

II. Reproductive Isolation

A. Prezygotic mechanisms

1. ecological
2. behavioral
3. mechanical
4. gametic

B. Postzygotic Mechanisms

1. developmental
2. hybrid inviability
3. hybrid infertility
4. selection against hybrids

III. Modes of Speciation

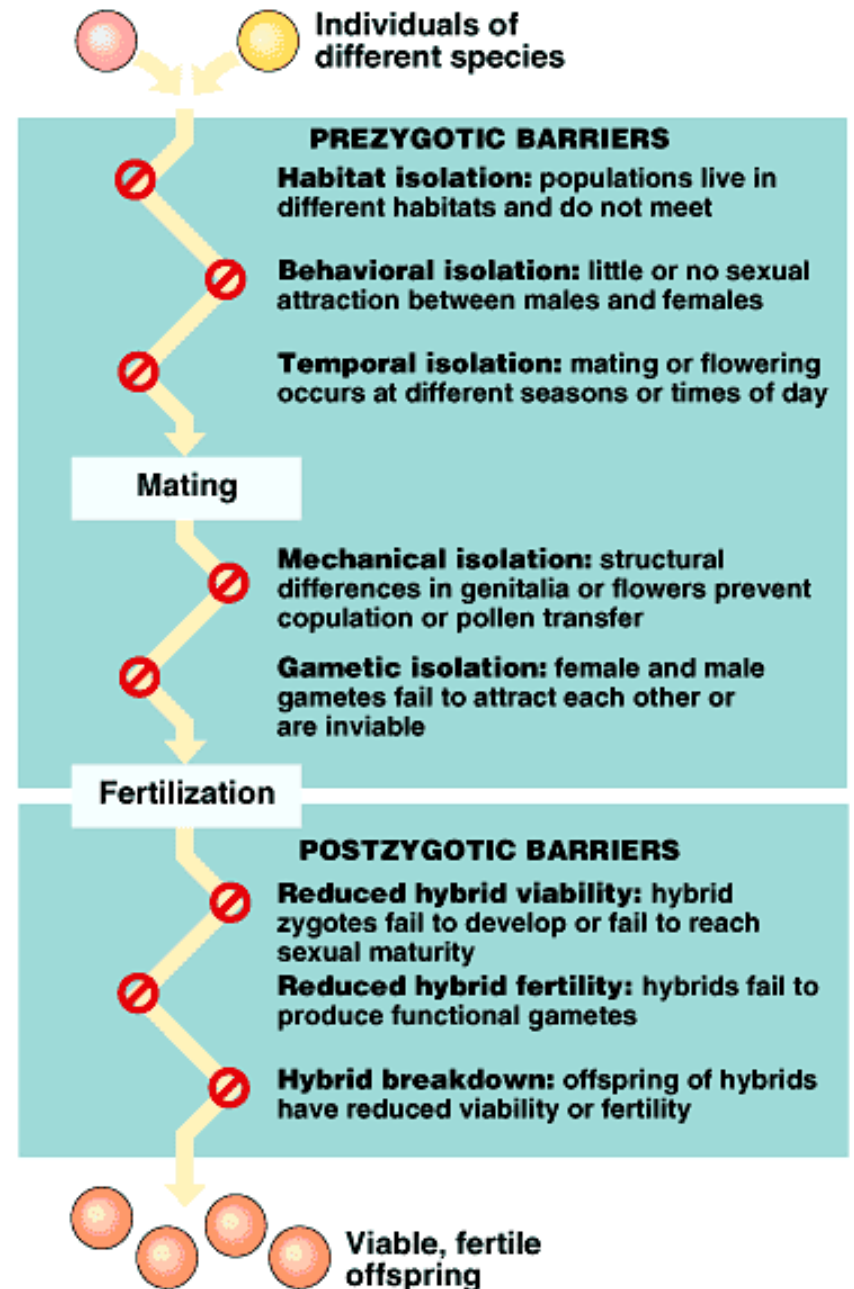
A. Mechanisms of instantaneous speciation

