

Equipment Identification

tree stick – A hand-held measuring stick measures tree diameter and help determines board foot volumes of logs with volumes printed on the stick. It will also determine board foot volumes of standing trees and it can be used to determine tree heights.

diameter/logger's tape – A tape measure specially graduated so that diameter may be read directly when the tape is placed around a tree stem or log.

increment borer – A tool used to take a small core from the bole of a tree to determine growth rate.

bark gauge – A tool used for measuring bark thickness. It is used for accurate cruising and scaling measurements.

tree caliper – An instrument used for determining tree and log diameters by measuring their rectangular projection on a straight graduated rule via two arms at right angles to the rule itself. One of them slides along the rule.

pulaski forester axe – A tool used in firefighting that is a combination of a mattock, used for grubbing or trenching, and an axe, used for chopping.

stereoscope – A tool used to give aerial photographs a three-dimensional effect. It requires the simultaneous viewing of the overlapping portion of a stereoscopic pair of aerial photographs so that the right eye sees only the right photograph and the left eye sees only the left photograph. These two separate images of the same piece of terrain are fused by the brain to produce a single three-dimensional image in the mind of the observer. There are three types of stereoscopes: the lens or pocket stereoscope, the mirror stereoscope and the zoom stereoscope. In general, mirror stereoscopes provide better optical quality than pocket stereoscopes. Although most standard mirror stereoscopes have little or no magnification, binoculars can be fitted to provide high magnification, allowing identification of fine details.

GPS receiver – This equipment works with satellites to give accurate map information. GPS, which stands for Global Positioning System, is the only system today able to show you your exact position on the Earth anytime, in any weather, anywhere. GPS satellites, 24 in all, orbit at 11,000 nautical miles above the Earth. They are continuously monitored by ground stations located worldwide. The satellites transmit signals that can be detected by anyone with a GPS receiver. Using the receiver, you can determine your location with great precision. The first GPS satellite was launched in 1978. It was a developmental satellite called GPS Block I. Another nine Block I satellites were launched through 1988.

soil sampler – This tool is a hollow metal tube that is pushed into the soil, turned slightly and pulled from the ground to remove a core of soil. The soil sample can reveal the depth of soil layers, the placement of compacted areas, clay pans or other hard pans, and color differences at different levels. The soil sample can be tested in the field with a soil test kit or sent off for testing.

wedge prism – A point sampling instrument that is a tapered wedge of glass that bends or deflects light rays at a specific angle.

relaskop – An instrument that can be used to measure stand basal area and tree height and diameter at any point up a tree bole. The relaskop works as a rangefinder, a clinometer, a dendrometer, an angle gauge, and a slope correction device.

staff compass – A large compass that can be placed on a staff or tripod and is used in surveying.

hand compass – An instrument which indicates magnetic north. The essential parts of a compass are the magnet, usually in the form of a needle, which is balanced on a jeweled bearing or pivot, and a graduated circle with 360 degrees of azimuth or four 90 degree quadrants. These components are housed in a box or frame that has a sighting device with which to aim at the objective. It is used for orienting maps, determining directions on maps and orienteering.

tree planting hoe or bar – This tool is a long metal pole with a blade on the end and is used in planting trees.

log rule – A wooden stick that has a table printed on it that is based on a diagram or mathematical formula used to estimate volume or product yield from logs and trees. Three log rules are used today: Scribner is the common scale for pine; Doyle is the common hardwood scale; and the International 1/4" Rule best measures mill output, although it is used less frequently than the other log scales.

planimeter – This instrument is used to mechanically measure an area by tracing the perimeter on a plane surface. Typically used to estimate the size of an area from scale maps an instrument for measuring mechanically the area of plane figures. It is the most accurate means of measuring areas, whether enclosed by straight lines or curved lines, directly from maps.

hip chain – This is a measuring tool that attaches to a belt. A thread is attached to an object and as the person walks the thread is drawn from a spool attached to a counter inside a case, and the distance traveled is displayed on the odometer-type counter.

