



Native *Gymnosperm* Trees of Georgia

Dr. Kim D. Coder, Professor of Tree Biology & Health Care / University Hill Fellow
University of Georgia Warnell School of Forestry & Natural Resources

Georgia is blessed with a diversity of gymnosperm trees. Gymnosperms generate seeds open to the environment – not within fruit or an enclosed container. The name gymnosperm is from Greek meaning “naked seed.” The gymnosperm group includes conifers, cycads, ginkgo, and gnetophytes with 12 major families, 84 genera, and more than 1,075 species scattered around the globe. Figure 1.

Gymnosperms represent the second wave of tree evolution on Earth, moving from primitive spore trees, to gymnosperm open seed trees, and then onto angiosperm enclosed seed / fruit trees. The primitive spore trees which lead to gymnosperms, developed about 400 mya (millions of years ago). Gymnosperms seed trees developed about 320 mya, with a gymnosperm sub-group called conifers developing by 300 mya. Gymnosperms are an ancient lineage of trees.

Sometimes the word gymnosperm and conifer are used interchangeably – this is incorrect. There are many gymnosperms which are not conifers, even though some non-conifer gymnosperms generate cones. Conifers (cone-bearing trees) include araucaria, cedar, cypress, fir, juniper, larch, pine, podocarp, redwood, spruce, and yew. Conifers (a sub-division of gymnosperms) contains eight families, 70 genera, and ~635 species. Non-conifer gymnosperms include cycads, ginkgo, and gnetophytes with six families, 15 genera, and ~440 species. Fortunately for descriptive accuracy, all native gymnosperms trees of Georgia are also conifer trees.

The largest gymnosperm / conifer family in Georgia is the pine family with 14 species. Across North America, the pine family includes cedar, fir, hemlock, larch, pine, and spruce. The yew family has a total of six genera and 30 species, but is represented in Georgia by only one endangered species. The cypress family has a total of 30 genera, of which 17 have only one species as a member, and about 140 total species. The cypress family in Georgia is represented by four tree species. The redwood family, which can be included within the cypress family by some plant taxonomists, has two species in Georgia.

Georgia has 21 native gymnosperm trees. Figure 2 lists Georgia’s native gymnosperm / conifer trees. Note one tree species (*Pinus clausa*) is naturalized, which means it has escaped cultivation and has been growing and reproducing in the wild for multiple generations. Pine (*Pinus* spp.) is by far the genus with the largest number of native species with 11, comprising more than half of Georgia’s native gymnosperms.

GYMNOSPERMS

12 primary families / 84 genera / >1,075 species

group

taxonomic components

cycads	= 2 families / 11 genera 340 species
ginkgo	= 1 family / 1 genus 1 species
gnetids	= 3 families / 3 genera 3 species
pinos	= 1 family / 11 genera 250 species
araucarias	= 2 families / 22 genera 200 species
cypress	= 3 families / 30 genera 140 species

Figure 1: Key groups of important gymnosperms worldwide with approximate number of families, genera, and species.

scientific name	common name	family
<u>Abies fraseri</u>	Fraser fir	<i>Pinaceae</i> (Pine Family)
<u>Chamaecyparis thyoides</u>	Atlantic white-cedar	<i>Cupressaceae</i> (Cypress Family)
<u>Juniperus communis</u>	common juniper	<i>Cupressaceae</i> (Cypress Family)
<u>Juniperus virginiana</u>	eastern redcedar	<i>Cupressaceae</i> (Cypress Family)
<u>Juniperus silicicola</u>	southern redcedar	<i>Cupressaceae</i> (Cypress Family)
<u>Pinus clausa</u>	sand pine **	<i>Pinaceae</i> (Pine Family)
<u>Pinus echinata</u>	shortleaf pine	<i>Pinaceae</i> (Pine Family)
<u>Pinus elliottii</u>	slash pine	<i>Pinaceae</i> (Pine Family)
<u>Pinus glabra</u>	spruce pine	<i>Pinaceae</i> (Pine Family)
<u>Pinus palustris</u>	longleaf pine	<i>Pinaceae</i> (Pine Family)
<u>Pinus pungens</u>	table mountain pine	<i>Pinaceae</i> (Pine Family)
<u>Pinus rigida</u>	pitch pine	<i>Pinaceae</i> (Pine Family)
<u>Pinus serotina</u>	pond pine	<i>Pinaceae</i> (Pine Family)
<u>Pinus strobus</u>	eastern white pine	<i>Pinaceae</i> (Pine Family)
<u>Pinus taeda</u>	loblolly pine	<i>Pinaceae</i> (Pine Family)
<u>Pinus virginiana</u>	Virginia pine	<i>Pinaceae</i> (Pine Family)
<u>Taxodium ascendens</u>	pond-cypress	<i>Taxodiaceae</i> (Redwood Family)
<u>Taxodium distichum</u>	bald-cypress	<i>Taxodiaceae</i> (Redwood Family)
<u>Torreya taxifolia</u>	Florida nutmeg	<i>Taxaceae</i> (Yew Family)
<u>Tsuga canadensis</u>	eastern hemlock	<i>Pinaceae</i> (Pine Family)
<u>Tsuga caroliniana</u>	Carolina hemlock	<i>Pinaceae</i> (Pine Family)

** = naturalized species

Figure 2: Native gymnosperms of Georgia with scientific name, common name, and family name.

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