UNDERSTANDING PLANT ZONE MAPS

by Connie Cottingham, Athens, GA

Arnold Arboretum in Boston has maintained a collection of woody plants since the late 1800s, originally aiming to create a collection of "as far as practical" all plants hardy to Boston. Over 700 woody plants on their 250 or so acres are more than 100 hundred years old, proving their hardiness to the area.

Arnold Arboretum worked with the United States Department of Agriculture, compiling information gathered from 14,500 weather stations nationwide and creating the USDA Plant Hardiness Zone Map in 1960. This map originally divided the country into zones based solely on the average minimum temperature. Each zone represented a 10-degree range. In 1990, the zone-hardiness map was updated. Zones were further divided into A and B and Zone 11 was added. Zone 11 has a minimum average temperature of 40 degrees and includes Key West and Honolulu.

Athens is in Zone 7B, with a minimum temperature rating of 5 to 10 degrees. What are some of the other places with a Zone 7 rating? It may surprise you to know that only one small spot in Scotland is Zone 7; the rest of the United Kingdom and Ireland is warmer. The southern coast of Norway is mainly a warmer zone 8; you have to move inland or further north along the coast of Norway to find Zone 7. Even Portland, Ore., is Zone 8. These areas are much farther from the equator than we are, but they are affected by warming ocean currents.

This zone map is a useful tool. If you see a plant labeled Zones 4-9, then the plant should do well within those zones and cannot take the cold temperatures of Zone 3 nor the heat above Zone 9.

There are many other factors besides low temperature that can affect a plant's growth or create variations within a planting zone. The USDA zones do not take into account average maximum temperature, moisture, wind, soil types, length of growing season, or altitude. Factors that can affect plants on a smaller scale include frost pockets, sun exposure, population, even an overhanging evergreen tree canopy. Let's look at some of these factors:

• Moisture - Plants definitely have a preference for drier or moister conditions and should be placed accordingly. A 30-year-old sycamore will look dramatically different on a hilltop than alongside the preferred creek.

• Wind - It is easy to assume low winter temperatures do all the damage, but drying winter winds cause great harm. The wind can desiccate, or wipe out all the moisture from, broadleaf evergreens like holly or Southern magnolia.

• Soil types - Clay soil may be the devil to work with, but it retains water better and contains more nutrients than sandy soils.

• Length of growing season - Although part of Norway's coast is Zone 7, at that latitude they also have about six hours of sun in winter and 18 hours of sun in summer each day and a very short, intense growing season.

• Large bodies of water - I already mentioned the effects of ocean currents on climates. Smaller areas of water can also have a modifying effect. There are areas of Zone 6 on the shores of the Great Lakes.

• Altitude - The air at higher elevations has less ability to hold onto heat.

• Sun exposure - North slopes can take much longer for snow to melt than sunnier south slopes.

• Population - Urban areas tend to be warmer and windier than the surrounding rural areas. Clustered buildings can create areas that are completely shaded. Asphalt parking lots can create areas that get unbearably hot in summer.

• Frost pockets - Cold air drops into valleys, which suffer heavier frost than nearby ridges.

• Plant health - A healthy plant is able to handle adverse conditions. Well watered plants can take the cold better than those needing water. (Incidentally, drinking water will keep you warmer than drinking coffee while working outside, for the same reason).

• Tree cover - A tree canopy can hold in warmth at night and shade the ground during the day. It can also protect areas from frost.

Gardeners in the 13 Western states are used to a 24 zone system developed by Sunset magazine, which not only factors in the minimum temperature, but also moisture, summer high temperature, growing season length, rainfall and humidity.

The American Horticulture Society has developed a Heat Zone Map, mapping the average number of days each year that a given region experiences temperatures over 86 degrees. Athens is in Heat Zone 8. Almost every book includes USDA Zone information for plants; more and more books, magazines and catalogs are including the AHS Heat Zone information as well. For more information on heat zones, log onto www.AHS.org.

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