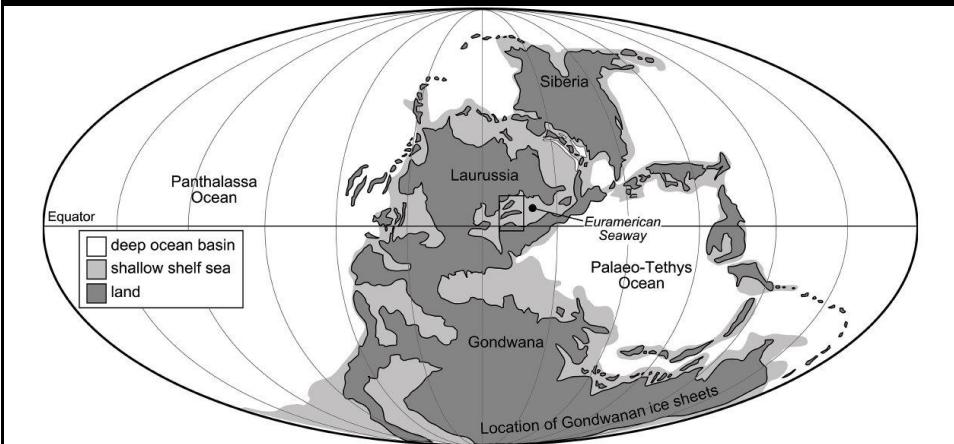


Week 6: Pangaean perturbations

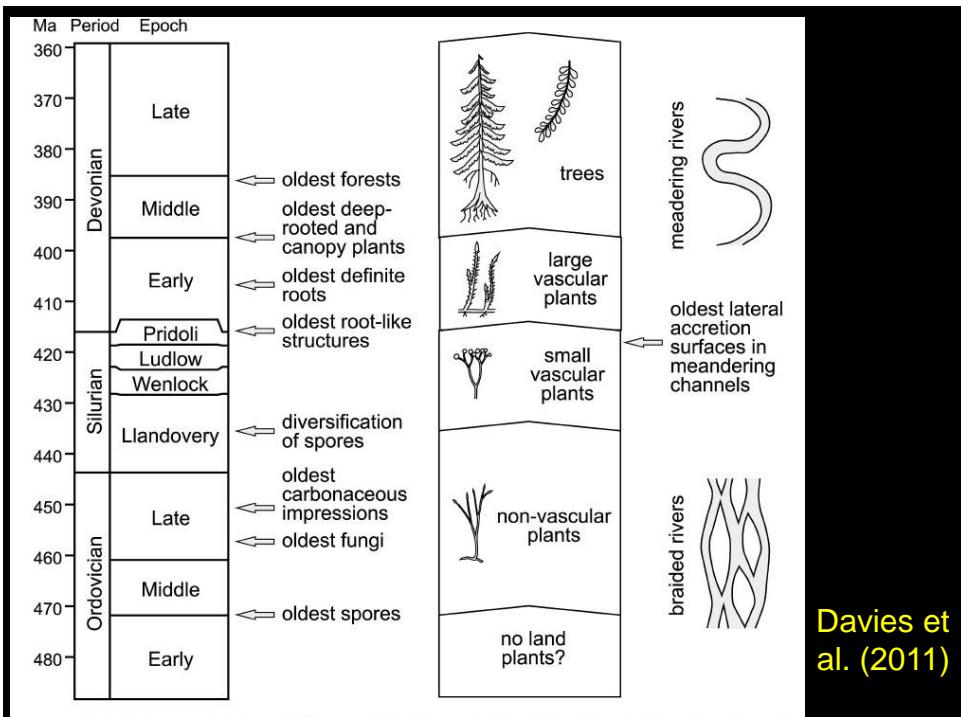
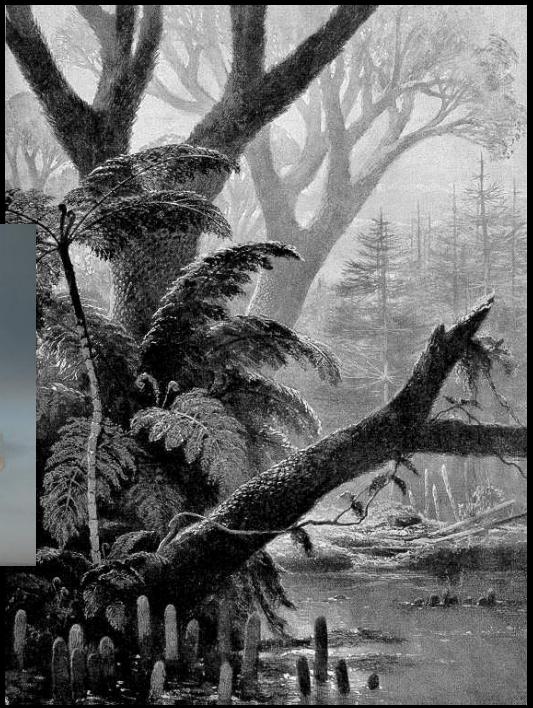


