

**CHAPTER**

**13**

**USING AN  
INCREMENT BORER**





# Using an Increment Borer



**Figure 13.1.** An increment borer can be used to determine tree age without cutting the tree.

Understanding how a tree or forest stand grows is important in planning future management, particularly harvest activities. Increment borers are tools used to determine tree growth and age with minimal damage to the tree.

Practically all conifers and some species of hardwoods exhibit a wood growth pattern in which two distinct layers of wood are produced each growing season. Wood that is produced in the spring or earlier part of the growing season is typically lighter in color and less dense than wood grown in the summer or later part of the growing season. This gives a distinctive striping of alternating light and dark rings across the cut surface of a tree. We can use these rings to determine age and past growth of the tree.

The striping of alternating light and dark rings across the cut surface of a tree can be used to determine age and past growth of the tree. Because we usually do not want to cut down a tree just to know how old it is or how it is growing, we can use an increment borer to determine this with minimal tree damage.

Because we usually do not want to cut down a tree just to know how old it is or how it is growing, we can use an increment borer to determine this with minimal tree damage (figure 13.1). An increment borer is composed of three parts: the handle, the borer bit, and the extractor (figure 13.2.). It is used to extract a small circular core of wood from a tree, log, or pole to determine (1) the age of standing trees by counting annual growth rings or (2) past growth of live trees for assessing stand condition and projecting future growth.

## STEPS TO USING AN INCREMENT BORER

1. Make sure that the extractor has been removed from the bit before boring.
2. Check the tree for defects, nails, wire, etc., and do not bore the tree where these exist.
3. Select a location on the tree that is about 4.5 feet above the ground. Place the borer bit threads against the tree in a bark fissure or where the bark is thinnest. Start the borer bit by pushing and turning the handle straight toward the middle of the tree, with no lean in any direction.
4. Turn the handles of the borer with open palms to prevent bending the bit. If you grasp the handles with closed hands, the bit can bend and possibly break.



Figure 13.2. Parts of an increment borer: the handle, the borer bit, and the extractor.

5. When you think you have reached the desired depth in the tree (usually the tree center), carefully place the extractor with the “U” shape down. Use the heel of your hand to push the extractor in as far as possible. Do not pound in the extractor with your hand or any other instrument.
6. Once the extractor is in place, turn the handle one and a half turns counterclockwise to loosen the end of the core from the tree. The extractor should now have the U facing up pull the extractor from the borer bit.
7. Place the extractor and core in a safe place, such as adjacent to the base of the tree, where you will not step on it. Immediately remove the borer bit from the tree. Some trees, particularly hardwoods but even certain pines, will physically react with the bit, seizing it permanently in the tree, so remove the borer bit from the tree as quickly as possible.



An assembled increment borer ready for use.

## HOW TO READ A TYPICAL PINE INCREMENT CORE

The lighter-colored wood is called *spring* or *juvenile* wood, while the darker-colored wood is referred to as *summer* or *late* wood. Each year the tree adds these two layers, increasing in diameter growth. See figure 13.3.

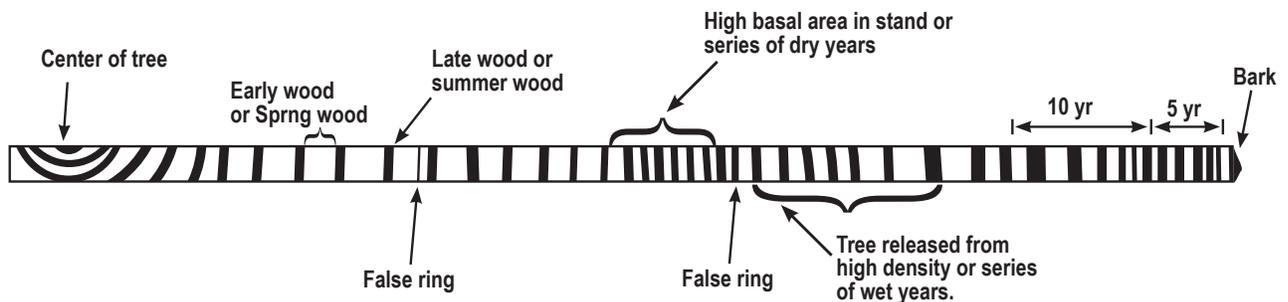


Figure 13.3. Things to look for when examining a pine increment core.

## CARING FOR YOUR INCREMENT BORER

Increment borers are expensive, often costing over \$200 each. Proper care of this forestry tool is important to keep it working for a long time. After each use, the outside and inside of the borer bit should be thoroughly cleaned and coated with bee's wax or lubricant (which often comes with the purchase of an increment borer) to prevent rust and sticking cores.

If a core becomes lodged in the bit, do not attempt to pick out the lodged piece with a knife or other metal tool. You may be able to remove the lodged bit of wood by coring another tree. Another option is to soak the core bit in oil or other lubricant and then try to bore another tree. If that does not work, carefully tap a wooden dowel into the open end using a small hammer.



The small core of wood extracted from a tree can be used to determine tree age and past growth patterns.