

Appendix D

Uncommon Natural Community Descriptions

Black Ash-Red Maple-Tamarack Calcareous Seepage Swamp—mixed deciduous-coniferous forested swamps occurring in areas where there is calcareous groundwater seepage. The species-rich herbaceous layer is characterized by calcium-loving species. Calcareous seepage swamps can also be called forested fens. They contain a variable mixture of deciduous and coniferous trees that forms the canopy, but black ash, tamarack, and red maple are most common. Other associated tree species at low elevations, less than 1,000 ft., are bur oak, yellow birch, American elm, white pine, and hemlock. At higher elevations, red spruce, balsam fir, and Canada yew can also occur. Ironwood is characteristic of the subcanopy. The shrub layer can be dense, and characteristic species are poison sumac and alder-leaf buckthorn, mixed with speckled alder, gray dogwood, winterberry, spicebush, meadowsweet, and highbush blueberry. Shrubby cinquefoil often occurs in open areas. The herbaceous layer is diverse with many calciphilic (calcium-loving) species mixed in with other common wetland plants. Characteristic calciphiles are delicate sedge, brome-like sedge, long-stalked sedge, rough-leaved goldenrod, and golden ragwort. Other typical species in the herbaceous layer are skunk cabbage, sensitive fern, royal fern, jewelweed, and naked mitrewort. This community type also has a concentration of state-protected rare plant species. The occurrence of calcareous or circumneutral groundwater seepage defines this community. The more calcareous the seepage, the more rare plant species are likely to be found. Soils are mineral but with a thin layer of peat accumulation at the surface. More information is needed on the physical characteristics of this community.

High-Energy Riverbank Communities—are rare in Massachusetts because they can only form in steep-gradient, high-flood areas. They are more common in mountainous states with steep-sided, fast-flowing rivers such as New York, New Hampshire and Vermont. High-Energy Riverbank Communities typically occur on the upstream end of riverine islands or on river bends and within the zone of active erosion and sedimentation. They are characterized by cobble and sand substrates and sparse, open vegetation. They are broadly defined communities with variation in structure and dominant species occurring both among rivers and among sites within rivers. They are home to several rare plant and animal species. This community is part of the habitat of river dragonflies that use these areas to emerge from their larval stages and rest as adults. Turtles sometimes nest in sandier parts of this community. High-energy riverbank environments are created by severe flooding and ice scour, and these natural disturbance regimes are necessary to maintain the community. Because of the community's exposure to flooding, it is susceptible to colonization of exotic plants, such

as purple loosestrife and lady's thumb, which have their seeds washed in from upstream sources. Trampling from campers and boaters creates further disturbance and favors fast-growing exotic plants. NHESP recommends that where possible, highly invasive exotic plants should be mechanically removed. Management to reduce non-native plant species throughout a drainage basin will help preserve the native plant communities of high-energy riverbanks.

Ridgetop Chestnut Oak Forest/Woodland Communities—are somewhat more abundant in the state. They have more species diversity than the Pitch Pine-Scrub Oak communities (described below) and are in somewhat less exposed ridges, with thicker soil. These communities are fairly distinctive because of the open forest positioned on a ridgetop. These are dry upland sites with thin soil over acidic bedrock on ridges and upper south or southwest facing slopes. There tends to be deep oak leaf litter with slow decomposition. The canopy is dominated, often completely, by chestnut oak. Associates include other oaks (black, red, scarlet, and/or white, hickories (shagbark and pignut), red maple, hemlock, and white and pitch pines. Red cedar, scrub oak, dwarf chinquapin oak, blueberries (*Vaccinium angustifolium* and *V. pallidum*), huckleberry, and mountain laurel often form dense thickets. The herbaceous layer is usually sparse, but includes false foxgloves (*Aureolaria flava*, *A. pedicularia*, and *A. virginica*), sedges (particularly *Carex pensylvanica*), bracken fern, and wintergreen.

