

## READING GUIDE\*

### Gelisols

see Buol et al. (2011), Chapter 12, p. 293-305

**OBJECTIVE:** *To understand the nature and properties of soils classified as Gelisols, to know the potential uses and limitations of these soils, and to recognize the taxa associated with Gelisols in Soil Taxonomy.*

1. What is the central concept for soils classified as Gelisols?
2. What is *permafrost*? **What is the active layer?**
3. In what soil forming environments are Gelisols most commonly found?
4. What percentage of the land area of the planet is occupied by Gelisols?
5. **What is patterned ground?**
6. Explain why Gelisols are found in each of the following settings. Be sure to specify the pedogenic processes that occur (or do not occur) to promote the occurrence of Gelisols. (a) high latitudes, (b) high altitudes.
7. What is *solifluction*?
8. How does cryoturbation influence observed soil properties?
9. Why are global C stocks associated with Gelisols so high?
10. What types of land use problems may be associated with soils classified as Gelisols? Explain why land use practices may be limited. Be specific.
11. **Why are Gelisols particularly sensitive to the effects of human activity?**
12. What land use practices are commonly supported by soils classified as Gelisols?
13. Which diagnostic properties may be found in soils classified as Gelisols?
14. What suborders are identified for soils classified as Gelisols? What are the diagnostic properties of each?
15. What properties are used to distinguish the great groups of soils classified as Gelisols?

**SYNTHESIS:**

16. Why is it important to consider Gelisols when discussing important environmental issues such as global warming and C sequestration? Explain your answer. Be specific.

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\* Questions in plain type represent basic facts and concepts. Questions in **bold** type are those that are answered in the text but require more careful consideration. The Synthesis questions at the end help you apply the facts and concepts to a relevant issue.