EXPLANATION OF STATUS AND RANK CODES

North Carolina Natural Heritage Program List of Rare Plant Species of North Carolina

STATUS

The N.C. Natural Heritage Program (NCNHP) works cooperatively with the U.S. Fish and Wildlife Service (USFWS) and the N.C. Plant Conservation Program (NCPCP) to ensure the continued survival of all of North Carolina's rich flora. The advice of these agencies' scientific councils and committees as well as legal protection designations have been considered in the creation of **North Carolina Natural Heritage Program List of Rare Plant Species of North Carolina**. This list incorporates the most recent federal status designations for all plants native to North Carolina and the current state status designation for plants on the state Protected Plant Species List.

Many species that lack formal state or federal legal protection are nonetheless rare in North Carolina. To convey information about the rarity of these plants within the state, the N.C. Natural Heritage Program provides status designations that fall into two categories: Significantly Rare (SR) or Watch List (W). The Program collects data on these species in addition to those with a legal protection status.

Federal Legal Status

Definitions are derived from U.S. Endangered Species Act of 1973, Sec. 3 (USESA). For the purposes of the USESA, Congress defined species to include subspecies and varieties. For official definitions and lists of protected species, consult the U.S. Fish and Wildlife Service (USFWS).

E = Endangered: any species in danger of extinction throughout all or a significant portion of its range.

T = Threatened: any species likely to become Endangered within the foreseeable future throughout all or a significant portion of its range.

State Legal Status

Legal definitions are derived from N.C. Plant Protection and Conservation Act (NC General Statutes Chapter 106 Article 19B 106-202.12). For official definitions and lists of protected species, please consult the North Carolina Plant Conservation Program.

E = Endangered: any species or higher taxon of plant whose continued existence as a viable component of the State's flora is determined to be in jeopardy by the NC Plant Conservation Program Board; also, any species of plant determined to be an "endangered species" pursuant to the Federal Endangered Species Act.

T = Threatened: any resident species of plant which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range, or one that is designated as threatened by the Federal Fish and Wildlife Service.

SC-V = Special Concern-Vulnerable: any species or higher taxon of plant in North Carolina which requires monitoring, but which may be collected and sold under the provisions of the NC Plant Protection and Conservation Act and is likely to become a threatened species within the foreseeable future (02 NCAC 48F .0401).

SC-H = Special Concern – Historical: any species or higher taxon of plant in North Carolina which requires monitoring, but which may be collected and sold under the provisions of the NC Plant Protection and Conservation Act and occurred in North Carolina at one time, but for which all known populations are currently considered to be either historical or extirpated (02 NCAC 48F .0401).

State Natural Heritage Status – Significantly Rare

Significantly Rare is a NCNHP designation. Any plant species which has not been listed by the U.S. Fish and Wildlife Service as Endangered, Threatened, or Candidate or by the N.C. Plant Conservation Program as an Endangered, Threatened, or Special Concern species, but which exists in the state (or once occurred in the state) in small numbers (generally fewer than 100 populations) and has been determined by the NCNHP to need **monitoring and tracking**. Significantly Rare species include species of historical occurrence with some likelihood of rediscovery in the state and species substantially reduced in numbers by habitat destruction, direct exploitation, or disease. Species considered extirpated in the state, with little likelihood of rediscovery, are given no N.C. status (unless already listed by the NC Plant Conservation Program as E, T, or SC).

SR-L = Significantly Rare–Limited: the range of the species is **limited** to North Carolina and adjacent states (endemic or near endemic). These species may have relatively few populations in North Carolina and range wide. The preponderance of their distribution is in North Carolina and their fate depends largely on conservation here.

SR-T = **Significantly Rare–Throughout:** the species is rare **throughout** its range with relatively few populations range wide.

SR-D = SR-Disjunct: the species is disjunct to North Carolina from a main range in a different part of the country or world.