Evolving landscapes

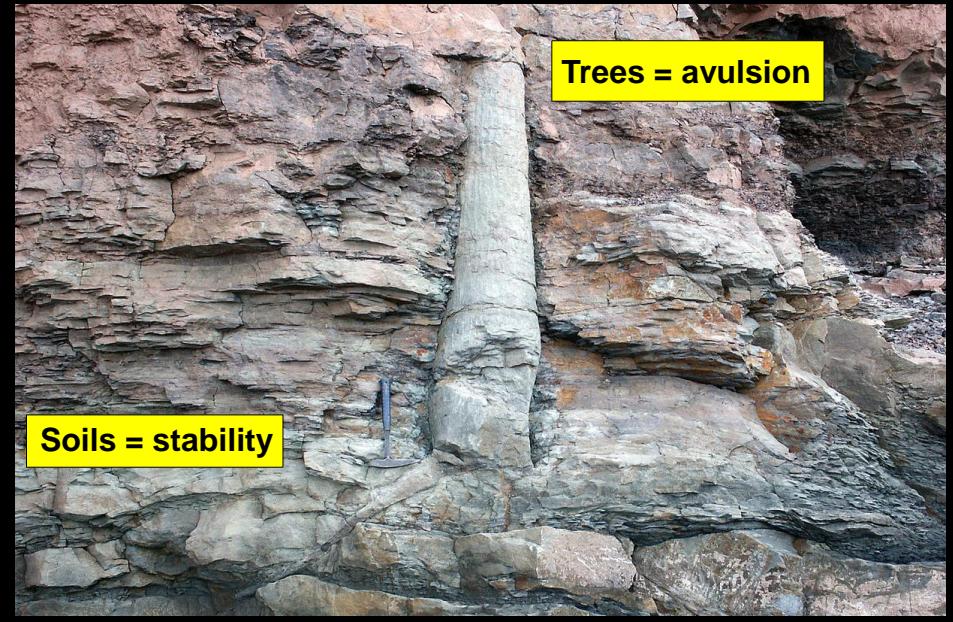


Carboniferous continents
(Woodcock & Strachan 2012)

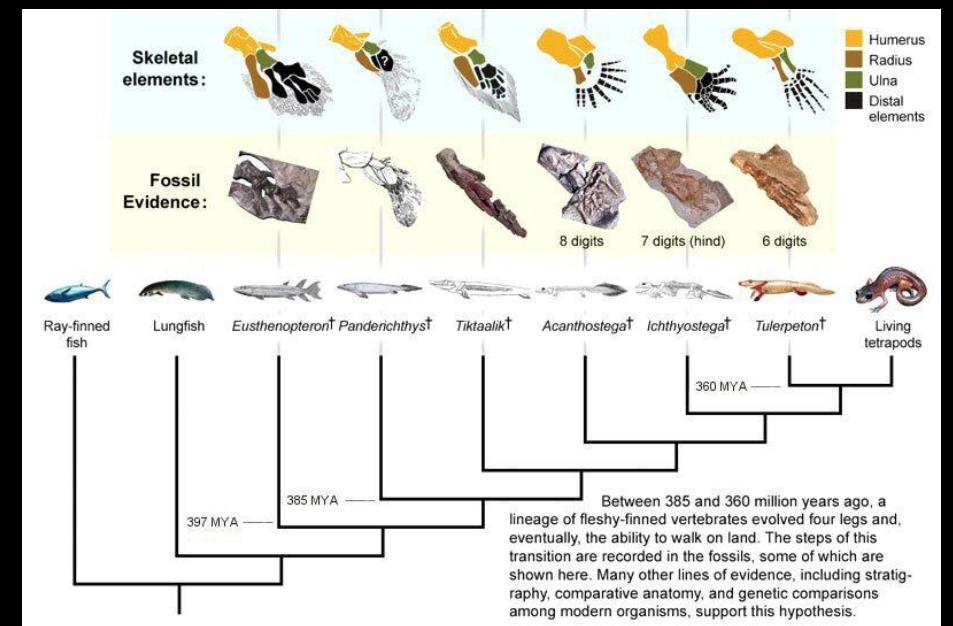
Evolving plantscapes

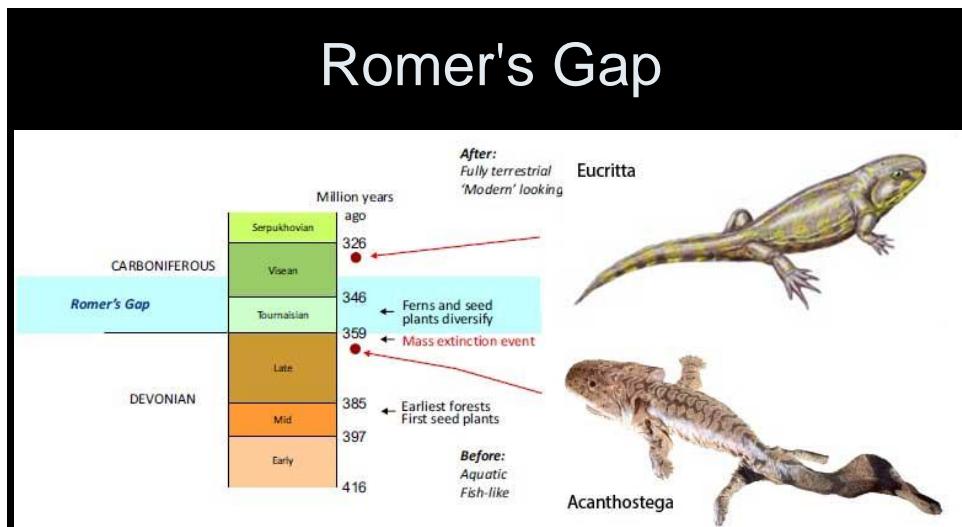
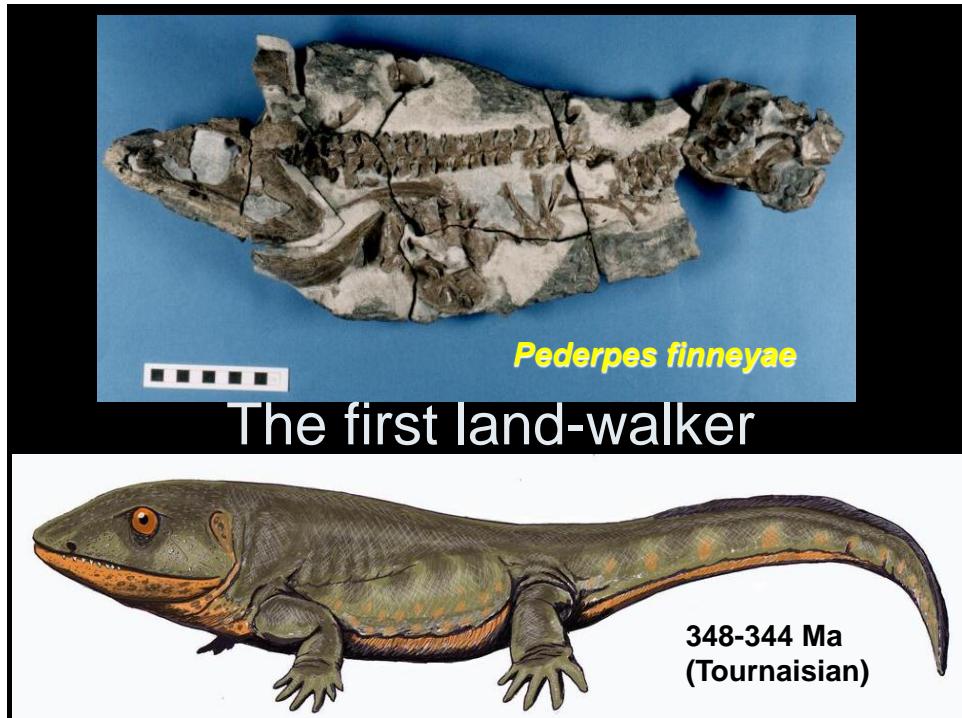