B. Mechanisms of gradual speciation

C. Geographic Patterns of speciation

Fig. 24.5

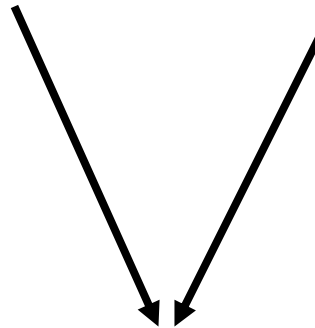
Summary of RIM



Selection against hybrids in *Ranunculus*

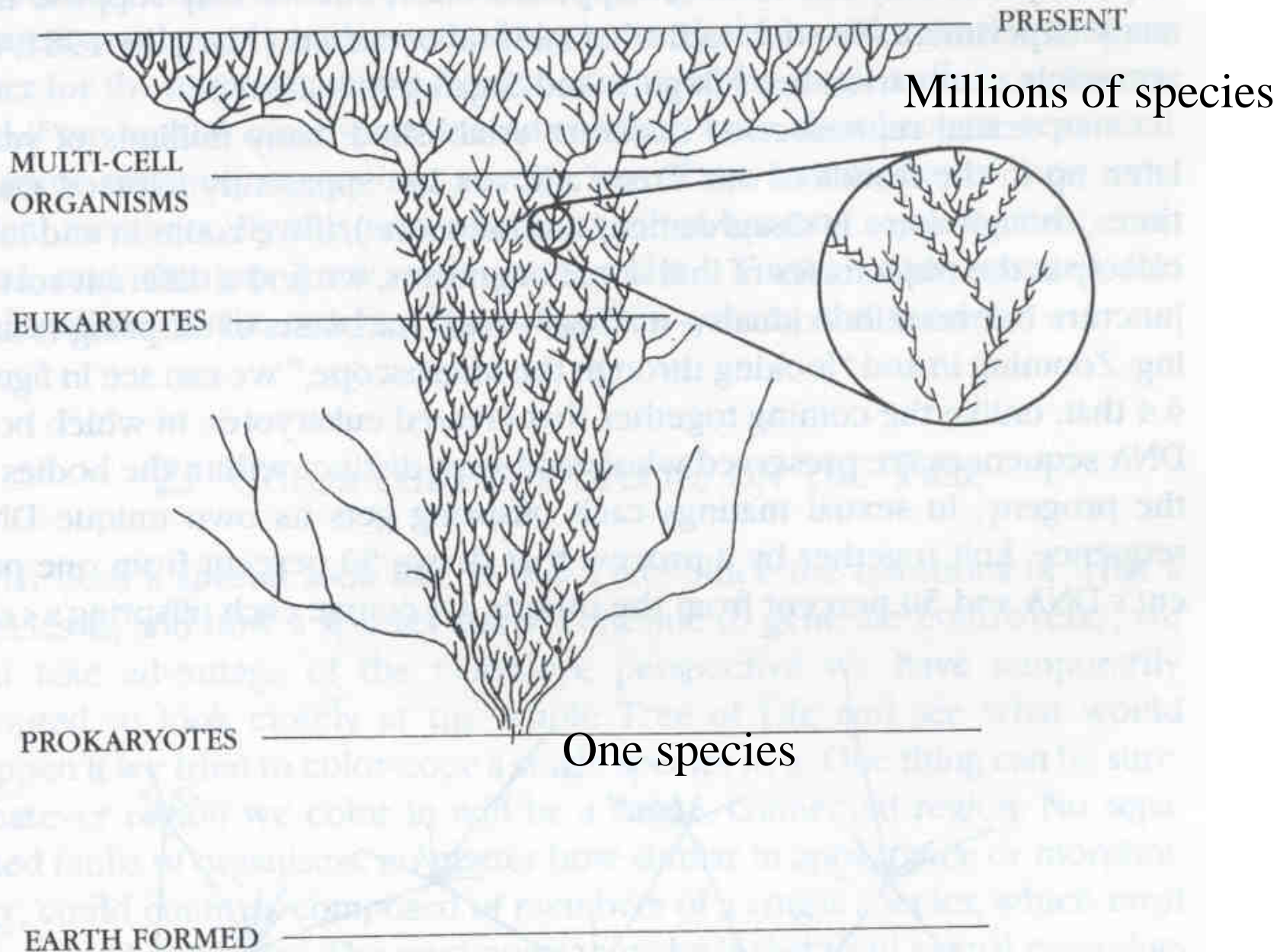
One parent species is adapted to wet habitats