plastic flagging – PVC vinyl or other material that is about an inch wide on rolls available in multiple colors and used in surveying, forestry, orienteering and landscaping.

tree marking gun – A paint applicator used with tree marking paint to mark trees on a plot of land indicate whether to cut or to leave on a thinning site.

clinometer – An instrument used for measuring the angle of an incline. It measures the vertical rise or fall from horizontal at a specified distance from the observer. They are used by construction workers to measure grade angles, by forestry workers to measure the height of trees, and by movie directors to measure the height of the sun. They are also used by satellite antenna installers to find satellites.

canthook – A pole with a clasp and extension toe ring attached to one end. It is used to roll and maneuver logs.

chainsaw – A piece of equipment that runs on gasoline and is used to cut down trees.

safety hard hat – Protective gear that is worn on the head when working in the field.

chainsaw chaps – Protective gear that is worn over pants when operating a chainsaw.

safety glasses – Protective gear that is worn over the eyes when operating equipment.

altimeter – An instrument that measures the altitude of the land surface or any object such as an airplane.

tally meter – a device that is used to count animals or trees, take surveys, perform warehouse inventories, engineer surveys, etc. They can have one button or several so that more than one item at a time may be counted.

fire rake – This tool is used to cut and remove small brush on fireline during suppression of wildfires.

drip torch – A torch used for slash and brush disposal, roadside burning, agricultural clearing or back-firing.

fire weather kit – Instruments used to take fire weather measurements in the field. Includes a sling psychrometer, a wind meter, a liquid-filled compass, a mechanical pencil, a psychrometric slide rule and a fire weather report board with forms.

tally book – A book of tally sheets used in tallying lumber and cruising timber.

fire-swatter – A flap of rubber treated webbing riveted to a shank assembly attached to a hardwood handle used in fire suppression to smother grass fires.

dot grid – A sheet of transparent plastic marked off in 1-inch squares which are subdivided into 16 squares. There are four dots in each small square, making a total of 64 equally spaced dots per square inch. The sheet is laid over a map or photo, and the dots are counted that fall within the boundaries of the area being estimated.

back-pack fire pump – A lightweight, collapsible backpack used to carry water to remote areas to aid in the suppression of wildland fires.

plant press – two pieces of wood or other material cut the same size that can be pressed together tightly with a strap, rope or elastic band. Plant specimens are placed between blotting material and placed in the press to be pressed and dried.

flow/current meter – A device used to measure the flow or current of a moving body of water.

soil test kit – This is used to conduct field tests on soil. Kits can determine the pH, nitrogen, phosphorus and potassium contents in soil samples.

water sampler – A device used to take water samples from a stream, pond or lake.

densiometer – This instrument estimates forest canopy coverage. It can measure forest overstory density from unobstructed sighting positions. The instrument uses a spherical-shaped reflector mirror engraved with a cross-shaped grid of 24 quarter inch squares. It is helpful when establishing spacing standards in forest thinning and determining light requirements for regeneration.

water test kit – This is used to conduct field tests on water. Kits can determine the dissolved oxygen, chlorine, nitrate, phosphate, iron and ammonia contents of the water.

pH meter – A device used to measure the pH of water or soil.

hand lens/field microscope – A small magnifying glass that can be carried in a pocket and used in the field to magnify an object.