Evolving plantscapes



Evolving tetrapods



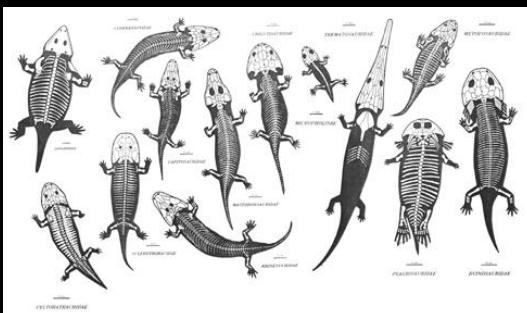


Early Carboniferous – 15 my of poor data
Tweed Project now underway

Temnospondyls

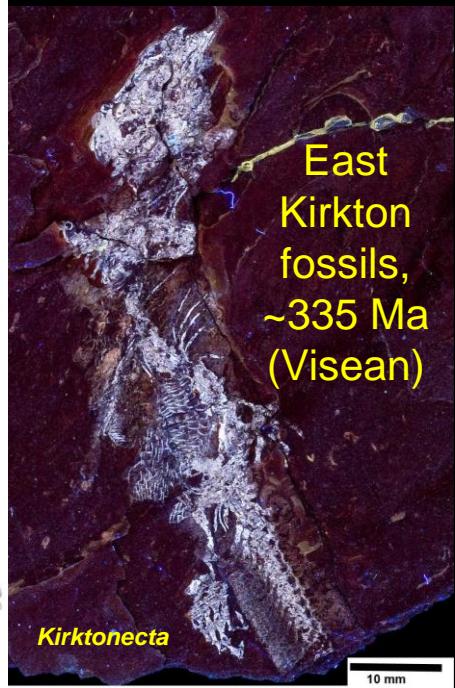
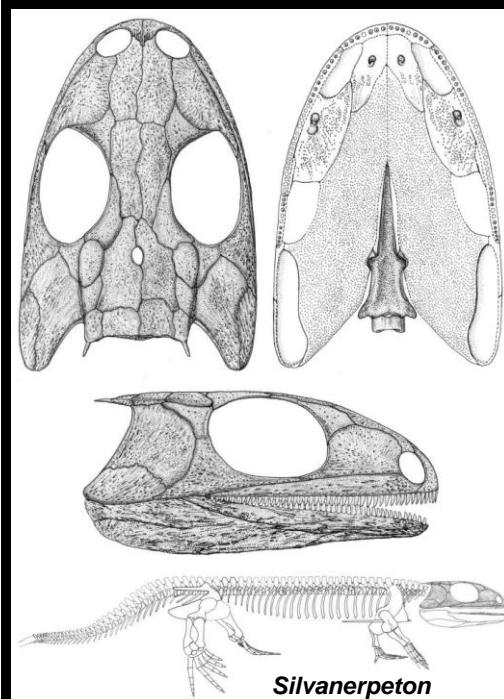


Early Carboniferous–
Early Cretaceous
'amphibians'

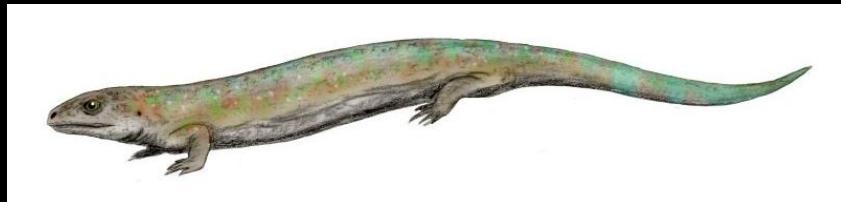


- broad, flat skulls

- large palate holes
- bone
ornamentation
- 'cut' vertebrae



'Lizzie'