Other parent is adapted to dry habitats

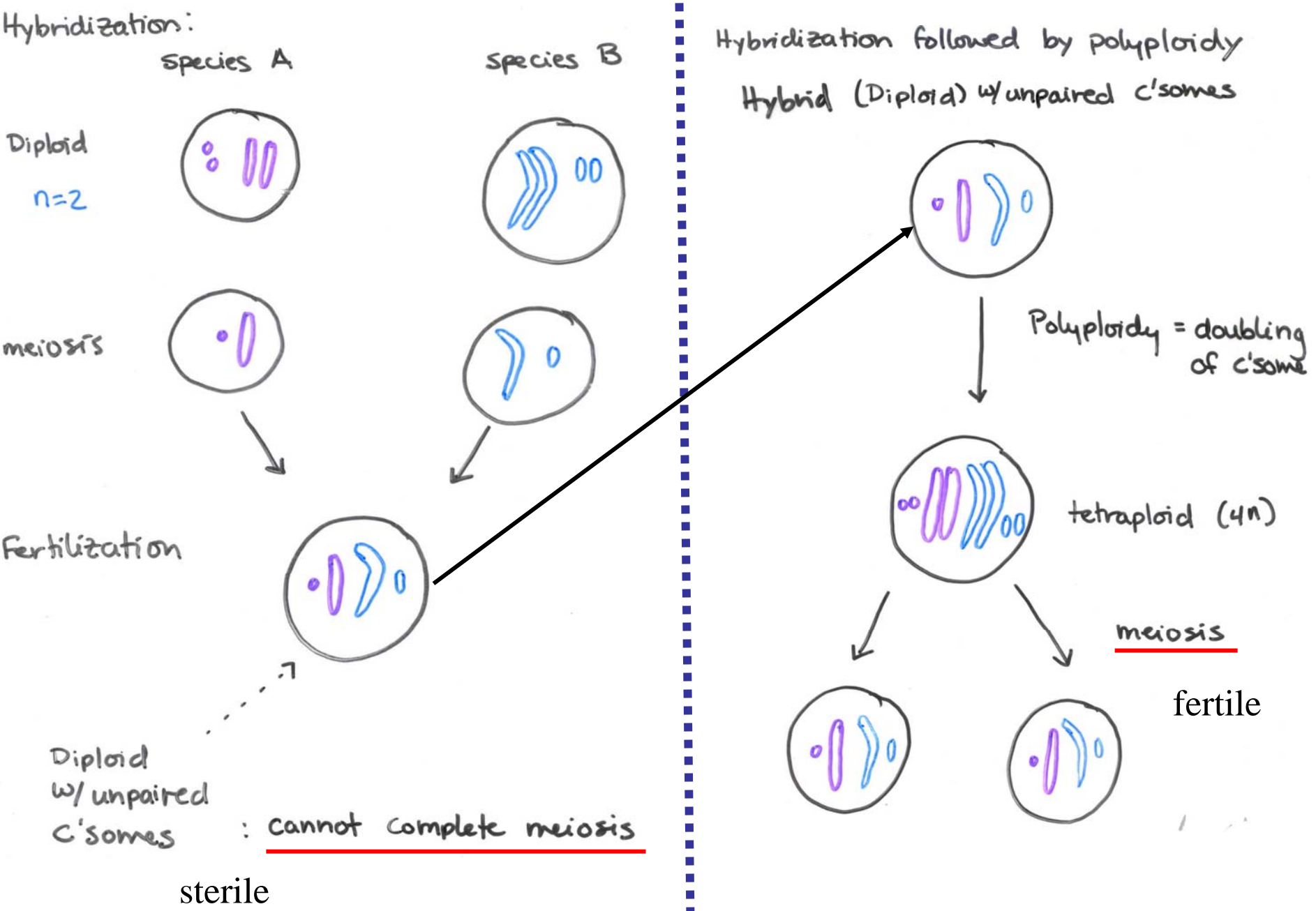


Hybrid between these has intermediate traits that are not as well adapted to wet conditions as the wet adapted parent and not as well adapted to dry conditions as the dry adapted parent