SR-P = SR-Peripheral: the species is at the **periphery** of its range in North Carolina. These species are generally more common elsewhere, occurring in North Carolina at the edge of their main ranges, often in habitats that are unusual in North Carolina.

SR-O = Significantly Rare-Other: the range of the species is sporadic or cannot be described by the other Significantly Rare categories.

State Natural Heritage Status – Watchlist

Watchlist is a NCNHP designation. The watchlist includes taxa of potential conservation concern that are rare or uncommon, are not well studied, or are otherwise threatened with serious decline but are not currently legally protected or designated as Significantly Rare.

W-RS (formerly W1) = Rare but Relatively Secure: Species whose status in N.C. is relatively well known and appear to be relatively secure at this time. While still notably rare, these species do not currently require site-specific monitoring and so are not on the Rare List. Many of these species were formerly on the Rare List; they are retained in this category because they require a lower level of monitoring to ensure their long-term security.

W-QT (formerly W2) = Rare but Questionable Taxonomy: Species that include taxa of dubious validity and taxa under study. If further study reveals that these are valid taxa, they would warrant addition to the Rare List. This category has been used for named and unnamed taxa that currently appear likely to achieve recognition by accepted taxonomic authorities.

W-QD (formerly W3) = Rare but Questionable Documentation: Species that have been reported from N.C. without adequate documentation. These species should be listed at a higher level when their reported occurrence in N.C. is verified. This category includes sight records, old and vague reports for which no documentation has appeared, and, in a few cases, more recent literature reports for which we have not yet received documentation.

W-NN (formerly W4) = Rare but Believed Not Native: Species known to occur in N.C. that current data suggest are not native to N.C. but whose native occurrence is plausible. Some of these species were previously listed at a higher level, but field investigations suggest that all known N.C. occurrences are introductions.

W-PD (formerly W5) = Population Decline in NC: Species that are known to be declining in North Carolina for reasons beyond habitat loss. The distribution or population sizes of such species in the state are relatively well-known. Reasons for decline include exotic pests or pathogens, overcollection, poaching, and failure of reproduction. Because many of these taxa were once abundant or even dominant in parts of N.C., they may still be fairly common or frequently encountered, despite the strong decline. If current trends continue, however, many of these species will be threatened with extirpation in all or a major part of their ranges in N.C.

W-PK (formerly W7) = Poorly Known in NC: Species with inadequate information about their distribution and rarity in N.C. These are generally species which appear to be rare based on museum records and field experience of NCNHP staff, consultants, and cooperating scientists. Further information is needed to determine the true status of these species in N.C.

NUMBER OF PLANT TAXA IN NORTH CAROLINA BY STATUS

The table below indicates the number of taxa tracked in each taxonomic group and status category. Because some taxa have both a North Carolina (NC) and a United States (US) status, totals cannot be added across complete rows. The total number of taxa in North Carolina is an estimate of the taxa that currently or historically occurred in the state.

Group	Approximate number in NC	NC-E	NC-T	NC-SC	NC-SR	NC-W	US-E	US-T
Vascular Plants	4306	180	172	121	273	467	16	10
Mosses	265	1	0	1	118	73	0	0
Liverworts	113	0	0	2	57	26	0	0
Hornworts	5	0	0	0	1	3	0	0
Lichens	256	2	8	3	23	28	1	0
Total	**4945**	**183**	**180**	**127**	**472**	**597**	**17**	**10**

RANK

Using a ranking system developed by NatureServe and the Natural Heritage Program Network, the North Carolina Natural Heritage Program (NCNHP) provides two ranks for each element. The global rank is based on an element's worldwide imperilment and is designated by state Natural Heritage Programs working in coordination with NatureServe; the state rank is based on the imperilment of the element in North Carolina and is designated by the NCNHP. Element ranks are based on many factors, the most important ones being estimated number of Element Occurrences (EOs), estimated abundance (number of individuals), geographic range, relative threat of destruction, and ecological fragility.