Westlothiana lizziae, a stem-amniote

Amniotes



Mid-Carboniferous to present

Late Carboniferous



Hylonomus lyelli

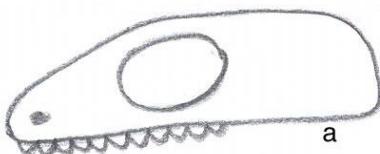
~315 Ma,
Joggins Cliffs,
Nova Scotia

Reptile:

- high, narrow skull;
- arched roof of mouth

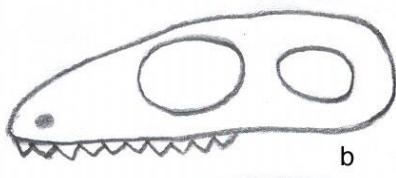
Amniote skulls

Anapsid

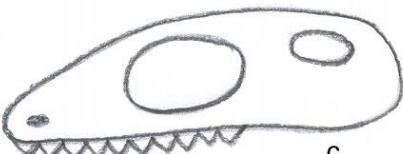


a

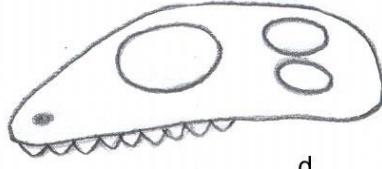
Synapsid



b



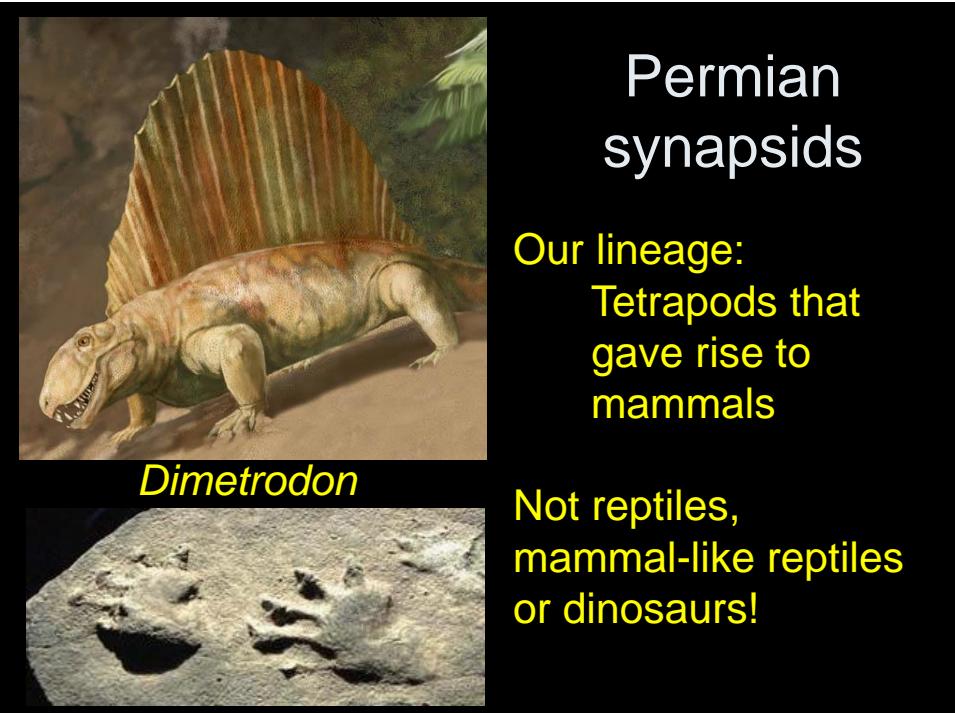
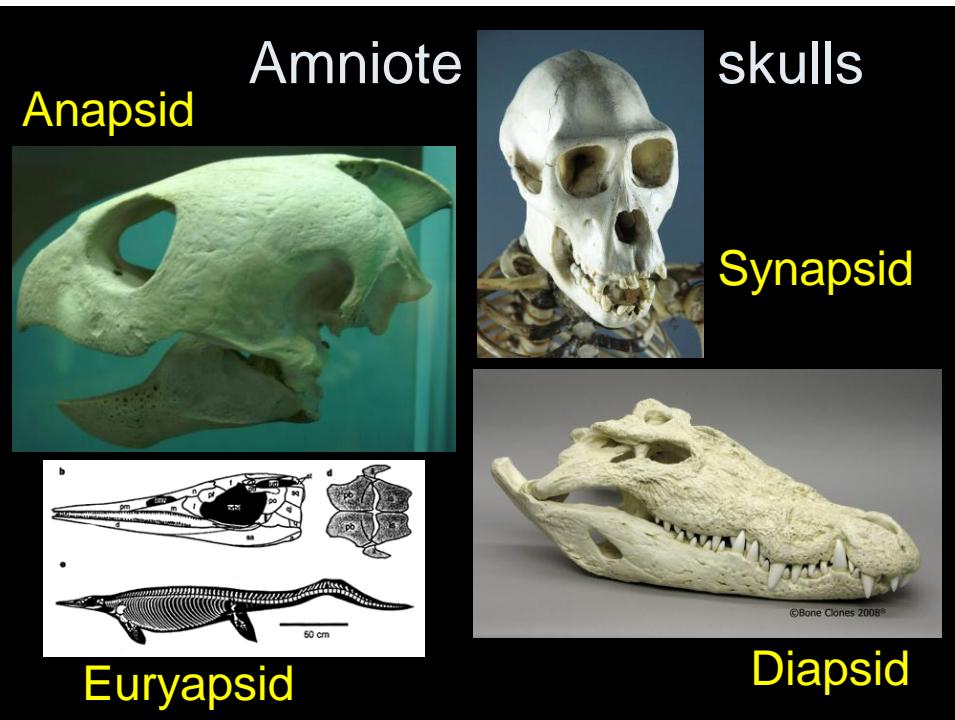
c



