Study Guide – Aquatic Macroinvertebrate Test

Field Ecology

1. Why are aquatic macroinvertebrates so useful for evaluating water quality? Why might you use aquatic macroinvertebrates for this as opposed to, for example, chemically testing the water?

2. Calculate the diversity of a stream where you collect: 12 mayflies, 9 stoneflies, 23 snails, 2 true flies, 9 dragonflies, 6 caddisflies, and 11 other organisms. (You can calculate by hand or use excel). How would you characterize the diversity of this stream? How would you compare the diversity of this stream to one that has a diversity score of 0.83?

3. Describe how members of each of the following functional feeding groups get their food and characterize the nature of their interdependence in the aquatic ecosystem:
   a. Shredders
   b. Scrapers
   c. Collectors
   d. Predators

4. Make sure you can correctly describe the defining features of the following aquatic macroinvertebrate taxa: Ephemeroptera (Mayflies), Diptera (true flies), Trichoptera (Caddies flies), Plectopera (Stoneflies), Odonata (dragonflies), *Juga* (snails).

5. What water quality parameters are mayflies, caddisflies, and stoneflies generally most sensitive to? What would these parameters tell you about the suitability of the water for trout habitat? What would these parameters tell you about the suitability of the water for use as drinking water?

6. Using the sample data set below, calculate the water quality score by using the modified Oregon AMI water quality index on the class website – and INTERPRET this score using the same methodology.

Taxa	Number
Caddis fly	4
Mayfly	2
True fly	7
Dragonfly	1
Stonefly	2
Snail	14
Beetle Larva	4