

Volunteerism and the management of abandoned fields and woodlands

Natural environments, far from being self managing, have been increasingly in need of active management in recent decades. Nowhere is this more evident than on the Canonchet Farm property. Just as in the rest of Rhode Island, the farm was largely cleared from the native woodlands by the turn of the 19th century. It was then slowly let go, plot by plot over the intervening decades. The various stages of regrowth, now seen all over the property, reflect different lengths of time since each plot was abandoned. The specific pattern of serial regrowth from field to forest was vastly different after the first plots were abandoned more than a century ago, than it has been with recently abandoned areas.

As the West opened up, the pressure to press every piece of New England land into production was reduced. Native lack of fertility, deteriorating soil structure and drainage, or the wartime lack of available man power lead to these casual acts of abandonment. Stone wall bounded woodland parcels, fields or orchards were left to the forces of a relatively benign but relentless Nature. Unless the farmer quickly retrieved them for cultivation or pasture, they became increasingly difficult and ultimately too costly to restore for agricultural purposes.

In the nineteenth century, as in all previous millennia, cleared New England woods gradually closed in again, to reclaim their own. Initially, the open sky above the abandoned fields reached the ground and encouraged native vegetation and grasses (known by farmers as weeds) to take over. A few years of this and the farmer's livestock couldn't keep up with the growth. Within a decade, shrubs and saplings began to cast a cool shade over the ground. The common field weeds gave way as native vines took over, capable of climbing up the saplings, out of the increasing shade below. Within two decades the saplings had become stands of young trees and only the most shade tolerant shrubs persisted as an understory. Still, the vines persisted. Their abundant berries fed birds and were spread abroad, making it more difficult for the farmer to manage the remaining fields and orchards. As the young woods grew, the vines followed it up, eventually shading and weighing down the spindliest trees and the pioneer species that had spent their years developing outstretched limbs. These pioneer trees waned and fell, leaving only the dominant tree species and specimens to reach the sunlight, and the shade tolerant shrubs to sparsely populate the understory. As the vines fell too, along with their overburdened crutches, the mid story cleared and the maturing forest was once again open and airy, now under a high canopy. The comfort of shade and shelter increasingly fostered a diverse ecosystem of plants and wildlife.

In more recently abandoned plots, the same series of events has taken place. However, the same re-forestation hasn't spontaneously occurred, nor is it likely to. By the turn of the twentieth century, the vast extent of earlier agricultural clearing and more recent

urbanization had made it difficult for some native species to reestablish themselves locally. A number of very significant forest tree species have since been all but extinguished by the havoc of introduced diseases. As the last century has gone by, native plants have been increasingly replaced by non-native species in all stages of the serial regrowth. The species composition in very recently re-cleared and then abandoned areas is dominated by aggressive and invasive non-native perennials, shrubs and vines. Some non-native shade trees are so dense and prolific that they threaten to crowd out all but the most shade tolerant native forest trees and woodland shrubs. Far from following the natural trajectory toward a native woodland, these areas of the property are impenetrable, mosquito filled thickets, destined to stagnate for decades until, eventually, the largest trees escape the clutches of the vines. Only then will their shade act to thin the vegetation below and establish the look and feel of a maturing woods. Even then, the species composition will reflect the scars of invasive plants now populating these plots. Progress toward a healthy, diverse ecosystem will be postponed for decades, and may never be regained, as it has been in the older woods.

At the same time, the overall decline in pastoral agriculture and the spread of urbanization has left few real meadows in any part of southern Rhode Island. Meadows once existed at the margins of arable land, where multi-seasonal wetness prevented tillage and frequent mowing. Livestock grazed and browsed there, kept down shrub and sapling growth and poked deep, damp hoof prints into the soft soil. Plant species, needing constant seedling moisture and tolerant of neither shade nor the drying effect of wind and summer sun thrived there. Animal species, needing to nest or burrow without threat of plow or blade, could thrive. An ecosystem and its species, almost lost in our time and region, thrived where farmland and wetlands overlapped.