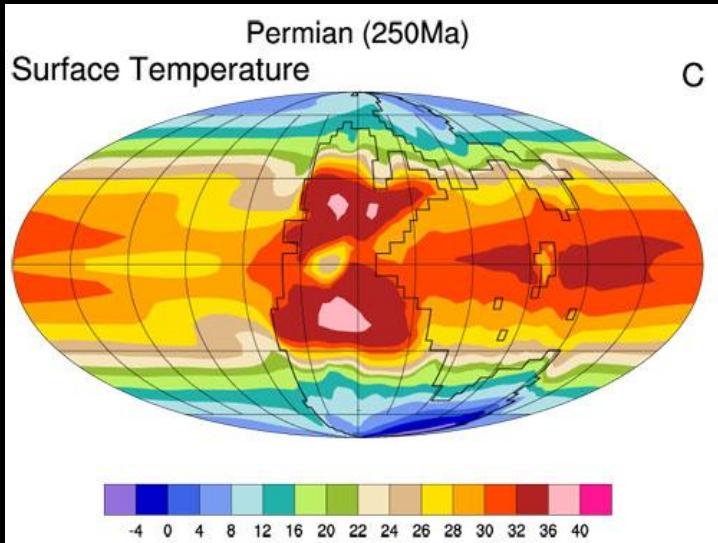
d

Euryapsid

Diapsid

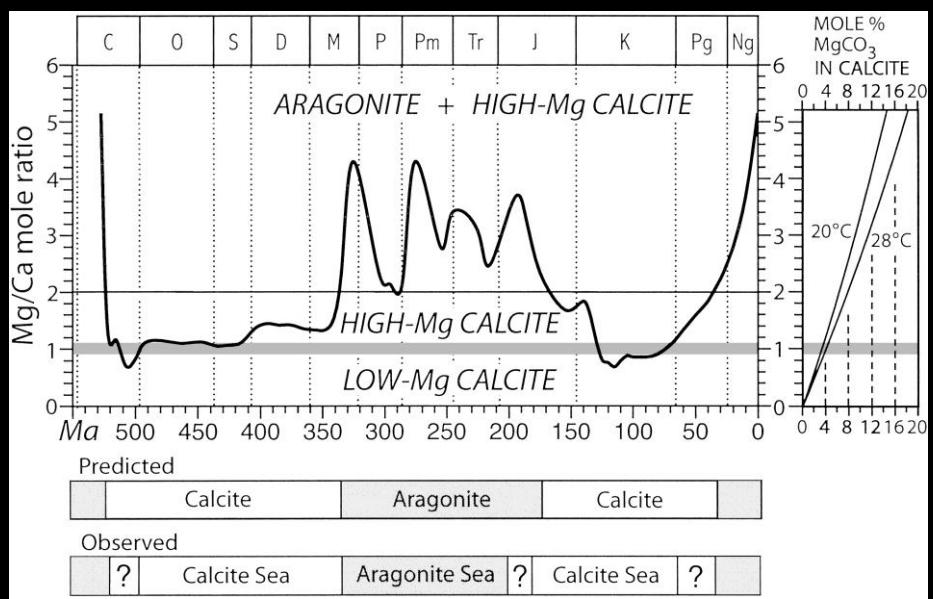


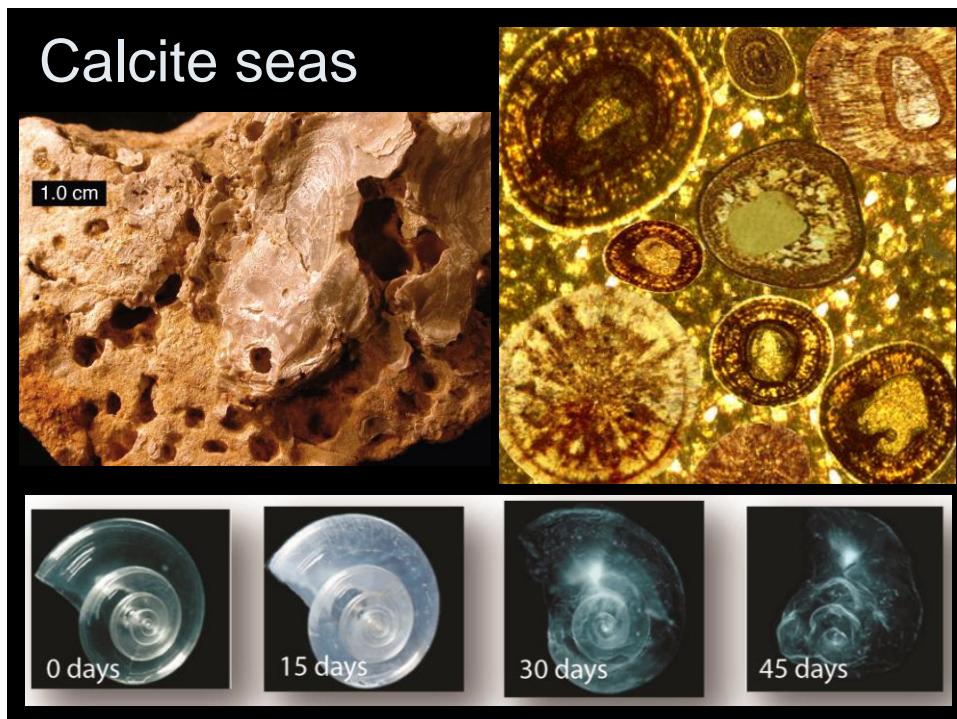
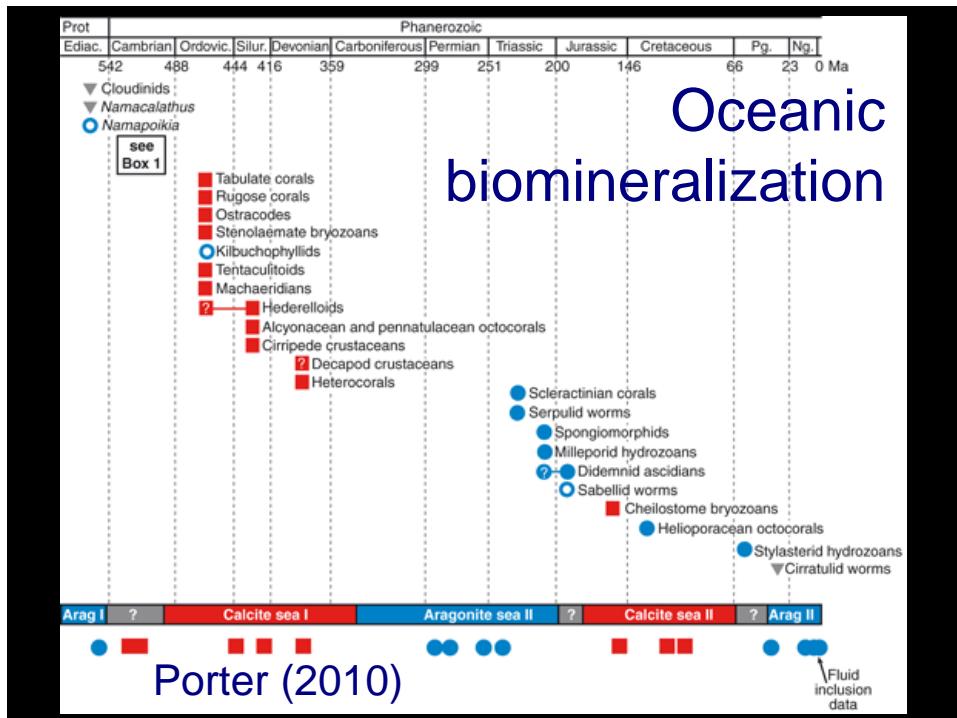
Permian climate change



