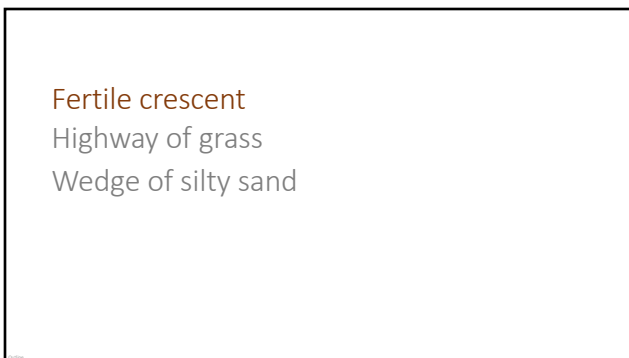


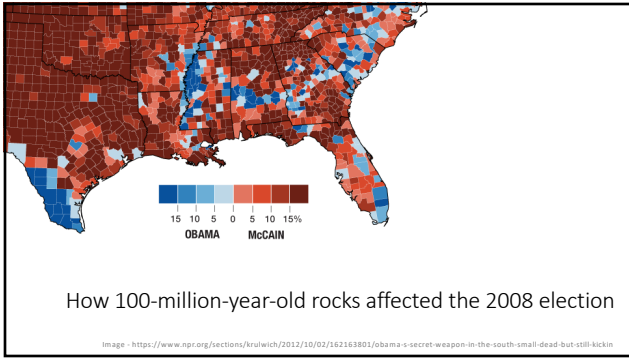
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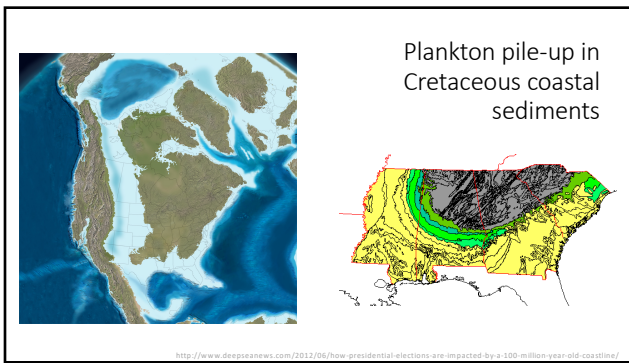
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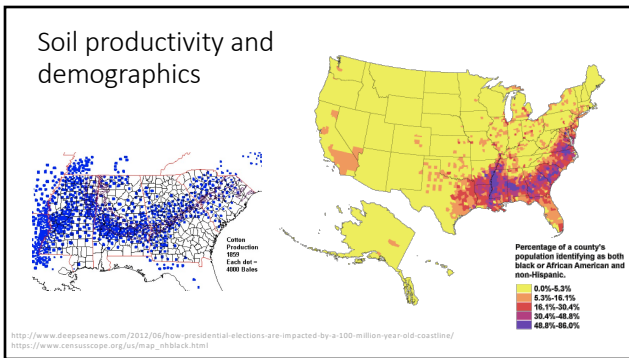
3



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5



6

Fertile crescent
Highway of grass
Wedge of silty sand

7

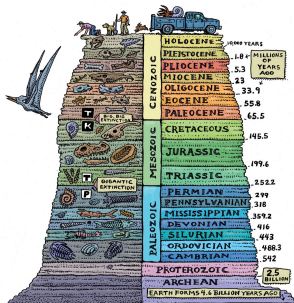
There is a long history of grazing in the flint hills



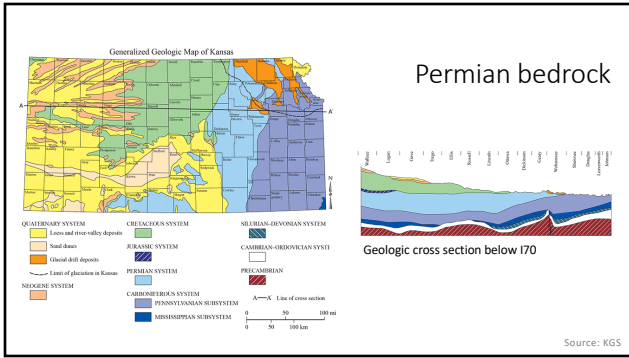
Sheep grazing on K-State campus
Source: K-State