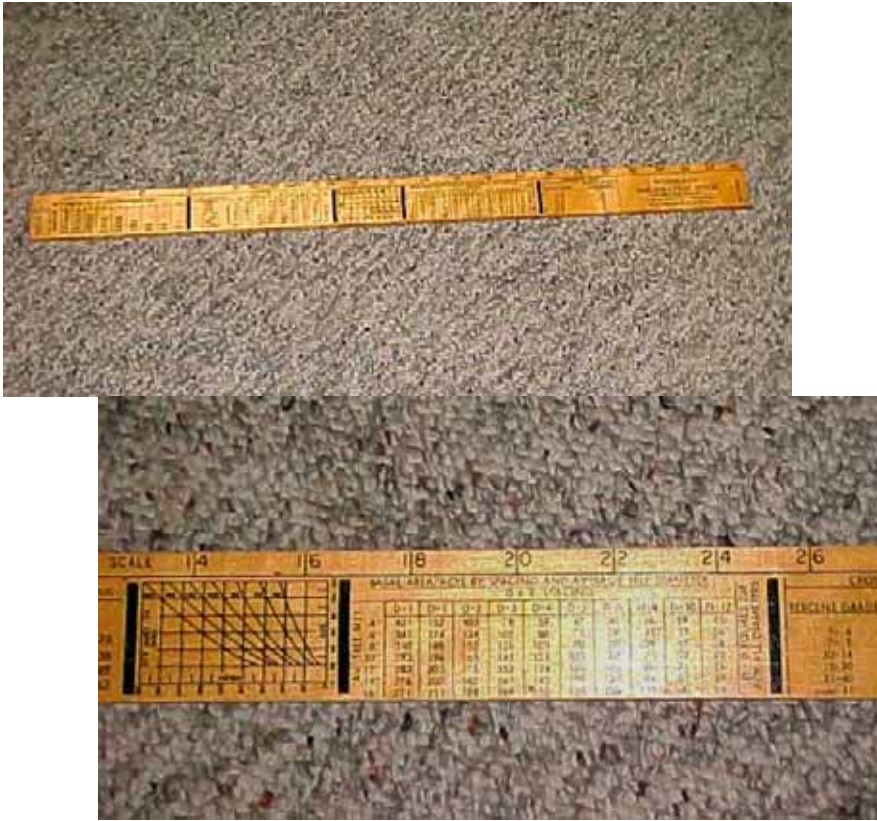
**NEW MEXICO FFA FORESTRY
CAREER DEVELOPMENT EVENT
EQUIPMENT ID LIST**

| Item # | | Item # | |
|---------------|-------------------------------|---------------|----------------------------|
| 1 | tree stick | 23 | chainsaw |
| 2 | diameter/loggers tape | 24 | safety hard hat |
| 3 | increment borer | 25 | chainsaw chaps |
| 4 | bark gauge | 26 | safety glasses |
| 5 | tree caliper | 27 | altimeter |
| 6 | pulaski forester axe | 28 | tally meter |
| 7 | stereoscope | 29 | fire rake |
| 8 | GPS receiver | 30 | drip torch |
| 9 | soil sampler | 31 | fire weather kit |
| 10 | wedge prism | 32 | tally book |
| 11 | relaskop | 33 | fire swatter |
| 12 | staff compass | 34 | dot grid |
| 13 | hand compass | 35 | backpack fire pump |
| 14 | tree planting hoe or bar | 36 | plant press |
| 15 | log rule | 37 | flow/current meter |
| 16 | planimeter | 38 | soil test kit |
| 17 | survey instrument (some type) | 39 | water sampler |
| 18 | hip chain | 40 | densiometer |
| 19 | plastic flagging | 41 | water test kit |
| 20 | tree marking gun | 42 | pH meter |
| 21 | clinometer | 43 | hand lens/field microscope |
| 22 | canthook | | |

New Mexico Forestry Contest

Equipment Identification

101. Tree Stick



Used to
measure
tree
heights
and to
determine
board foot
volumes of
standing
trees

102. Diameter/Logger's Tape

A two-sided
tape that
can be used
to measure
the diameter
of a tree or
the distance
away from
the tree.



103. Increment Borer



Used to take a core sample of wood from a tree to determine growth rate, age and tree soundness.

104. Bark Gauge



Used to measure the bark thickness of trees. When pressed against the bark, the scale recedes into the handle and the borer cuts out a core of the bark.

105. Tree Caliper



Used for measuring the diameter of trees, logs, and poles.

106. Pulaski Forester Axe



A combination of mattock and axe used in firefighting.

107. Stereoscope



Used to view aerial photographs.
Gives a three-dimensional image.

108. GPS Receiver

Global Positioning System is used to plot positions or to find a particular position. Also used to create maps.



