

Biogeography. Lecture 21

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Outline

Biogeography of the World

Holarctic region I: Nearctic North America

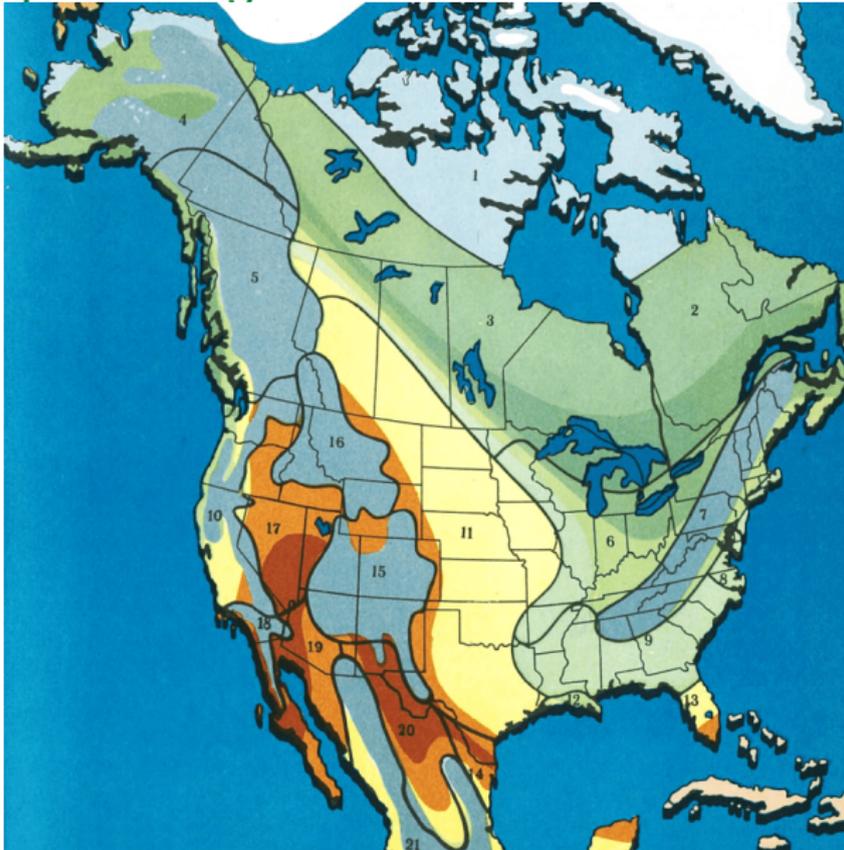


Biogeography of the World

Holarctic region I: Nearctic North America



Biogeographical regions



North America: 21 region

1. Arctic Islands and Greenland
2. Labrador, Sr. Lawrence Valley
3. Canadian Northwest
4. Alaska
5. Yukon and British Columbia
6. Great Lakes and Central Lowlands
7. Appalachians
8. East Coast
9. Coastal Lowlands
10. Central Pacific Coast Ranges
11. Great Plains
12. Mississippi delta
13. South Florida
14. South Texas
15. South Montane region
16. North Montane region
17. Great Basin
18. Southern California
19. Sonora
20. Chihuahua
21. Mexican Sierras



Regions 6, 7 and 8: eastern states

- ▶ Eastern USA forests are much closer to Neogene than most of Eurasian forests: much richer and also contain the dominant level (tulip tree, *Liriodendron*; sweet gum, *Liquidambar*; black tupelo, *Nyssa* (a bit smaller)) which disappeared in Europe
 - ▶ Striking diversity of autumn colors
 - ▶ Hot spots of animal diversity in Appalachians (crayfish, salamanders, tree frogs, butterflies and many others)
 - ▶ Appalachians are “destroyed” mountains, consequently they have many caves and rich underground life
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- ▶ One piece of Appalachians is going west to Great Plains: Ozark plateau
 - ▶ Many Neotropical elements (opossum, tanager birds, troupials like red-winged blackbird, hummingbirds and others)
 - ▶ China/Japan — East coast disjunctions for many plant genera (like *Magnolia* or *Trillium*, shrubby blueberry *Vaccinium*, the latter occurs also in westernmost Europe and Caucasus) and even species
 - ▶ Swampy/sandy Atlantic shore hosts unusual things: swamp false cypress (*Chamaecyparis*) forests; and nesting places for living fossil **horseshoe crab** (*Limulus polyphemus*), marine invertebrate closest to extinct trilobites