This community has high habitat values because the Chestnut oak acorns are a particularly important food source for wildlife, including white-tailed deer, grey squirrels, other small rodents, wild turkeys, and other birds. The understory of blueberries and huckleberries is used by many of these same species, and black bear, in areas with sufficiently large forests to provide all the habitat needs. Passerine birds of oak forests include red-eyed vireo, white-breasted nuthatch, ovenbird, black-and-white warbler, scarlet tanager, great crested flycatcher, and downy woodpecker. The black rate snake, a rare animal, is also associated with this community.

Ridgetop Pitch Pine-Scrub Oak Communities—are shrub dominated vegetation with occasional short emergent trees and scattered openings, often of bare rock. The community type occurs on acidic rock outcrops and ridges, and is dependent on occasional fire and other disturbances to persist. Pitch Pine Scrub Oak communities in general support a diverse and uncommon invertebrate fauna. Good examples of the community type are found in small acreages in fewer than 20 locations statewide. Pitch pine trees tend to be scattered and dwarfed in these acidic exposed locations. The communities tend to occur as patches in a mosaic of rocky woodlands and open summits with outcrops of bedrock. As in all Pitch Pine-Scrub Oak communities, an open canopy of pitch pine emerges from a nearly impenetrable understory of scrub oaks with shorter huckleberry. Among dense thickets of scrub oak are openings with huckleberry, lowbush blueberry, bearberry, or lichen, and grassy patches. Below the ridges are forests typical of the region. Ridgetop Pitch Pine-Scrub Oak Communities are threatened by

exclusion of fire. Although many occurrences are on conservation lands, few are managed to maintain the specific natural community type. NHESP recommends that these communities would best be maintained by careful reintroduction of fire through prescribed burning or other fire management plans. Trails tend to run on ridge tops and when the open areas supporting these communities are encountered, they invite human use, which can easily degrade the vegetation, destroy the lichen and moss cover on the rocks, and lead to soil loss. Balancing protection with use is possible with adroit trail placement.

Riverside Rock Outcrop Communities—occur on flood scoured bedrock along rivers and has sparse, mostly herbaceous, vegetation limited to crevices where soil accumulates. There are an estimated 21-100 occurrences of this community in Massachusetts. The outcrops may be low or steep on the river's edge or extending into the river channel with alluvial soil accumulated in crevices in the rocks. Only outcrops influenced by river processes are considered to be riverside outcrops. Although regularly disturbed by almost annual flooding and ice scouring, river spray and proximity to water may alleviate some of the harsh conditions usually encountered on sand in open areas. This community supports vegetation typical of other outcrops, low and scattered herbaceous plants; but also have fewer woody plants due to annual ice scouring. These small, exposed communities have few, if any, animals that are restricted to them, though foragers such as otter, mink, and raccoons use rock outcrops as part of their overall habitat. Turtles are not attracted to rocks, preferring to bask on logs. Occasional bull frogs or northern water snake would be expected. Common species of dragonflies and tiger beetles hunt over the rock areas. NHESP notes that the major threat to this community is trampling by river users and competition from exotic species. They recommend removal of exotics from best sites.

Cobble Bar Forest Communities—a variant of high-energy riverbanks, these communities are limited to cobble substrates that are deposited by high-energy rivers. They are characterized by open canopy forests dominated by stunted sycamores and cottonwoods, with associated silver maple, growing on sandy cobble bars, and are more severely flooded and scoured than floodplain forests. American elm occurs in the subcanopy. Trees are generally younger than in other floodplain forest communities. In known examples on the Westfield River, exotic species are abundant in the understory. Most common are multiflora rose, various exotic shrubby honeysuckles, Oriental bittersweet, and Japanese knotweed. Herbaceous species occur in the interstitial sand/silt between cobbles. Typical species include sensitive fern, false Solomon's seal, and horsetails. Poison ivy and Virginia creeper can be abundant. Associated rare animals include the twelve-spotted tiger beetle, and numerous dragonfly species. NHESP notes that more information is needed on the environmental setting and hydrologic regime of cobble bar forests. They also note that this is a naturally high disturbance habitat and non-native taxa are abundant. Management needs includes normal flooding intensity in order to maintain the community.