Lesson 10 - E

Plant Pollen and Spores

Answers

1. Have you ever seen pollen? If so, where and can you describe it?

2. In what sort of ecosystems do you think you would find pollen in? (Circle all the apply)
   a. Lake and pond
   b. Desert
   c. Streams
   d. Marsh
   e. Swamp
   f. Glacial
   g. Ocean
   h. Urban

3. Which do you think produces more pollen: wind- or animal-pollinated plants? _wind_____ Why?
   Animal-pollinated plants don't need to produce as much pollen because someone (bird, mammal, insect) will ferry the pollen from plant to plant. Because wind pollinated plants rely on random dispersal they must produce great quantities of pollen in hopes that some will reach another plant of the same species.

4. How do you think that difference played out in the fossil record in regard to diversity (number of different types of taxa) and abundance (number of individuals within a taxa)?

   Wind pollinated plants tend to be over-represented in the fossil record because they produce so much more pollen. This may lead to a false representation of too great of abundance but not necessarily too great of diversity.

   One of the key ways that paleopalynologists (those who study fossil pollen and spores) determine which and how many plants lived in the past is to collect pollen and spores and to count them. Using the sheets labeled "Counting Pollen and Spores of the Hell Creek Fm." and "Index to the Pollen and Spores of the Hell Creek Fm." determine the varieties and quantities of each type of pollen or spore.

5. Which group is more diverse: angiosperms or gymnosperms? Angiosperms

6. What are the three most diverse species?
   Laevigatosporites (9), *Wodehouseia* (7), *Aquilapollenites* (6), *Stereisporites* (6)

7. What does this tell you about the environment of the Hell Creek Formation?
   Lots of ferns and moss with a good diversity of Angiosperms and not many arboreal conifers

8. How does this description differ from the one provided by plant fossils?