Red-winged blackbird, *Agelaius phoeniceus*



Regions 9 and 12: Southern “pine belt”

- ▶ The “African” piece embedded in North American continental plate (**Piedmont** and coastal planes) consists of extremely hard minerals so it is almost impossible to make a proper river bed here. As a result, rivers becoming swamps, mostly swamp pine forests with *Pinus palustris* as a dominant species.
- ▶ These warm, shallow swamps on poor soils have many unusual plant and animal species: Venus fly-trap (*Dionaea*), Spanish moss (*Tillandsia*), bald cypress (*Taxodium*) with azaleas (*Rhododendron* spp.), water tortoises, alligators and many species of rodents.
- ▶ Again, even more elements are Neotropical like Xyris (yellow-eyed grass; with South American center of distribution on the Guiana shield).



Yellow-eyed grass, *Xyris*



Region 13: South Florida

- ▶ Everything from lake Okeechobee to the south is a part of Neotropics
- ▶ Lowland of different origin: basement is a part of Antilles microcontinent together with Cuba, Hispaniola and Puerto-Rico, plus materials washed out of Appalachians
- ▶ Humid region rich of wetlands like Everglades rich of Araceae family representatives and mangrove forests of black (*Avicennia germinans*), white (*Laguncularia racemosa*) and red (*Rhizophora mangle*) mangroves. All these mangroves have seeds germinated on the mother plant.
- ▶ Hammocks are “islands” in the “sea” of wetlands, usually covered with threes and shrubs, mostly of tropical origin (Guanica dry forest is similar to well-developed Florida hammock)
- ▶ Rich freshwater animal life: flamingos, alligators, freshwater fish from Poeciliidae family (like mosquito larvae-eating *Gambusia*) and many others.
- ▶ Florida coast is one of few places supporting big population of sea cows: manatees

