

Lycopodium

Careful Harvest Fact Sheet

Introduction

Lycopodium comes from the Greek words "luko" (wolf) and "podos" (foot); thus the common name of "wolf's paw" or "wolf's foot." Despite the common name of clubmoss, *Lycopodium* species are not related to mosses, but rather to ferns. They are evergreen, perennial, clonal, and rhizomatous in nature.



Lycopodium species (primarily the aerial stems) are collected and have various uses including: winter seasonal decorations, floral industry, medicinal and homeopathic remedies, historical aboriginal uses, and whole plant harvest for nat-

uralizing landscapes. The spores, when mature, are highly flammable and can be used for pyro-technics and for special effects. In fact, the first photographers used *Lycopodium* spores for flash powder, and one of the first photocopy machines used *Lycopodium* spores as a carbon source. In addition, due to their very fine texture, spores were used in toilet powders, makeup, and coatings for pills.

A variety of species of *Lycopodium* occur in northern forests. The most common of these are:

Lycopodium dendroideum
(Round-branch ground pine)

Lycopodium obscurum
(Flat-branch ground pine)

They are also known as "Princess pine".

The Biology of Lycopodium

Lycopodium, commonly known as clubmoss, occurs relatively frequently in northern hardwood forests. Each particular *Lycopodium* species has a characteristic modular growth form with either above- or belowground rhizomes, common branching angle, as well as a characteristic method of vegetative reproduction (commonly observed) and of sexual reproduction (rarely observed).

The aerial stems for all *Lycopodium* species have two functions: photosynthesis and spore production. When the aerial stems reach maturity (between 4-6 years), they may produce strobili or cones that, in turn, form spores that are necessary in the sexual reproductive cycle of the plant.

Vegetative reproduction is the primary method of reproduction for *Lycopodium* species, contributing to its spread or increase in cover in a given area. An entire plant may have both above- and/or belowground parts. A single plant may include many aerial stems. Many plants may make up a 'clone.' A clone is a group of plants that are all genetically identical.

Harvesting Considerations

The princess pines are most frequently harvested and are primarily used as decorative 'greens'. They are commonly found in aspen/birch forests, but may also occur in moist rich woods as well as in boggy areas. Their tree-like branching aerial stems resemble small pine trees, hence the common name of Princess pine or ground pine. Ground pine species have lateral branches (rhizomes) that commonly grow or 'run' 4 to 6 inches belowground.



Ground cedar is another frequently harvested species on private lands with landowner permission; it is not typically allowed for harvest on public lands. It also has tree-like branching aerial stems that resemble small cedar trees, but the lateral branching (rhizomes) run along either at the surface of the soil or just below the surface in the litter layer.

- The most efficient way to harvest the ground pines is to pluck or clip the mature aerial stem near the base of the stem at ground level, leaving the belowground portion of the plant undisturbed. Because it has not yet been determined whether it is less stressful to the plant to have the aerial stem plucked, it is recommended that they be clipped scissors or sharp hand-held pruners. Harvesting individual mature aerial stems in such a way as to not disturb the underground rhizome may enhance the survival of the plant and may increase or even stimulate belowground rhizomal branching. There is some concern that plucking may impact or disturb the belowground portion of the plant.

To harvest the ground cedar (*Lycopodium complanatum*), it is easiest to grab hold of a mature stem with strobili, give it a gentle tug, and then gradually loosen the remaining length of rhizome from the litter layer of the forest floor. The rhizome may be clipped near the base of the mature stem in hand, leaving some of the remaining plant parts (rhizomes and aerial stems) to regenerate vegetatively.

- According to the leading buyers in the Lake States area, only the mature aerial *Lycopodium* stems (the 4-6 year old stems that have produced strobili or cones) are considered to be economically valuable.

- Most *Lycopodium* is gathered in the fall of the year, typically beginning around September. Most ground pine and ground cedar is used for holiday decorative purposes, thus the fall is an appropriate time to begin collecting in order to get materials to regional buyers in time for preparation for use. This time frame also coincides with when the *Lycopodium* spores are mature and ready for dispersal. The commotion created while gathering allows spores to be knocked out of the strobili, dispersed

into the air, and fall onto the newly disturbed area of forest floor. This newly disturbed area will quite probably have exposed mineral soil; creating potentially prime conditions for spore germination and genetic recombination (alteration of generations).

- To ensure future *Lycopodium* harvest opportunities, take only the mature aerial stems and leave the immature stems for a future harvest. At least two years should be allotted between harvests in the same area to allow for enough time for an increase in vegetative expansion of cover and will provide good insurance for future harvest operations. Also, by skipping a year or two between harvests in the same area, you will allow time without disturbance for possible spore germination and for the potential for the development of new plants and new genetic material.

Any abrupt and intensive alteration of growing conditions can make it difficult for the survival of any type of existing ground vegetation.

When considering whether to gather any forest products, it is important to consider taking it in moderate quantities. Following the general advice of the First Nation Tribal Elders,

"Take what you need. Pay your respects. Leave the rest."

Applicable Laws/Regulations

Typically a permit is required if you plan to harvest *Lycopodium* species on public lands. The ground pines (*Lycopodium dendroideum* and *Lycopodium obscurum*) are the predominant species allowed for harvest on public lands. Check with the particular public land agency in question to get the specific rules and regulations for the area where you plan to harvest. If you plan to harvest *Lycopodium* on private land, landowner permission is required.

Federal National Forest Lands in the Lake States area: Ground pine species are allowed for harvest through a minimal fee permitting process.

State Forest Lands: In Minnesota and Michigan, a minimal fee permitting process allows ground pine species harvest. Harvest by permit is not allowed on Wisconsin state forest land.

