

Wisconsin's Tension Zone Explained



by David Mladenoff

Editor's Note: *The State of Wisconsin has two distinct regions, the Southwest and the Northeast. The boreal forest dominates the northeastern half, while prairie predominates in the southwestern sector. These areas are separated by a transition or tension zone. In addition to being a boundary for plants and animals, Wisconsin's tension zone also separates moisture differences. It is closely aligned with the July 70° F isolines in Wisconsin. This article, which explores some interesting facts about Wisconsin's Tension Zone, originally appeared in the Fall 2012 issue of Grow magazine, a quarterly publication of the University of Wisconsin Madison Department of Agriculture and Life Sciences.*

- 1. You will not suddenly develop migraines upon entry.** Rather, a “tension zone” describes a geographic area that marks a change from one type of vegetation to another, with species from both areas intermingling in that zone.
- 2. There's a pronounced tension zone in Wisconsin.** It stretches in a loose S-shape from Burnett County in the north all across the state, ending in Racine County in the south. Wisconsin's tension zone marks the crossover between the Northern Mixed Forest—closely related to the forests of northeastern Minnesota, northern Michigan, southern Ontario, and New England—and the Southern Broadleaf Forest, which is more like forests you'd see in Ohio and Indiana. In the tension zone you'll find plants and animals representing



both of these forest types. Before the landscape in the south was developed and converted to farms, you would have seen primarily open oak savanna with forest and prairie.

- 3. It's mostly about climate.** The tension zone is marked by a climatic gradient, with cooler, moister conditions to the north and relatively warmer, drier conditions to the south. Up to the 1800s, these southern conditions were more favorable to higher populations of Native Americans—and they were a greater cause of fire, both purposeful and accidental. This maintained more open conditions in the south.
- 4. It's a fruitful area for research.** John Curtis, a famous Wisconsin plant ecologist, and his graduate students in the 1950s identified the tension zone as a place where relatively more plant species had their northern and southern range limits. His book, *The Vegetation of Wisconsin (1959)*, talks about this and includes a map of the number of species reaching their limits in each county. Today, researchers are again very interested in the tension zone because of changes in land use that have

endangered some native plant species. Also, with climate warming, the area is of interest to both climate scientists and plant ecologists, who are looking at how the tension zone is and will be moving north—and its potential effects on ecosystems.

- 5. You'll know you're in the tension zone when you're heading north and ...** oaks that are dominant in southern Wisconsin, such as bur, black and white, meet up abruptly with red and white pine as well as paper birch and tamarack swamps that are more characteristic of the north. Shagbark drops out completely and bitternut hickory becomes much less common. You'll start seeing some birds that are absent or relatively uncommon in the south: common loon, ruffed grouse, osprey, common raven, white-throated sparrow and purple finch. You'll also encounter northern mammals: snowshoe hare, porcupine, red squirrel, black bear and timber wolf.



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