

# TECHNICAL NOTES

## A Multipurpose Inventory Tool

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### Abstract

A collapsible, graduated multipurpose rod was designed and used in a multiresource inventory. The rod is lightweight and variable in length. It can be used to estimate several vegetation and soil variables, measure water depth, or function as an equipment support and reference point. The approximate cost per 1-m unit is \$3.50 and 2 hours labor.

During the planning stages of a multiresource inventory techniques research project (Francis 1979), the authors designed and built a multipurpose rod to aid in the accomplishment of the project goals. The rod described is a modification of other designs (Evans and Love 1957, Owensby 1973). This new tool is lightweight, compact, durable, extendable, and multipurpose. Also, it is inexpensive, with a material cost of \$3.50 plus 2 hours labor.

This rod was used in part as an inclined step-point pin to obtain foliar and basal hits on vegetation and soil surface factors. It was also used as a vertical support rod for a rated microplot (Morris 1973) to estimate foliar cover, basal area, density, and the cover of soil surface factors.

Other functions of this rod were to measure herbaceous and shrubby plant height; estimate small tree height; measure litter depth, soil profile depth, and water depth; and serve as a reference scale and chalkboard support for photographic documentation of field sample sites. The intent of this paper is to report on the construction and possible uses of a multipurpose sampling tool, not to report the differences between specific research techniques or results.

### Design and Assembly

Hollow, fiberglass arrow shafts 95 mm (3/8-inch) in diameter by 812.8 mm (32 inches) in length were used (Fig. 1A). Variable length shafts were made by cementing an internally threaded insert (Fig. 1B) and a 2-inch by 8/32 machine screw into one end of each shaft (Fig. 1C). A threaded insert was cemented into the opposite end of each shaft. A pointed metal nock insert was cemented to the end of the shafts that touched the ground (Fig. 1D). A waterproof multipurpose cement worked satisfactorily.

One-meter rod segments that had direct contact with the ground were divided into centimeter and decimeter increments by using different colored paint (Fig. 2). Rod segments extending beyond 1 m had color-coded decimeter increments.

Paint was applied to the various increments by dipping taped shafts or using a crester. A crester rotates the shaft while a paint applicator is held against the shaft. The decimeter or meter increments were numbered with permanent ink after the paint dried. The shafts were then dipped in lacquer to protect the paint.

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### Application and Discussion

In addition to using the rod as a step-point, a microplot attachment was developed for use in conjunction with the rod. The microplot was attached to the rod with an arrow shaft clip (Fig. 2). The clip allows the microplot to be easily attached, lowered, and raised on the rod. Previous step-point pins and microplots were permanently attached to supports, thus rendering them useful for only one specific purpose. This tool is useful for several inventory technique applications.



Fig. 1. Multipurpose inventory rod showing arrow shaft (A), internally threaded inserts (B), screw (C), and pointed metal tip or nock insert (D).

By attaching 2 arrow clips to a small chalkboard, the rod becomes a scaled support for use in site documentation photography (Fig. 2). Also, the graduated rod can be used to measure soil profiles and as a reference in soil profile photos, and to measure water depths or to obtain ocular tree height estimates using several rod sections.

The increment paint colors which were the most visible under several field conditions were bright blue, fluorescent red, and white. Advantages of this rod include its light weight, durability, strength, compactness, ability to float, nonwarping construction material, variable length, and multifunctional use. With minimum care, the rod should last indefinitely.

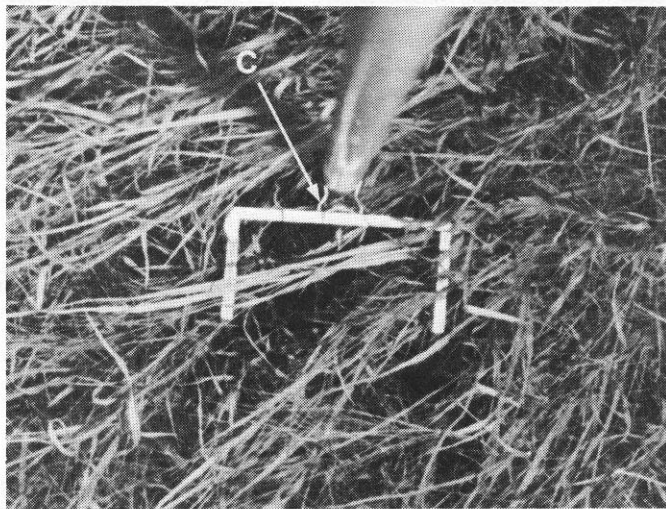
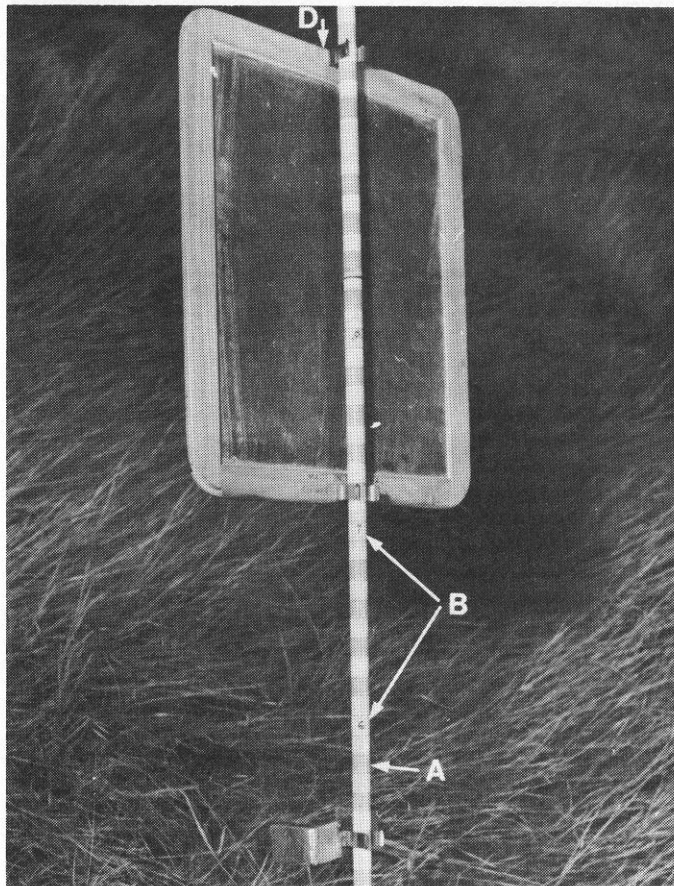


Fig. 2. Multipurpose inventory rod showing centimeter (A) and decimeter (B) measuring increments. Also shown is the microplot (C) and chalkboard (D) attachments utilizing arrow spring clips.

### Literature Cited

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