For many of us living in Michigan, winter is not exactly an eagerly awaited season. Those that can flee south to warmer climes often do, those that cannot often wish they could, and in the meantime we wait and plan for spring. But as gardeners and nature lovers alike, we could use this opportunity to slow down and appreciate the silent workings of our environment. In fact, although our native biota has adapted to survive our icy winters, in many cases it has also come to depend upon them.

Winter plays an important role in the life cycle of our temperate plants and it begins with dormancy. Trees, shrubs, and even woody perennials need to go dormant well before the first frosts to resist the damaging effects of freezing temperatures. To do this, some are signaled by the ever shortening autumn day length (we now know that what plants actually sense is the period of darkness — another good reason to switch off outdoor lighting when not in use). Others, such as our deciduous fruit trees, rely on gradually decreasing autumn temperatures. Throughout the autumn season, dormancy strengthens, protecting the plant from bud break if and when milder temperatures flare up during winter. This is in order to ensure a uniform spring bud break that occurs well after the chance of a hard freeze has passed.

Sensibly then, the way out of dormancy is through the accumulation of cold temperatures. The preferred range of temperatures is between about 34 and 45 degrees Fahrenheit, with temperatures in the 50s range actually undoing previous chilling. Horticulturalists and growers often use this information in production by assigning and calculating “chill units” for their crops. This chill requirement explains why many of our
deciduous fruits are better suited to growing in the Midwest than in, say, California or Florida where winter temperatures are just not sufficiently cold. As anyone familiar with propagation will tell you, the seeds of temperate species also require cold winter temperatures to break dormancy. This can be replicated by a process known as cold stratification, in which the seeds are either left outside in a protected place over the winter or placed in the refrigerator for a period of time, usually for a month or more.

While it may seem that this process of dormancy is simply a mechanism to prevent damage and even death to tender growth, it is interesting to note that even when grown in a greenhouse or in the tropics many of our temperate species will still enter dormancy and require chilling to exit out. Indeed those that do not experience the winter weather they have adapted to often experience shorter life spans as a result. As yearly average temperatures continue to increase with global climate change at an unprecedented rate, and both the length of winter and the number of days with sufficiently cold temperatures decreases, this should be particularly concerning as we look at the landscape around us. If temperatures continue to climb as predicted, we should be thinking not only about how this will affect the plants in our so-called natural areas, but also those growing in our orchards and around our homes.

For me personally, spring and autumn have always been my favorite seasons. I enjoy the liminality of it all, the mild temperatures, and being able to observe the various changes and colors that are being expressed in the natural world that surrounds us. This year, after a particularly warm summer and an unseasonably warm autumn, I’m looking forward to winter for a change with a renewed perspective. After all, if it weren’t for winter, we’d be living in a remarkably different world without many of the plants we know and love.