



## *Picea abies* Norway Spruce<sup>1</sup>

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### INTRODUCTION

Norway Spruce can grow 80 to 100 feet tall and spread 25 to 40 feet, though some listed cultivars are shrublike (Fig. 1). Small-diameter branches sweep horizontally from the straight trunk which can grow to four feet thick. Branchlets droop from the branches toward the ground in a graceful, weeping fashion forming a delicate pyramid. On very old specimens the lower branches increase to 12" or more in diameter and the top becomes open. Many small-diameter roots originate from the base of the trunk and they are often found fairly close to the surface of the soil. The root system is shallow and often dense, particularly close to the trunk which makes growing grass difficult.

### GENERAL INFORMATION

**Scientific name:** *Picea abies*

**Pronunciation:** PIE-see-uh AY-beez

**Common name(s):** Norway Spruce

**Family:** *Pinaceae*

**USDA hardiness zones:** 2B through 7A (Fig. 2)

**Origin:** not native to North America

**Uses:** screen; specimen; no proven urban tolerance

**Availability:** generally available in many areas within its hardiness range

### DESCRIPTION

**Height:** 80 to 100 feet

**Spread:** 25 to 40 feet

**Crown uniformity:** symmetrical canopy with a regular (or smooth) outline, and individuals have more or less identical crown forms

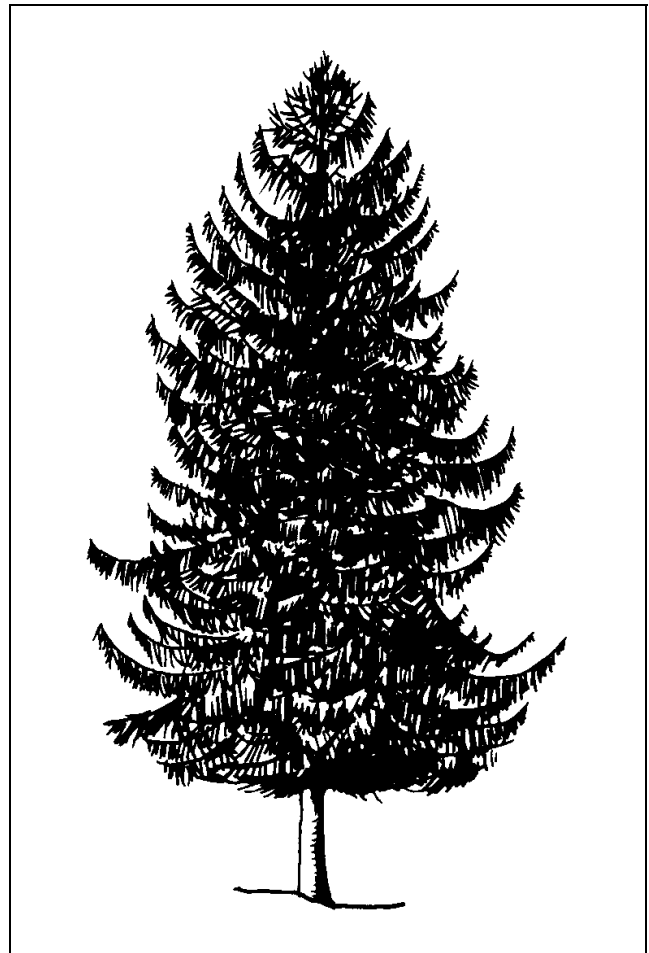


Figure 1. Mature Norway Spruce.

