

Rapid Periphyton Survey SOP

10-3-06

1. Measure a 100m segment of stream, placing flags every 10m.
2. Conduct a standard stream habitat assessment. If desired, the following algal observations can be done during the habitat mapping process.
3. Beginning at the "0" flag, establish a transect of 9 approximately equidistant points across the stream. Point 1 would be located approximately 0.1 m from the right bank, point 5 is at the middle, and point 9 located 0.1 m from the left bank. The remaining points are sequentially distributed between these points, approximately equidistantly.
4. Each observation point, within the above distance parameters, should be chosen haphazardly. That is, choose the actual point without looking (thereby potentially biasing your selection).
5. After selecting the observation point:
 - 5.1. If the substrate can be reached, grab a handful of material at the observation point, being careful not to lose material when bringing it to the surface. Examine the material, first out of the water, and then with the hand located approximately 2 cm below the surface. Note if algae are present in this handful by marking a "P" ("present") or "N" ("not visible") in the "Present?" column on the datasheet and measure its average thickness, perpendicular to the substrate, with a ruler. Record these data using the rank thickness classifications on the data sheet as follows; "0" indicates a rough surface with no algae, "1" for algae less than 0.5 mm OR no algae visible but surface is slimy (including muck), "2" for 0.5 mm to 1 mm, "3" indicates an algal cover of greater than 1 mm but less than 6 mm, "4" for 6-20 mm and "5" for algae over 20 mm. NOTE: examine the first substrate you encounter, which may not always be the stream bed (e.g., snag, plants, roots). Make your observations at the point where the hand encounters the substrate (i.e., if a 0.5 m long snag is grabbed, record the algal thickness based on where the hand touches it, not elsewhere). Take the measurement where the algae is representative of the entire amount in your hand (i.e. avoid measuring a single long filament when most of substrate has only a thin coating).
 - 5.2. Record the type of algae seen (filamentous, diatoms, or other).
 - 5.3. If the substrate can not be seen (e.g., in tannic waters) and can not be reached with the hand, record an "X", for that point, indicating observations are not possible using this method.
 - 5.4. If algae can be seen but not reached, then record a "P" and visually estimate the average thickness perpendicular to the substrate.
 - 5.5. If the substrate cannot be brought to the surface (i.e. a large rock or snag) but it is reachable, then rub the surface of the substrate and visually inspect to determine the presence/absence of algae and approximate thickness.
6. Additionally, at point 5 on each of the 11 transects, canopy cover should be measured using a spherical densiometer. The densiometer consists of a

concave mirror with gridwork that creates 24 $\frac{1}{4}$ -inch etched boxes. Each box can be subdivided into 4 smaller squares, via an imaginary dot in the center of each box, to create a total of 96 smaller squares that can be counted within the entire densiometer. Hold the instrument far enough away from the body so the operator's head is just outside the grid. Count the number of small squares (out of a total of 96) that DO NOT have tree canopy. Subtract this number from 96 to determine the number of dots WITH tree cover. Record this number (number of dots WITH canopy cover) for each transect under the Canopy column for point 5.

7. Repeat of the above procedures every 10m, including the 100m mark, for a total of 99 periphyton observation points.

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