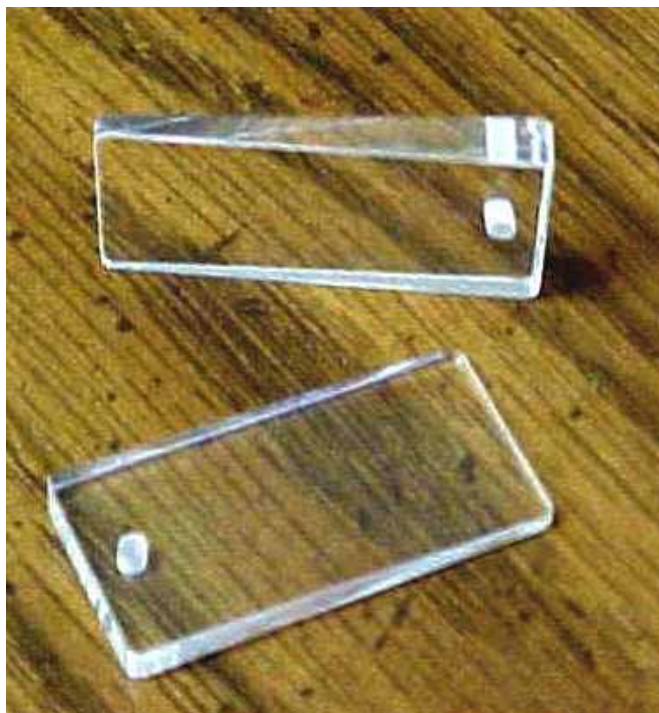
109. Soil Sampler



Used to remove a soil core sample from the soil to check soil type, conditions and consistency.

110. Wedge Prism

Used in timber cruising to determine forest stocking level and tree basal area.



111. Relaskop



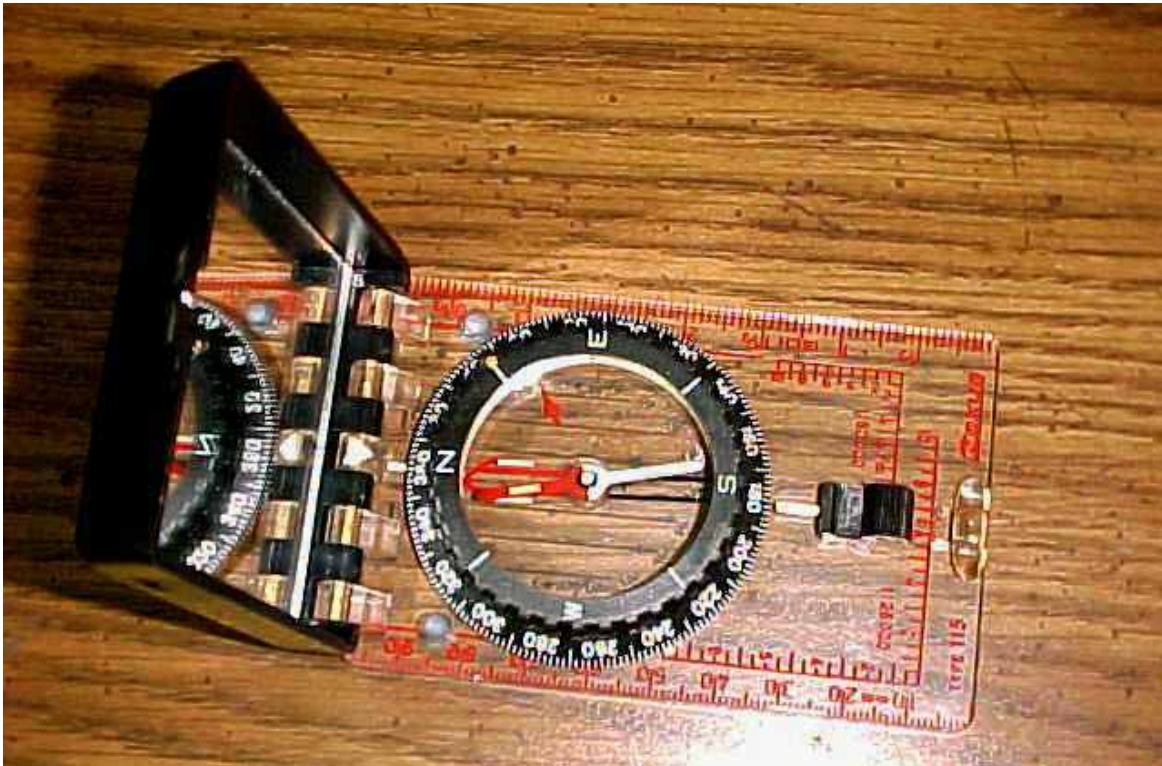
A relaskop can be used as a rangefinder, a clinometer, a dendrometer, an angle gauge, a prism and as a slope correction device.

