

Terrestrial & Palustrine Plant Communities Of Pennsylvania

By Jean Fike

Red-cedar - mixed hardwood rich shale woodland

This is a woodland community type occurring on steep, south-facing slopes of thinly bedded, often calcareous, weathering shales. These sites are actively eroding, and very dry, at least at the surface. Surface temperatures are seasonally extremely high. Although the overall aspect is that of a woodland, there may be herbaceous openings and sparsely vegetated areas within the woodland matrix. Characteristic trees include *Juniperus virginiana* (red-cedar), *Fraxinus americana* (white ash), *Quercus montana* (chestnut oak), *Q. muhlenbergii* (yellow oak), *Q. stellata* (post oak), *Carya ovata* (shagbark hickory), *C. glabra* (pignut hickory), and *C. ovalis* (sweet pignut hickory). Other characteristic woody species include *Rhus aromatics* (fragrant sumac), *Amelanchier arborea* (shadbush), *Celtis tenuifolia* (dwarf hackberry), *Rosa carolina* (pasture rose), *Rhus copallina* (shining sumac), and *Parthenocissus quinquefolia* (Virginia creeper). This community type is characterized by a relatively dense, diverse herbaceous layer. Herbaceous species include *Danthonia spicata* (poverty grass), *Deschampsia flexuosa* (common hairgrass), *Panicum linearifolium* (panic grass), *Andropogon gerardii* (big bluestem), *Schizachyrium scoparium* (little bluestem), *Helianthus divaricatus* (rough sunflower), *Carex pensylvanica* (Pennsylvania sedge), *Phlox subulata* ssp. *subulata* (moss-pink), *Antennaria virginica*^S (shale-barren pussytoes), *Solidago bicolor* (silver-rod), *Hedyotis longifolia* (bluets), *Melica nitens*^S (tall melic grass), *Cunila origanoides* (common dittany), and *Viola pedata* (birdfoot violet). Endemic or near-endemic species include *Oenothera argillicola*^S (shale-barren evening-primrose), *Phacelia dubia* (scorpion-weed), *Calystegia spithamea* spp. *purshiana* (low bindweed), *Senecio antennarifolius*^S (shale-barren ragwort), and *Trifolium virginicum*^S (Kate's-mountain clover). Lichens such as *Cladina* spp. and *Cladonia* spp. (reindeer lichens) may be abundant on more exposed portions of these sites.

Related types: The "Red-cedar - prickly pear shale shrubland" also occurs on shale slopes, but in Pennsylvania is generally restricted to slopes above the Delaware River in the Northeastern part of the state, and lacks the endemic species which characterize this community type. The "Virginia pine - mixed hardwood shale woodland" type also occurs on shales, but is not generally as rich in endemic species as is this type. More research is needed on the relationship between substrate chemistry and vegetation on Pennsylvania shale barrens, but it appears that this type occurs on more base-rich shales than do the other two shale barren community types.

Range: Ridge and Valley.

Selected references: Berdine 1998, Dix 1990, Henry 1954, Platt 1951, Keener 1983, PNDI field surveys.

[Crosswalk: Smith's "Appalachian Shale Barren - Central Appalachian subtype," TNC's *Juniperus virginiana* -(*Fraxinus americana*, *Ostrya virginiana*) Woodland Alliance, *Juniperus virginiana* - *Fraxinus americana* -*Carya glabra* / *Carex pensylvanica* - *Chelianthes lanosa* Woodland, SAF's Eastern red-cedar (46).]