Practical Guide for Strategic Wood Additions (SWA) to Streams in Northern New England (ME, NH and VT)

Once a stream has been identified suitable for a wood addition project, use this guide for easy to understand instructions, photos, and diagrams to install the project. The goal of this work is to restore a natural level of large wood in the stream to enhance habitat and improve water quality without forcing the stream to cut a new channel. Wood in streams can create/modify pool, riffle, glide and cascade habitat used by brook trout, invertebrates, and other wildlife.

"Installation" is a location where wood is added. These can consist of varying styles and from one to several logs. A good goal is 3 installations for each 100 feet of stream depending upon local site conditions but it is not a requirement. Most installations should touch the water at low flow. Below are guidelines to help direct work. Be sure to review Guidelines for Strategic Wood Additions (SWA) to Streams in Northern New England (ME, NH, and VT) including the State Specific Guidelines on page eight.

How much wood to add?

Wood loading additions should be at least 4 pieces of large wood (6" diameter +) per 100', on average, for small streams (≤ 10 feet bankfull width) and at least 6 pieces of large wood per 100', on average, for larger streams (>10 feet bankfull width). Where larger diameter stems are limited, 4-5" diameter pieces may be used where they can be secured in smaller streams. A "piece" should also be at least 6 feet long but usually will be an entire tree. Large wood can be placed as individual pieces or in clusters as some combination of the following (see also diagrams below):

- Logs somewhat perpendicular to stream channel, touching water, ultimately creating a cascade/pool. If needed, a log on top to secure it.
- Criss-crossed logs with several branches to accumulate leaves and provide invertebrate habitat; this also may create a pool.
- Adding new pieces to areas with existing natural downed wood.

Every ~300 to 500 feet make one larger "strainer":

- The purpose of the strainer is to catch dislodged wood, and where the channel is not too deep, re-engage the floodplain. It should be constructed with 2 or more

logs. The top of the strainer should be slightly higher than the high-water line identified where the water, if above that line (a.k.a bankfull) would flow overland into the floodplain.

Important Guidance:

- **Get wood on the streambed:** Wood that is not in contact with the water will eventually rot away, but the wood that is at least partially submerged can last for decades or even centuries. Attempt to get some pieces of wood in close contact with the streambed. This may require cutting logs to length and wedging them between boulders or other features. Hardwood logs work best for this technique because they have less buoyancy. A tree or two felled on top of this log will help to hold it in place until it becomes waterlogged.

- **Secure the wood**: Large trees dropped into small streams are unlikely to move during high flows. In larger streams, where the average tree height is less than twice the bankfull width, additional measures must be taken to secure the wood. Use boulders, holes in the banks, bends in the channel, standing live riparian trees, stumps and the weight and size of the logs to be sure logs stay in place. A grip hoist or other device can be used to position downed logs into secure configurations. Logs that are unstable/unsecured (see Sample Stream diagram below) do not count in the total of added wood.

- **Downstream Infrastructure:** In general, don't add wood within 1,000 ft upstream of bridges/culverts. Stream bends, large mid-channel boulders, islands and wetlands downstream of installations can help catch wood.

- **Pick suitable trees:** Use logs at least 6 inches in diameter. Large pieces are best. Use low-value, or crooked trees if possible. Commonly utilized species include hemlock, beech, red maple, ash, spruce and fir. Sub-canopy trees are ideal when possible, to reduce the reduction of canopy cover above the stream channel.

- **Protect buffer:** Maintain shade on the stream. Don't cut trees directly on the bank; these are important for bank stabilization. Also, trees near the stream are important future habitat as they fall. Where feasible, take some trees further from the stream (>25ft).

- **Protect habitat:** No dead trees, and no trees with cavities may be felled or damaged during the felling of other trees (bat and bird habitat). No tree cutting in June/July but always check in with NRCS.

- **Capture Sediment:** Where floodplains are evident, consider cutting and dropping trees in the floodplain to increase roughness to capture sediments during out of bank flows. This will not count toward SWA pieces per 100 feet unless a portion of tree is also in the stream.