In this day and age, with the loss of herds and their browsing pressure, meadows are overtaken by taller growth and eventually revert to damp woodland. Regular mowing, though it keeps back the woods, also compacts the ground, fosters only shallow rooted, drought prone grasses and creeping vines and a soil. The seasonal schedule imposed by mowing is inhospitable to meadow wildlife.

So, what does it mean to manage a piece of land with the goal of fostering a natural environment? It might seem that a management goal would be to hasten the return to a mature native woodland or meadow from whatever stage the land is at. This is only part of the picture. Often, old agricultural land has been stripped of topsoil by tillage or erosion. It has certainly been robbed of species diversity. The wisdom that lies in the long natural procession from field to forest is profound. Grasses build soil like no other plant type. Vines and shrubs encourage bird life, and provide shelter not found in the open, older forest. Pin cherry, an early-succession native species, brings nutrients out of a deeper soil and builds up the organic matter for decades with yearly showers of leaves, twigs and fruit before it succumbs to the weight of vines or the shade for taller trees. Dead trunks and roots of the unsuccessful saplings provide tilth to the soil that allows the climax species to thrive. Dead standing timber provides nesting sites for birds and a host of interrelated insect species. Falling deadwood and toppled saplings flatten the shrubs below and force them to root along their broken and buried branches and

spread more rapidly throughout the woods. Time is on our side when it comes to managing the growing forest. It is best to let it ripen at its own pace.

On the other hand, it is necessary to act when species threaten to sabotage progress at one stage. Invasive plants have their place in deeply disturbed environments. Some can quickly stop erosion that would take years to do by other natural means. But their valuable response to emergencies is soon forgotten when they show their penchant to outstay their welcome. Once established, they displace species more valuable in other ecological respects. Good natural management practices would dictate limiting, at all cost, the presence of the open soil that welcomes them in the first place. Don't dig! Or if you do, replant and restore the original soil-covering materials.

In any given natural environment there is a list of species that don't help you achieve your objectives. In a garden they are called weeds. It is absolutely necessary to know and recognize, first what these objectives are, and secondly what species will run afoul of these objectives. It is good to remember that every species belongs somewhere, just not here, not now. The earlier they can be recognized and dealt with, the less costly their removal will be. When it comes to managing a natural area, vigilance is far more effective and inexpensive in the long run than vigor. An overrun parcel of land, however, is not a natural area in this respect. It requires a strategy to first remove the unwanted species and then replace them with a healthy species complex. The restoration has to be followed up for years with both vigor and vigilance until vigilance gets the upper hand. These days, nature never entirely takes back the reins.

When we go about restoring an ecosystem or just a natural area, we have to educate ourselves about what we are aiming for. Meadows are a matter of pushing the management practices around a bit. But we can't just restore a full fledged woodland where there was originally a pasture or a dune. We have to start at the earlier stages and follow it along like loving parents following the progress of their maturing children. Never too far away to respond to whatever the call may be, but also not so involved that we try to determine the outcome. Every pond, woodland or meadow is unique and many forces beyond our knowledge act to make it that way. Sometimes, most of the ingredients are there. Many times, they are nearby. In the most damaged sites, we may have to give it a jump start by introducing almost all the biological elements, including the soil, and certainly the water. In any case, we need a reference ecology to try to imitate, and yet be delighted if our patient takes a healthy turn in another direction.

All this takes the kind of work and devotion that is rarely found in the commercial or government workplace. The time and money required to manage a natural environment usually cannot be justified economically or politically. It sits squarely in the realm of charity and volunteerism. Dedicated individuals can devote themselves to an environmental cause in the most backbreaking way that you could not pay an uninterested employee to emulate. Sheer numbers of worker/watchers are beyond what any town government or charitable organization could justify financially. Yet, unless natural environments, like Canonchet Farm are managed, they will continue to deteriorate from the fringes in. Enlightened management of this and other natural

environments starts with exposure and the cultivation of devotion, which leads, in turn, to knowledge, training, vigilance and effective volunteerism.