

Articulated Ladder Use within the SPRUCE Enclosures

An articulated multi-position ladder will be used to access the tree canopies within the SPRUCE treatment plots. The ladders have several configurations through the use of 3 pairs of 3-position MULTI-LOK® Hinges that can allow access to various locations within the chambers. The ladders have horizontal bases to provide stability. The basic configuration is as a 6' or 8' stepladder, depending on model.

Use of ladders:

- 1) Use of these specialized ladders must be approved by the PI or his delegate prior to use. A current list of users shall be maintained by the PI or his delegate. Users must practice and demonstrate proficiency with ladder carrying, unfolding, and setup onsite prior to use within the chambers.
- 2) ORNL ladder training required for all users.
- 3) Ladders must be visually inspected for damage prior to use. Any ladders that are damaged (bent, hinges not working smoothly, etc.) should be tagged (DO NOT USE), taken out of service, and notification sent to Robert Nettles.
- 4) After setup and prior to use, all 6 MULTI-LOK® Hinges must be confirmed as 'Locked'. NOTE: The hinge indicator is **RED** when the hinge is unlocked.
- 5) Only ladder positions 1, 2, 3, 7, 13, 14 (in Figure 1.1) are allowed.
- 6) Users must remain on the ladder rungs, and are not allowed to step on top of the scaffolding position #7
- 7) Ladders may be used on the exterior boardwalks or interior (dropdown) planks, or spanning both.
- 8) Prior to use on the interior planks, the user must verify the planks are fully lowered, level, secure, and stable.
- 9) Ladder bases must be stable and even on boardwalks/planks. A rubber mat will be available for use between the ladder bases and boardwalks/planks to reduce potential for slippage.
- 10) Users must be aware of hand placement when setting up the ladder due to the potential for pinch/nip points.
- 11) While transporting and setting up ladders, extreme care must be taken not to abrade or damage the vegetation, or bump or damage existing equipment within the plots.
- 12) Users must not lean out from ladder to access trees, but work with branches that reach, or can be pulled over to, the ladder.
- 13) Sampling equipment (e.g., LICOR 6400) must be stable and secured to prevent dropping accidentally.

Ladder positions:

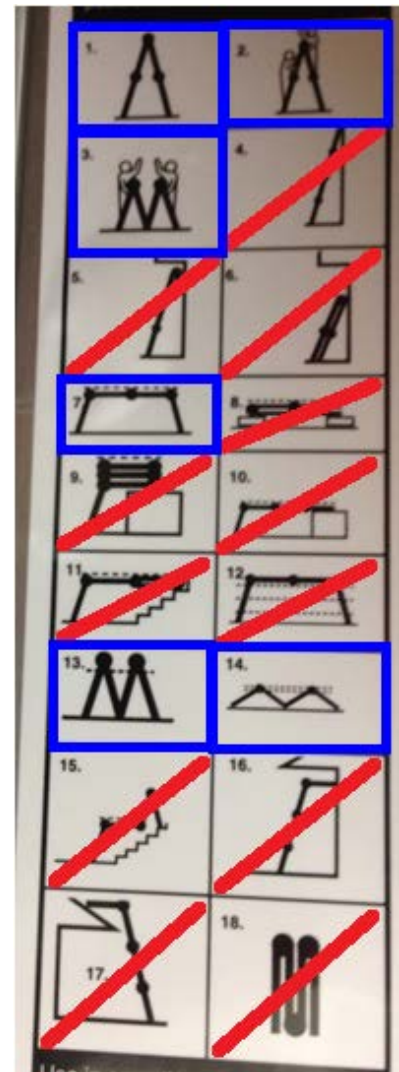


Figure 1.1

Link to ladder description:

<http://www.wernerco.com/us/en/viewseries/Products/Climbing%20Equipment/Multi-Purpose%20Ladders/M1A>

*****NOTE: Staff must report and record any events where the ladders inadvertently fall into the plots. This requirement will provide a record of any disturbance to the plot biology.*****