Project Implementation Pictures

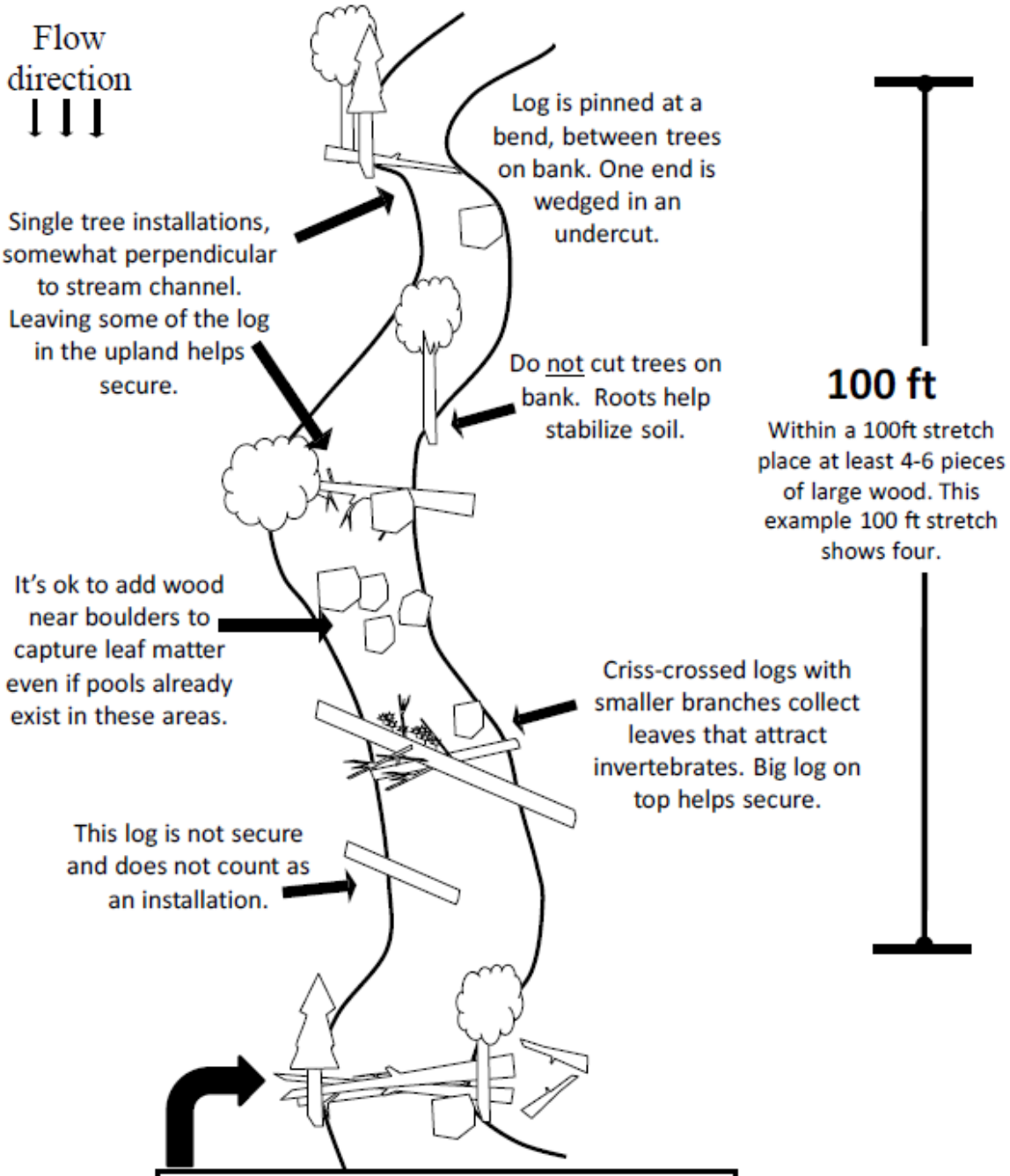
Winching log perpendicular to channel and at a natural bend

