

Speciation

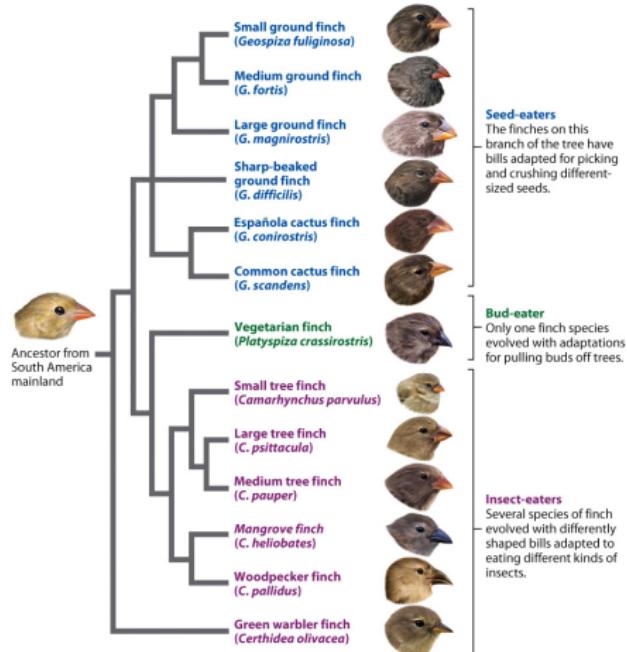
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Species divergence in allopatry

Species divergence in sympatry

Reuniting

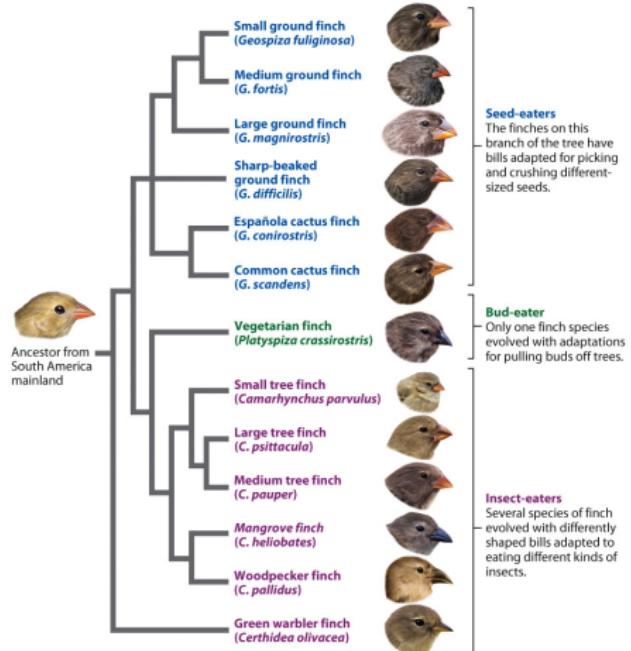
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► What patterns and processes allowed the universal common ancestor to diversify into >10 million species?

Figure 21.9 (Part 1)
Biology: How Life Works
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Outline

How are species defined?

Biological species concept

Morphological species concept

Ecological species concept

Phylogenetic species concept

Species divergence in allopatry

Dispersal

Vicariance

Species divergence in sympatry

Disruptive selection

Genetic incompatibility

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African Forest Elephant



Sri Lankan Elephant



Indian Elephant



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How are species defined?