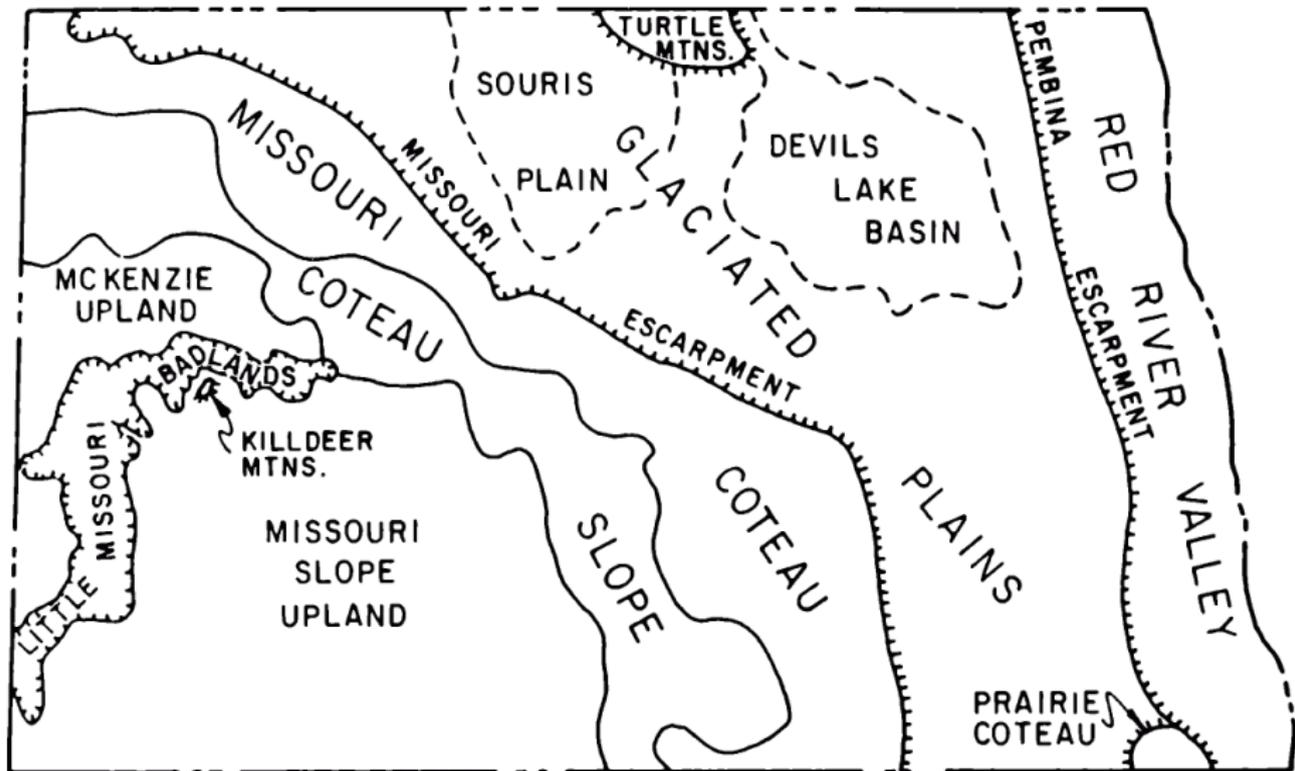


Region 11: Great Plains

- ▶ From southeast of Alberta to Edwards Plateau in Texas. The eastern border is determining mostly by precipitation whereas western border are Rocky Mountains.
- ▶ Most important landmarks: Badlands, Nebraska sandhills, Llano Estacado (Texas uplands). Black Hills is an unique formation (continental plate uplift) having many western elements in flora and fauna. The prairie itself is mostly combination of grasslands, hills and forested coulees. Oak savanna is also frequent (in North Dakota, nearby Towner and in the Ransom county).
- ▶ Historically supported with hoofed animals, mostly bisons (*Bison bison*) and pronghorns (*Antilocapra americana*, unique North American antelope), now with agriculture.
- ▶ Rich life of rodents: prairie dogs, gophers, many species of mice and others.
- ▶ Aster family (Compositae) and grass family (Gramineae) are dominants. Typically split into tall-grass (eastern, humid) and short-grass (western, dry) prairies. Rich flora of Compositae and presence of multiple shrubs (like snowberries, *Symphoricarpos*) are typical to American grasslands.
- ▶ In North Dakota, we have: continental divide, the region of numerous prairie potholes (result of delayed melting of ice), extremely flat Devils Lake region (not even a lake but flooded plane), the second self-drainage basin in North America, wide Red River valley (remaining of Great Lake Agassiz), and “glacier garbage” Turtle Mountains.



North Dakota geography



For Further Reading



I. Sanderson.

The Continent We Live On.

1961.

Mode of access: [http:](http://www.biodiversitylibrary.org/item/71734#page/7/mode/lup)

[//www.biodiversitylibrary.org/item/71734#page/7/mode/lup](http://www.biodiversitylibrary.org/item/71734#page/7/mode/lup)



North America.

http://en.wikipedia.org/wiki/North_America



A. Shipunov.

Biogeography [Electronic resource].

2014—onwards.

Mode of access: http://ashipunov.info/shipunov/school/biol_330



A. Shipunov.

Introduction to Biogeography and Tropical Biology [Electronic resource].

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Mode of access: http://ashipunov.info/shipunov/school/biol_330/intr_biogeogr_trop_biol/intr_biogeogr_trop_biol.pdf