8

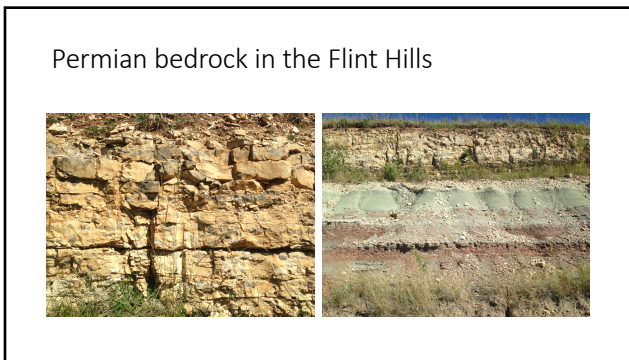
Permian period



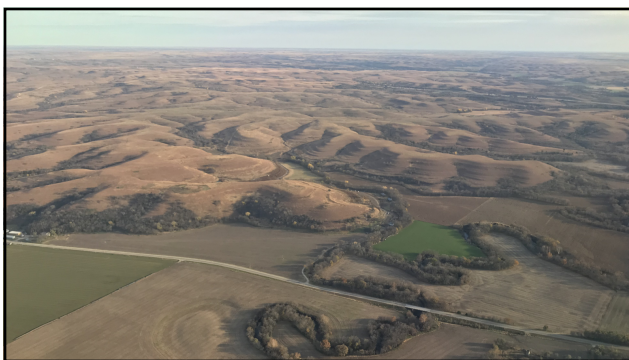
9



10

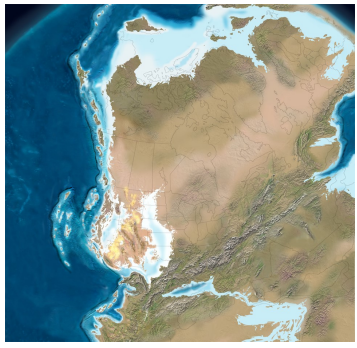


11



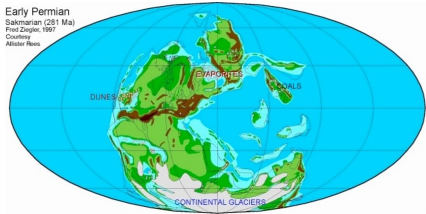
12

What was happening during the Permian?



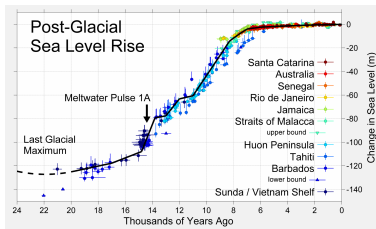
13

Glacial cycles caused variation in sea level



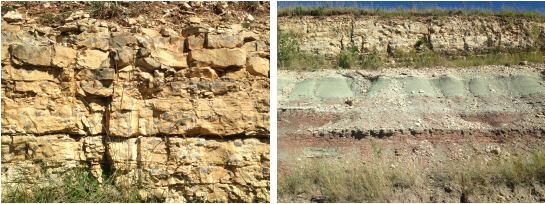
14

Sea level change since last ice age



https://commons.wikimedia.org/wiki/File:Post-Glacial_Sea_Level.png

15

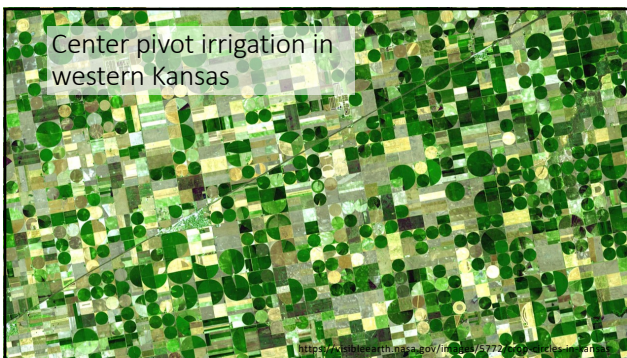


- Limestone formed from carbonate sediment that deposited in a shallow sea; arid conditions
- Falling sea level associated with seasonally wet climate and mud deposition
- As sea level fell, eventually mud was exposed to air and formed soil