Hotter, drier conditions better for reptiles

Evolving oceans



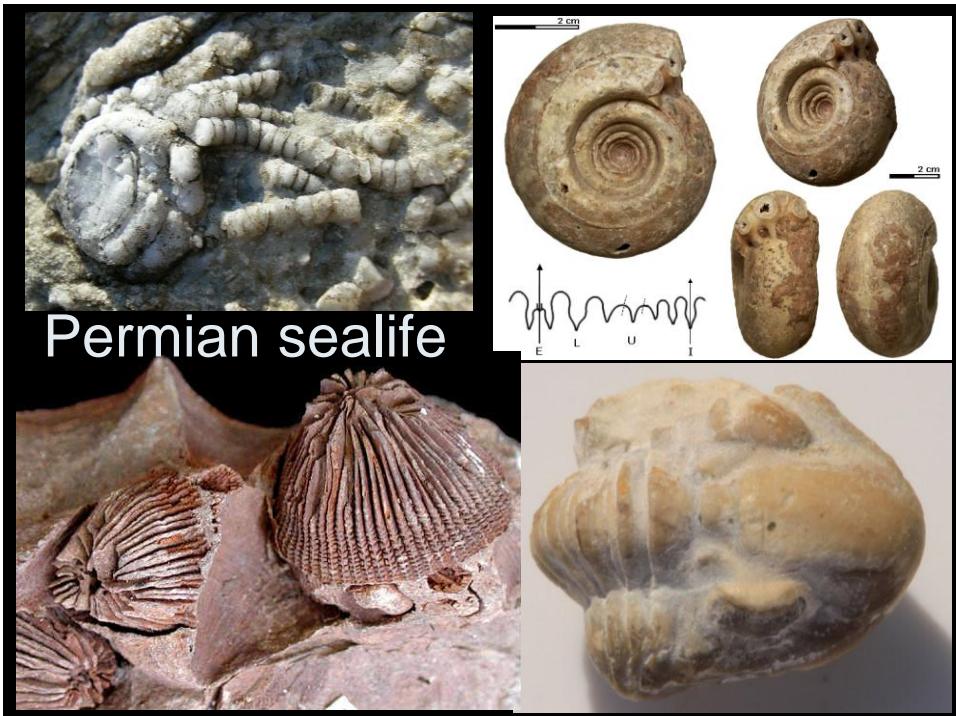


Aragonite seas

Cooler water conditions

Higher magnesium levels in seawater

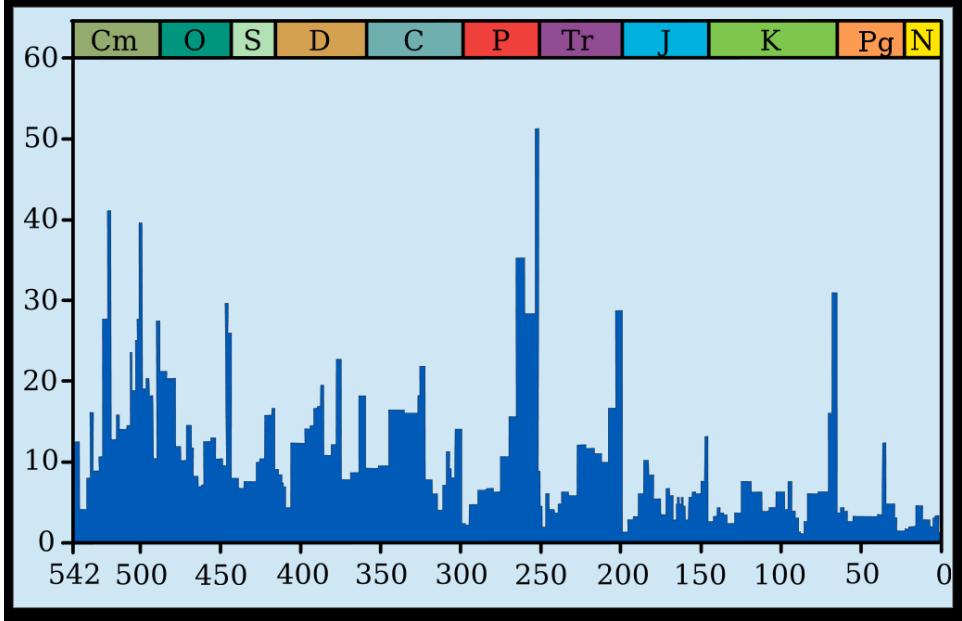