**Crown shape:** pyramidal

**Crown density:** moderate

**Growth rate:** slow

**Texture:** fine

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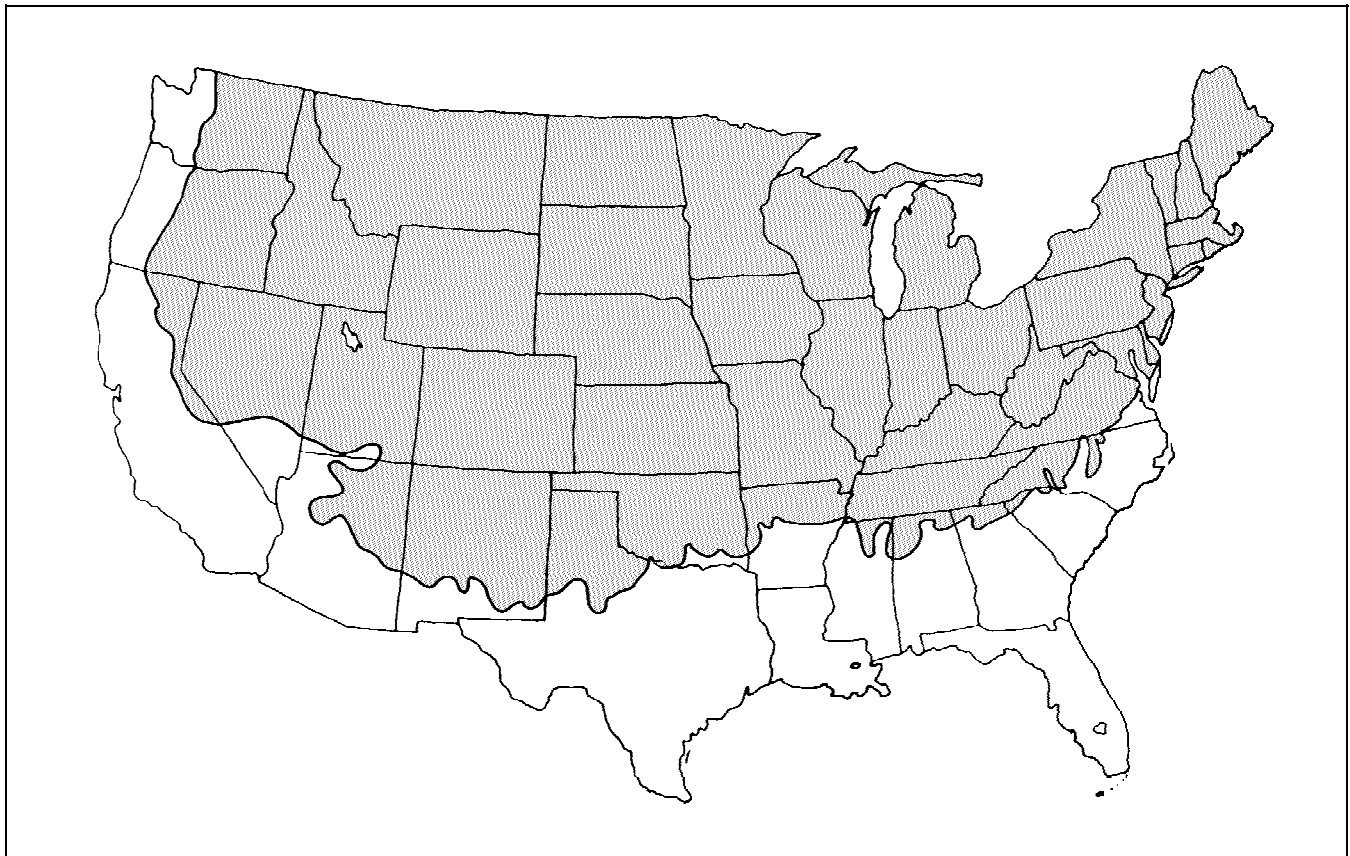


Figure 2. Shaded area represents potential planting range.

### Foliage

**Leaf arrangement:** alternate; spiral (Fig. 3)

**Leaf type:** simple

**Leaf margin:** entire

**Leaf shape:** needle-like (filiform)

**Leaf venation:** parallel

**Leaf type and persistence:** evergreen; needle leaf evergreen

**Leaf blade length:** less than 2 inches

**Leaf color:** green

**Fall color:** no fall color change

**Fall characteristic:** not showy

### Flower

**Flower color:** pink

**Flower characteristics:** inconspicuous and not showy

### Fruit

**Fruit shape:** elongated; oval

**Fruit length:** 3 to 6 inches

**Fruit covering:** dry or hard

**Fruit color:** brown

**Fruit characteristics:** does not attract wildlife; no significant litter problem; persistent on the tree; showy

### Trunk and Branches

**Trunk/bark/branches:** droop as the tree grows, and will require pruning for vehicular or pedestrian clearance beneath the canopy; not particularly showy; should be grown with a single leader; no thorns

