Telling a Tree's Age

Tracing a tree back to its roots has never been simpler. With a newly developed aging chart, the life histories of the region's giant old-growth trees are just a measurement away.

This useful tool resulted from a 1996 study of Chicago Wilderness' old-growth forests. Researchers Marlin Bowles of The Morton Arboretum and Michael Jones of Christopher Burke Engineering calculated the age of trees in Chicago region forests by collecting core samples from roughly 600 area specimens. The cores provided rings for the scientists to count without harming the tree (since the extractions were only 3/16" wide, the trees' living tissue was hardly affected).

The researchers say that aging forest trees can help nature enthusiasts learn more about the history of their local environment. "If you can understand how old trees are in a forest or a stand of trees, then you can have a better understanding of the history of the stand," Bowles explains.

Bowles, a plant conservation biologist, explains that an area with mostly young trees must have experienced a major logging or fire event that took out all the older trees. "If you have a stand with very old trees in it," Bowles continues, "you know that you can go back a long time before the stand was disturbed."

The study found that the oldest trees in the area, mostly white oaks, date back to the early- to mid-1800s, when settlers began to thin some of the wooded groves in northern Illinois. The data also confirms the conventional wisdom that human fire suppression has caused the number of sugar maples to increase, while oak and shrub populations decline.

For someone hoping to discover this sort of rich history in a nearby preserve, the process of calculating a tree's age takes a little botany and a little high school math. First, identify the tree species. (For those just starting out, a field guide may be helpful, but a tree ID field trip with a naturalist is probably better for learning). Next, measure the tree's circumference with a tape measure or a length of string and a ruler. The tape should be wrapped around the tree at chest height to produce an accurate measurement. Then, divide the circumference measurement by *pi* (3.1416) to get the tree's diameter. Finally, check the chart to determine the specimen's age. Was the tree starting out in life as Du Sable was building the first cabin in Chicago in 1779? When Illinois was becoming a state in 1818? Or was it sprouting from an acorn when engineers reversed the Chicago River in 1900?

Photo: Patricia K. Armstrong

We always knew our favorite forest giants were old. Now we can know how *old.*

This technique will prove 90 percent accurate for forest-grown trees listed on the chart. Trees that have spent some part of their lives at a small size (perhaps due to poor growing conditions) may be older than size would suggest. Trees grown in the open, like those in a suburban backyard, will be much younger for their size, because the added sunlight speeds their growth. As the chart shows, different species grow at different rates.

To read more about this research on old-growth forests, see page 5 of the July 2005 *CW Journal*: www.chiwild.org/members/cwjournal/docs/CWJournalVol3No2.pdf.

—Tegan Jones with Marlin Bowles and Michael Jones

Tree Species Ages at Different Diameters

Inches	Centimeters	Bass-wood	White Ash	Sugar Maple	Bur/Swamp White Oak	Red Elm	Red Oak	Shagbark Hickory	White Oak
10	25	60	75	75	66	73	76	102	84
12	30	70	87	88	79	86	89	116	100
14	35	79	99	100	91	99	102	129	115
16	40	89	110	112	104	112	115	142	129
18	45	98	121	124	117	124	128	155	144
20	50	107	131	136	129	136	141	167	159
22	55	116	142	147	142	148	154	179	173
24	60	125	152	159	154	160	116	190	187
26	65	133	162	170	167	172	179	202	201
28	70	142	172	181	179	184	191	212	215
30	75	150	182	192	192	196	203	223	229
31	80	159	191	203	204	207	215	234	243
34	86	169	203	216	219	221	230	246	260
35	90	175	210	224	229	230	239	254	271
37	95	184	220	235	242	241	251	264	285
39	100	192	229	245	254	253	263	274	298