Lower sea levels



End-Permian extinction



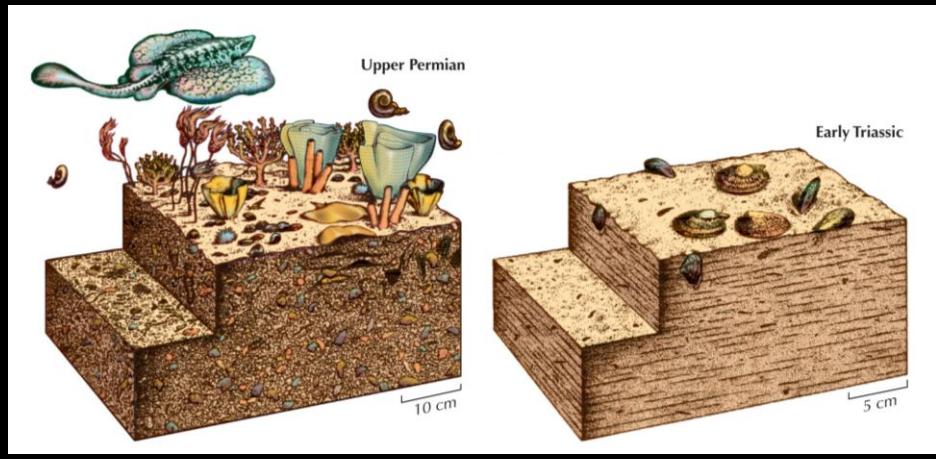
End-Permian extinction



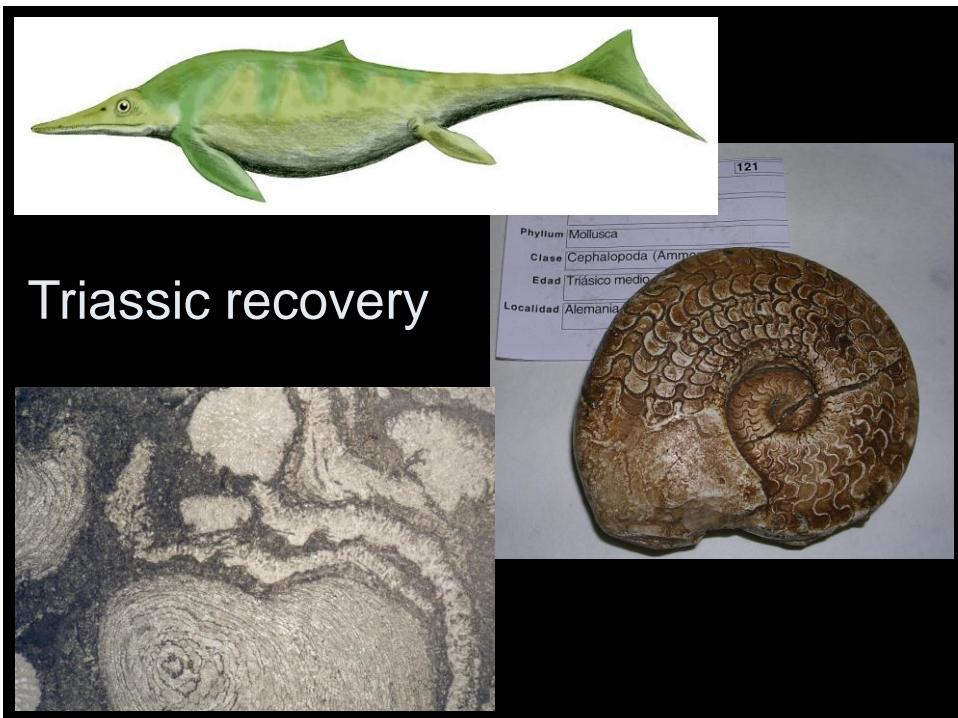
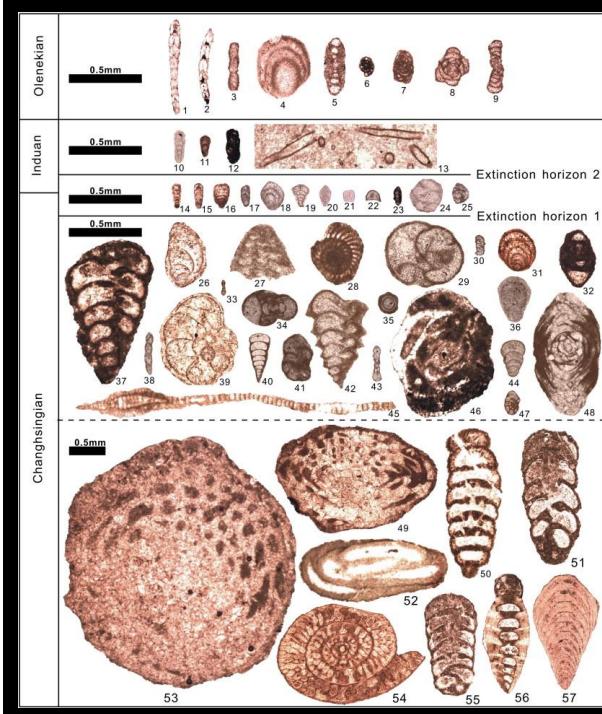
End-Permian extinction