A cartoon of the evolution of species diversity



Instantaneous speciation by hybridization followed by polyploidy



Some estimate that nearly 50% of plant species are polyploid



Oenothera
Lamarckiana

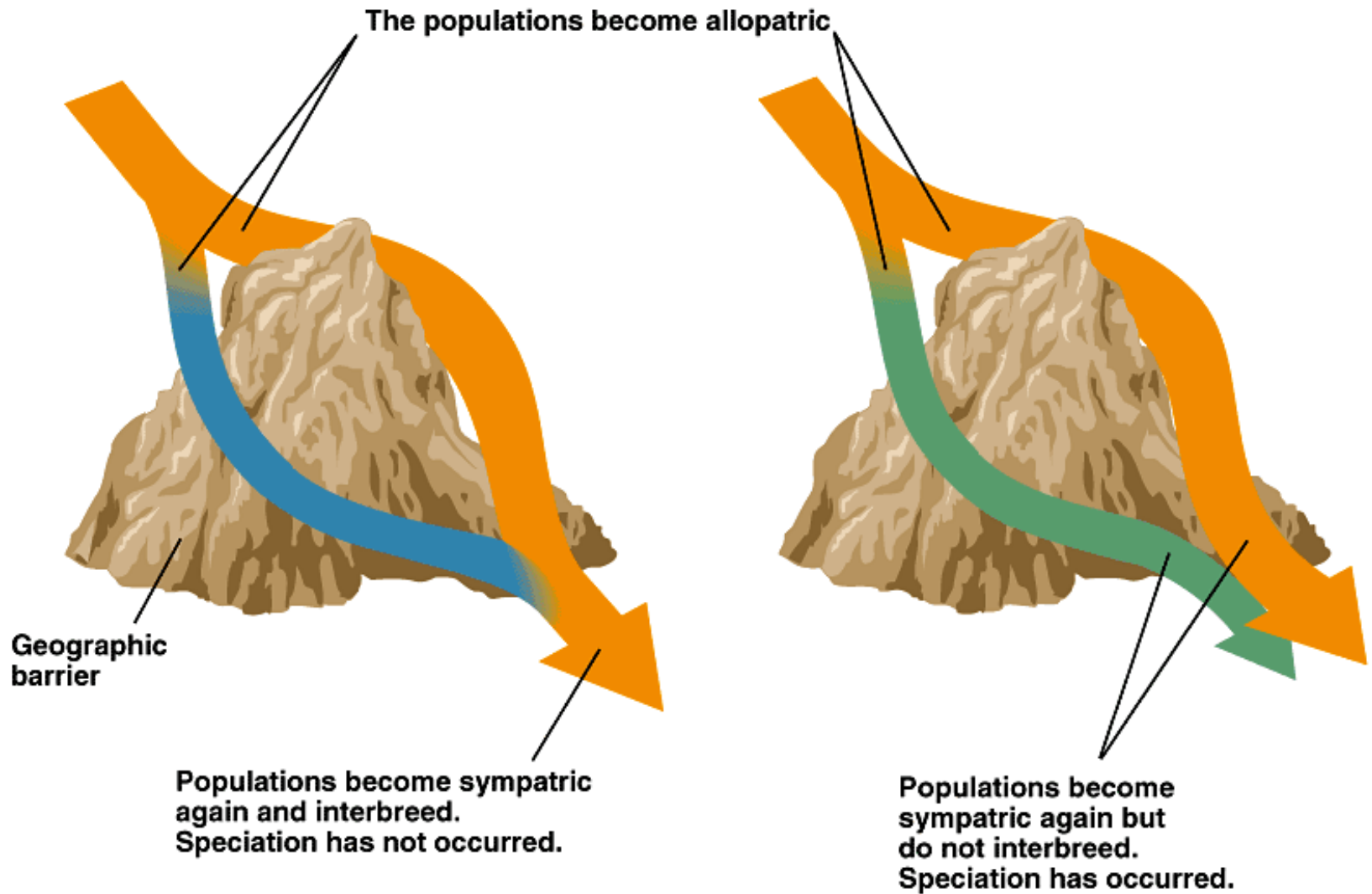
$$2n = 14$$



Oenothera
gigas.