State Rank

State ranks are designated by the North Carolina Natural Heritage Program (NCNHP), following methodology and guidance from NatureServe. This approach allows for consistency among many programs and across state lines. The definitions provided below follow the NatureServe Subnational Conservation Status Definitions published by NatureServe.

S1 = Critically Imperiled —At very high risk of extirpation in North Carolina due to very restricted range, very few populations or occurrences, very steep declines, severe threats, or other factors.

S2 = Imperiled —At high risk of extirpation in North Carolina due to restricted range, few populations or occurrences, steep declines, severe threats, or other factors.

S3 = Vulnerable — At moderate risk of extirpation in North Carolina due to a fairly restricted range, relatively few populations or occurrences, recent and widespread declines, threats, or other factors.

S4 = Apparently Secure — At a fairly low risk of extirpation in North Carolina due to an extensive range and/or many populations or occurrences, but with possible cause for some concern as a result of local recent declines, threats, or other factors.

S5 = Secure — At very low or no risk of extirpation in North Carolina due to a very extensive range, abundant populations or occurrences, with little to no concern from declines or threats.

SH = Possibly Extirpated – Known from only historical records but still some hope of rediscovery. There is evidence that the species may no longer be present in North Carolina, but not enough to state this with certainty. Examples of such evidence include (1) that a species has not been documented in approximately 20-40 years despite some searching and/or some evidence of significant habitat loss or degradation; (2) that a species or ecosystem has been searched for unsuccessfully, but not thoroughly enough to presume that it is no longer present in the jurisdiction.

SX = Presumed Extirpated—Species or ecosystem is believed to be extirpated from North Carolina. Not located despite intensive searches of historical sites and other appropriate habitat, and virtually no likelihood that it will be rediscovered.

SU = Unrankable — Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.

SNA = Not Applicable — A conservation status rank is not applicable because the species or ecosystem is not a suitable target for conservation activities (e.g., long distance aerial and aquatic migrants, hybrids without conservation value, and non-native species or ecosystems.

S#S# = Range Rank —A numeric range rank (e.g., S2S3 or S1S3) is used to indicate any range of uncertainty about the status of the species or ecosystem.

S#? = Inexact Numeric Rank —Denotes inexact numeric rank.

Global Rank

Global ranks are designated by NatureServe and are provided by the North Carolina Natural Heritage Program (NCNHP) for information only. For the most current global ranks, please consult the NatureServe Explorer. The definitions provided below follow the Definitions of NatureServe Global Conservation Status Definitions.

G1 = **Critically Imperiled** — At very high risk of extinction or elimination due to very restricted range, very few populations or occurrences, very steep declines, very severe threats, or other factors.

G2 = **Imperiled** — At high risk of extinction or elimination due to restricted range, few populations or occurrences, steep declines, severe threats, or other factors.

G3 = **Vulnerable** — At moderate risk of extinction or elimination due to a fairly restricted range, relatively few populations or occurrences, recent and widespread declines, threats, or other factors.

G4 = **Apparently Secure** — At fairly low risk of extinction or elimination due to an extensive range and/or many populations or occurrences, but with possible cause for some concern as a result of local recent declines, threats, or other factors.

G5 = **Secure** — At very low risk of extinction or elimination due to a very extensive range, abundant populations or occurrences, and little to no concern from declines or threats.

GH = **Possibly Extinct** — Known from only historical occurrences but still some hope of rediscovery. Examples of evidence include (1) that a species has not been documented in approximately 20-40 years despite some searching and/or some evidence of significant habitat loss or degradation; (2) that a species or ecosystem has been searched for unsuccessfully, but not thoroughly enough to presume that it is extinct or eliminated throughout its range.

GX **= Presumed Extinct** — Not located despite intensive searches and virtually no likelihood of rediscovery.

GU = **Unrankable** — Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.

