

FIELD PROCEDURE: CONIFER STEM COUNT

(Source: Freudenthal 1999)

EQUIPMENT NEEDED:

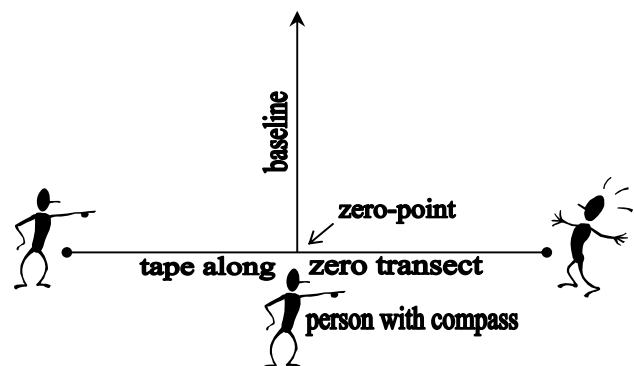
- reach map to determine reach boundaries
- 3 measuring tapes
- string
- flagging
- stakes
- data sheet, clipboard, pencil

You will count conifer stems, no matter what size or species. (You can generally stop counting at 61 stems.¹) Perform this count in January (because the brush is down then!), once every 5 years or whenever there are significant changes in your reach. Three to six people can conduct this count most efficiently. At some reaches where the stream is not safe to cross in the winter, only the "near" bank will be designated for a conifer stem count; this should be clearly indicated on the reach map.

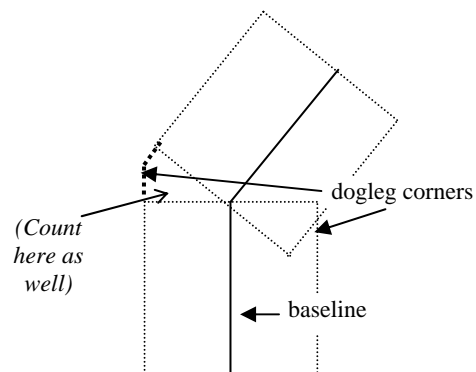
1. Establish the boundaries of your 100' x 100' reach, using your reach map to guide you (see Reach Map protocol). If these corners don't have permanent markers, you will want to temporarily mark them with flagging or stakes. To do this, have one person stand at the zero-point of your baseline with a compass and the reach map. Sight in a direction perpendicular to your baseline, and send two people off in either direction along this "zero transect," with flagging tape, stakes, and either end of a measuring tape. Direct them as they walk out to their corners, where they will place flags. (See diagram.) If possible, leave the tape along the ground and wrap the ends

¹ If your reach is larger than a 100' X 100' square, your "top-count" number will need to increase proportionately. For example, if your reach is 200' X 200', your top-count number will be 241 (because your reach is 4 times larger than the standard reach, and $60 \times 4 = 240$). However, if you are monitoring a stream with a wide channel that takes up a large portion of the reach, you may have to adjust your top-count accordingly. When in doubt, consult Streamkeepers staff or just count them all!

around the stakes, to clearly indicate the "bottom" end of the reach. (You may have to secure the tape on either bank of the stream to keep it from getting dragged in the water.) Repeat this procedure at the far end of the baseline to establish the "top" end of the reach. Then, if possible, connect the corners in the lengthwise direction using another measuring tape, a string line, etc. That way you will have your reach borders clearly marked out.



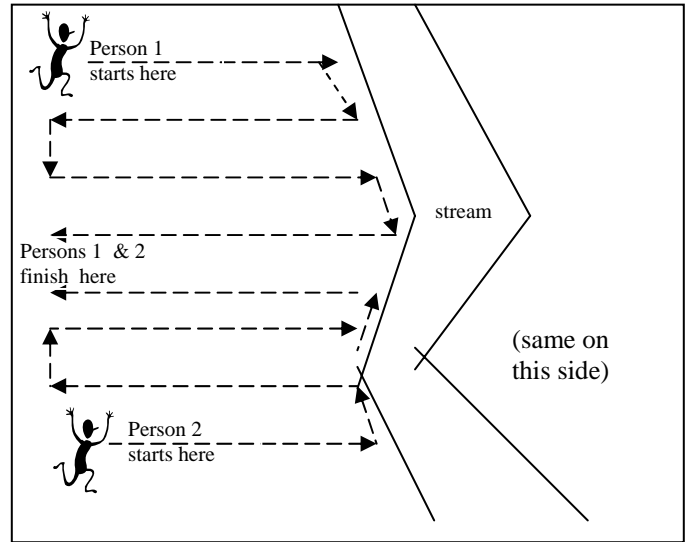
2. If your reach is not square, you will need to mark the dogleg corners as well. This gets a bit tricky, as the following diagram indicates:



3. If you don't have the outside boundaries laid out with a tape or string, flag them by having two people start at adjacent corners and call out or signal while walking toward each other, flagging along the way. **(see next page)**

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4. Have two people stand at either corner on one side of the stream.
5. Walk toward each other, zig-zagging as needed to cover the area between the stream and your outside boundary line. Count all the living conifers in this area, no matter what size or species, until you meet and have counted all the conifers on one side of the stream (unless there are more than 60 stems—see below).
6. Repeat this procedure on the other side of the stream (unless you only count conifers on one bank at that reach, or you have counted more than 60 conifers already—see below). Or, with four people, you can cover both sides of the stream at the same time.
7. Once you reach 61 stems, you can stop counting.¹
8. Total your count and enter the number (or ">60" if there are more than 60 stems²) on your data sheet. If there are no conifer stems, enter a zero.
9. In the "Sampler's Initials" box to the right of the data boxes, put all the initials of one sampler taking responsibility for the data, even if all you wrote was a zero. If more than one person worked on this data, put the initials of the person with the most experience or knowledge.



² If your top-count is greater than 61, change what you write on the data sheet accordingly. In the example from Footnote 1, if you reached 241 trees, you'd write ">241" on the data sheet.