- Biological species concept

- Morphological species concept

- Ecological species concept

- Phylogenetic species concept

Species divergence in allopatry

- Dispersal

- Vicariance

Species divergence in sympatry

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Kingfishers

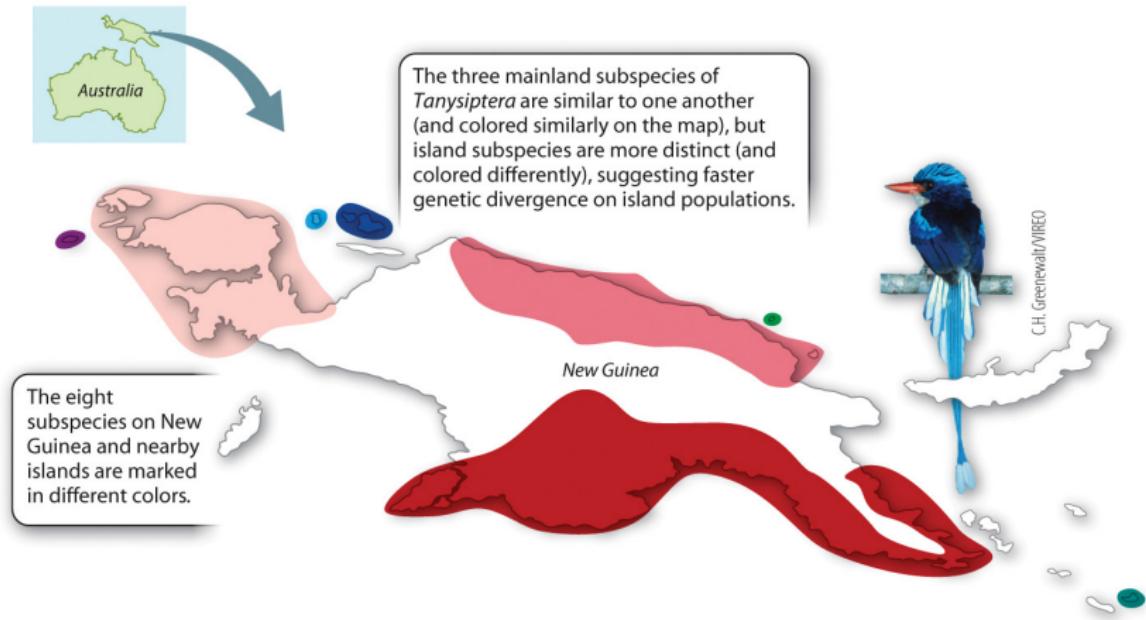


Figure 21.8
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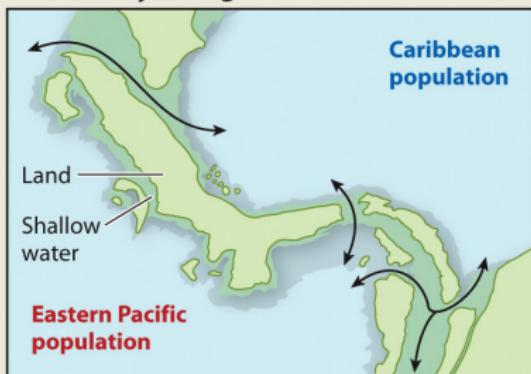
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Example: Shrimp

Interbreeding between eastern Pacific and Caribbean populations of *Alpheus* was possible through the corridors that existed before the final formation of the Isthmus of Panama.

3.5 million years ago



Interbreeding between eastern Pacific and Caribbean populations is no longer possible because of the geographic barrier.

Today



Figure 21.7 (Part 1)
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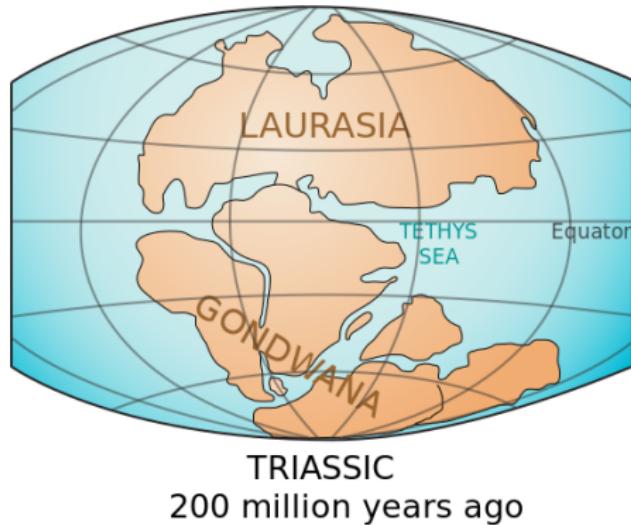
Shrimp

The closing of marine corridors resulted over time in the speciation of *Alpheus* into eastern Pacific and Caribbean species.



