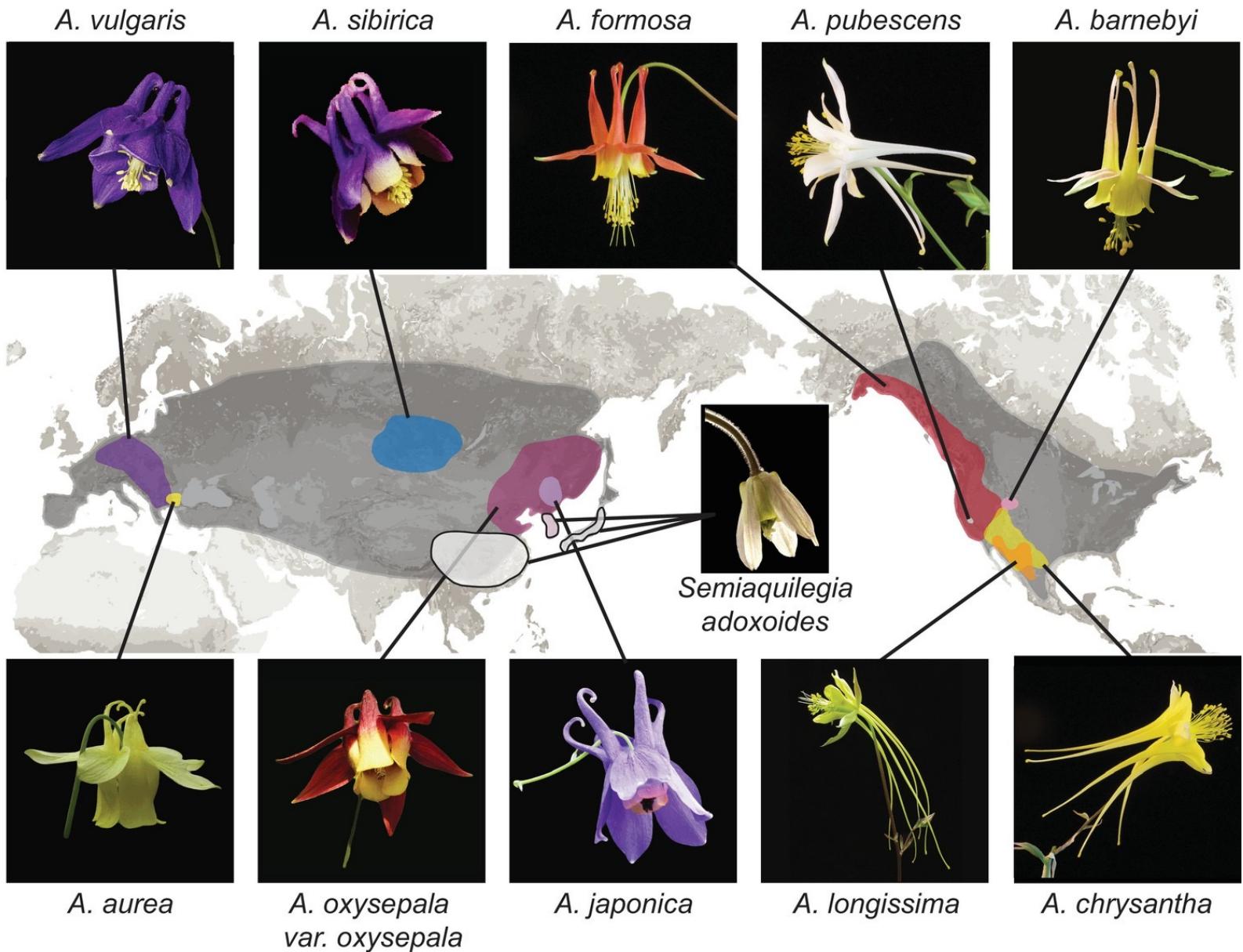


Filiault et al., 2018 eLife



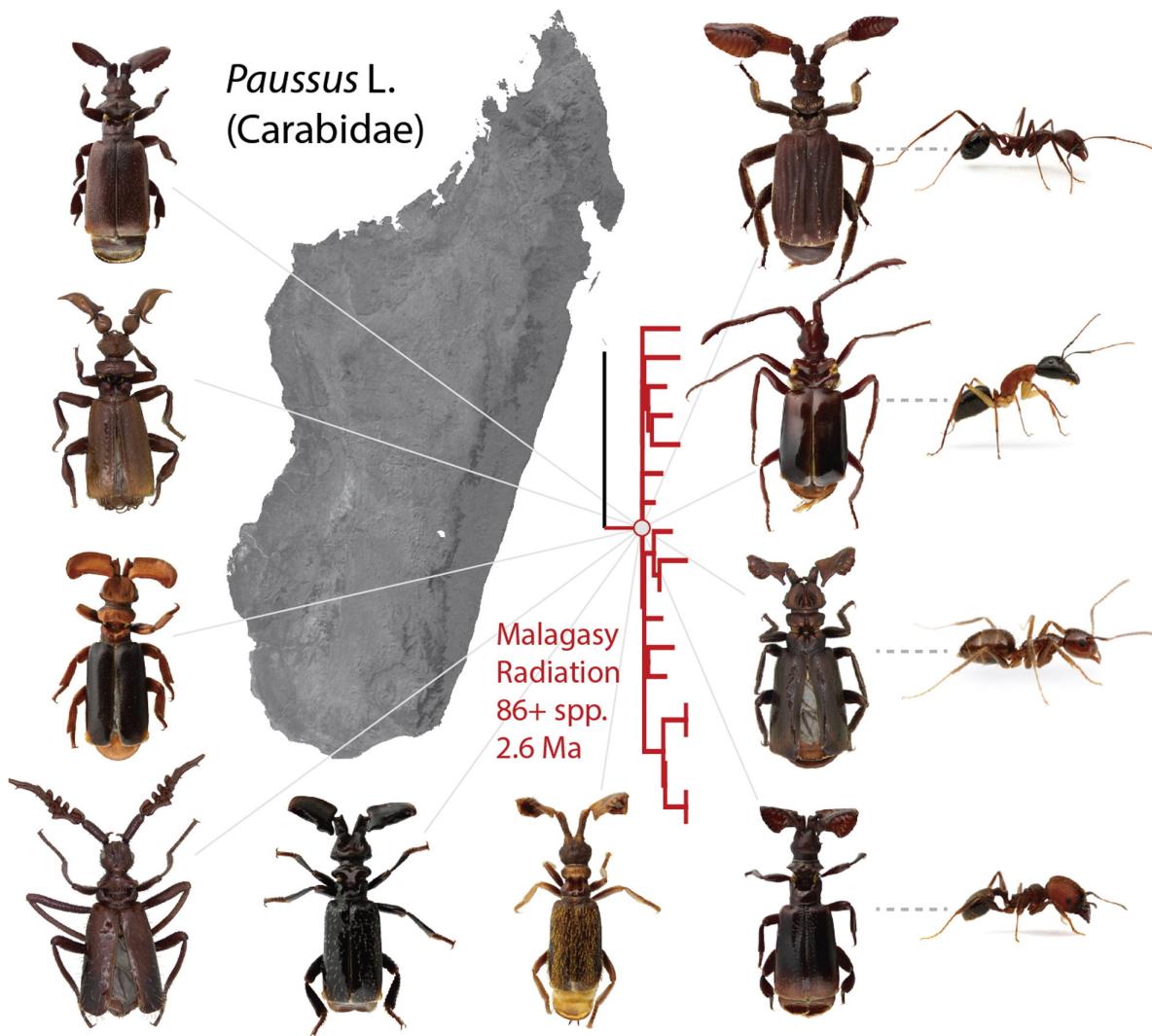
Brawand et al., 2014 Nature





Explosive Adaptive Radiation and Extreme Phenotypic Diversity within Ant-Nest Beetles

Moore & Robertson, 2014 *Current Biology*



Evolutionary significance of the variation in acoustic communication of a cryptic nocturnal primate radiation (*Microcebus* spp.)

Hasinaina A.F. Et al., 2020; *Ecology and Evolution*