**Pruning requirement:** needs little pruning to develop a strong structure

**Breakage:** resistant

**Current year twig color:** brown

**Current year twig thickness:** medium

### Culture

**Light requirement:** tree grows in full sun

**Soil tolerances:** clay; loam; sand; slightly alkaline; acidic; occasionally wet; well-drained

**Drought tolerance:** moderate

**Aerosol salt tolerance:** moderate

**Soil salt tolerance:** poor

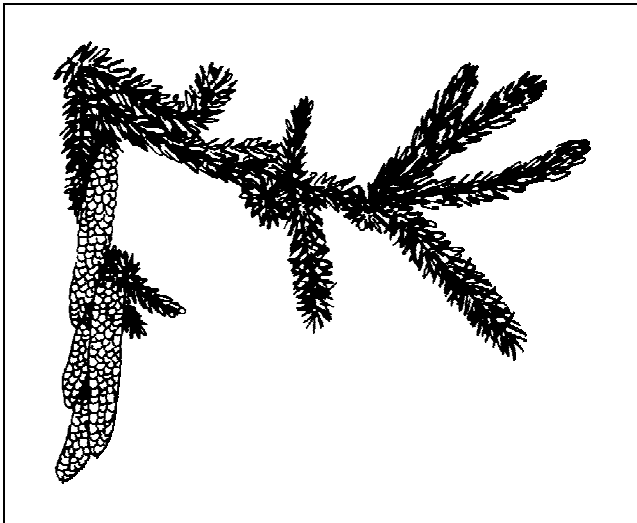


Figure 3. Foliage of Norway Spruce.

### Other

**Roots:** surface roots are usually not a problem

**Winter interest:** no special winter interest

**Outstanding tree:** not particularly outstanding

**Invasive potential:** little, if any, potential at this time

**Ozone sensitivity:** tolerant

**Verticillium wilt susceptibility:** not known to be susceptible

**Pest resistance:** very sensitive to one or more pests or diseases which can affect tree health or aesthetics

## USE AND MANAGEMENT

Norway Spruce is best used as a specimen in a lawn area or as a wind break or screen, planted on 20-foot-centers. Rockefeller Center in New York City erects a Norway Spruce each Christmas next to the skating rink and decorates it for the holiday season.

Norway Spruce tolerates most soils if moist and transplants easily if balled and burlapped or potted. Trees subjected to drought are much happier if they receive periodic irrigation although they tolerate drought well.

There are a number of cultivars of Norway Spruce. Some are dwarf and shrublike, while others are trees. Not all will be available in nurseries. Cultivars include: 'Clanbrasiliana' - dwarf, about four feet tall and twice as wide; 'Columnaris' - narrow, columnar; 'Echiniformis' (Hedgehog Spruce) - a rounded dwarf, broad; 'Gregoryana' - rounded, broad, about three feet tall but much wider, slow-growing; 'Humulis' - about two feet tall; 'Inversa' - 40 to 50 feet tall, drooping habit; 'Maxwelli' - four feet tall and 10 feet wide,

slow-growing, dense; 'Nidiformis' - dwarf, very dense mound; 'Nigra' - densely branched, dark green; 'Pendula' - weeping; 'Procumbens' - flat, dense, can be three feet tall; 'Pumila' - spreading, about four feet tall; 'Pygmea' - conical, slow-growing; 'Pyramidata' - narrow, slender pyramid; 'Reflexa' - branchlets pendulous, one foot high but 10 feet wide; 'Repens' - flat and prostrate, less than three feet tall but quite wide; 'Stricta' - slender, spirelike, 40 to 50 feet tall, eight feet wide.

### Pests

Mites are the worst problem, and in hot weather they can build to populations which require control. They can be a major problem in summer after hot dry weather, especially near concrete, buildings, and other urban surfaces which reflect heat. The small insects can't be readily seen with the naked eye. The first noticeable symptoms are yellowing at the base of the oldest needles on infested branches. Close inspection with a magnifying glass will confirm the presence of the mites.

Two gall-forming insects commonly attack Spruce. Eastern Spruce gall adelgid forms pineapple like galls at the base of twigs. Galls caused by Cooley's Spruce gall adelgid look like miniature cones at the branch tips. The gall adelgids do not kill trees unless the infestation is heavy. A few galls on a large tree are not serious.

Bagworms make a sack by webbing needles and debris together. Small numbers may be picked off by hand or use *Bacillus thuringiensis*.

In northern climates, Spruce budworm larvae feed on developing buds and young needles. The yellowish brown caterpillars are difficult to see.

The Spruce needle miner makes a small hole in the base of a needle then mines out the center. Dead needles are webbed together and can be found on infested twigs. Hand pick these from the tree to reduce future damage.

Pine needle scale is a white, elongated scale found feeding on the needles only. Populations would have to be quite high to cause major damage.

Sawfly larvae may feed on the needles. One infestation will usually not kill the tree, but there may be two or more generations per year.

Borers can infest trees which are weakened by other problems.

### **Diseases**

Cytospora canker infects a branch then eventually kills it. The lower branches are attacked first then progressively higher branches. The needles turn brown to reddish brown and eventually drop off. White resin patches are seen on infected branches. Prune off infected branches. Water Spruces during dry weather.

Spruce may be attacked by needle casts. One causes needles to turn yellow or brown and drop off. Another affects the lowest needles first then moves up the tree. Infected needles are a mottled yellow.

Several rust diseases attack Spruce but these are rarely seen. Infected needles turn yellow and drop off.