

Simplified Instructions for Habitat Surveys

Office Preparation for Habitat Surveys: Prior to your field survey, you must purchase the appropriate gear and determine locations of your sample reaches. Gear needed for surveying includes: waders, depth rod, surveyor's tape, metric ruler or gravelometer, and thermometer. To determine your study reaches, use a mapping program (Google Earth Pro, ArcGIS Online, CalTopo) to measure roughly 1,000 feet of channel length. Record and load start and end point coordinates for each reach on datasheet and into a GPS.

Conducting Habitat Surveys: this survey requires an observer and a recorder. To begin a survey, locate the start location using a GPS. The observer will determine the first channel unit type and begin to drag a measuring tape behind them as they walk upstream. As the observer searches for average or max. depth in the channel unit, depending on unit type, the dragged tape will trail behind them in the thalweg. The recorder simply waits at the downstream end of the channel unit until one of two things occur. Either the observer has determined the upstream end of the channel unit, or the observer has walked the length of the tape upstream. For the latter, the recorder notes the length and meets the observer upstream to continue measuring. When the observer concludes a channel unit, recorder notes total channel unit length and collects other relevant depths and widths, depending on type of channel unit. Survey crew may also record total large wood area in the unit (if present) or take a pebble count in fast riffle units. The survey continues until you reach the end point on the GPS.

USFS Habitat Survey Channel Unit Form Descriptions (modified)

Unit Type & Number: each channel unit you measure will be categorized as a slow, fast, or dry main channel unit or a slow or fast side channel. Use the Unit Codes to distinguish the type of slow or fast moving water. Number the channel unit types as they build in frequency. *Note- Slow water (deep pools) are considered deep enough for a fish to find cover or overwinter. Their residual depth (max depth minus tail crest depth) must be equal to or greater than 1.0 foot in plains and 0.8 feet in the foothills and canyons.

Length: the total length of your channel unit, measured to the nearest 0.1 foot. Once you have reached a new channel type, instruct your recorder to "break" the unit. Recorder will read and note the length of the unit.

Wetted Width: the cross sectional, wetted width of the channel unit, measured to the nearest 0.1 foot. After breaking your unit, measure the cross section of your channel's wetted width. Select a cross section that best represents the entire unit.

Pocket Pool Area: a pocket pool is a pool that's length is less than the channel wetted width and width is less than half the wetted channel wetted width. Often times, pocket pools exist behind isolated boulders in fast moving channels. If you see one or more pocket pools in a channel unit, record the cumulative area of all pools for each channel unit. *Note- Pocket pools must be habitable pools (see Unit type & Number for details).

Average Depth: the average depth of water in fast moving channel units, measured to the nearest 0.1 foot. While surveying the fast channel unit, take continuous measurements of depth throughout the wetted area and estimate the average depth. After breaking your fast unit, let the recorder know an avg. depth.

Pool Crest Depth: the depth water at the downstream end of a pool, measured to the nearest 0.1 foot. At the beginning of any main channel or side channel slow units, take measurements of depth along the downstream "rim" of the pool. This is where the pool ends and water "spills over" to another channel unit type. Note: you need this measurement to determine the residual pool depth, or the depth of water in a scoured pool vs. the depth of water flowing above it.

Maximum Depth: the maximum depth of water in slow moving channel units, measured to the nearest 0.1 foot. While surveying the slow channel unit, take continuous measurements of depth and take note of the max depth. After breaking your unit, let the recorder know a max depth. In order to be a pool, the max. depth — pool crest must = 1.0 ft or greater in the plains and foothills or 0.8 ft or greater in the canyons (residual pool depth).

Pool Width: sometimes, a pool does not span the entire width of the slow unit, so you record the pool area width in addition to entire channel unit's wetted width. You will use the slow channel length and full wetted width to calculate wetted area of the sample reach, but you will use slow channel length and specific pool width to calculate pool area of the sample reach.

Formed By: the type of material or obstruction that creates a pool channel unit. These may be singular or a combination of features. For example, if a pool is formed by boulders, record 'BO', or if a pool is formed by a restored wood revetment, record 'RS/WD'.

Water Temperature: the temperature of water per sample reach, measured in degrees Fahrenheit. Take water temperature measurements in 1-3 channel units. Number of measurements depend on need.

Pebble Count: indicate if you took a the cross sectional pebble count in the applicable fast moving channel unit, following the Wolman Pebble Count protocol in the USFS Stream Inventory Handbook. Within each sample reach, take a pebble count only in 2-3 fast moving units. Number of surveys depends on need.

Large Wood Area: if present, record the approximate area of all large wood (trunks, root wads, debris jams, etc...) in bankfull. Do not include cumulative area of small twigs and woody debris scattered along banks.