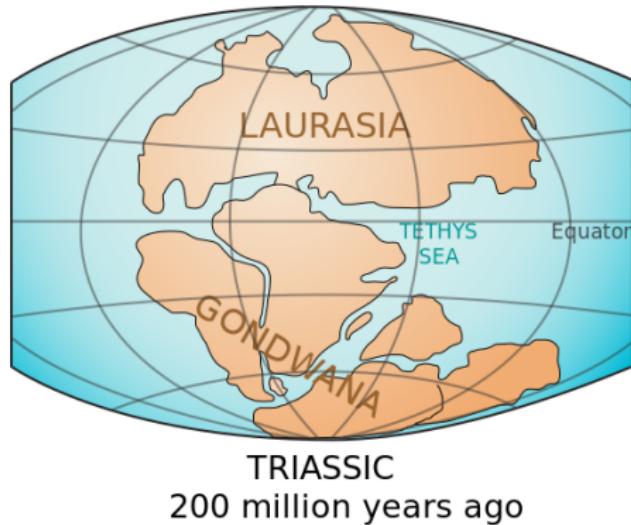
Figure 21.7 (Part 2)
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Example: ratites

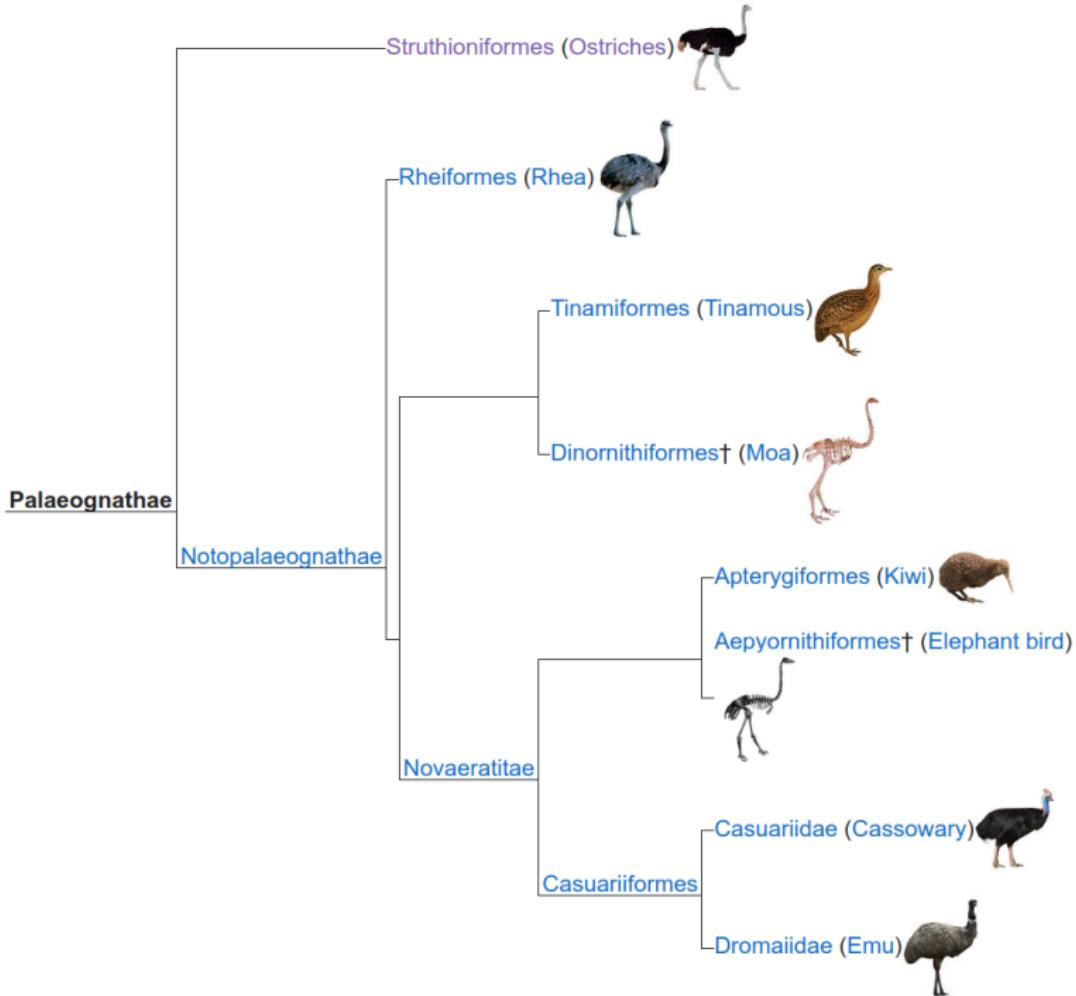


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Hawthorn flies