112. Staff Compass

A compass that is placed on a jacob staff and used to determine the direction of a line.



113. Hand Compass



Used to determine which direction is north, to determine the direction of an object or to follow an azimuth.

114. Tree Planting – Hoe or Bar



A device used to open and close a planting hole during reforestation.

A yellow folding ruler with a black handle is shown. The ruler is extended, showing its segments and the black handle. The ruler has a yellow body with black markings and numbers. The handle is black with yellow text. The ruler is placed on a light-colored surface.

Used to measure perimeter and acreage of features on the hard copy of a map or aerial photo.



117. Survey Instrument



A Transit is used to survey property lines or roads.

118. Hip Chain

Used to
measure
distances
in feet.



119. Plastic Flagging



Used to delineate things in the woods.

120. Tree Marking Gun



Used to mark timber and timber sale boundaries with paint.

121. Clinometer



Used to measure tree height and slope.

122. Canthook



Used to roll heavy logs.

123. Chainsaw

Used to
cut wood
and fell
trees.



124. Safety Hard Hat



Protective head gear used in field work.

125. Chainsaw Chaps

Protective
gear used
when
operating a



126. Safety Glasses



Protective gear used in field work to protect the eyes.

127. Altimeter



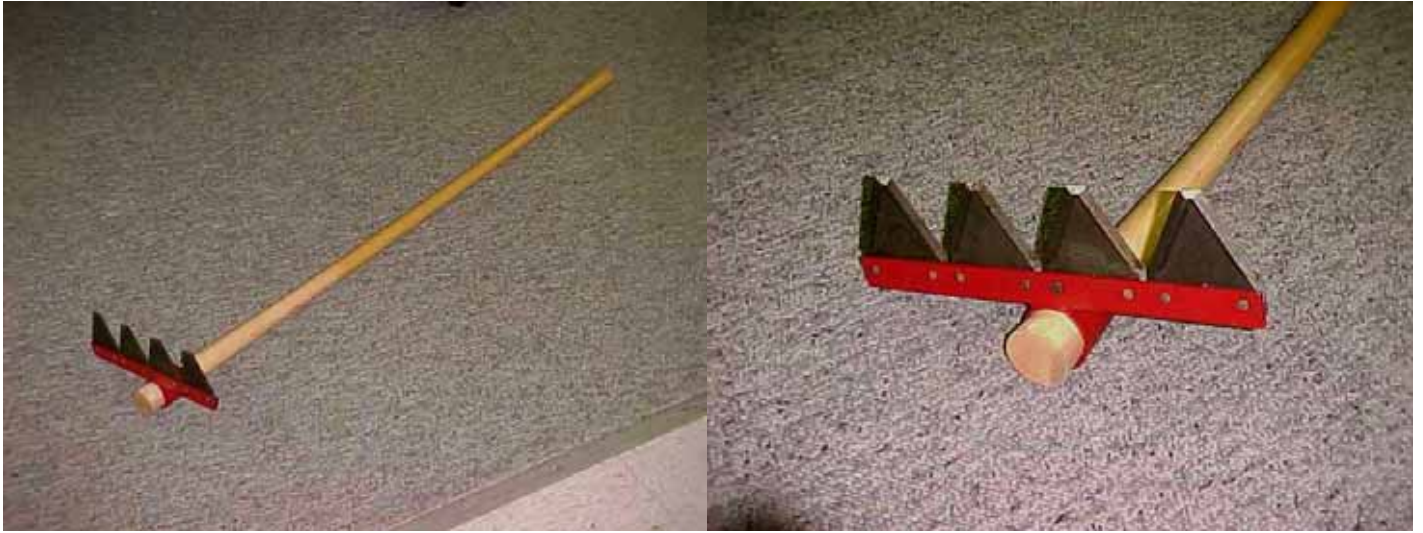
Used to
measure
elevation.