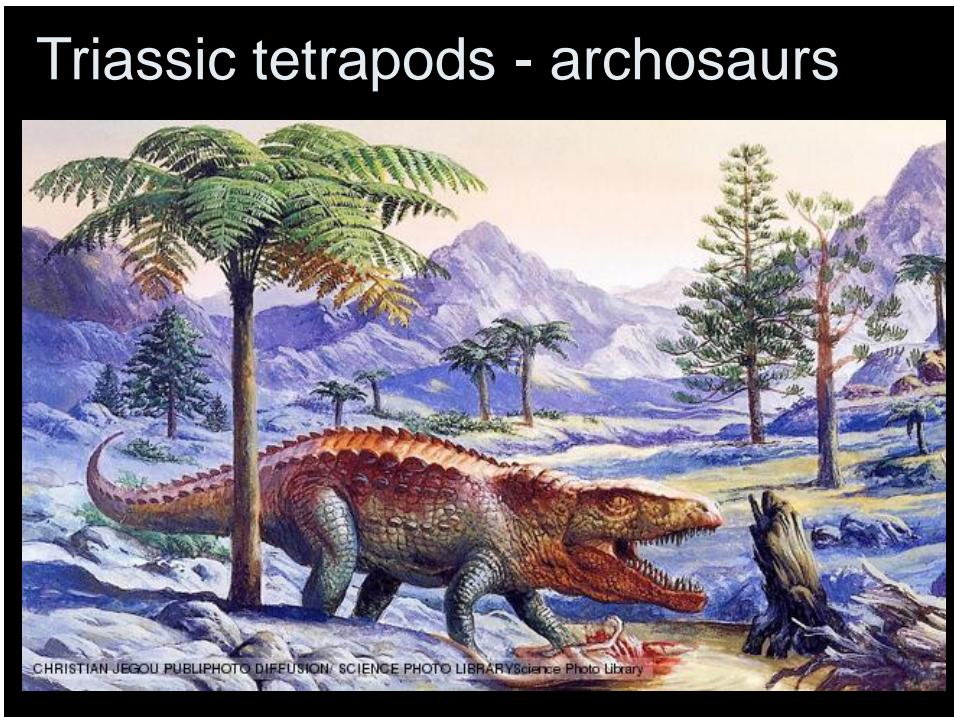
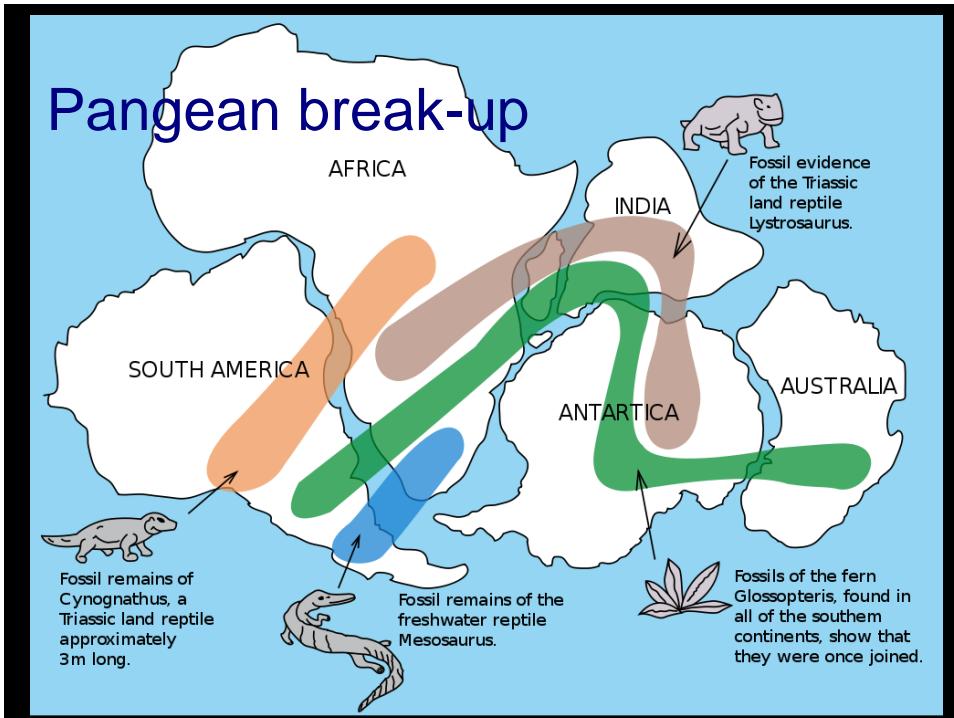


Permo-Triassic extinctions



The Lilliput Effect





Next week

The Age of
The Only
Fossils The
Media Are
Interested In



Useful websites

Temnospondyls – the early years:

<http://scienceblogs.com/tetrapodzoology/2007/06/29/temnospondyls-the-early-years/>

Jenny Clack's research on early tetrapods

<http://www.theclacks.org.uk/jac/OtherEarlyTetrapods.html>

Joggins Fossil Cliffs:

<http://whc.unesco.org/en/list/1285>

Tweed project:

http://tetrapods.org/?page_id=15