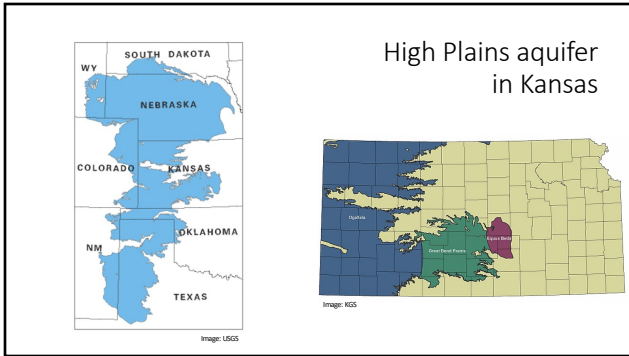
16

Fertile crescent
Highway of grass
Wedge of silty sand

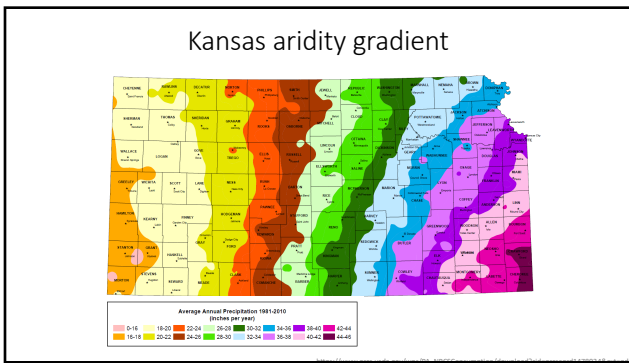
17



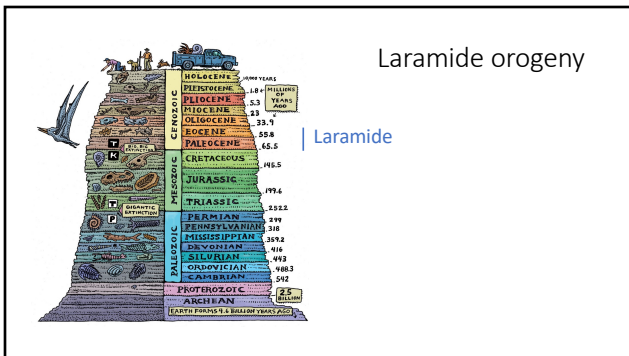
18



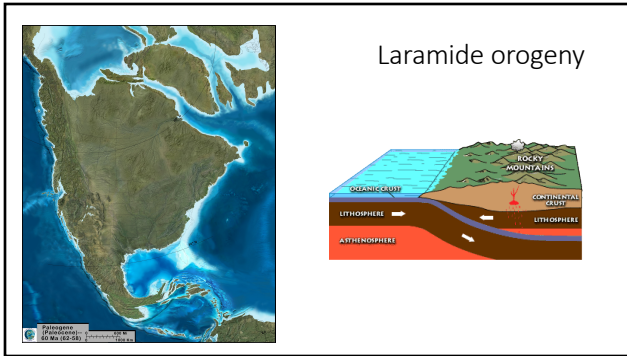
19



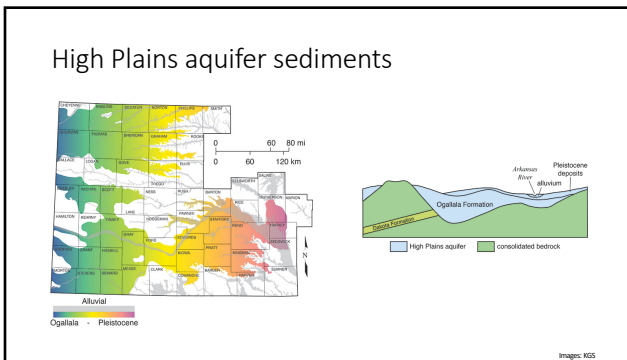
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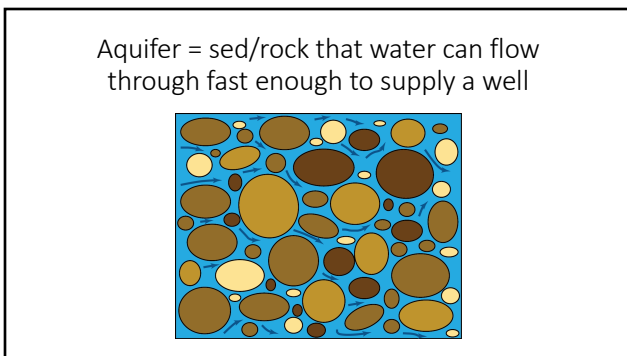
21



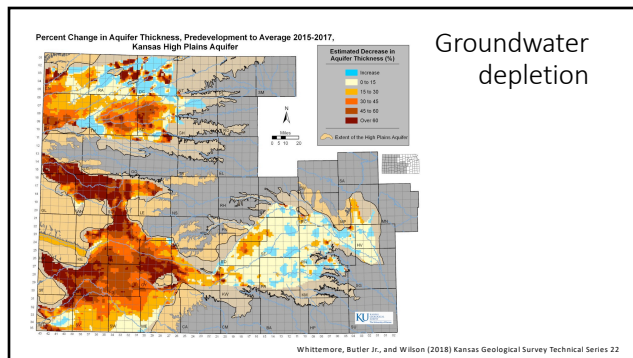
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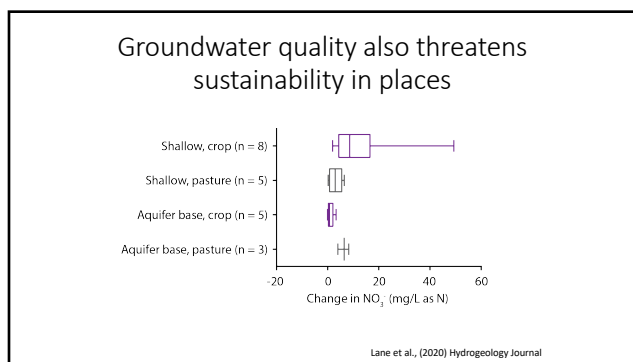
23



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Concluding remarks

- Geology, climate, and land use are interwoven controls on life
- We discussed examples of impacts to human activities, but it goes far beyond that (from μ organisms on up)
- These interactions are changing with climate and as a result of unsustainable land-use practices

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