128. Tally Meter



Used to count things. Each button counts a different object.

129. Fire Rake



Used to clear forest litter and duff material to bare mineral soil to contain wildfire.

130. Drip Torch

Used to create blacklines for control burns or to start a burnout or back burn during fire containment.



131. Data Recorder

Used to gather field measurements. Data is often downloaded into a computer.

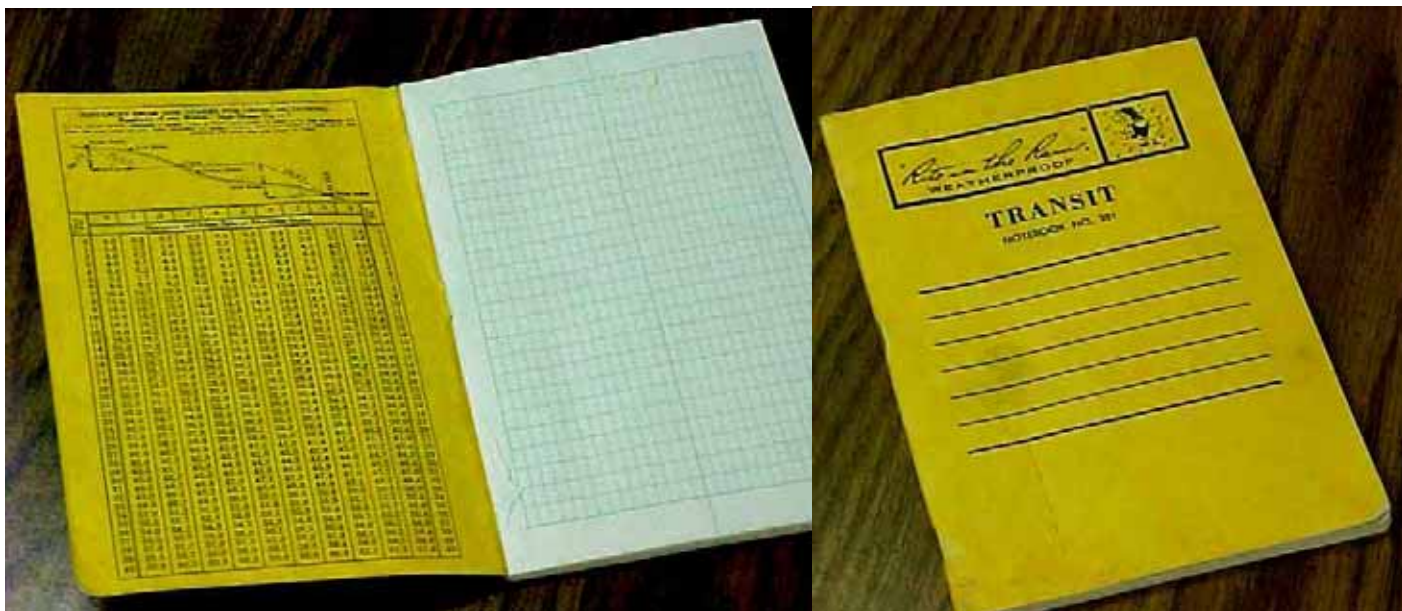


132. Fire Weather Kit



Used to measure relative humidity, wind speed and direction, temperature, and fuel moisture during fire operations.

133. Tally Book



Used to document field measurements.