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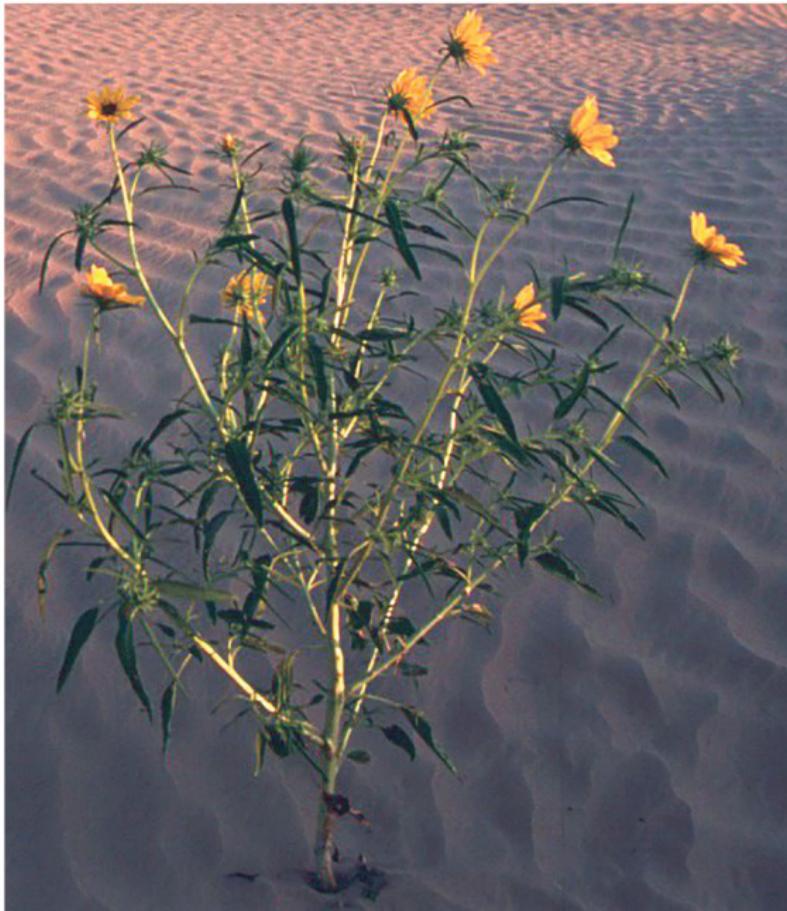


photo by Jason Rick, courtesy of Loren Rieseberg

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wikipedia/humans

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