Clear Cut?

What comes to mind?

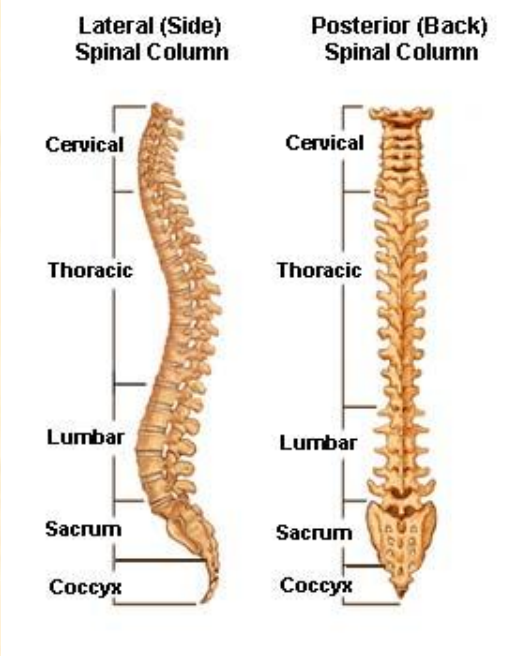

STOP FOREST CRIME

Clear cut = more Aquatic Macro-invertebrates

- “Influences of Clearcut Logging on Macroinvertebrates in Perennial and Intermittent Headwaters of the Central Oregon Coast Range” by Janel L. Banks (pgs 2 & 39)
- How can this be possible?
- What questions should we ask?
- What factors can we analyze?

Aquatic Macro-Invertebrates

- Living or growing in water
- Larger than 1mm in size (we can see them)
- Do not possess a vertebrae



Why Study Aquatic Macro-Invertebrates

- Important part of the food chain

  Feed on energy from plant material and algae on stream bottom

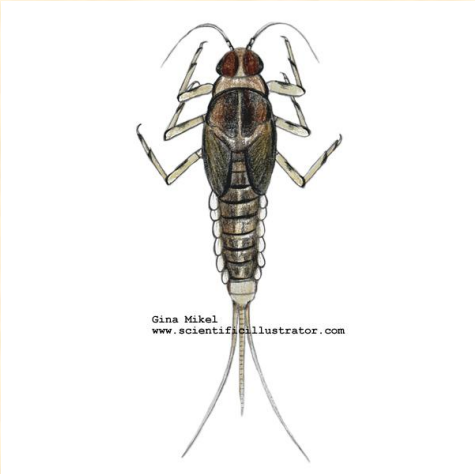
  Source of energy for fish

  Fish are source of energy for birds, raccoons, humans, etc.

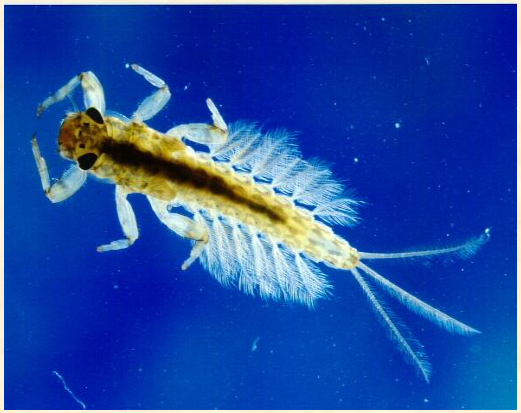
- Water quality indicators

- Easy to collect and study

Mayflies (order Ephemeroptera)



- Usually have three tails
- Abdominal gills
- Indistinct chewing mouthparts
- Feed on plant material or algae
- Variable tolerance to pollution; are generally considered cleaner water indicators



Adult Mayfly

Live for a short time, often only a single day, during which they molt twice, mate, and lay their eggs in freshwater

Emerge by the thousands from streams, ponds, and lakes at twilight in the early spring

The males form large mating swarms and when a female flies into the swarm she is seized by a male and the two depart to mate.

Lay eggs in water.

Stoneflies (order Plecoptera)

- Legs end in two claws
- Usually <u>two</u> tails
- Mouthparts not “well-developed”
- Feed on algae, dead plants, and some are carnivorous
- Indicates ample supply of oxygen, used to indicate cleaner waters

True flies! (order Diptera)

- Often headless or “head-reduced”
- No “true” legs
  (“prolegs”may be present)
- Feed on algae and other organic debris; many feed on other insect larvae
- Variable water quality indicator

Caddisflies! (order Trichoptera)

- Generally build “houses” of stones, sticks, mud
- No tails
- Feed on algae, aquatic invertebrates and zooplankton
- Represent a large range of pollution tolerance

Snails! (Genus Juga)

- Shells
- Feed on algae, aquatic plans and sometimes dead animals
- Indicate nutrient enriched conditions and poor water quality

Dragonfly (order Odonata)

- Extendable jaw under the head
- Huge eyes
- Feeds on other aquatic macro invertebrates (carnivorous)
- Variable water quality indicator

Ecological Importance of Aquatic Macro Invertebrates (inside cover)

- Are an important part of the food chain, especially for fish.
- Many invertebrates feed on algae and bacteria, which are on the lower end of the food chain.
- Some shred and eat leaves and other organic matter that enters the water.
- Because of their abundance and position as "middlemen" in the aquatic food chain, they play a critical role in the natural flow of energy and nutrients.
- As they die, they decay, leaving behind nutrients that are reused by aquatic plants and other animals in the food chain.

Aquatic MI's are Indicators

- "Indicator species" are organisms that tell us specific information about their environment through their presence or absence
- Aquatic MI's are very <u>useful indicators of water quality</u> – in particular, temperature, pH, DO, and chemical pollutants