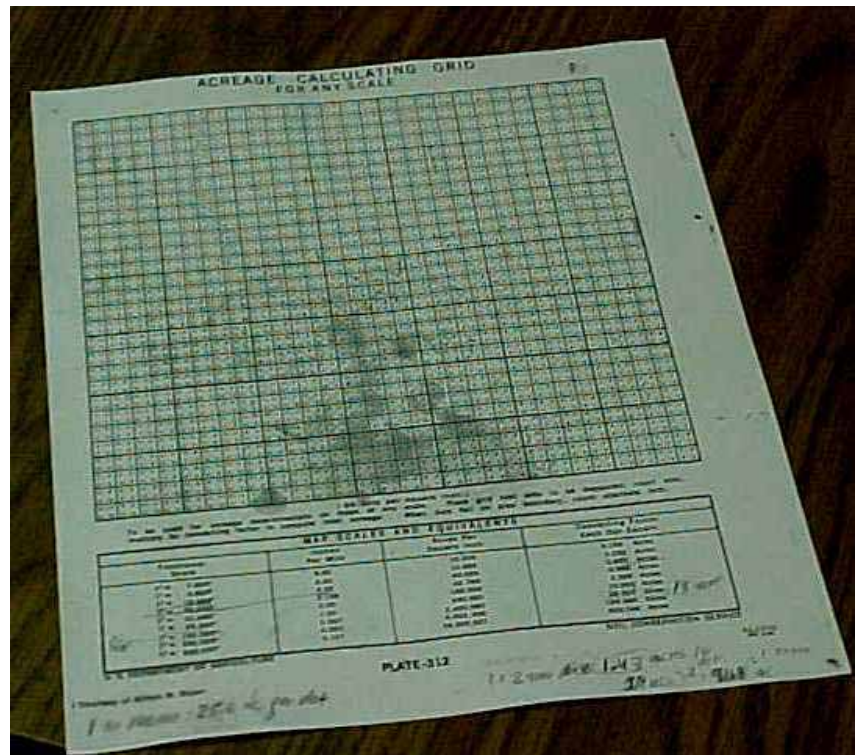
134. Fire-Swatter



Used to smother fires in light fuels.

135. Dot Grid

Used as an overlay over maps or aerial photos to estimate acreages.



136. Back-pack Fire Pump



Used to carry water to remote fire locations and cool off burning material.

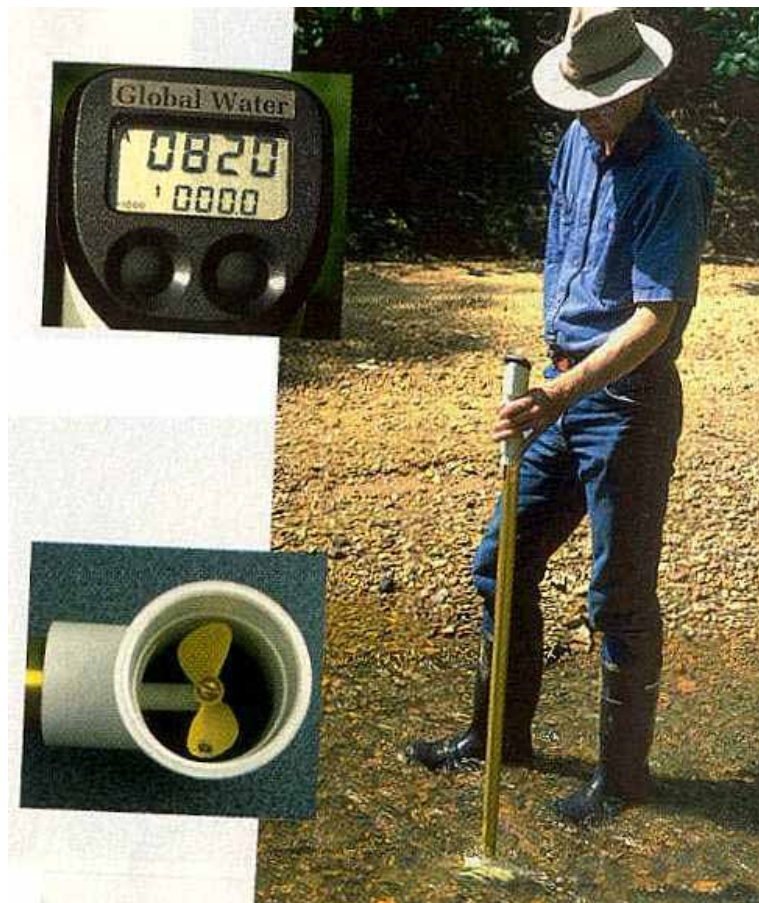
137. Plant Press



Used to
collect
preserve
plants.

