# BIOL 301 – PLANT TAXONOMY

**PHYSIOGRAPHIC PROVINCES OF EASTERN NORTH AMERICA**

1. Coastal Plain

Outer Coastal Plain

* sediments mostly coastal in origin – terraces of old barrier islands and their associated salt marshes, completely leached of salt
* deposition recent = less weathered (past 2 my)
* sediments mostly sandy
* deposition occurred as sea level fluctuated, largely downward

Inner Coastal Plain

* sediments continental and marine in origin
* deposition older, primarily Cretaceous and Tertiary
* deposits reflect source (sand, clay, lime) and depositional environment (coastal or offshore)
* deposition occurred as Piedmont and Blue Ridge eroded

2. Piedmont

* Precambrian igneous and metamorphosed rocks = crystalline "basement"
* includes some metamorphosed sedimentary rocks and magmatic intrusions
* basement extends underneath entire Coastal Plain
* Piedmont emerges at highest recent sea level = fall line
* soils mostly clayey, weathered, acid, high native fertility
* fertility greatly reduced by agricultural erosion

3. Blue Ridge

* rocks primarily same as in Piedmont (some controversy)
* most recent uplift during late Paleozoic as Pangaea formed
* range is very eroded, both geologically and historically

4. Ridge and Valley

* composed of sedimentary rocks that were folded by tectonic processes during formation of Pangaea
* sediments derived during Paleozoic from Piedmont, which was then higher than western basin of deposition
* sediments formed limestones, sandstones, shales
* coal beds also deposited during Carboniferous
* extensive folding and faulting followed by erosion resulted in characteristic parallel ridges and valleys
* water drainage in trellis pattern

5. Appalachian Plateaus

* same sedimentary rocks as Ridge and Valley
* much less folded, beds are undulating
* resulting topography is more rounded, gentler than Ridge and Valley
* water drainage patterns characteristically arborescent

6. Interior Lowlands

* original main "platform" of the continent
* underlying basement rocks are Precambrian
* in midwest, the basement is overlain by Paleozoic sediments (same sediments as Ridge & Valley and Appalachian Plateaus)
* sedimentary beds are mostly still flat, not highly folded (less compression)

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**GENERALIZED CHRONOLOGY OF GEOLOGICAL PROCESSES IN EASTERN N AMERICA**

1. Precambrian (1.1 billion - 540 million years ago)

* formation of Piedmont and Interior Lowland basement

2. Late Precambrian to early Paleozoic (540 - 505 mya)

* uplift of Piedmont
* beginning of erosion of Piedmont, deposition to the west

3. Mid-Paleozoic (505 - 286 mya)

* continued deposition in interior (western) basin
* formation of thick coal beds during Carboniferous

4. Late-Paleozoic (culminating approx. 245 mya)

* formation of Pangaea
* uplifting of Blue Ridge, folding of Ridge and Valley, formation of Appalachian Plateaus
* emergence of Interior Lowlands
* downwarping of eastern edge of Piedmont

5. Mesozoic through early Cenozoic (Tertiary) (245 - 1.8 mya)

* deposition of sediments from Blue Ridge and Piedmont on to the eastern (now lowered) edge of Piedmont
* gradual emergence of Coastal Plain as sea level and land level changed

6. Late Cenozoic (Quaternary) (1.8 mya to present)

* deposition of marine sediments on top of older sediments off eastern edge of continent
* continued emergence of Coastal Plain
* glaciation (we will not discuss)

**PLEASE REMEMBER – this is a superficial summary of some very complex processes**