GNA **= Not Applicable** — A conservation status rank is not applicable because the species or ecosystem is not a suitable target for conservation activities. A global conservation status rank may be not applicable for several reasons. Typically, the species is a hybrid without conservation value, or of domestic origin.

G#G# = **Range Rank** — A numeric range rank (e.g., G2G3, G1G3) is used to indicate uncertainty about the exact imperilment of a taxon or ecosystem type.

G#? **= Inexact Numeric Rank** - Denotes inexact numeric rank.

G#T# **= Infraspecific Taxon (trinomial) -** The status of infraspecific taxa (subspecies or varieties) are indicated by a "T-rank" following the species' global rank. T-ranks follow the same principles outlined above. For example, the global rank of a critically imperiled subspecies of an otherwise widespread and common species would be G5T1..

GNR **= Unranked** — Global rank not yet assessed.

G#Q **= Questionable taxonomy that may reduce conservation priority** - Distinctiveness of this entity as a taxon is questionable; resolution of this uncertainty may result in change from a species to a subspecies or hybrid, or inclusion of this taxon or type in another taxon or type, with the resulting taxon having a lower-priority (numerically higher) conservation status rank.

Geographical Distribution and Habitat (information in supplementary spreadsheet)

Habitat Comment – The physiognomic provinces or geographical region in which each taxon is known to occur is indicated using the symbology described below, followed by known habitat. This information should not be regarded as the only province(s) or regions(s) of the state in which the species could occur; our knowledge of the flora of North Carolina is still very imperfect.

M-Mountains: All parts of North Carolina west of the foot of the Blue Ridge Escarpment.

P-Piedmont: All parts of North Carolina east of the foot of the Blue Ridge Escarpment and west of the Fall Line, including outlying "foothill" ranges, such as the Brushy, Uwharrie, Sauratown, and South mountains. This province is shallowly underlain by crystalline metamorphic, igneous, or (rarely) consolidated sedimentary rocks

S-Sandhills: Portions of Cumberland, Harnett, Hoke, Lee, Moore, Richmond, Scotland, and Montgomery counties consisting mostly of deep aeolian sands of the Middendorf and Pinehurst formations (Cretaceous to Tertiary age). The Sandhills are really part of the coastal plain but are here distinguished because of their distinctive geomorphology and vegetation. Areas somewhat resembling the Sandhills region but occurring in other parts of the state (such as Carolina bay rims and aeolian or beach ridge deposits in the outer Coastal Plain) are considered part of the Coastal Plain Province.

C-Coastal Plain: All parts of North Carolina east of the Fall Line but excluding the Sandhills region and Tidewater. Generally consisting of unconsolidated sands, silts, clays, and peats, though rarely shallowly underlain by consolidated coquina limestone ("marl").

T-Tidewater: Areas associated with tidal water, such as the ocean and barrier islands, sounds, estuaries, and mainland brackish or salt marshes.

County – A listing of the known counties of occurrence in the NCNHP inventory is provided for each taxon. County name may be followed by an asterisk (defined below). The counties listed reflect data currently in the NCNHP database. We request information about any new occurrences in the state. If you would like to provide data and information to contribute to our database and broaden our understanding or the rare flora of North Carolina, please complete a NCNHP Plant Survey Form.

* All recorded occurrences in the county are either obscure, of questionable validity, extirpated, have not been found in recent surveys, or have not been surveyed recently enough to be confident they are still present. Occurrences are regarded as historical after they have not been surveyed for 20-40 years (the number of years depending on the species and the amount of habitat alteration in the area). An asterisk should not be regarded as a definitive statement that the species is gone from the county but indicates that its continued existence is uncertain.

The botanical exploration of North Carolina is far from complete, and many additional county records will be found, generally (but not always) in proximity to counties listed. Most species that do not have county of occurrence information are new to the Rare List and county status information had not been compiled at the time of publication. Visit the North Carolina Natural Heritage Program Species/Community Search page for the most up-to- date county occurrence information.