138. Flow/current Meter

Used to
determine
the flow rate
of moving
water.



139. Soil Test Kit



Used to test soil for pH, nitrogen, phosphorus, and potassium levels. Also gives results for soil texture and classification.

140. Water Sampler

Used to gather water samples for testing from any depth. Can determine temperature and dissolved oxygen content.



141. Densiometer



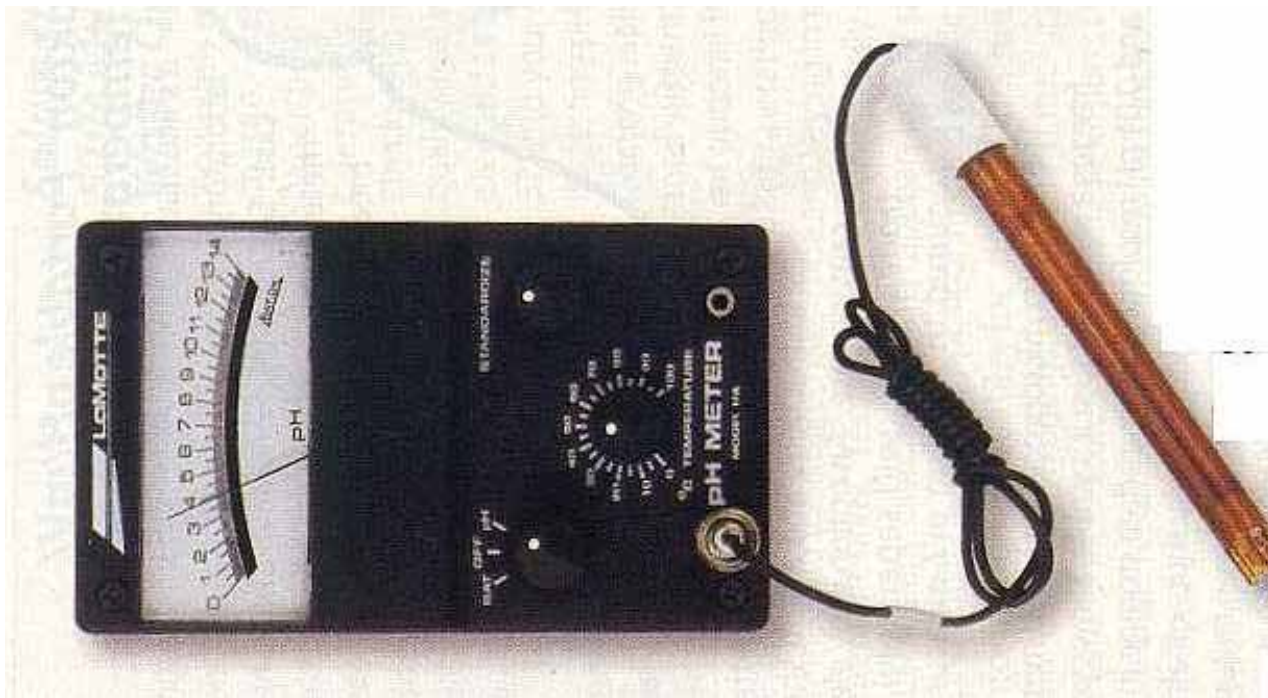
Used to measure forest overstory density.

142. Water Test Kit



Used to test water for pH and water hardness and to test for levels of nitrogen, oxygen, phosphate, carbon dioxide, and chloride.

143. pH Meter



Used to test water and semi-solids for pH value.

144. Hand Lens/Field Microscope



Used to magnify objects in the field for better observation.