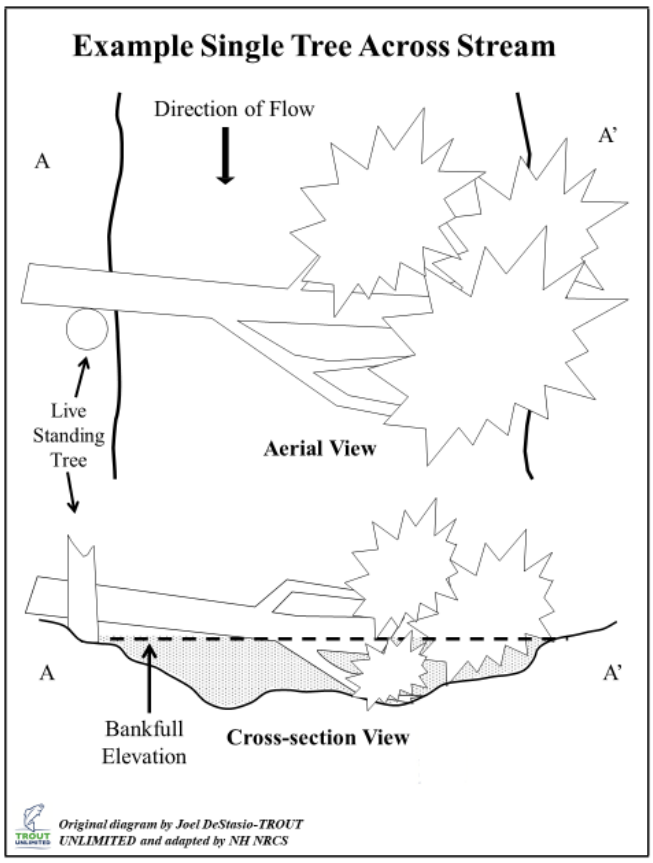
Installation with 2 logs and branches to accumulate leaves and attract bugs

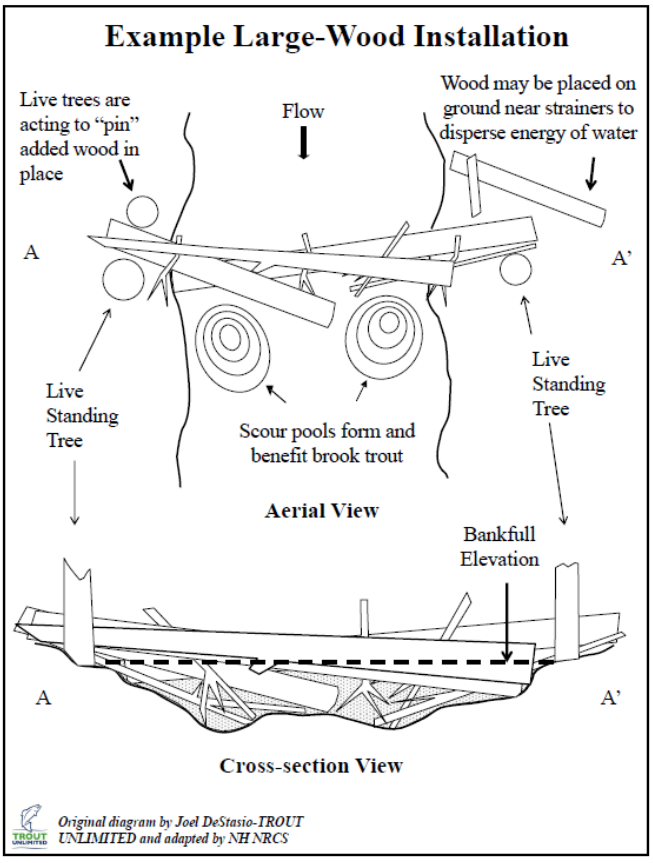
A pool has formed. A cascade has developed over the log.

A "strainer" is where logs are above high water line/bankfull—to catch loose wood

A sample stream with added wood







The above picture shows the ultimate result of habitat for fish, insects, salamanders, and other organisms created from wood additions. Note the pools, cascade, riffle and glide.