



Yellow Oak Dry Calcareous Forest

Community Code: CT1B2A0000

State Rank: S1



Concept: A dry, often open, oak - sugar maple forest with rich understory on shallow soil, often with areas of exposed marble or limestone bedrock.

Environmental Setting: The Yellow Oak Dry Calcareous Forest occurs on moderate to steep slopes and summits of low knolls or ridges underlain by calcium-rich limestone or dolostone. Exposed bedrock outcrops or boulders are common. The shallow soils tend to be well-drained and nutrient-rich, with a pH >6.5. The forest canopy is often somewhat open (>50% cover) and all layers have a large diversity of species. The community generally occurs as small (a few acres) patches on southwest- to southeast-facing slopes within other forest types.

Vegetation Description: Yellow oak (sometimes called chinquapin oak) (*Quercus muehlenbergii*) is the key characteristic and indicator species of Yellow Oak Dry Calcareous Forests, though rarely dominant in the canopy or subcanopy. The diverse, often somewhat open canopy is usually dominated by sugar maple (*Acer saccharum*), white oak (*Q. alba*), and black oak (*Q. velutina*), associated with red oak (*Q. rubra*), white ash (*Fraxinus americana*), shagbark hickory (*Carya ovata*), pignut hickory (*Carya glabra*), white pine (*Pinus strobus*), and hemlock (*Tsuga canadensis*). Yellow oak is often in the subcanopy, along with one or more of these canopy dominants and hop hornbeam (*Ostrya virginiana*). Tall shrubs include ironwood (*Carpinus caroliniana*), pagoda dogwood (*Swida alternifolia*), and bladdernut (*Staphylea trifolia*) with occasional prickly ash (*Zanthoxylum americanum*). The herbaceous layer tends to be rich in species. Dominant graminoids include Pennsylvania sedge (*Carex pensylvanica*), broadleaf sedge (*C. platyphylla*), thread-leaved sedge (*C. eburnea*), mountain ricegrass (*Piptatherum racemosum*), and bottlebrush-grass (*Elymus hystrix*).



Characteristic broad-leaved species include hog peanut (*Amphicarpaea bracteata*), early meadow-rue (*Thalictrum dioicum*), blunt-lobed hepatica (*Anemone americana*), lance-leaf bedstraw (*Galium lanceolatum*), broad-leaved ragwort (*Packera obovata*), and wild geranium (*Geranium maculatum*). In open, disturbed areas, red cedar (*Juniperus virginiana*) and aspen (*Populus tremuloides*) may be common, often with non-native species such as Norway maple (*Acer platanoides*), autumn olive (*Elaeagnus umbellata*), common buckthorn (*Rhamnus cathartica*), and Japanese barberry (*Berberis thunbergii*).

Differentiating Occurrences: In Massachusetts, Yellow Oak Dry Calcareous Forests occur only in southern Berkshire County on calcium-rich bedrock, usually on upper slopes and ridgetops. Yellow oak is the indicator and characteristic canopy and subcanopy species of Yellow Oak Dry Calcareous Forest and is seldom found growing in other communities. Other oak forests and woodlands are generally less diverse and lack species typical of calcium-rich environments, such as prickly ash, bladdernut, and pagoda dogwood, as well as yellow oak. In appearance, Yellow Oak Dry Calcareous Forest is similar to a Hickory - Hop Hornbeam Forest in having a somewhat open canopy that includes hickories and a subcanopy with hop hornbeam, and an often sedge-dominated herbaceous layer. However, the yellow oak forest has, of course, yellow oak and a richer flora due to its calcareous substrate.

Associated Fauna: Mature upland forest types provide valuable structural attributes such as tree cavity den sites. The fauna tends to be that of generally dry forests, but with no species restricted to the Yellow Oak Dry Calcareous Forest. The patches would be parts of the habitats of wide-ranging animals.

Public Access: Appalachian Trail, Sheffield; Dohoney Property (Sheffield Land Trust), Sheffield.

Threats: High deer densities likely reduce seedling numbers below what will provide for adequate regeneration. Exotic species do well in disturbed forests: Norway maple (*Acer platanoides*), Oriental bittersweet (*Celastrus orbiculatus*), Japanese barberry (*Berberis thunbergii*), glossy buckthorn (*Frangula alnus*), shrub honeysuckles (*Lonicera morrowii*), and other invasive species can displace native species and change the structure of forests. Yellow Oak may be logged for firewood or taken as associated species are logged for timber.

Management Needs: Exotic control on best examples. Since yellow oak forests generally occur in small patches, a surrounding buffer of a larger matrix forest is likely necessary to limit the likelihood of invasive species. Oak forests generally depend on some form of disturbance, with periodic low-intensity, dormant-season fires as the normal maintenance regime. Shallow soils and steep slopes may contribute to periodic loss of canopy species, thereby opening the forest floor to greater light.

USNVC/NatureServe: A2047 *Quercus muehlenbergii* - *Acer saccharum* - *Tilia americana* Forest Alliance -- *Acer saccharum* - *Quercus muehlenbergii*/*Carex platyphylla* Forest [CEGL006162]; very likely, but not mapped to MA: *Tsuga canadensis* - *Acer*



saccharum - *Quercus muehlenbergii* Lower New England/Northern Piedmont Forest [CEGL006924]. N system: Central Appalachian Dry Oak-Pine Forest CES202.591.