$$2n = 28$$

A single gene pool can become divided by a geological event



Allopatric speciation: Polar bears and Brown bears

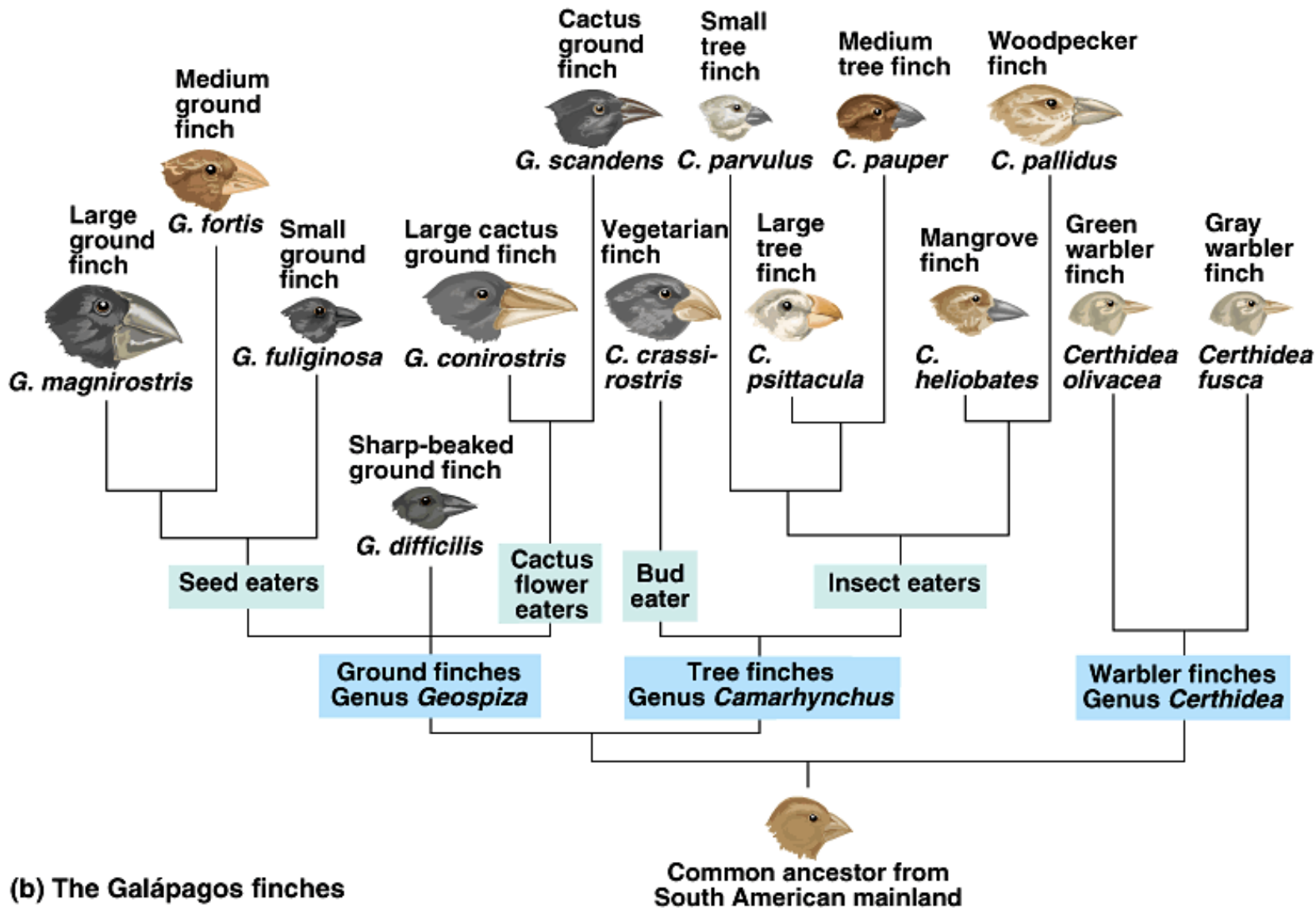
White, streamlined,
carnivorous, non-
hibernating



Brown, less streamlined,
omnivorous, hibernating



Finches of the Galapagos Islands



(b) The Galápagos finches

Sympatric speciation ??

