

## **RED SPRUCE–FRASER FIR FOREST (LOW RHODODENDRON SUBTYPE)**

**Concept:** The Low Rhododendron Subtype covers the lowest elevation examples of Red Spruce—Fraser Forest Forests, in moist, topographically sheltered sites. This subtype is transitional from spruce-fir forest to Acidic Cove Forest. *Picea rubens* dominates or codominates with other mesophytic trees and there is an evergreen shrub layer.

**Distinguishing Features:** The Low Rhododendron Subtype is distinguished from other lower elevation Red Spruce—Fraser Fir Forests subtypes by the combination of sheltered concave topography with a dense shrub layer of *Rhododendron maximum*. The Birch Transition Shrub Subtype and Rhododendron Subtype may have abundant *Rhododendron maximum* but occur on convex topography such as ridges and have associated species of drier sites. *Tsuga canadensis* may be codominant in the canopy, and is more often present than in any other subtype.

**Synonyms:** *Picea rubens* - (*Tsuga canadensis*) / *Rhododendron maximum* Forest (CEGL006152). Red Spruce Forest (Protected Slope Subtype) (NVC).  
Ecological Systems: Central and Southern Appalachian Spruce-Fir Forest (CES202.028).

**Sites:** Sheltered slopes, valley heads, and ravines, at relatively low elevations. The elevational range is not well known, but examples are known down to near 4000 feet. Some examples occurs as downward extensions of spruce from extensive spruce-fir forests into upper valleys, while a few are anomalous occurrences in high valleys distant from other spruce-fir forests. Cold air drainage may be important for their occurrence at these low elevations.

**Soils:** Soils are not well known for this subtype.

**Hydrology:** Conditions are mesic due to topographic sheltering, but this subtype occurs below the elevation of frequent fog and high rainfall, and its water input may be much lower than higher elevation subtypes. Some occurrences are associated with Swamp Forest—Bog Complex, where wetter conditions may be present.

**Vegetation:** A closed to open tree canopy is dominated by *Picea rubens*, sometimes codominated by *Tsuga canadensis* or *Betula alleghaniensis*. Other trees may include *Acer rubrum*, *Sorbus americana*, and in the understory, *Acer spicatum* or *Amelanchier laevis*. There is a dense shrub layer dominated by *Rhododendron maximum*. *Kalmia latifolia* may be fairly abundant. Other shrubs include those typical of other spruce-fir forests, such as *Viburnum lantanoides*, *Vaccinium erythrocarpum*, and *Vaccinium simulatum*, and sometimes species shared with nearby wetlands, such as *Viburnum cassinoides* and *Sorbus melanocarpa*.

**Range and Abundance:** Ranked G2? This community often is overlooked in past reports, and its abundance is not well known. The corresponding NVC association is broadly defined, and ranges northward to West Virginia, as well as into Tennessee.

**Associations and Patterns:** Most examples of this subtype occur as part of a mosaic of spruce–fir forests in the highest mountain ranges. However, unusual examples of this subtype occur without other spruce-fir forests in lower elevation sites at Alarka Laurel and Long Hope Valley.

The Birch Transition Shrub or Birch Transition Herb Subtype may be present uphill, but this subtype often extends below the range of other spruce-fir forests, so that it is surrounded by Northern Hardwood Forest on adjacent ridges. Downhill may be Acidic Cove Forest. A couple unusual examples are associated with Swamp Forest—Bog Complex (Spruce Subtype).

**Variation:** Variation is not well known, other than that *Tsuga canadensis* may or may not codominates. No formal variants are recognized.

**Dynamics:** The dynamics of this unusual subtype are virtually unknown and may be different from the rest of the Spruce-Fir Forests theme.

**Comments:** The corresponding NVC association may be more broadly defined than this subtype. Its description mentions occurrence on ridges as well as in valleys in parts of the range, and mentions *Rhododendron catawbiense* sometimes mixed in the shrub layer. This would appear to overlap the concept of the Birch Transition Shrub Subtype and its equivalent association, and it is unclear how they would be distinguished in such vegetation. This may represent variation in states farther north.

Early versions of the 4<sup>th</sup> approximation recognized a Hemlock Subtype at lower elevations. This has been lumped into this subtype. The NVC association corresponding to it, *Picea rubens* - *Tsuga canadensis* / *Rhododendron maximum* Forest (CEGL006272), has also been lumped.

**Rare species:**

**References:**